

INCOHERENCES IN NEO-CLASSICAL ECONOMIC THEORY

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Abstract

Neoclassical economic theory is often criticized for neglecting some essential elements in models of economic decision making. These criticisms can be categorized into external and internal ones. This paper summarizes a number of incoherence built into the models of neoclassical economic theory. One of the major weaknesses of standard teachings of economics is that students are often exposed to sanitized and uncritical exposition of economic theory as if its 'imaginary world models' are theoretically coherent and empirically congruent to real world capitalist order. The paper will provide a refreshal of usually neglected part of standard neoclassical economic teaching.

Interestingly, despite all these criticisms, economic theory has not only been able to survive but also dominate the academic intellectual world. The concluding section will argue that the answer to this puzzle lies neither in the fact that there is 'some deeper truth' hidden behind economic theories nor that these theories have been shown to explain the empirical realities of capitalist order, rather major reasons for the sustainability of neoclassical economics rests on the facts that (i) it continues to provide a justification for the agenda of liberal capitalism against religious social order and (ii) there is no grand alternative competing theory to microeconomics.

Key Words: Bounded rationality, monopoly capital, equilibrium, methodological individualism, capital controversy

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1: Introduction

Neoclassical economic theory is often criticized for neglecting some essential elements in models of economic decision making. These criticisms can be categorized into external and internal ones. This paper summarizes a number of incoherence built into the models of neoclassical economic theory. One of the major weaknesses of standard teachings of economics is that students are often exposed to sanitized and uncritical exposition of economic theory as if its 'imaginary world models' are theoretically coherent and empirically congruent to real world capitalist order. The paper will provide a refreshal of usually neglected part of standard neoclassical economic teaching. Interestingly, despite all these criticisms, economic theory has not only been able to survive but also dominate the academic intellectual world. The concluding section of the paper argues that the answer to this puzzle lies neither in the fact that there is 'some deeper truth' hidden behind economic theories nor that these theories have been shown to explain the empirical realities of capitalist order, rather major reasons for the sustainability of neoclassical economics rests on the fact that (i) it continues to provide a justification for the agenda of liberal capitalism against religious social order and (ii) there is no grand alternative competing theory to microeconomics.

However, it is important to have an idea of the kind of criticism that can be leveled against neoclassical economic theory. This will greatly help understand not only the forthcoming criticism of neoclassical economics but also demonstrate how to formulate an effective criticism of *any* economic theory. The first section outlines the nature of criticism as outlined by Boland (1992).

2: Criticism: Its Nature and Types

Criticism of any argument could take two general approaches depending upon whether or not one is ready to accept the aim of the argument for the purpose of discussion. *Instrumental criticism* is targeted at the *methodology* of an argument accepting its general objective. It could be internal and external. Internal criticism can be given if we accept the aim of the

argument. This type of criticism examines the internal logic of the argument without having any external considerations by analyzing either the *truth status* of its *assumptions* or by challenging the *sufficiency* of the argument. If a person is able to refute at least one of the assumptions, he claims to criticize the claim to understand the phenomenon in question with that argument. The assumption (or a behavioral postulate) can be challenged either by arguing against the *possibility* of the hypothesized behavior or by arguing against the *empirical* truth of the premise of the hypothesis. Even when an assumption is not directly refutable, it is possible to criticize the adequacy of the argument by proving that it is possible to have a false conclusion even when all of the assumptions are true, that is the argument is logically *insufficient*.

However, an *external criticism* does not accept the aim of an argument. For example, an external criticism of the universal maximization is extended from some corners, such as Simon (1979) has argued that individuals are not maximizers of anything, rather they are 'satisficers' (we discuss it in detail below). Similarly, Leibenstein (1979) presented a 'micro-micro theory' arguing that profit maximization is not the objective of the firm and a complete explanation of the decision in the firm requires an intra-firm behavior. These critics do not accept the aim of the argument of maximization hypothesis; that is the challenge of showing the explanation of any phenomenon as a logical consequence of maximization behavior.

It is important to note at the outset that it is not of our interest to evaluate the logical validity and the degree of success of the forth-coming internal and external criticisms of neoclassical economics since that falls outside the scope of this work.¹ The point that is of our interest is that all these criticism, either internal or external, are *instrumental* in their nature, that is the critiques accept the commitment to the fundamental beliefs of individual *liberty* and *welfare* maximization by satisfying human desires. Such criticisms are classified as instrumental ones because, given the objective of individual liberty and welfare, they serve to

¹ For an excellent discussion on this issue, see Boland (1992)

provide the best technology of obtaining these objectives. No question of the form “why is it that we should honor individual liberty or why human wants are to be satisfied at all” are ever raised since these questions form the metaphysics of modern economic thoughts and, hence, not open to objection. Some seventy years ago, metaphysics² was considered a meaningless word, but today it has been realized that every explanation has its metaphysics.³

3: External Critiques: Methodological Problems

3.1: Marxists Attack

Karl Marx visualized capitalism in a different frame of mind and proposed a scientific investigation of it. To him, the current economic and social problems have their roots in the fundamental structure of capitalist system and uprooting those problems requires digging up those roots and moving towards a different sort of economic system.

Marx refused the assumption that any aspect of human activity can be treated as given, such as taste and technology, and yet still manage to say something about the nature of valuation as society changed [Cole, Cameron and Edward (1983)]. He starts from the fact that the material environment in every society is shaped by that society’s dominant “mode of production” [the way people get together to produce means of livelihood and control and allocate the resulting surplus product] of commodities that individuals wish to use. This formulates the basis for *historical materialism* or *economic determinism*, the view that the way we think and live is transformed by prevailing material structure of production, distribution and exchange.

² *Metaphysics* is the branch of philosophy that studies the nature and fundamental features of ‘being’ and ‘existence’. It attempts to understand the fundamental nature of all *reality* whether visible or invisible, that is what anything must be like in order to *be* at all.

³ Kuhn (1970) argues why metaphysical foundations are necessary for any scientific explanation.

“The mode of production of material life conditions the social, political and intellectual life process in general. It is not the consciousness of men that determines their being, but, on the contrary, their being that determines their consciousness” [Marx: with reference from Carter (1988)]

A particular type of technology determines not only the *technical division* of labor, but also determines *class relations* of control over the means of production which is the source of power over the use of economic surplus. One form of these relationships is *commodity-exchange* which relates people to each other through markets via money, called capitalism. Such a mode of production necessitates a large majority of people in society to be wage-earner-laborers who are forced to gain subsistence through selling their time and ability to those who control the means of production and surrender all rights of the products of their labor. It is this commodity production as social relationship in the historical context of capitalism that was so strongly emphasized by Marx. To him, the problem with the neoclassical economic theory is that it only takes into account the social relations of exchange and neglects the wider structure of production within which these exchanges take place [Cole, Cameron and Edward (1983)]. Because neoclassical economists take this social structure as given, this allows them to postulate a system in equilibrium. The relations of exchange may be characterized by freedom under capitalism, but the relations of production are determined by coercion that leads to conflict.

For Marx the social structure is never static [Marx and Engels (1967)]. The social life can only be studied in terms of the relationships between the forces and relations of production and the internal conflicting forces within this relationship. Marx outlined a theory of history by which the relations of production correspond to a definite stage of development of the material productive forces. But then, after further development of those forces of production, a conflict arises between them and the existing relations of production. These relations had formerly helped the development of the productive forces, but now they start fettering further progress. Revolution then occurs, but only

after all the productive forces in the old society that can develop, have developed. This conflict in capitalism between private appropriation and social production is revealed in the theory of rate of profit to fall, that gives rise to capital-labor conflict. Marx claimed that labor has the capacity to produce more use value than its exchange value and the difference between the two is called exploitation, but disguised as profit by capitalist [Marx (1898)].⁴ Therefore, the source of profits, according to Marx, under capitalism is value added by workers but not paid out in wages. Once the wage is covered, the capitalist, owners of the means of production, always has an incentive to force workers to work longer and harder than the workers are themselves likely to do. The capitalist is to compete with other businessmen to stay in competition by improving the product and cutting down the cost of production. But this attempt to increase labor productivity and thereby improve profit creates a tendency for the profitability of capital as a whole to fall. This further puts pressure by capitalist on labor force to increase profitability, a move that creates competitive instability and furthers class struggle.⁵ Therefore, class struggle for power, the control over the means of production, is fundamental to capitalism and, therefore, capitalism is always in danger of destroying itself which lays the foundation of a new social order. The conflict is rooted in the essential structure of capitalism as a system: “those who own the means of production and those who perform wage labor are bound together but have significantly different needs about the intensity of production and the distribution of its proceeds” [Gordon (1987)]. In Marx’s own language, the conclusion is:

“The modern laborer...instead of rising with the progress of industry sinks deeper and deeper below the conditions of existence of his own class. He becomes a pauper, and pauperism develops more rapidly than population and wealth. And here it becomes evident, that the bourgeoisie [capitalist class] is unfit any longer to be the ruling class in society....It is unfit to rule

⁴ For an exposition of Marxist’s Theory of Value, see Weeks (1981)

⁵ For a detailed analysis of the *rate of profit to fall* and *abstract labor theory of value*, see Cole, Cameron and Edward (1983)

because it is incompetent to assure an existence to its slave within his slavery, because it cannot help letting him sink into such a state, that it has to feed him, instead of being fed by him. Society can no longer live under this bourgeoisie..." [Marx and Engels (1967): p. 93].

Finally, workers are brought together into revolutionary associations which ultimately overthrow the bourgeoisie.

If it is the dynamics of capitalist system that creates problems, then according to socialists, we need to think of possibilities moving somewhere else than capitalism. Many Marxist have suggested the following charter for moving beyond capitalism.

Fairness: People must be treated fairly, that is they should not be penalized for their families, colors or skin. Capitalism violates social fairness in one fundamental aspect at least, that is a kind of power and control enjoyed by the owners of capital that is denied to the rest. "Nature does not produce on the one side owners of money or commodities, and on the other men possessing nothing but their own labor power...it is clearly the result of a past historical development" [Marx (1970): p. 169]. The top 10 percent richest people in any country are many times wealthy as the bottom 10% percent of its people. Did they work so many times as hard as their income levels suggest? Rather, this huge difference is driven due to the concentration of capital goods ownership in a few hands legitimized by the capitalist system. Much economic fairness can be achieved by moving towards a system in which the ownership of capital goods is common.

Efficiency: People do not want to work harder than what makes their life comfortable. Heavy investment in social structures and economic systems, on the armies of managerial and supervisory personnel, on resolving continuing labor conflicts and on ever-present over production of dangerous and wasteful products necessitated by inter-firm competition make capitalism a remarkably wasteful kind of economic system. A better efficient system can be constructed if we move towards cooperation and control in the organization of production and greater social participation and control in the planning and allocation of economic resources.

Community: According to Marxists, capitalism promotes profits without any concern for developing people. If the capital and infrastructure of a community is aging, capital will decide to move away without any concern for the lives of community workers. People are unessential and communities are ignored. Relations destroy but goods are produced and worshipped. It makes sense, therefore, to develop a system that places higher weight on developing people and promoting strong communities.

However, the serious problem for Marxists lies in maintaining the social planning along with the *individual freedom*, the ultimate end to be achieved by Marx:

“...in communist society, where nobody has exclusive sphere of activity but each can become accomplished in any branch he wishes, society regulates the general production and thus makes it possible for me to do one thing today and another tomorrow, to hunt in the morning, fish in the afternoon, rear cattle in the evening, criticize after dinner, just as I have mind, without ever becoming hunter, fisherman, herdsman or critic” [Marx and Engel (1967), p. 54]

This passage contains two crucial facts [Carter (1988)]: (i) it is the individual who decides his/her own activity as expressed by ‘just as I have mind’, and (ii) ‘society regulates the general production’. The question is to reconcile the antagonism between (i) and (ii).⁶

Capitalist Defense against Marxism

Marx was surely a profound thinker who won legions of supporters around the world. But his predictions have not withstood the test of time. Although capitalist markets have changed over the past 150 years, competition has not devolved into monopoly. Real wages have risen and profit rates have not declined. Nor has a reserve army of the unemployed developed. We do have bouts with the business cycle, but more and more economists believe that significant recessions and depressions may be more the unintended result of state intervention (through

⁶ See Carter (1988) for a discussion on this issue.

monetary policy carried out by central banks and government policies on taxation and spending) and less an inherent feature of markets as such.

Socialist revolutions, to be sure, have occurred throughout the world, but never where Marx's theory predicted—in the most advanced capitalist countries. On the contrary, socialist revolts have occurred in poor, so-called Third World countries. The apparently higher standards of living and technological advancements in capitalist social system are regarded as a *prima facie* evidence of the supremacy of capitalist reality over Marxism by neoclassical economists [See Friedman (1980) and (1982) for ample examples]. But, when the defenders of capitalism frequently compare the Socialist East with the industrialized West, they choose the richest capitalist countries for comparison. This is analogous to defending feudalism by drawing attention to the happy condition of the nobility, while forgetting that their wealth and leisure are the results of the poverty of their serfs. Similarly West, when viewed as far from self-sufficient and a part of an international economic system, includes the exploitation of the Third-World as a basis for the high standards of living experienced in the developed nations, or at the very least is seen to induce underdevelopment in other parts of the world [Carter (1988)]. When this whole international exploitive capitalist system is compared with socialism, capitalism does not sound so well.

Most troubling to present-day Marxism is the ongoing collapse of socialism. Revolutions in socialist countries today are against socialism and for free markets. In practice, socialism has failed to create the non-alienated, self-managed, and fully planned society. Real-world socialism in the twentieth century was unsuccessful in emancipating the masses. In most cases, neoclassical economists believe, it merely led to new forms of statism, domination, and abuse of power. Marx's theory of value, his philosophy of human nature, and his claims to have uncovered the laws of history fit together to offer a complex, yet grand vision of a new world order. If the first three-quarters of the twentieth century provided a testing ground for that vision, the end of the century demonstrated its somewhat utopian nature and apparent

unworkability. Neoclassical economists usually equate the fall of Soviet Russia with the failure of socialism.

It is important to highlight the instrumental nature of Marxist criticism on neoclassical economics. Both Classical Liberalism and Orthodox Marxism are the out products of Enlightenment belief that the natural order produces perfection [Moore and Bruder (2002)]. Both looked forward to a future of ever-increasing human freedom and placed great faith in human happiness. Though, according to Marxists, all economic and social problems have their roots in the fundamental structure of free market economic system and they proposed a different kind of economic system to avoid the reappearance of the same problems, yet they do not see any problem with the *metaphysical objectives* of neoclassical economics. It differs from it not on the basis of its metaphysics, rather on its *approach* to reach those presupposed objectives. Individuals left free to choose their self interest, according to this school of thought, will necessarily lead to clash in self-interests and a class struggle for power and, as a result, will impede the very objective of individual liberty and welfare. They offer an alternative social order which, they think, can best serve to achieve these metaphysical objectives: nothing wrong with those objectives is associated; these are to be attained anyhow. The matter of disagreement is *how* to get to them.

3.2: Origins of Economies: Pitfalls of Methodological Individualism

Neoclassical economics is based on the ideology of methodological individualism—the idea that all social and political institutions can / should be reduced to and understood in terms of autonomous self-interested individual's preferences and choices. Communitarian philosophers [e.g. Sandel (1982), Raz (1986), Taylor (1990)] have argued that the isolated individual cannot be a viable analytical starting point to understand societies. In fact, even if we take the individual as given, the rules of their interaction cannot be explained in terms of the individual's terms. For example, standard economic theory traces back money to market exchange hypothesizing that money originated as individuals' voluntary cost-minimizing innovation to replace

barter, but the orthodox economic theory cannot explain how individual utility maximizers settled on a single numeraire (Gardiner 2004). In fact to present the higgling and haggling of market process as support for evolutionary development of money presupposes a fairly high degree of specialization of labor and resource ownership—but this pre-market specialization is itself hard to explain. The critics of methodological individualism point that in order to explain the origins of social institutions; one always has to presume individuals acting in a specific context. For example, game theory presumes a set of rules and constraints regarding the behavior of individuals at the very outset. The standard economic assertion that economies take the form by virtue of millions of individual human actions is misleading because ‘interaction requires accepted rules, practices, customs and language understanding’ (Mayhen 2005). Institutions are durable systems of established and embedded social rules that structure and constrain social interaction among individuals. The very institutions of private property, exchange and job-markets seem so basic in the modern world that people *assume* them to be ‘natural parts’ of human existence. But in most parts of the world before the sixteenth century, this was not the common way of organizing life and distributing income—e.g. most food was produced not for exchange but for family consumption, production was organized by family unit and wage labor was rare. Neoclassical economic theory does not recognize the need to deal with processes whereby rules and practices are created.

One reason why modern economics dismisses understanding individual behavior in terms of social collectivities is because it calls forth incorporating Classical economists’ (Malthus, Ricardo, Marx) idea of class-conflict as a permanent feature of the capitalist system. These economists maintained that capitalist economies are structured by classes (such as workers, landlords and holders of ‘stocks’) and the share of each group is determined largely by social and political conditions. For example, Malthus and Ricardo conceived that the wage share of workers is determined not in accordance with their contribution to output, but by the principle of ‘*subsistence wages*’—i.e. workers receive out of the total output only what is required to reproduce their labor services and their family. The exact amount of this

‘subsistence wage’ may differ as it is dictated by the level of development that has taken place in any society at any specific time (e.g. subsistence wage in Pakistan will be far lower than that in the US). Marx took this ‘class-based’ analysis to its logical conclusion by showing that capitalism is a system of production where workers are exploited by the capitalist class. Neoclassical economic theory of income distribution was developed to refute the ‘class-based’ theoretical analysis put forward by the Classical economists in the early and middle parts of the 19th century. Neoclassical economics sets itself the task to prove that the fundamental characteristic of the market economy is ‘harmony’ and not ‘class-conflict’; and that the market is not a source of exploitation but of welfare maximization. The response to the Classical heritage came in the form of ‘equilibrium based analysis’ which asserted that competitive markets generate prices which leave all market participants in a state which cannot be improved upon by any other means—no one can be made better off by means other than participating in the market. Hence, to neoclassical economists, ‘market equilibrium’ is not only efficient but also welfare maximizing for all agents.

But as pointed out above, this harmonized projection of capitalist social reality is based upon erroneous conception of asocial and ahistorical individuation—which is itself a specific conception of human self as a natural disposition of human nature. The idea of methodological individualism presumes that men could exist before the establishment of societies—an idea which is quite implausible. Ferguson (1776) attacked such an asocial and ahistorical conception of human being (used, for example, by Rousseau or more recently by Rawls) as:

“if we would know him (man), we must attend to himself, to the course of his life, and to the tenor of his conduct. With him the society appears to be as old as the individual... If there was a time in which he has his acquaintance with his own species to make and his faculties to acquire, it is a time of which we have no record, and in relation to which our opinions serve no purpose and are supported by no evidence” (p. 9)

Methodological individualism takes people to be distinct from their ends and embodies a mistaken view that peoples' ends are formed independent of or prior to society which is seen merely as the outcome of contract between individuals whose ends are already given. This involves a mistaken relation between individual with his society because it is the kind of society that affects peoples' understandings both of themselves and of how they live, argue communitarians.

3.3: Maximization Hypothesis and Bounded Rationality

The assumption of maximization behavior is the corner stone of neoclassical economics, and it has become an open avenue for criticism of this school of thought. The theory of "*rational choice*" has central place in economics. In the mainstream economics, explanations are regarded as "economic" to the extent that they explain the relevant phenomenon in terms of the rational (utility / profit maximizing) choices of the economic agents. Theories which do not have this structure—such as *General Theory* of Keynes with its reference to psychological propensities and animal spirit—are treated as suspect until their micro foundations have been constructed. Rationality means optimization of any objective for the attainment of utility and, therefore, is equivalent to the '*consistency*' for economists: a person is rational to the extent that his choices are consistent with one another; i.e. his choices can be predicted by some theory. However, in recent years a new paradigm within economics has developed which has challenged the rationality hypothesis as assumed by traditional economists.

First, the traditional rationality hypothesis has been criticized on philosophical grounds. Robert Sugden provides a review of current state of rationality hypothesis, as presented in Savage's *The Foundations of Statistics*, and argues that neither of the two axioms of rationality, that are *completeness* and *transitivity* of choices, can be defended from the view point of rationality as presented by economists. Similarly, Fullbrook (2005) provides a number of situations (e.g. social being, reciprocal imitation, self-referential goods, spontaneity, adventure etc.) in which a consumer clearly violates neoclassical axioms of

rationality. He emphasizes that 'rather being obscure or far-fetched exceptions to the general rule, they characterize mainstream economic practice' of modern consumer society (p. 83). His criticism seriously undermines the context-independent axioms of rationality.

Apart from these considerations, it has been argued by psychologists that individuals are not rational as proposed by economists. Rather there are many obstacles to being rational in this sense. Simon (1979) says that human beings have *cognitive limitations* (the limited processing capabilities of human beings, the lack of knowledge of alternatives in the choice) which are a source of bounds in their rational decision-making. He discovered that when we ourselves confront a puzzle, we rarely reach a solution in a neat, linear fashion. Rather, we search in a haphazard way for potentially relevant facts and information, and usually quit once our understanding reaches a certain threshold. In Simon's terms, we are "*satisficers*" not maximizers. Our conclusions are often inconsistent or even incorrect. Kaufman (1999) extends *emotional arousal* (the idea that high emotional intensity prevents optimal human performance) as another source for bounded rationality. These theories borrow a lot from psychological research which asserts that individuals make systematic errors by using decision *heuristics* (biases) or *rules of thumb* which fail to accommodate full logic of a decision, as when a person makes systematic errors by using adaptive rather than rational expectations. Equipped with the above ideas of bounded rationality, there is a fast growing field in economics, called *experimental economics*, designed to do research in the field of economics [Kahneman and Tversky (1979), Looms and Sugden (1982), Tversky and Thaler (1990), Kahneman and Tversky (1991). For the extension of bounded rationality in macro models, see Akerlof (1982), Akerlof and Yellen (1985a) and (1985b)].

Multiple answers are extended to this criticism. Neoclassical economists argue that it is implausible for an agent to forgo opportunities for gain; therefore, unbounded rationality identifies an agent's likely action because it describes the best

opportunity for gain. Further, utility maximization has been a powerful generator of successful hypotheses. Without the discipline of optimizing models, economic theory would degenerate into a hodge podge of ad hoc hypotheses which covers every fact but lacks scientific methodology. Using well-understood mathematical tools, unbounded rationality confers definite outcomes.⁷ It is also important to note that theory consists of three parts: hypothesis, deduction and empirical testing. Maximization hypothesis cannot be ruled out as a logical impossibility because direct testing of this hypothesis is almost impossible. The only way to reject this hypothesis is to apply indirect test by examining the implied patterns of observable choices based on the assumption of maximization hypothesis. But, as Boland (1992) notes it, “the fundamental methodological problem of refuting any behavioral hypothesis indirectly is that of constructing a convincing refutation”. The objection that a number of anomalies can’t be explained from utility maximization hypothesis can be met from the direction that the theorizing process is still not complete. Deductions from assumptions are crude and the project is to refine the argument by the use of more sophisticated mathematics. Lastly, until a strong competing theory is created which is better in test, neoclassical economists are uninterested in *a priori* discussion of the realism of assumptions. Neoclassical economists follow Friedman’s (1953) instrumentalism which presumes that the truth of the assumptions does not matter and the objective of research in economic theory is solutions to practical problems. Thus, neoclassical economics seems to be able to defend itself on methodological grounds.

4: Internal Critiques: Theoretical Problems

4.1: Monopoly Capital

A standard economic declaration in favor of competition is based upon an unsound description of the dynamics of market mechanism. This argument is explicated with most clarity in the microeconomics textbook by Schotter (1997) which tries to provide a reassuring link between perfect competition and the real world: that profit-maximizing behavior converges to the

⁷ For detailed discussion of the arguments on bounded rationality, see Conlisk (1996)

perfectly competitive ideal as the number of firms in the industry increases—i.e. if we begin with monopoly business and leave the world alone to the individual's self-interest, it would automatically converge to the unique solutions of perfectly competitive model. However, this image of market dynamics presents an opposite description of what actually happens in capitalist order—i.e. when we begin with perfect competition, the market mechanism tends towards monopoly (one large firm prevailing) or at best towards oligopoly (few large firms operating in the whole market).

The formal treatment of economic process neglects the implications of technological advancements for the breakdown of competition. In fact, the very nature of competition itself induces changes that undermine competition [Henry (1990)]. Under the given structure of competition, firms are in social pressure to introduce new innovations quite rapidly in production process. Because a single firm has to face market price as a constraint as it cannot affect it in competitive conditions, the only way to increase profit is the reduction in costs. The cost-reducing and output-increasing innovations help make more profit to those firms who introduce them first, but the very act of innovation tends to reduce competition. It is because of two reasons: first, the growth of output due to technological advancement decreases market price as long as market prices are not dictated by any single firm. This reduction in price eliminates those firms from the market who are slow in innovating because prices have fallen lower than their minimum unit cost of production. Secondly, the higher technological invention incorporated in production process also means a higher fixed cost of production which implies higher entry cost. This constraints and limits the potential increase in the number of firms within the market. Moreover, since technology usually translates into higher production, therefore, the introduction of higher technology means that fewer, much larger, producers are needed to satisfy the requirement of any given market. According to Veblen [1904 (1967)] the result of the historical power has been the transformation of industry from a larger number of small producers to that of a few larger producers. Standard economic theory assumes away the potential entrepreneurial threat to

competition by assuming that profits attract entirely new entrant in the market. But in reality, a great deal of the new entry in capitalist markets takes place in the form of *expansion in the scope of existing firms*—i.e. through diversification and integration by already established firms.

The above detrimental tendency for competition is further enhanced by the existence of increasing returns to scale. The standard economic theory usually assumes that monopoly has no scale-advantages over a perfectly competitive firm. But, in general, this assumption of scale-invariant costs is invalid because large firms do benefit from returns to scale. Increasing returns to scale occur when the cost of production rises less rapidly than the output as the scale of production increases. If large firms do have cost advantages over small ones, then given free competition, the large firms will drive the small ones out of the business. In reality, no capitalist market can sustain hundreds or thousands of competitive firms for a long time because economies of scale are always there to be exploited. Hence, increasing returns to scale means that the perfectly competitive market is unsustainable. It will, over time, break down to a situation of either monopoly or oligopoly. The theoretical response of economists to this dilemma has been to presume constant returns to scale. With constant returns to scale, the size of the firm does not matter; a small firm will be as effective as a large one. But the reality is that size does matter because economies of scale are an important part of the reason that most capitalist industries are dominated by a small number of large firms (Tables 1 and 2 in the appendix provide a highlight of concentration in US economy).

Similar to the technical advancements are the problems of indivisibilities in production. Once an entrepreneur controls more and more resources, the size of that firm increases relative to market and one entrepreneur may become powerful enough to affect the price of a good by varying output rather than accepting it as a fact for decision making; the situation called imperfect competition. The argument is further strengthened if the given firm can constraint entry either by manipulating information; say by advertising to influence consumer motivation, by having patents on production technology or by using limit pricing

strategy. The result of this anti-social behavior is the inefficiency and inequity similar to the one discussed in section 4.6 for the social abuses of entrepreneurship.

The neoclassical response to the above criticism holds that sustained imperfect competition is difficult, if not impossible, for many reasons. Firstly, it is argued that even the largest firms have their competitors in producing substitute goods, if not the identical ones. Second, if a firm needs large scale investment projects, it usually needs to raise funds from financial institutions which bring them under a critical and informed eye that judges its performance by its return to savers and not to its owner. This helps spread of rewards over a wider group of consumers and not to the entrepreneur alone. Therefore, “pressure exists even on the largest firm to keep prices down, distribute economic rent widely and maintain productivity in line with smaller, specialist firms” [Cole, Cameron and Edward (1983): p. 77].

4.2: Markets without Stability

One of the important predictions of neoclassical economic theory is the stability of markets; that is markets have an inherent tendency to return to equilibrium. This prediction is vulnerable to changes in the underlying assumptions about the structure of the market. In a number of cases, markets go unstable. First, when *economies of scale* for the expanding firms at the market level are present and no individual firm is able to achieve them the on its own. Since these economies are external to the firm, it appears at the market level as a downward sloping supply curve; i.e. the larger the output, the lower the minimum average cost of production and, hence, the break-even price. However, the instability arises in this case if the supply curve slopes downward faster than the demand curve. Another case when the supply curve can be negatively sloped without internal economies of scale is *decreasing cost industry*. The increase in demand causes industry output to increase but as industry grows larger; it can take advantage of its size to obtain some of its inputs more cheaply. Here also the firm’s average cost curve shifts

downward and the market price of the output falls. Second, instability can arise even in the face of normal demand and supply curves if time lag is assumed in supply responses, say due to the fact that decisions regarding production are to be made at the start of the period as in agricultural goods. This assumption will involve a process of adjustment over a time which turns out to be unstable if the slope of the demand curve is steeper than that of supply curve. The model that studies this process is called *cobweb model*.⁸

However, the observation of these instabilities in terms of large variations in prices is no longer conclusive evidence against economic criterion of falsification. A number of variables are held constant to reach the demand and supply curves. The variations can be explained by extending reasons that shifts either demand or supply or both of them. And, after all, formal empirical testing is not an essential element for the survival of neoclassical economics, as stated by Cole, Cameron and Edward (1983):

“the criterion of success within subjective preference theory (neoclassical economics) is not in statistically valid observations, but is self evident in the relative material well-being of the citizens of those societies where governments have appeared generally to act as if subjective preference theory were true” [p. 81, explanation added in bracket]

This takes us close to what Blaug (1980) has stated as: “economists do not practice what they preach”. The accepted Popperian criterion for knowledge by prominent marginalists that knowledge is scientific only if it is put into falsification in the face of observation is honored in principle, not in practice.⁹

⁸ See any good textbook on mathematical economics for it, such as Chiang (1985).

⁹An all important case of market instability arises by relaxing the assumption of ‘representative agent’. However, this discussion would require a somewhat detailed discussion about economic methodology which is beyond the scope of this paper.

4.3: Capital Controversy

The theory of Investment is central to neoclassical growth theories. These growth theories treat 'capital' as a separate input in the production function to obtain the downward sloping labor demand curve. The assumption of diminishing marginal productivity implies decreasing returns to scale if labor is the only available input. Since decreasing returns to scale is the assumption that is not compatible with the overall plan of neoclassical production theory, the alternative assumption of constant returns to scale is made by introducing another input that is substitutable with labor if wages increase so as to offset the fall in output. The introduction of capital as a separate input plays multiple roles: as a collection of machines it leads towards growth theory, as a source of a form of reward, called interest, leads to aggregate distribution theory and as a result of technical knowledge and natural resources leads towards international trade theory as an expression of unequal endowments [Cole, Cameron and Edward: p. 94]. With downward sloping demand curve for labor, the natural laws for unemployment, economic growth, international trade and income distribution between inputs could be shown to exist at the aggregate level as an extension of the laws of any single market.

But the major problem is the measurement of capital stock of the economy. Adding up machines with warehouses requires a common index and for neoclassical economics that index is the system of relative prices that reflect the value of goods and services. Unfortunately, this index inherits a built-in problem because relative prices include interest paid out as part of the cost of goods included in capital stock. Capital is irretrievably a value quantity. In that case, if the price of capital rises, then demand for it will decrease, however, the value of capital stock might rise or fall depending upon the demanders' intensity for capital. It is the treatment of capital being put on one axis in text books without even suggesting its problem that allows neoclassical economists to reach rigorous logical conclusions. But the Cambridge Capital Controversy that became known in the 1960s did have significant effects in the theoretical defeat of neoclassical economics. Cambridge Capital

Controversy was a major theoretical controversy arising out of the work of Sraffa (1960). This controversy concludes that it is impossible to deduce unambiguous predictions of any crucial variables from aggregate capital models if capital is measured by using prices to add up all types of manufactured inputs and raw material. Even more counterintuitive conclusions can arise in much more complicated models with many techniques, many more commodities, land-like natural resources, and fixed capital. In fact, these complications create surprising difficulties for traditional neoclassical theory. An important negative implication of this analysis concerns the marginal productivity theory of distribution—that is, there is no such thing. At least one of the two special assumptions is necessary to obtain any meaningful proposition: either the rate of interest should be zero which implies labor only economy or the relative price between a unit of capital input good and a unit of final output good should remain rigidly fixed which leaves no economic difference between the two goods and we effectively live in a world where single good is consumed and stored to be used with labor to produce more of itself. Marginal productivity theory based on aggregate production functions relies on too restrictive assumptions to have any hope of being descriptive of capitalist reality. The Cambridge Capital Controversy showed that an abundance of traditional models implicitly relied on special and unstated assumptions.

Neoclassical economists had no way out of this defeat and came out with the preservation that such cases either don't exist or are rare in practice and can be neglected so as to treat the whole economy as if the price of an input was inversely related to its demand. Solow (1983) realized the negative consequences of the Cambridge criticism for his growth model; he proposed an alternative basis for capital theory. He argued that the central concept of capital theory should not be capital, but the rate of interest as expressing a rate of return. Interest reflects a payment for deferring present consumption. By deferring present consumption, one can redirect the resources set free to produce tools that will result in a greater stream of consumption in the future. Interest rates measure this supposed return on investment. He claims that the market rate will converge to this value in long-term equilibrium. However, no aggregate measure of capital seems

to appear in this formulation of interest rate theory. The interest rate appears to be purely a technocratic notion independent of all considerations of pricing. It is still open to debate whether neoclassical long-run equilibrium theories can survive without a centralized capital market equating investment and savings or the demand and supply of capital. It is also a subject of discussion what, if anything, has been abandoned in such models. Capital controversy apparently ended as a theoretical defeat of neoclassical economics, at least to its critics.

Underneath the apparently technical debate of the Capital Controversy lies the clash of ideological and political views of the two combating groups regarding the functioning of market capitalist system. The Cambridge-England critics of neoclassical economics regard market capitalism as an inherently antagonistic social order where different classes (such as workers and managers of capital) are trying to dominate each other. They argue that the distribution of surplus value cannot be understood independent of the political institutional structures of the market capitalist system. These critics, having rejected the marginal productivity theory of income distribution, argue 'for a return to the Classical method of analysis in which pricing is an aspect of distribution' instead of 'distribution being but an aspect of pricing' (Harcourt: 1972). The Cambridge critics, following Mill, distinguished between the analysis of production and that of distribution. They reinforced Mill's view that: 'the laws and conditions of the *production* of wealth partake of the character of physical truths. There is nothing optional or arbitrary in them', whereas, 'It is not so with the *Distribution* of wealth. That is a matter of human institution(s) solely'.

Neoclassical economists, on the other hand, have some other beliefs. They struggle to show that capitalism is fundamentally characterized by harmony where each individual makes voluntary choices as a market participant—this is the reason they employ the 'equilibrium methodology' to analyze the market system. To them, the basic unit of a market capitalist system is 'a self-interested individual' and not 'social classes'. Hence, in the neoclassical theory of income distribution there is no room for the analysis of 'class-struggle'. Their theory pretends

to show that the supply of inputs is determined by a great mass of self-interested individuals and both production as well as distribution is dictated by the 'laws of nature' (such as the laws of demand and supply). The symmetric incorporation of 'capital' as a factor of production alongside 'labor' in the neoclassical production function is actually intended to incorporate the idea of 'social and political equality' of labor and capital in market capitalism.

4.4: The Social Choice Dilemma

All societies do make social choices, the National Assembly passes the budget, university faculties establish curricula, etc. A normative question that has taken much attention is how to make such choices in a socially optimal way. In the standard literature of welfare economics, social choice theory deals with the problem of aggregating individual preferences over different alternatives to construct a social welfare function so that the alternatives could be evaluated in terms of their welfare for the society.¹⁰ In principle, the same structure that is used to analyze individual choices [i.e., maximization] should also be applied for making social choices since society is merely a sum total of individuals. Further, since the social outcomes [i.e. the value of each activity] are the function of sum total of individual preferences; the social choices should also be representative of those individual preferences [i.e. they should be *democratic*].

Keeping these reservations in view, the standard treatment of social choice theory regards society's welfare as no more than the aggregate of individual utilities *as perceived by the individuals themselves*. This aggregation takes the form of a majority voting mechanism whereby the weights of each alternative project are obtained on the basis of the number of votes in favor of that project. The social choice theory has the characteristic that the social planner, usually an institution, must construct its objective function from the information gathered. The decision context in the social choice theory is the set of possible individuals' cardinal utility functions. If these utility

¹⁰ See Sen (1986), Jhele & Reny (1998) and Gravelle & Rees R. (1994) for details.

functions are interpersonally comparable, we should be able to choose the exact social ordering without any ambiguity. This relationship between decision context and preference ordering is called *performance correspondence*. For any decision context, the performance correspondence tells which ordering will satisfy the performance criterion. However, the planner cannot use this knowledge to construct an ordering over the social states because there are certain non-comparability restrictions imposed on his frame; that is utility levels are non-comparable across individuals. Therefore, he must take an indirect route and specify a voting institution for the people in a society to use. He can only work with a set of individual ordering over states revealed by that voting mechanism to form the social ordering. Thus, the social choice theory is concerned with the existence of a function transforming or aggregating individual orderings into social ordering under these non-comparability assumptions.

Arrow (1963) demonstrated that under certain restrictions on knowledge received by the social planner, an overall ordering possessing some reasonable properties cannot exist [those properties are *consistency, transitivity, unrestricted domain, non-dictatorship, weak Pareto preference and independence of irrelevant alternatives*]. This negative theorem, called Arrow's Impossibility Theorem, states that no decision rule based on individual preferences can be completely satisfactory to choose among different alternatives. Any social decision rule that is chosen on majority voting basis must be dominated; that is we must relinquish either the desire for transitive preferences (the very basis for rationality) or democracy (the very basis for society).

There have been various attempts to rescue social choice theory from the grip of Arrow's impossibility theorem. One focus of attention has been the restrictions on the type of preferences that are allowed. An important result discovered by Black (1983) which says that equilibrium voting outcomes always occur if the issue being voted is one-dimensional (i. e., alternatives differ only in one characteristic) and voters preferences are 'single-peaked'. But if the issues of public choice are of multidirectional, as they normally are, then Black's result is of

little importance. Another attempt to rescue social choice dilemma has been to relax the restrictions on the type of information that is conveyed by individual evaluations. In the above-mentioned Arrow's framework, if the restrictions on knowledge are relaxed and evaluations are assumed to be measurable and characteristics are comparable to certain extents, interesting possibilities emerge. The basic references for this line of work include Hammond (1976), Roberts (1980) and Sen (1976). However, those relaxations require so much information to be conveyed that they become implausible and unobserved in practice. The social choice remains a dilemma.

Sen (1970) took up the social choice dilemma and presented an impossibility result that has even more disturbing consequences for the principles of social choice. He, unlike Arrow's theorem, neither required the transitivity of social preferences, but merely required the existence of a best alternative in each choice situation, nor the assumption of independence of irrelevant alternatives. Even with this mild formulation, it turned out to be the case that "liberal values even in a very mild form cannot possibly be combined with the weak Pareto principle, given an unrestricted domain... While the Pareto criterion has been thought to be an expression of individual liberty, it appears that in choices involving more than two alternatives it can have consequences that are, in fact, deeply illiberal" [Sen (1970): p. 155]. The framework of rational choice does not allow even the minimal liberalism. "The society cannot let more than one individual be free to read what they like, sleep the way they prefer, dress as they care to, etc., *irrespective* of the preferences of others in the community" [Sen (1970)]

4.5: Social Abuses of Rationality

The choice between an individual's best interest and the group's best interest is a choice we all must make constantly. As explained previously, standard neoclassical economics assumes that there is an invisible hand that guides self-interest maximization to the well-being of society. Nash (1928-) demonstrated that social exchanges involve *games* in which several agents interact with actions of each usually affecting the valued results for all and players must often make guesses about

the actions of other agents in order to choose their own best response. Game theory attempts to explain exchange results of such complex interactions. The problem raised by this analysis was that we don't always choose what is best for society and ourselves even though we make rational choices! The classic example in game theory, called the prisoner's dilemma, originated by Nash (1950) illustrates this problem. In the Prisoner's Dilemma, a situation is described in which rewards are in amounts such that it would be in the mutual best interests of the participants for both to cooperate but the best interests of an individual is to defect. In particular, if you played the game over and over and you added up everyone's score, the total would be a maximum if everyone cooperated all the time. Yet a rational player is presented a payoff matrix that pays most for defection in every *single* play. Even communication cannot help maintain cooperation in one shot Prisoner's dilemma game; only changing the payoff structure can maintain cooperation. The essence of the story is that self-interest seeking behavior is not the best policy in all cases, not only for society but also for individuals.

Following the above arguments, we should have no problem accepting the argument that most crime is a direct result of the 'individual over individual's group choice'. That is, crime is usually committed based on the individual's assessment that his/her benefit will exceed the personal cost. Similarly, politicians as well as policemen generally do what is in their own best interests with disastrous impact on society in general by replacing exchange with 'theft'—even though they are a member of that society. Why should a politician do what is best for their community when much greater personal rewards can be achieved in other ways? Why should politicians return control to the states or the individuals? If all individuals are maximizers of their own interest, this same principle should logically be applied to their elected representatives. The question of who controls the controllers is generally not faced by the economists.¹¹

There are two major aspects to this paradox, both of which present enormous difficulties for a society based on exchange interaction. First, while it is true that a particular

¹¹ See Stigler (1941) for some discussion on this issue.

endeavor would return a benefit to all members of the group where each individual would receive rewards that more than compensate for each individual's contribution, it is also true that any particular individual would receive an even greater net return by not contributing anything. Good examples are elections, roads, water supplies, and other large investments. Yet, at the same time, it is obvious that for a particular individual, his/her maximum return is obtained by making no contribution—that is, free-riding. The second major component is that of the “Voter’s Paradox”, that is while it is true that the outcome of a group effort is made up of the sum of the individual efforts, in many cases a particular individual's contribution makes no significant and/or measurable impact on the outcome. On a national election, one vote cannot possibly determine the outcome of the election. Massive non-cooperation results in a breakdown of many group activities that would be useful. The massive growth of the welfare roles, crime, government spending, government waste, etc., are examples of individuals maximizing their own return at the expense of the group. The paradox is that they are acting rationally.

How might cooperation be maintained? One answer is to have some sort of enforcement of contracts that changes the pay-offs so that renegeing is no longer profitable. But this involves comparing the benefits from gains against the costs of state resources from the existence of such an institution. Another way to induce cooperation is creating the shadow of future. If the players may be involved in the contracts other than the one discussed in future times, then the incentive of each party changes because cheating will cause loss of value in future plays. Similarly, reputation developed from past honoring of contracts or renegeing can also affect the behavior of future trading partners. Despite these possibilities of cooperation, neoclassical economists assume that these adverse cases are not widespread in practice and exclude them by assumption. After all, that society functions at all is a testimony for marginalist methodology to the fact that a large part of society does cooperate. Fortunately, it does not require 100 percent cooperation for most group efforts to succeed. Many public projects function with only a small percentage contributing. Voting is a good example in this regard. Moreover, this criticism has left limited impact because “the general principle

that market prices do reflect the real scarcity or abundance of goods and services is not fundamentally challenged” [Cole, Cameron and Edward (1983): p. 99].

5: Conclusion: Why Economics?

One would wonder why, despite after so much critical exposition, neoclassical economics has not only survived but also dominated the academic circles of economics. The answer to this question lies neither in the fact that there is ‘some deeper truth’ hidden behind microeconomic theories nor that these theories have been shown to explain the empirical realities of capitalist order, rather a major reason for the sustainability of neoclassical economics rests on the fact that it continues to provide a justification for the agenda of liberal capitalism against religious social order. Economics as a distinct academic discipline arose at a time when Europe was undergoing a social transformation—a transformation from Christianity to capitalism. The new capitalist class was asking for the removal of political and social controls on individuals and society which were justified on the grounds of religious doctrine. Since a religious social order seeks to structure all social institutions so as to maximize the opportunities for the fulfillment of the Will of God, it necessarily imposes restrictions to discourage the immoral impulses of ‘accumulation and competition’ (i.e. greed and envy)—the impulses which ultimately commit an individual to ‘rivalry in worldly goods’ as an end in itself. In the social environment of Europe during the 18th century, economic theory provided a counter to the religious way of thinking about individual, society and state. The emerging capitalist class faced social and political barriers and restrictions and whenever they objected to these barriers, they were reminded that these controls were needed to maintain the social order. At this critical juncture, economic theory armed the capitalist class with an effective rejoinder against the priests: it brought forth the idea that a system of government was not needed to maintain social order, instead social order and harmony arise spontaneously and naturally in a market economy where each individual is guided by only his or her self-interestedness. The echo of this idea was also found in Smith’s famous ‘invisible hand’ doctrine which played a key role in the transformation taking place during the 18th century in Europe. Economists, since that time,

proposed that the essential feature of a market social order was 'equilibrium'—reflecting a state of social harmony. They preached the assumption that a market system necessarily and inherently tends towards equilibrium. If markets automatically and spontaneously attain equilibrium, then everything happens in equilibrium, hence in harmony, in a market system. This impersonal, spontaneous, natural and automatic 'market equilibrium' was presented to replace the legislative order of the European Christendom. Keen (2004) has rightly pointed out that 'if, instead of equilibrium, economists had promised that capitalism would deliver chaos; if, instead of meritocracy, economists had said that capitalism could concentrate inequality, then economists could have hindered rather than helped the transition to capitalism' (p. 162). It is specifically due to the service of this 'economic vision' that economics has been able to resist all its critics—though, over the last century, it has been proved that economic theory is full of incoherence, but over the years the commitment to the 'economic vision' has become stronger. Contrary to the neoclassical economists' assertion that ideology plays no role in the development of positive economic theory, it is in fact the defense of this core economic ideology that has made economic theory so resistant to change because the heterodox critics of economic theory have asked it to abandon the core belief of 'equilibrium'. It is rightly pointed out that 'equilibrium' is more than just a concept in neoclassical economics, it is a sweeping ontological pronouncement on the nature of capitalist social reality and, therefore, it is not open to direct conformation or refutation [Fullbrook (2005)]—it is presented as an *a priori* article of faith. Thus, the resistance to stick with economic theory is deeply embedded in ideological reasons. By using economics doctrines, economists try to rationalize the belief that capitalism is a rational system—in the sense that maximizing utility/self-interest/freedom maximizes social welfare or freedom. In this sense, economics is the religion of modern or enlightened man who treats its 'belief system' as unshakable dogmatic truths. This explains Stiglitz's assertion that economics has suffered from the 'triumph of ideology over science' [Stiglitz (1941)].

Another reason why neoclassical economics has managed to survive despite its incoherence is the absence of any grand alternative competing theory to microeconomics. The survey of alternative schools of thought given by Siddique and Ansari

(2010) shows that though there are a number of emerging trends against neoclassical economics, their work is mostly restricted to the critical evaluation of microeconomics and they largely fail to provide any rigorous alternative framework to analyze capitalist social order. Economics will continue to celebrate its triumph, thanks to missing alternatives.

Appendix

The following two tables give the structure of businesses in USA to show the market power enjoyed by the large corporations. Table 1 shows that though more than three quarters of all US firms are proprietorships-partnerships and only one fifth are corporations which capture 86% of total US revenue. Similarly, it is evident from Table 2 that almost all the US industries are dominated by a very few large corporations. Ignoring these numbers and assuming that actual capitalist markets behave *as if* they were perfectly competitive is in fact to make a mockery of capitalist realities.

Table 1: Number of firms and their revenue shares in US economy 2001

	<i>Proprietorships & Partnerships</i>	<i>Corporations</i>
Number of Firms	80%	20%
Total Revenue Controlled by	14%	86%

Source: US Bureau of the Census, *Statistical Abstract of the US*: 2001

Table 2: Revenue shares of firms in some US industries 2001

Industry	Percentage Revenue Controlled by	
	Proprietorships	Large Corporations
Agriculture	50	50
Services	30	70
Construction	20	80
Retail trade	17	83
Mining	19	81
Transport	16	84
Finance	10	90
Wholesale trade	6	94
Manufacturing	3	97

Source: US Bureau of the Census, *Statistical Abstract of the US*: 2001

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