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Critiques of Neoclassical Economics: An Examination of Some of the Critiques of Steve Keen [US] James M. Craven/Omahkohkiaayo I'poyi

Introduction

Steve Keen starts out right away to explain how he was led into his odyssey, and now mission, of “debunking Economics”. By “Economics” he means not only “mainstream” or neoclassical Economics, but also some of the writings labeled “heterodox” as well¹. His quarrel is with unchallenged dogma, “traditional habits of thought and expression”, and all conventional structures that act like straight-jackets. His target is also “how economics is taught” at the undergraduate level². Keen notes that he was “schooled” (his word “indoctrinated”) in the traditions of the Keynesian-Neoclassical synthesis some thirty years ago. He also asserts that as the global economy has moved more towards the textbook conditions assumed by neoclassical theory (relative to fifty years ago) with more deregulation, privatization, abolition of tariffs and quotas, market-based exchange rates and reduced roles of governments, and, despite the dominance and applications of NE in neoliberal policies, the world has grown more, not less as the theory would predict, unequal, unstable and inefficient. His opening argument and attack goes like this:

“Though economists have long believed that their theory constitutes ‘a body of generalizations whose substantial accuracy and importance are open to question only to the ignorant or the perverse’ (Robbins 1932), for over a century economists have shown that economic theory is replete with logical inconsistencies, specious assumptions, errant notions and predictions contrary to empirical data... Virtually every aspect of conventional economic theory is unsound; virtually every economic policy recommendation is just as likely to do general harm as it is to lead to the general good. Far from holding the intellectual high ground, economics rests on foundations of quicksand. If economics were truly a science, then the dominant school of thought in economics would long ago have disappeared from view”³

Keen began to question the prevailing neoclassical dogma because of a basic “logical” contradiction in microeconomic theory pointed out to him by a lecturer in a first-year Microeconomics course: that combinations of any sort (unions, monopolies) reduce social welfare, and, that without them, people would be paid proportionately to their respective productive contributions (MRPs) to total output and society. But, if one simply abolished only one form of combination and not the other, the other would dominate government and society and reduce net social welfare. Thus a “paradox”: that only abolishing both, or retaining both (checks-and-balances), but not abolishing only one of the two, would add to net social welfare and markets doing what markets are supposed to do. No second-best or

1. Keen Steve *Debunking Economics: The Naked Emperor of the Social Sciences*. Zed Books, London, 2003; see his essay in this book entitled “Nothing to Lose But Their Minds: Why Marxists are Irrelevant But Most of Marx is Not” pp. 269-99; see also support for the book at <http://www.debunking-economics.com> and <http://www.debtdeflation.com/blogs/2009/01/31/therovingcavaliersofcredit/> and www.stevekeen.net

2 Keen critiques what is typically taught at undergraduate levels not some sophisticated modifications of neoclassical theory taught in graduate schools.

3 Keen Steve, *Ibid* Zed Books, London, 2003, p. 4

marginal improvement, solution¹ would occur with the abolition of at least one but not both of these combination forms.

Marxians and Marxists

Keen's analysis often appears to me, to be more "quasi-Marxian" than Marxist². His analytical scope and depth appears somewhat detached from grass-roots politics, struggles and issues. He is heavy on theory and light on real-world case studies, empirical data on real-world conditions, real-world lives and struggles in his book "Debunking Economics". Interestingly, there is not even mention of the word "imperialism" –not even listed in the index of the book. He goes into and has some attraction to, chaos-complexity theory attracted partly by the more realistic, non-linear and morphogenetic models.³

Why has Neoclassical Orthodoxy Survived Critique So Long?

As to why this contradiction-riddled neoclassical orthodoxy has dominated and survived so long in academia, Keen has not much to say. He does not use openly, but coyly hints at, words or concepts like opportunism, cowardice, Faustian Bargains, careerism, willful blindness, depraved indifference, academic prostitution, or cognitive dissonance to explain why this mainstream neoclassical orthodoxy has survived so long and stayed relatively unchallenged by those trained in it and who carry it on uncritically. In short he has little to say about economics as rhetoric and ideology or class interests:

"However the critiques of this book are not based on politics but on logic. No political position—left, right or middle—should be based on foundations which can be easily shown to be illogical. Yet much of conventional economic theory is illogical. Those who occupy the center stage of politics should find a firmer foundation for their politics than an illogical economic theory. The same comment, of course, applies to those at the left-wing end of the political spectrum, who base their support for radical change on conventional Marxian economics. As I argue in Chapter 13, conventional Marxism is replete with logical errors as is neoclassical economics."⁴

Steve Keen's Overall Approach to Critique of Neoclassical Economics

Keen does not deal with NE as a coherent meta-theory or meta-paradigm founded on core meta-postulates or axioms⁵. He considers the theoretical edifice of NE to be too riddled with internal

1 Keen, Steve, Ibid. cite of Lancaster, K and Lipsey, R.G. "The General Theory of the Second Best", 1956, "Review of Economic Studies" Vol. 24: 11-3. The theory of second best notes: a single step to an ideal situation reduces net social welfare if two or more steps are required to move from a present to ideal situation—all or none ideal solution.

2 "Marxians" are typically academics who study and appeal to some of the core concepts of Marx, mostly on the empirical grounds. Often their objections to the core postulates and axioms of NE are as "a-priori" as are the postulates and axioms of the NE to which they take exception; and they are often based on what is of particular interest intellectually to them personally, rather than on any documented practical utility (in concrete struggles), of the theories they develop. Marxists, on the other hand, are guided by the notions of unity of theory and praxis, seeking truth from facts, and Marx's 11th Thesis on Feuerbach that is the inscription on his grave at Highgate cemetery in London: "The Philosophers have only interpreted the world in various ways; *the point, however, is to change it*". Marxists are thus very concerned with how theory advances and is in turn tested by application in concrete praxis.

3 At places like the Santa Fe Institute some are doing work in non-linear dynamics, Chaos-Complexity theory, "ordinary differential equations" (e.g. third-order non-linear differential equations) applied to issues. Although Chaos-Complexity theory contains some parallels with core postulates and approaches of dialectical materialism (unstable equilibriums; perpetual change; cumulative change via positive feedback loops; morphogenetic instead of Newtonian-like and self-equilibrating morphostatic systems; "negation of the negation"; order underneath chaos and potential chaos in all order due to fundamental contradictions; non-linear change; etc), some call Chaos-Complexity theory "faux" or "mechanical" or "vulgar" or "academic" dialectics" because of an emphasis on a-priori model building and testing outside of real-world praxis to apply and test the theory. Keen himself calls Chaos theory and evolutionary economics "alternative religions".

4 Keen, Steve, op cit. p. 14

5 Some critics of neoclassical economics see it as an essentially coherent and internally consistent theoretical system founded on three basic meta-postulates, composed of several sub-postulates, that are fundamentally bankrupt: I Methodological Individualism; II Methodological Instrumentalism; III Methodological Equilibration Arnsperger, Christian and Varoufakis, Yanis, "What is Neoclassical Economics?", Post-autistic Economics Review Issue 38, July 2009 cited in Craven, James in

contradictions and lack of overall coherence to constitute, as some have argued, a comprehensive and internally coherent whole, albeit bankrupt, theoretical system. He does note that NE sets up this abstract, “ideal” and tautological world where “everything tends to the best in the best of all worlds”. Neoclassicals then, evaluate each set of policy prescriptions and effects not empirically, in terms of how closely, and with what consequences, they achieve their stated objectives, but how closely they move towards the abstract and ideals models of reality they so forcefully assert as the ideals to which policies should strive. He writes:

“Economists would contend that these changes have made the world a better place, not because some economists have verified that the changes have been beneficial, but because the changes have made the real world look more like the hypothetical world of the economic textbook...But this confidence in reform begs the question—is the hypothetical world of the text book ‘actually’ a better place than the real world with all its distortions? This is only possible if the economic theory that describes the economist’s ideal world is internally consistent. If the theory is internally inconsistent—if it requires impossible conditions to function—then the economic ideal may be an entirely useless guide to how the real world actually works, let alone to how it might be improved. Economic reform could produce a manifestly worse system than the one which it alters.”¹

Keen takes on the traditional model, the “blades” (supply and demand) of the scissors” of Alfred Marshall and others; then in the “Calculus of Hedonism” shows that individuals are far more than self-interested hedonists and ultra-individualists and that society is far more than the mere sum of the individuals in it. Society, the macro, cannot be effectively modeled in the aggregate by merely summing up or aggregating the micro behaviors of all the individuals that make up the macro. Different individuals, driven to maximize total utility from given resources, will evaluate the utility gained of say a banana, subjectively and differently. A change in the distribution of income that took income from one person and transferred it to another could result, in a different level of social welfare thus impairing the aggregation of various individual or interpersonal utility functions (to form market demand curves) without cornerstone assumptions that: a) all people have identical (homothetic) tastes; b) those tastes are affine and do not change as income changes. Thus a downward sloping demand curve for one person and one commodity only may be possible; but a market demand curve is extremely problematic (likely is jagged and slopes every which way).

Keen takes on the utilitarianism of Bentham that is central to NE: a) each individual, comes down to maximization of pleasure and minimization of pain; b) no such thing as society or community—only aggregates or a simple sum of individuals that remain individuals—any “social interests” or social utility functions, are manifested by adding up individual interests and utility functions. These constructs undermine other constructs of NE that are uncritically taught: supposed social indifference maps from individual indifference maps; Giffin goods²; market demand curves as mere “horizontal summations” of

“Neoclassical Economics and Neo-liberalism as Neo-imperialism”, paper presented to The Academy of Marxism, Chinese Academy of Social Sciences (CASS), August 11, 2009. Beijing, PRC.

1 Keen, Steve, *Ibid.* p. 8 Here Keen asserts that it is the lack of internal consistency in the neoclassical theories and neoliberal policy prescriptions, rather than the class-nature of the values, approaches and objectives of the theories and policies, that prevent their usefulness in illuminating, understanding and transforming the aspects of the real world that they model.

2 Consumption of Giffin goods declines as income increases. Consumption of Necessities as a share of income declines as income rises. Consumption of Luxuries as share of total income rises as income rises. Representative goods are those whose share of income spent on them is constant regardless of level of income (do not exist). Engels curves, which map the changes in spending patterns as incomes change, can assume any shape. For Bentham’s postulate (the whole is a simple sum of its parts) to hold true, Engels curves would have to have a constant slope (fixed distribution of income which violates the assertion that relative incomes are determined by the price system) or, they must all have a constant slope (which means Engels curves must be linear straight lines and thus goods are neither necessities nor luxuries) and the same slope (all have identical tastes). These

individual demand curves; general equilibrium; budget constraint line (income) independent of tastes (indifference curves); contours of individual indifference curves cannot intersect (except supposed social indifference curves); human behavior driven by motives other than utility maximization and pain minimization¹) Keen then takes on, the central postulates of consumer welfare theory.² He also shows how consumer theory and indifference maps are used to attempt to explain any aspect of human behavior related to consumption—“one-size-fits-all”.

Neoclassical Focus on Consumption and Exchange and not Production

Since its inception in the 1870s, NE was founded on contrived and patently absurd postulates and axioms along with and necessary for, its shift in focus from trans-disciplinary political economy (contradictions and laws of motion of systems) to the isolated or atomistic “representative” individual as the focus of “pure economics”. When each is shown to be absurd on its face, the response by NE was not to look for a new theory but always the response is to search for even more restrictive conditions under which the established theory “might” hold; from: perfect to bounded rationality; perfect to bounded information; maximization (of total utility and total profit) to satisficing; unique individuals and their given “homothetic” (identical) and “affine”(unchanging) preferences, to the “socially representative” individual standing in for “all” of society³. And of course this “socially representative” individual has no history, context, social class, age, gender, ethnicity, religion or ideology to “clutter-up” the analysis. Keen also notes that if NE were to incorporate social class, then at the first-approximation level, perhaps the assumption of the “representative individual” (of most people of a given social class) might be easier to take and work with as incomes and tastes, within social classes, differ much less than between social classes⁴.

Keen shows how an indeterminate, non-continuous and jagged market demand curve, with portions showing a direct rather than inverse relationship between price per unit and quantity demanded per unit of time, can lead to multiple-point-intersections between market demand and the supply curves thus leading to multiple potential “equilibriums”. Other objections to neoclassical theory on consumer welfare include: non-evolutionary ways in which consumer behavior is handled; consumer split personalities (maximizing utility and also ethically obeying contracts); irrational definition of rational (extensive time and processing power to calculate comparative utilities among myriad combinations of two goods when it would be rational to simply follow habitual rules of thumb); ignorance of and ignoring ethical and other factors in complex human behavior and motives; refusal to consider how behaviors, welfare and peer pressures of others affect individual decisions and behaviors (examined in an area called network economics).

are known as ‘homothetic’ and ‘affine’ Engels curves (meaning that Bill Gates spends every dollar the same way as everyone else and no one’s structures of consumption vary as a function of age, income or other factors). These assumptions needed to derive social utility from the sum of the individual utilities—that all individuals are identical and unchanging, or, that society is made up of only one individual consuming one good—are absurd on their face yet are employed in NE which attempts to get around the absurdity with the construct of the “representative consumer” or ‘SMD conditions’ (another absurdity).

1 According Stanley Jevons one of the founders of neoclassical economics, behavioral motives from compassion, conscience, religious or other sources, that cannot be simply reduced to utility maximization and pain avoidance, also play a role in human behavior but cannot be easily, if at all, mathematically modeled).

2 Conventional consumer indifference curves assume: a) Completeness; b)Transitivity; c) Non-satiation; d) Convexity; e) All income consumed in the present with saving simply treated as consumption of future goods; f) individual demand curves derived from individual indifference maps as budget constraint lines pivot with changes in relative prices with income constant, and uncritical parallel shifts with relative prices constant and income changing; g) labor supply simply a choice between income and leisure with the slope of the budget constraint line equal to the real wage; h) choices between present and future consumption of goods are indifference curve maps with relative prices replaced with the rate of interest or rate of time preference.

3 This is analogous to someone with size-10 feet putting on a size-7 shoe and when the shoe does not fit, that person elects to amputate his toes to make the size-7 shoe fit rather than seek a properly-sized shoe.

4 Keen, Steve, op cit, p. 52 cites the work of Alan Kirman on “collectively coherent” group behavior;

The Neoclassical “Law” of Supply: Sraffa Redux

In “The Price of Everything and the Value of Nothing” continues his critique of neoclassical supply and demand. Where Keen shows that market demand curves cannot be derived from horizontally summing up individual demand curves, and that the market demand curves cannot, logically, be smooth, continuous, non-jagged and downward sloping functions consistently showing “The Law of Demand”, the same applies with the neoclassical supply curves showing “The Law of Supply” (quantity supplied per unit of time as a consistent, smooth, continuous and non-jagged direct function of price per unit). Keen argues that in classical economics, in which price was a function of costs of production, a static version of which yields a more accurate flat or even downward-sloping supply curve as in some cases, unit costs fall with scale. Why? Because according to Keen, factories are designed, industrially engineered, to avoid some of the problems like diminishing returns, increasing marginal opportunity costs, diminishing marginal productivity, etc, that neoclassical economists assume must inexorably follow with increasing production. Keen argues that factories are routinely built with significant excess capacity and are designed for efficiencies at low or high rates of capacity utilization; only products like oil that are not produced (but are refined) in factories may obey the “law of diminishing marginal productivity”, the real focus, of pure economics¹.

Keen employs the analysis of Sraffa that horizontally summing up upward-sloping marginal costs curves of individual firms to produce an upward-sloping market supply curve is as flawed as summing up individual demand curves to form a smooth downward-sloping demand curve.²

Sraffa attacked two particular cornerstone “axioms” of neoclassical theory and showed that they were mutually contradictory: 1) in the short run, if at least one factor of production is “fixed” then supply and demand functions cannot be independent of each other and thus any notions of a predictable partial equilibrium are impossible as every point on the supply curve would be associated with a different demand curve; 2) on the other hand, under any circumstances in which supply and demand could be treated as independent of each other, it would be impossible for any factor of production to be fixed and hence marginal costs would be constant and average costs falling.

The Classical theory of diminishing returns was not a theory of price determination but of determination of income distribution and rent based on progressive uses of poorer and poorer quality of fixed land. Keen argues that the classical notion of diminishing marginal returns was misapplied by the Neoclassicals. In models based on a competitive economy, all inputs and outputs homogeneous, and no firm large enough to affect market price, the use of diminishing quality of inputs to explain diminishing returns, contradicted the assumption of homogeneous quality of inputs; and thus it was necessary, to postulate, that going beyond some optimal ratio of “variable” to “fixed” factors of production was the

1 Traditional NE, which defines short-run as a time period in which at least one factor of production is fixed (say land or “capital”) while others vary (say “labor”) and “factor crowding” of the fixed factors; this leads to diminishing marginal productivity and thus rising marginal and average costs as output increases. This perspective tends to weigh the factor-crowding effects stronger than the offsetting, synergistic and cost-reducing effects of increasing specialization and division of labor coupled with the human capacity to learn and adapts to reverse emerging conditions like diminishing marginal productivity (in the real-world, marginal and average cost curve are gentler, L-shaped rather than u-shaped)

2 Piero Sraffa argued that the so-called “law of diminishing marginal returns” will not apply in general to an industrial economy where constant marginal returns, and thus constant marginal costs and a flat market supply curve would likely prevail; a direct attack on neoclassical theory of production in which diminishing marginal returns is the central “law or axiom” to analysis of all of production. In the event of constant marginal returns being the norm, then both the output and total revenue functions would both be straight lines through the origin with the slope of the total revenue line being greater than the slope of the cost curve. Once fixed costs were covered, there would be additions to total profits with every unit sold with more output adding more profits to infinity. Mainstream economists when given the Sraffa critique respond with even if it works in practice, does it work in theory?; science asks: “Even if it works in theory, does it work in practice?”

source of diminishing marginal returns.” According to Sraffa, only if an industry is treated in the broadest possible ways, say agriculture and the role of land, can some factor be treated as “fixed” in the short-run; but that would contradict the postulate of independence of (or no co-determinacy between) supply and demand or the postulate that static partial equilibrium, in separate and individual markets, in isolation from other markets, can be determined and predicted¹.

The majority of cases, where unused capacity is maintained and consolidated, to avoid the problem of a fixed factor of production being crowded by a variable one, and thus diminishing returns, the classical model of costs determining price and demand determining quantity sold is likely to be more accurate according to Keen and Sraffa. Also, the total profit maximizing level of output is no longer where $MC = MR^2$.

If internal rising marginal costs do not constrain the production and profitability of an individual firm as NE suggests, what are the constraints on the individual firm? According to Keen, the major constraints are those which NE simply assumes away as not relevant: costs of transportation, information, marketing (a cost of distribution not production as assumed by NE to try to rescue the rising marginal cost curve) and access; plus, acceptable market price and creditworthiness.

If Sraffa’s critique holds true, the whole edifice of neoclassical economics collapses. In NE, real wages are taken as given by market forces so firms hire up to where the real wage equals the marginal revenue product of labor. Due to diminishing marginal productivity, the MRP falls as more labor-power is hired with the last worker hired where $w = MRP$. Since employment determines output, thus the market-given real wage determines output with the real-wage itself determined by worker willingness to forego leisure for income. If society seeks higher levels of output then this is only possible according to the mainstream theory if real wages fall and/or MRPs (Demand for labor-power) increase. If the output to employment relationship is relatively constant, then the neoclassical theory of output and employment determination collapses³.

The Neoclassical $MC = MR$ Total Profit Maximization Rule

Keen also takes on the comparative statics and absence of time in the $MC = MR$ total profit maximization rule. Costs and revenues vary over time as well as output levels changing at one point in time according to Keen⁴. The $MC = MR$ rule holds time constant such that revenues and costs vary only with output levels and thus the maximum gap between total revenue and costs is created where $MC = MR$. But real business persons are interested in maximizing total profits over both time and quantity of output produced and sold; profit is both a function of quantity and the historical time during which it is

1 Sraffa, Piero, “The Law of Returns under Competitive Conditions”; “Economic Journal”, 40: pp 538-550; “The Trees of the Forest: A Criticism”; “Economic Journal, 44: pp 89-92; cited in Keen, Steve, op cit. p 317. If, increasing supply in agriculture, relative prices of land and labor change, then this changes the distribution of income and thus demand curve with a different demand curve along each of the points of the supply curve and thus it is impossible to draw independent supply and demand curves that intersect at just one place.

2 The notion of a smoothly falling demand curve and a smoothly rising supply curve intersecting to determine market price becomes an illusion. Where $MC = MR$, the MR of the last unit sold will be substantially greater than the MC of producing it and thus output is constrained not by MC but by costs of expanding sales at the expense of competitors. Instead, according to Sraffa, in the real-world, firms have a target output level they try to exceed and a target mark-up or profit margin they try to maintain with the size of the firm constrained by its market niche and access to favorable credit for expansion.

3 With a flat production function, the MRP will be constant in pure competition (constant MPP x constant $P = MR$) and thus will never intersect the real wage and thus the firm’s output level cannot be explained by cost or real wage of employing labor-power.

4 Neoclassical theory has three notions of time: market period in which no factor of production can be varied; short-run with at least one factor of production constant so that increasing output is subject to diminishing returns; and long-run in which all inputs can be varied; this is still a comparative statics approach.

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produced. Change in profit = (change in profit as a function of time x change in time) + (change in profit as a function of quantity x change in quantity).

NE deals only with a change in profit as a function of a change in quantity and thus the rule $MC = MR$ and following the profit maximization rule, one would deliberately set this quantity to zero according to Keen. Since one gets zero when multiplying any number by zero, this results in the second half of the overall profit formula (change in profit as a function of quantity x change in quantity) being zero. NE then, according to Keen, implies that profit will be maximized when the change in profit due to change in quantity is eliminated and change in profit due to changes in time is maximized. If the firm's output is increasing over time, then the term change in quantity is positive, and then setting $MC = MR$ results in zero multiplied by the positive change in quantity which is zero and a smaller increase in profit than if $MR > MC$. The economic rule of $MC = MR$ is correct only if quantity never changes.¹ But the imperatives of effective competition, accumulation, market power and even survival of the firm, dictate that the firm must grow and develop market power over time which means if it devotes all of its resources to maximizing total profits now, it will have no resources for investment for the future. Mainstream theory is trying to work out a profit maximization rule of ideal output for all time and no such rule is possible according to Keen. Where $MC = MR$ or $MC = Price$, and where MC are constant, MC are well below average costs and thus losses are being sustained at $MC = MR$. In real-world surveys of managers, note constant or falling MC and no empirical support for firms setting prices where $MC = MR$ in the real world. Where higher prices may be necessary to increase quantities supplied per unit of time, due to supply inflexibilities, diminishing returns is not cited as the real reason or any significant factor as central to NE on both the demand (diminishing marginal utility) and supply (diminishing marginal productivity) sides. The notions of smooth downward-sloping demand curves, aggregates of similar individual demand curves, or smooth upward-sloping supply curves, aggregates of similar individual supply curves, or the notion of independent supply and demand curves setting one unique equilibrium price and quantity in a market, Keen shows to be pure fiction—and worse.

NE of the Firm and Monopolies

Keen also deals with inconsistencies in the neoclassical theory of the firm vis-à-vis monopolies². Mainstream theory, among all of the possible objections to monopolies, focuses only on the size of the monopoly relative to the market and the inefficiencies of restricting output levels for $P > MR$ where $MC = MR$ thus causing over-pricing, less output, loss of consumer and producer surpluses (deadweight losses) all relative to perfect competition. These essential differences between monopoly and pure competition in NE are treated as simply the result of a deeply downward-sloping, overall inelastic MR curve, separate but derived from a down-ward-sloping demand curve under monopoly, versus, a flat and

1 Keen, Steve op cit. p.80. Keen gives a metaphor to illustrate. If driving a car over a given distance, to calculate optimum speed to maintain to achieve optimum fuel consumption over a given distance., One would need to know lowest gas consumption per unit of distance traveled per second because if you work out the optimum speed first, then the lowest gas consumption is at zero km per hour which means zero distance. Since time is an essential aspect of economic behavior as distance is an essential aspect of travel, both problems have to be worked out simultaneously. The economic analogy for finding total profit maximization is equivalent to finding first optimum speed for gas consumption then multiplying it by distance traveled which winds up saying that the cheapest way to get from point A to point B is at zero miles per hour.

2 Problems in the NE of monopolies are illustrated via a metaphor of trying to convince someone that the earth is flat starting from the premise that it is a sphere. A small plot of land on which someone is standing appears flat for all intents and purposes and any curvature is not noticeable and thus would be treated as zero curvature for all intents and purposes. When adjacent plots of land are brought into the discussion, larger segments also appear flat so that when all are aggregated, the earth appears flat.

perfectly elastic demand—and not separate MR curve—under pure competition¹. The implications, according to NE, are that ‘perfectly competitive’ firms maximize social welfare, produce more output and at a lower price due to the features, constraints and competitive/survival imperatives of perfect competitors vs. monopolies. Perfect competition is also preferred as the only market structure in which market output and price are set where market supply and demand curves intersect as opposed to monopoly where $MC = MR$ but $MR < P$ and at lower output than under perfect competition.

Again Keen focuses again on aggregation problems in his critique of NE on monopoly. He notes, in a note on “calculus 101 for economists: infinitesimals ain’t zero”, that the central assumption of perfect competition, that gives rise to the flat, zero-sloped, infinitely elastic $P = MR = \text{Demand}$ curve, is that no firm is large enough to affect market supply, each firm is small and does not react to the behaviors of other firms, and thus must face or take a market determined price as “given”. But aggregating the flat $P = MR = \text{Demand}$ curves of individual firms will mathematically yield only a larger flat market $P = MR = \text{Demand}$ curve not a smooth, downward-sloping, one; which means, partly, that firms do react to the behavior of others for market price to react (otherwise increases in output by one would have to be offset by proportional decreases in output by others as the neoclassical model confuses very small quantities with zero). The individual and market levels of neoclassical models are inconsistent.² The monopoly has produced where $MC = MR$, but the perfectly competitive firms wind up producing higher output some of which, at the industry or firm level, must be sold at losses where $MC > MR$ due to infinitesimally small quantities being treated as zeros. The individual demand curve has to be downward sloping or else the market demand curve has to be flat as well.³ If the assumption that the individual perfect competitor has no effect on market price is relaxed, then the price and output levels for a perfectly competitive industry will be the same as for a monopoly according to Keen⁴.

Keen is aware of the issue of economies of scale (present, according to Keen most in large firms or farms producing relatively homogenous products) and the issue of perfect competition being self-negating or self-implosion. No one goes into business to lose; they all dream of profits for power and power for profits. Big fish swallow small fish. Pure competition and its own survival imperatives dictate increasing product differentiation (real or imagined) leading to monopolistic

1 In NE, as it is taught typically at the undergraduate levels, demand curves of imperfect competitors, are presented as linear, smooth and downward-sloping and thus, marginal revenue curves are also shown as linear, downward sloping, smooth, and intersecting the x-axis at half the distance from the origin to the x-intercept of the demand curve.

2 According to Keen if individual firms operate where $MC = MR$, then collectively, at the market level, the pure competitors operate where collective $MC > MR$. Here Keen’s explanation of the rationale of the $MC = MR$ rule in neoclassical economics needs further elaboration. The $MC = MR$ rule is based on the notion that the central imperative for all capitalists is maximization of total profits (actually of real, after-tax, risk-adjusted total profits) not marginal profit or unit margin which would be where the $MR > MC$ gap would be greatest. Thus up to but not beyond where $MC = MR$, although unit profit margins are falling with an increasing marginal cost curve and a flat MR curve, even the last unit of output before where $MC = MR$ yields “infinitesimal” profit which “ain’t zero” (Keen’s point on aggregation problems) and thus adds to total profits just as minimizing losses, deductions from total profits, minimize reductions of total profits. This point is not made clear in treating $MC = MR$ as a “term” of zero.

3 Here the Neoclassicals may argue, as Sweezy argued with the kinked demand-curve of the individual oligopolist, that the demand curve of the individual perfect competitor is an expositional/pedagogical/heuristic model of likely behavioral reactions, imperatives, interests and constraints, not a model of market or individual price determination, under given market structures.

4 Which comes first: the intersection of market supply and demand setting price for the individual pure competitor, or, the individual competitors equating marginal costs to price? Why should a level of output which partly involves a loss according to Keen determine where the individual sees price as being set? In the case of monopoly, $MC = MR$ determines output level and demand determines the maximum allowable price at that quantity (price and quantity are not determined by the intersection of market supply and demand curves as in the case of pure competition). Here it must be noted that the Neoclassicals do not assume the flat or horizontal demand curve of the individual pure competitor solely on the basis of the assumption of no individual firm large enough to affect market supply, they also assume homogenous products and freedom of entry and exit as responsible also. Keen goes on his website to show: in perfect competition: a) where $MC = P = MR$ profits are not maximized; b) MC curves must be horizontal or constant for a definitive comparison of perfect competition and monopoly.

competition and a slightly downward-sloping demand curve (some market power) and often, oligopoly and then monopoly—effective or actual. It is all very dialectical: negation of the negation; or, ultra-competition leads to anti-competition, which leads to more competition (among oligopolies) at higher levels with more at stake with more to lose. Size does matter, economies of scale do constitute serious barriers to entry and competition, the long-run supply curve assumes constant technology (a highly spurious assumption) and the only way that perfect competitors could exist in any long-run sense would be with an industry so huge that it could handle the huge number of very small firms that the perfect competition model requires. In answer to these reservations, the Neoclassicals retreat, again, to an attempted theory-saving assumption of constant returns to scale in which case size does not matter. According to Keen, when all these caveats are taken into account, the case for perfect competitors and against monopolies collapses with the exposed logical contradictions internal to the theory alone. But this should not be taken as an endorsement of monopolies, Keen notes, but each monopoly should be judged on a case-by-case basis.

Neoclassical Marginal Productivity Theory

Keen finishes Part One, on the basics of neoclassical theory and its internal contradictions embodied in marginal productivity theory: “From each according to his contribution: why productivity doesn’t determine wages”¹.

Keen takes exception—again—to the central notions of diminishing marginal productivity, smooth and continuous (downward-sloping) demand and (upward-sloping) supply curves horizontally summed from individual curves in his opening attack on neoclassical theory of labor-power markets. In neoclassical theory, “labor”, or actually “labor-power”, is treated as mere commodity, like an apple, subject to the same “laws”², and curves, of supply and demand, as an apple. But in labor-power markets, unlike other commodities like an apple, supply decisions are made by households while demand decisions are made by firms. According to Keen, this fact alone vitiates the usefulness of neoclassical marginal productivity theory in explaining wage determination, quantities of labor-power hired etc in the real world.

For commodities other than labor-power, demand is determined by consumers (mostly from Households) on the basis of incomes and tastes, while supply is determined by costs of production. But labor-power is not strictly consumed but hired to produce other commodities for sale and labor-power is not supplied for “profit” or subject to diminishing returns. So in essence, the demand for labor-power is determined

1 In characterizing NE, perhaps because of using shorthand notations Keen makes some mischaracterizations of the theory. For example he notes that as price rises demand falls when he means that quantity demanded falls not the whole demand function (at least not according to neoclassical theory) and he notes: “Here we will consider the argument that wages equal the marginal product of labor.”(Keen, Steve, op. cit. p. 110) Actually, the theory says that to maximize total profits in production, the firm should hire up to but not beyond where wage for labor-power equals the MRP of labor. The MRP is a result of both the MPP of labor (amount of output or change in total output due to a marginal addition of one particular worker) times the MR (or price in the case of pure competition) that the output sells for. No one gets paid a wage greater than the market “value” of the output they produce. This was the central point made by Marx in explaining the origin and nature of surplus value except that Marx did not see land or capital as “productive” but only as factors that may enhance or inhibit the productivity of labor.

2 Given that an attack on diminishing returns, diminishing marginal productivity, and fixed factors of production in the short-run are repeated over and over and central to Keen’s overall critique, I am surprised he missed one argument he could advance against the notion of fixed factors in the short run. Land and “capital”, like labor, have both quantitative and qualitative dimensions that are interdependent. The quantity and quality of some machine (noting that capital is a social relation not a stock of things) or of an acre of land is, in market terms, meaningless, if not turned on, used and maintained, by labor skilled in its use and maintenance, while the quantities and qualities of land and “capital”, if activated, can augment the productivity of the quality and quantity of labor employed. Thus, application of the quantity and quality of labor, activates the qualities and quantities of land and capital that may or may not (land and capital of certain quantities and qualities may actually sabotage rather than enhance productivity of labor) augment the productivity of labor. Thus the notion of “fixed” land and capital mixed with variable labor is highly problematic if not total nonsense.

by producers while the supply of labor-power is determined by consumers of the commodities produced by labor (the utilization or consumption of labor-power in production). According to neoclassical theory, the supply of labor-power is determined by a trade-off between income and leisure coupled with an assumed disutility of all labor and progressive taxation effects.

Demand for labor-power, and the hiring of each marginal worker, is assumed to be a function of the monetized contribution of that worker to total profits relative to the cost or wage of hiring that worker to produce. In a perfectly competitive labor-power market, each firm can hire as many workers as it wishes at a going real wage rate¹ and hires up to, but not beyond, the point where the wage paid is equal to the marginal revenue product or the market value of the output of that last worker when sold. But the “productive contributions” or MRPs of successive workers hired fall due to diminishing MPP and/times constant $P = MR$ in perfect competition, and, more steeply in imperfect competition, due to diminishing MPP of labor times an also diminishing MR of the increased output produced by increased labor-power hired. It is all nice and neat. Workers are allegedly paid according to their marginal contributions to production—no free ride but no exploitation. Inequalities in wages and salaries, and wealth, are simply due to inequalities in productive contributions to society that come from inequalities in skills, educations, experience and market values of commodities produced by different types of workers according to neoclassical theory. If workers want higher wages, they should find personal or individual ways (not through collective action) to increase their personal marginal productivities and/or find employment in industries that produce commodities that command higher marginal revenues.

Here Keen notes four basic objections to NE. He argues that labor-power supply curves may well be 1) backward bending so that a fall in wage-rates may induce an increase in quantity supplied of labor-power; 2) when workers face powerful and organized employers, workers will not get fair wages unless they organize; 3) Sraffa’s problems with aggregation of individual supply and demand curves to form market curves apply even more to labor-power markets; 4) notions of workers “freely” choosing between work and leisure is fundamentally flawed.

The argument can be made that at low wage-rates, and thus at low income levels, the imperative to work, or to “trade leisure for income” (substitution effect) is very high whereas it diminishes at higher wage rates where one can earn higher incomes and at reduced work hours, and, the disutility of labor and progressive taxation effects are likely to outweigh the substitution effects. Plus at low wage rates, the relatively shallow slope of the budget constraint line, is likely to be tangent to a lower level indifference curve at a point of low hours for leisure and relatively high hours to work, whereas at higher wage rates, the point of optimality is likely on a higher utility indifference curve at a point of higher leisure and relatively less work. All of these factors result in a labor-power supply curve that shows: a) substitution effect > income effect (upward-sloping) at low real wages; b) income, disutility of labor and progressive taxation effects > substitution effects (backward-bending) at high wages and salaries; c) indeterminate (relatively vertical) at medium wages and salaries. No notion of someone working hard just to accumulate money and power as the purpose of work is seen to acquire income that is to be used up in leisure (equated with consumption of commodities). Again, with a non-linear, non-smooth, discontinuous and jagged supply curve of labor-power, even assuming a continuous, smooth and downward-sloping demand curve for labor-power, multiple intersections of demand and supply, and thus equilibrium wage rates, are possible.

¹ Remember this notion was previously debunked: that a perfectly competitive supplier can sell more units without having to reduce price.

The notion that workers receive wages proportional to their marginal revenue product contributions, assumes perfect competition in both output/product and input markets. NE admits that when the product and labor-power markets are not perfectly competitive, then incomes do not simply reflect relative MRP contributions but also relative bargaining powers of employers and employees.

In cases of imperfect product markets and downward-sloping demand curves giving rise to separate and steeper MR curves, the worker's MRP falls more rapidly than under perfect competition because both MPP and MR fall as output increases from more workers being hired (unlike in perfect competition where falling MRP is a function of MPP of labor \times constant $P = MR$). This can be used to argue for unions as workers would be "exploited" being paid wages less than the price ($MR < \text{Price}$ under imperfect competition) for which the worker's output can be sold. With a monopoly seller of labor-power, such as a union of members acting as one, confronting imperfectly competitive demanders of labor-power, with an upward-sloping supply curve, MFC curve lies above the supply curve (a mirror of the MR curve below the downward-sloping demand curve) so the wage-rate will be indeterminate between the MRP (firms exploiting workers) and the MFC (workers "exploiting" firms) with the final position determined by relative bargaining power of the parties (non-market solution).

Sraffa had two basic critiques of horizontal summations/aggregations of individual supply and demand curves to form market supply and demand curves: one for a broad definition of an industry and one for a narrow definition. Labor-power markets behave like Sraffa's broad industries. Movements along an upward sloping supply curve between particular wage-rate/quantity supplied points will have implications on income distributions and thus demand for products produced by labor and thus product prices and marginal revenues. This will mean a different demand curve for labor power (MRP) at each point along the upward-sloping supply curve of labor power and interdependence of supply and demand functions; and thus, multiple possible equilibrium wage rates and "perverse" outcomes and incentives. Finally, few forms of leisure other than sleep do not require income. But if the quantity supplied is a direct function of wage rate, then the lower the wage rate and thus income, the lower the quantity of labor supplied and the higher the supposed "choice" for leisure. In reality, people do not "choose" between work and leisure—not most people; most people simply work to survive and try to do what it takes (quantity, quality and duration of labor-power) to do so.

Keen's Notions of a New Kind of Economics: the Cambridge Re-switching Debate

Keen suggests a need to focus on the Cambridge¹ debate on the real nature, measurability, alleged homogeneity, "productivity" and role of "capital", in theory versus in reality in undergraduate curricula. According to Keen, the term "capital" has two meanings in NE: a sum of money and a stock or collection of machinery. They assume that the two terms can be used interchangeably with the money value of the machines used as a proxy variable for the physical quantities of very diverse machines. But machines are often specialized, complicated, made of sub-systems and parts, "lumpy" and not infinitely divisible, and thus diverse physical "units" of capital are difficult to qualify and quantify and thus aggregate either in monetary (money value

¹ This is a debate ("re-switching") that has been raging between MIT economists at Cambridge, Massachusetts and economists at Cambridge University in England over some twenty years.

of machines) or physical terms¹. This inability to define and measure a “unit” of “capital”, or aggregate “units” of “capital”, then UNDERMINES notions of : a) measurement of the “marginal productivity of capital”; b) diminishing marginal productivity of capital; c) profit representing the return to the marginal productivity of capital; d) the rate of profit depending upon the ‘amount’ of capital rather than the actual case of the measured ‘amount’ of capital depending upon the rate of profit; e) the essential assumption of neoclassical theory that interdependence of industries can be ignored.² ; f) traditional diagrams showing “households” supplying “factors of production” (labor and capital) to “business” that use them to produce the goods households buy with incomes; g) “capital” as some kind of homogeneous substance and that what is capital-intensive depends upon the rate of profit; g) the rate of return on capital represented the marginal product of capital; h) a particular production function losing its primacy to others at a given rate of profit could not regain its primacy at a higher rate of profit unless it benefited from increasing marginal product for a period of time; i) capital demand could not be upward as well as downward-sloping and supply curves could not be downward as well as upward-sloping with no definable equilibrium position; j) no consistent relationship between “factor incomes” and “factor productivity”; k) the rate of profit is not a function of inter and intra-class balances of power; l) “factor prices” determining the distribution of income rather than the distribution of income between wages and profits being necessary to determine factor prices; m) the distribution of income, independent of the productive processes and a politico-legal and socioeconomic phenomenon.

The Need for Epistemology and Scientific Method in Economics Curricula

In his essay on “There is Madness in Their Method”, Keen suggests to be taught in undergraduate curricula, the question of “What is science and scientific method?” Keen characterizes NE, or “economics” as a “science” but a “pathological” one. He takes on the central axioms or postulates of Philosophical Positivism embodied in neoclassical theory: a) that theory cannot be judged by the soundness of its assumptions only the accuracy of its predictions; b) that predictive accuracy confirms the deductive validity as well as soundness of assumptions of syllogisms and hypotheses; c) that the more significant and all encompassing the theory the more abstract and unrealistic are its assumptions; d) negligibility can be mixed or not differentiated; e) the instrumentalist notion that theory is never an accurate or even a proximate description of reality, but is merely an instrument for predicting the future³; f) negligibility assumptions (minor details may be ignored⁴) domain assumptions (about the

1 The discussion of “capital” as an embodiment of social-power relations is not mentioned or discussed here. Keen brings in Sraffa’s vs. neoclassical theory’s treatment of aggregated capital. Socially necessary hours of labor can be aggregated after correcting for skilled labor as multiple of relatively ‘unskilled’ labor to reflect higher productivity; and acres of land can be aggregated after adjusting for acres of varying levels of fertility; but highly diverse, in many ways, machines, buildings, etc. have no common property except price, the yardstick used by mainstream theory to aggregate capital. But this involves meaningless circularity in aggregation, as the price of the machine is a function of the profit expected from it, yet the rate of profit, the ratio of profit to price, varies as capital prices change.

2 The assumption that changes in the output of industry A do not affect the costs of many other industries which in turn affected the costs of industry A and thus the conditions for any partial equilibrium that is the focus of neoclassical theory are gone.

3 This stands in contrast to ‘scientific realism’ that says theory must accurately represent, to some extent, reality in order to accurately predict and transform it.

4 E.g. A falling ball, dropped near earth, behaves nearly as if dropped in a vacuum and thus the theory of gravity had great explanatory power, even assuming away as “negligible”, air resistance, with gravity constant and some simple calculus. This notion says that if a theory has great explanatory power with economy of effort (highly restrictive negligibility assumptions) it is to be preferred to one with marginally better explanatory powers but at significant more cost and elaboration or detail.

applicable range of conditions of a theory¹) and heuristic assumptions (for expositional or analytical devices²)

On scientific method, Keen relies on the taxonomies of assumptions and critiques of philosopher Alan Musgrave et al.³ He notes that subsequent to the initial developments of macroeconomics, this sub-discipline has not been under siege not from any asserted lack of, or concern for, the predictive validity of its models, but from a purported lack of correspondence between core assumptions of microeconomics to form the core assumptions (micro-foundations) of macroeconomics; assumptions do matter in NE when convenient. Assumptions may be contradictory leading to internal incoherence (the object of Keen's inquiry) in a theory. Each "science" is a society of practitioners as much as an intellectual discipline with shared mindsets and core postulates (supporting the very foundations of a paradigm) and ancillary ones (that can/will be modified, to protect the core ones) against attacks from other practitioners from other paradigms as powerful interests are threatened.⁴ Notions of the equivalence of "superpositionality" ("Schrodinger's Cat") found in Quantum Mechanics (different possible positions of the same phenomenon yielding different approaches or even "laws" having equal validity) or the Heisenberg Effect (phenomena influenced by observations and observers of them) are summarily and incorrectly rejected as impossible by mainstream economics. Core postulates in economics are held on to far longer and more zealously than in any other discipline Keen due to sociological and economic interests involved in economic constructs more than in the physical sciences. Popper's notion of a science dealing with potentially falsifiable hypotheses, rather than experimentation, makes no allowance for if or if not, and on what basis, a statement or hypothesis can in fact be falsified in practice. And the focus/obsession with equilibrium in neoclassical economics is both tautological and ideological dressed up as something else.

In this chapter on scientific method, Keen makes an amazing statement that parallels the "End of History" statement of neo-Hegelian Francis Fukiyama⁵ that Fukiyama has since repudiated:

"At the beginning of the third millennium, there is no competing social system against which capitalism must prove its superiority. Feudalism is long dead, and those socialist societies which remain are either socialist in name only, or bit players on the world stage."⁶

Neoclassical Theory and Time

In his essay "Let's Do the Time Warp Again: Why Economics Must Finally Treat Time Seriously" Keen basically rehashes the central points made elsewhere in other essays: a) analyses based on statics and comparative statics do not work well to illuminate or predict aspects of an inherently dynamic economy; b) small deviations from some supposed equilibrium will not set up morphostatic processes to move the

1 An example an erroneous domain assumption invalidating a theory according to Keen is the assumption that risk can stand in as a proxy variable for uncertainty. Risk applies to regularities of past events yielding probabilities of future ones whereas uncertainty applies with no regular guide from the past to probabilities in the future.

2 Heuristics are rules of thumb or expositional or analytical devices. A heuristic assumption is one known to be false but employed as part of simplifying and successive approximations as steps in the development of a more general theory.

3 Musgrave, Alan, "Unrealistic Assumptions' in *Economic Theory: The F-Twist Untwisted*", *Kyklos*, 34: 377-387, cited in Keen, Steve, op cit. p. 318

4 Keen mentions, in this sociological approach to science and what science does and why, alternatives such as: Marxism; Complexity-Chaos Theory; Evolutionary Economics; The Austrian School; Post-Keynesians; Sraffian Economics the purported strengths and weaknesses he explores in his essay on alternatives.

5 Fukuyama, Francis, "The End of History and the Last Man", 1992 This is the notion of the final "triumph" of and supposed proof of the superiority of capitalism over socialism.

6 Keen, Steve, op cit. p. 162 This is a truly amazing and unsupported statement to make in an essay on science and scientific method. On what basis does he simply assert, for example, that say China and its CPC is either socialist in "name only" or a "bit player on the world stage." This is a breathtaking statement from someone supposedly well-versed in Marx and Hegel as well as in scientific standards of definitions and "proof" in assertions made.

economy back to that equilibrium; c) conventional theory ignores the time-based process through which deviations from equilibrium trigger back-and-forth or negative (morphostatic) reactions leading to a new equilibrium or restoration of a previous one; d) at “higher” levels of analysis, neoclassical theory relaxes the partial equilibrium and “ceteris paribus” assumptions to deal with “all things interrelated”; instead of a more realistic narrative that allows for disequilibrium as well as equilibrium, students get a general equilibrium model purporting to show how all aspects of an economy can be simultaneously in equilibrium—yet they wind up showing that general equilibrium is unattainable within their own paradigm; e) change in price in one market will affect consumer demand (and thus trigger disequilibria) in other markets especially if trades occur, as they will in the real-world, at non-equilibrium prices¹; e) Walras’ vision, with simultaneous linear equations falls apart with non-linear difference or differential equations and abandonment of the fiction of everything tending towards equilibrium, are employed²; f) Debreu’s general equilibrium model, a parallel of the linear Leontief matrix, is inherently unstable as the system cannot reproduce itself on a simple or expanded level and because prices must be feasible in reality economics needs to focus on dynamics (not processes between and tending to static equilibrium states); h) economic analysis should be concerned with rates of change not absolute levels of various variables; i) mathematically unstable systems do not merely cause fluctuations around equilibrium states, they may cause break downs and implosions or, they may simply produce chronic disequilibrium (cycles, Chaos Theory and weather/climate systems); j) more than two variables in a system of non-linear differential equations yields no possible analytic solution and simulations must be conducted to see what complexities may happen; k) butterfly effects (with merely three differential equations) in weather modeling yield order-out-of-chaos complexity with three equilibriums all diverging systems away from equilibrium with even small disturbances; l) if equilibria of a system are unstable, then neither the initial nor final position of the model will be in equilibrium—the notion that dynamic analysis plots movements from one equilibrium to another is wrong and equilibrium is where the model never will be; m) static analysis cannot be used as a proxy for dynamic analysis; n) non-linear relationships in differential equations will lead to complex but bounded behavior.

Keen’s final essay/chapter is entitled “There are Alternatives: Why There is Still Hope for a Better Economics”. He gives a very brief overview supposed strengths and weaknesses of Austrians, Post-Keynesians, Sraffians, Chaos-Complexity theory and Evolutionary economics none of which he claims can take over as the dominant paradigm for the 21st century, which he said, in 2001, awaits a global crisis of capitalism.

¹ In an example of ancillary postulates created to protect core ones, Walras assumed that no trades occur until general equilibrium in all markets is achieved and/or that prices would tend toward equilibrium levels. Walras saw the economy as a giant auction house in which quantities of each commodity is fixed but demanders will offer to buy from zero up to all depending upon price. The auctioneer attempts to sell all commodities at once, and, rather than treating each commodity independently, he or she refuses to accept any price for any commodity until supply and demand for each and every commodity are in equilibrium. Through a process of “tatonnement” or groping, Walras argued that eventually a set of prices that balanced supply and demand in all markets would be found.

² Debreu’s vision of general equilibrium, intended to rescue Walras from his own contradictions only made it worse. Debreu assumed: one “market” in which all commodities are exchanged for all of time in one instant; complete certainty out of any uncertainty, as to what input-output combinations of consumer and producer commodities will be possible in the future; consumption and production plans made for the whole future; possibility not stability of general equilibrium the issue; a set of positive prices equating quantities demanded and supplied for all commodities simultaneously can be determined;