



Munich Personal RePEc Archive

The Road to Market Serfdom: Why Economics is Not a Science and How to Fix it.

Freeman, Alan

London Metropolitan University

1 May 2013

Online at <https://mpa.ub.uni-muenchen.de/52677/>

MPRA Paper No. 52677, posted 04 Jan 2014 18:32 UTC

THE ROAD TO MARKET SERFDOM

Why Economics is Not a Science, and How to Fix it

Alan Freeman, London Metropolitan University

afreeman@iwgvt.org

Abstract

This paper was presented to the May 2013 conference of the Postglobalization Initiative in Moscow, and deals with the function of economics in the modern world order. It seeks to explain why, as a profession (notwithstanding individual exceptions) economics failed to predict the crisis that opened in 2007; why it then failed to foresee its length and depth; and why it proposes no solutions that could bring it to an end.

The paper challenges economics' most fundamental claim, that it conducts itself as a science, arguing that it instead behaves as a religious system for making and justifying political decisions whose core belief is *market perfection*: the notion that the combination of private property in production with universal commodification is not only optimal, but cannot fail.

The paper proposes a radical new conception of the ethical duty of economists as *resisting untruth*, which it can do by conducting itself as a *pluralist* science. To this end, the paper introduces a distinction between two functions of knowledge: its *exoteric* function through which society arranges to control nature, and its *esoteric* function which organises, within a rational structure, systems of law, ethics, morality, and their relations to each other.

In science, the exoteric predominates over the esoteric. In religion, the reverse is the case. This explains the real function of economics, which is a disguised normative system rooted in the primary principle of market perfection. Its prescriptions are derived not by the normal scientific method of testing a variety of theories against the evidence, but by the elevation of this supposition into an unchallengeable dogma. It operates as a *monotheoretic* body of knowledge in which, at any given time and facing any given problem, only one unique answer is offered, denying the users of economics the basic democratic and scientific right to choose between a variety of answers on the basis of their own independent assessment of both the evidence and the presuppositions of the theories from which the prospective answers are deduced.

The primary mechanism of its religious function lie therefore in its methods of *theoretical selection*: it permits the promulgation and indeed, development, only of those theories which yield predictions consistent with the dogma of market perfection.

It is constructed to suppress any body of theory which leads to conclusions inconsistent with the assumption of market perfection, most notably those, such as the theories of Marx and Keynes, which demonstrate that the market system is *self-contradictory* – that is to say, that it acts so as to undermine the basis for its own existence. The more likely it is that a given theory may lead to such conclusions, the more thoroughly it is suppressed.

In consequence, those theories that escape the suppressive net of economics are precisely those in which the present social order is presented as not merely optimal but natural, inevitable and eternal. Interference with this market then becomes a crime against nature. All private benefits of the property-owners become the result of natural forces: they are rich because nature intended them to be. Take their riches from them, and things can only get worse. Poverty, destitution, famine: these are sad but inevitable

consequences of nature. Any policy designed to offset or overcome them is misguided. Nature, in a word, has been enthroned as a God, by excluding humans from Nature.

I employ the term *market serfdom* to characterise such a system, because it removes *choice* from the field. Human agency is itself designated a crime against nature. Hayek and his followers, the paper, have erred in making an issue of the claim that 'serfdom' comes from interfering with the market: Actually they propose that the only course open to humanity is to *submit* to the market. This is the freedom of the slave who accepts his destiny. We have no *choice* but what the market ordains. Economics, as we now know it, is the theoretically perfected manifestation of this doctrine, just as late mediaeval Catholicism was the perfected manifestation of the doctrine of submission to the established aristocratic and monarchic order.

The paper then analyzes the two principal mechanisms by which the profession of economics has arrived at this point: *selection for conformity* and *institutional delegitimation*, and briefly outlines how 'assertive pluralism' could, if applied systematically, restore the study of political economy to the status of a science.

Slides, and a video of the presentation and discussion, will be made available through the link to this paper at <https://londonmet.academia.edu/AlanFreeman>

JEL codes: B1, B4, B5

Keywords: [Value](#); [Price](#); [Money](#); [Labour](#); [Marx](#); [MELT](#); [Okishio](#); [TSSI](#); [temporalism](#); [rate of profit](#);

THE ROAD TO MARKET SERFDOM

Why Economics is Not a Science, and How to Fix it

Alan Freeman, Moscow May 1 2013

I was very happy when Boris, Alexandra and Mikhail asked me to speak about 'economics as a religion' because I have been arguing for the last twenty years that modern economics occupies the same material place as the early Mediaeval Catholic Church. In fact I have been waging a kind of Lutheran war against it. So I hope you like these 105 theses.

When I make this claim I find people like it, but treat it as a kind of joke, a satirical idea to ridicule economics so people will treat it with less respect. I don't mind if start disbelieving their economists, because economics has done so much damage, but for me this is a serious, materialist analysis. With colleagues we have even developed a reform programme, based on the principle which, following heterodox economist Andy Denis, I term 'assertive pluralism'.

We propose a radical new conception of the ethical duty of economists: the aim is to defeat the present quasi-dictatorship of demonstrably false and unjust ideas which are used to bypass all democratic processes, and have cost the world more lives than all the bombs ever dropped on it. Alternatives such as the Association for Heterodox Economics, and the World Economics Association, which now has more than 10,000 members, are fighting to change this.

I wish to challenge economics' most fundamental claim, that it conducts itself as a science. Instead, I claim, it behaves as a religious system for making and justifying political decisions that defend a destructive social system to preserve the privileges of a small minority of the people on the planet. The core of its justification is a concept that it calls General Equilibrium. This is a mathematically perfect expression of the idea that the market is perfect, that is to say it is optimal, and cannot fail.

To explain this, I will introduce a distinction between two functions of knowledge. The first I call its *exoteric* function. An observer carries out this function when she distinguishes herself from what she observes. Here belong most constructs of science – energy, gravitation, atoms, waves, and so on. Through it, society arranges to control nature.

The *esoteric* function of knowledge defines a relation between society and itself. Humans carry this out when they become collectively self-conscious, which means they no longer maintain a distinction between themselves and what they observe. Esoteric knowledge organises, within a rational structure, systems of law, ethics, morality, and their relations to each other.

In science, the exoteric predominates over the esoteric. In religion, the reverse is the case. In a truly democratic socialist society, they would be the same thing.

To convince you of this point I invite you to discard two simplistic ideas. The first is an enlightenment myth, that what distinguishes religion from science is irrationality and contempt for evidence. The second is that 'normative' or ethical judgements stand outside science. The standard formulation of this view is in Samuelson and Nordhaus (1992:9):

Normative economics involves ethical precepts and value judgements...there are no right and wrong answers to these questions because they involve ethics and values rather than facts. These issues can be debated, but they can never be settled by science.

This is wrong on two counts. First, allegedly positive concepts such as ‘market’ refer not to anything actual but to an idealised, self-regulating market which does not and cannot exist. This is not scientific but normative. When I worked at the Greater London Authority, before my fellow economists would allow the Mayor to intervene, they charged him with proving that there had been ‘market failure’. This is not at all a scientific criterion, since we know full well that markets do fail. It is a normative precept, that markets are best.

It is also false that ethical propositions like ‘society should be more equal’ are unscientific. This idea denies the possibility of rational ethics, one of the fundamental principles of the enlightenment and also of democracy. It declares that there is no rational basis to decide, collectively and democratically, what to do. Does this mean we should make every social decision by throwing dice or consulting oracles?

In fact, if a precept such as equality permits us to reorganise society, in the same way that an architect can construct a socially functional and aesthetically pleasing building, then this is a scientifically valid precept. It is true that an equal society does not exist. It is not at all true that we cannot scientifically plan to get one. In that case, we need to know what policies will achieve it. This is what political science is for. The reason that political science is currently irrational and produces such stupid results is that the economists don’t allow it to analyse, using normal methods of science, the material foundation of politics, namely, the economic relations between humans.

To make this clearer, I will take thirty seconds to deal with a trivial misunderstanding about science which claims that the natural sciences are different from the social sciences because they are experimental and deal with repeatable phenomena, but we can’t carry out social experiments because everything only happens once.

In astronomy, nothing happens twice. And in fact the quantum physicist Paul Dirac showed in the early 1930s that *nothing* in nature happens twice. This does not stop us landing people on the moon. The purpose of science is to decide which *theories* to use when we make judgments, and this is equally applicable if we are launching spaceships or deciding how to run our lives. Science differs from religion only in the way it chooses which theory to apply. Experiments do not actually ‘repeat’ a set of circumstances but isolate one aspect of a theory so that we can study it – as far as is possible – in the absence of other disturbing factors. The experimental method is nothing but one weapon, in an armoury a selection procedure. Another, equally important, is the collection of *evidence*; a third is the systematic *testing* of alternative theories against each other – in fact, I will argue the decisive feature of a true science. Economics is a religion because it does not do this.

Modern economics – I do not speak, of course, of the economics that we really need – is a religion very succinctly because of the way it chooses its theories, which I will spend most of this paper dealing with.

It is clearly not a science. It does not describe reality, nor has it led to rational policies. It did nothing to predict the crisis, nor can it explain why it has continued for six years. There have been many attempts to organise society around its principles, including the financial and economic liberalisation, and the lunatic ‘austerity’ policies being followed by Europe and now, America. They have all failed.

Then why does a well-paid profession organise itself around the intellectual fiction that an unattainable ideal is a practical approximation to the truth? That’s what I’d like to talk about.

Does heaven exist?

Let us suppose that a team of modern experimental scientists set out to research what ‘heaven’ meant in mediaeval times.

Our team would soon have to acknowledge it had two meanings. It describes space: 'earth' means either 'beneath' or 'the parts we can reach' and 'heaven' means either 'above' or 'inaccessible'. For mediaeval society, these concepts were spatially the same.

But 'heaven' was also an organising principle of the social order. The inaccessible parts of the universe were supposed to be *perfect*, made of a substance Aristotle called 'quintessence' or the fifth element. Around this, European society constructed an ideal: the people and classes most qualified to own and to govern were those who could trace their origins and their policies to the heavens. Its rulers were little bits of heaven, transported to earth.

This is often dismissed as a simple lie. But it was not: it was the basis of a system of logic. Ecclesiastical courts would make judgements about which claimant to a throne, or a piece of land, was in the right. That is why, for example, Henry VIII of England broke with the Pope.

The word 'heaven' had two meanings: what people saw when they looked upwards. But because of its assumed perfection, it was the logical foundation of the mediaeval system of law, morality, and social relations.

Paradigm change

Enlightenment mythology has rewritten the story of Galileo as a simple battle between the forces of reason and light. We are not served by this crude counterposition.

I define both scientific and religious systems as *means of making judgements*. They are distinguished by the way they arrive at the theories that they use to make these judgements. A system is religious when *esoteric considerations dominate over exoteric considerations in its selection of theories*: when the management (and hence preservation) of the social order is a higher priority, when choosing a theory, than either explaining reality or producing a rational ethics.

This is shift from the enlightenment concept of religion as simple lies or superstition. Religion is not at all incompatible with scientific knowledge. Islamic scholars pioneered much modern astronomy and most of the foundations of modern computational logic.

My start point is Thomas Kuhn's (1962) account of 'paradigm change'. Kuhn asked how one scientific theory replaces another, and showed that it happened in a rather different way than scientists claim. In fact, old theories are not 'discarded' because they don't fit the facts, but are elastically extended. An army of scientists is assembled around the old theory; but new theories gradually accumulate new armies. Over time, one of these groups wins out, by recruiting support from outside, by gathering new evidence, and by recruiting from the opposing camp, until eventually the old theory just dies out.

However, Kuhn first of all never considers the social sciences. Second, he supposes, broadly, that the only issue at stake in these 'social struggles between scientists' is the result of experiments. He presents the transition to Copernicanism, as an archetype of science, as a debate between scholars presumed to be acting as scientists. This is misleading. Copernicanism was not 'rejected' but *suppressed*. The Holy Office in 1616

Judged formally heretical the proposition that the sun is the center of the world and completely immovable by local motion. At the same time they judged erroneous in faith the proposition that the earth is neither the center of the cosmos nor immovable but moves as a whole and with a diurnal motion (Lattis 1994:139)

The Congregation of the Index in the same year condemned Foscarini's pro-Copernican book and suspended 'until corrected' Copernicus's own *de revolutionibus*. Galileo was not simply passed over for promotion: he was instructed to recant, placed under house arrest and solemnly forbidden to disseminate his ideas. Copernicus's works were condemned as heresy and their promulgation prohibited for centuries.

How did the church and its scholars arrive at these decisions? Only when this question is asked can we grasp the real material processes that connected science and religion in early modern Rome. It is very similar to the way modern society treats economic ideas.

Scientific and religious processes of paradigm change

The church did not oppose heliocentrism on exoteric, observational grounds. Actually, the pope loved Galileo's work and had his secretary read them to him in his bath. The problem was esoteric: with Protestantism rising all over Europe and challenging the pope's infallibility, here was a theory that contradicted the perfection of the heavens on which rested both the church's own authority and that of the rulers whose interminable disputes it arbitrated. In fact as Lattis explains, Galileo's single most threatening discovery was mountains on the moon: the moon, being heavenly, had to be perfect and could not have lumps on it.

This approach to heaven was consciously introduced Plato, who requires that the gods should reside in the heavens precisely in order to make them inaccessible to the common people. We should remember that mediaeval Christianity was essentially neo-Platonist. Its cosmology was not primarily a theory of nature but of society. It was an account of human conduct, of the social order.

To displace the earth from the centre of the universe would not just deprive Galileo's peers of an explanation of material movement; it would have cost them of their jobs. As Lattis notes

Before the condemnation [of Galileo] they [the Jesuit astronomers] would have had to be somewhat cautious about expressing Copernican sympathies in part so as not to offend collegial sensibilities in the Collegio Romano. But the automatic and obligatory anti-Copernican prejudice after the condemnation effectively forced them not to consider that alternative at all. (Lattis 1994:202)

In just the same way today the novice economist must today steer clear of the heretical ideas of Marx or radical readings of Keynes. The theories that lead to being published, appointed, published and funded are the ones which presuppose the market is '*optimal*', and *contains no internal contradictions*: that is to say, just like the Mediaeval Christian heavens, the market is perfect. This, not observation of real society, is what decides how an economic theory is selected.5:22:30

This selection mechanism provides what I call *institutional legitimation*: it fixes the *range* of alternatives which a practicing economist is allowed to consider. These are the theories in which equilibrium is presupposed. Conversely it also provides *institutional delegitimation*, that is, exclusion and suppression, for any really dangerous theories, notably non-equilibrium Marxism and Post-Keynesianism.

Equilibrium and market perfection

In explaining how 'equilibrium' works in economics, I set aside an innocent use of it which involves the idea of equal that opposed forces operate at a particular point – for example to fix the price of one good. Sometimes known as 'partial equilibrium', this idea has no necessary ideological implications.

The economist Walras, with the backing of Marshall and the championship of Paul Samuelson, transformed this into something altogether different: 'general equilibrium', sometimes known as comparative statics. Its earliest form was a doctrine that Marx and Keynes denounced, originally known as Say's Law.

This begins by supposing that all *movement* has stopped. It asks 'how would the economy behave if nothing was changing?' It then solves a set of simultaneous equations to determine what prices, employment and profits *would have to be* in order for such an economy to exist. It then declares that these are the *real* prices, employment and profits: everything different must be caused by external interference.

Such an economy must be perfect. For, if it were not perfect, something in it would want to move, to change. Thus, what an economists calls the 'real' economy is not the real economy at all, but an ideal, perfect one. This is the key to the esoteric properties of the equilibrium paradigm. I draw attention to four of its key properties.

First, any such theory is non-falsifiable. It can never be disproved. If society really does not behave according to this ideal – as is clearly the case now – it is explained by an 'imperfection'. As John Weeks justly remarks, economists suppose that a horse is an imperfect unicorn. The most elementary scientific test – do we observe what we predict – is excluded, a fact about economics that has always astonished me in its brazenness.

Third, all *effects of motion* are removed. Time is eliminated from the calculation. For this reason researchers such as Andrew Kliman and myself use the word 'temporalism' to describe the alternative. Other writers have used the term 'path-dependent' which expresses a similar idea. Decisive phenomena like long-term unemployment, business cycles, world inequality, and declining profit rates cannot in fact be explained except by means of dynamic or 'path-dependent' effects, as the Russian mathematical tradition, notably such writers as Lyapunov, fully understood. In an equilibrium theory, these effects do not and cannot exist. The theory simply cannot express them.

Finally, therefore, all such theories must necessarily suppose that if something goes wrong, the cause was *external*. Economic theory and policy is a litany of non-market causes for the market's problems – bad governance, poor monetary regulation, terrorism, oil shocks, trade unions, regulatory régime – everything but the market itself.

Exoteric properties of the equilibrium paradigm

What distinguishes a science from a dogma is the mechanism – above all when confronted with failure – which leads to changes in theory. What does economics actually do when it makes a mistake? The answer is, again, quite extraordinarily brazen.

In every school, in every subject, in dealing with every problem, when faced with the choice economics either adopts an equilibrium explanation immediately or produces one as quickly as it can without ever exploring the possibility of a temporal alternative; and when a temporal alternative is advanced, it either converts this alternative into an equilibrium form, or suppresses it altogether.

It discarded Keynes' theory in favour of 'bastard Keynesianism' which simply put Keynes back into a Says Law framework. It discarded Marx's theory in favour of what passes for 'Marxism' today which is a completely different theory proposed in 1905 by von Bortkiewicz who re-interpreted Marx (see Kliman 2006, Freeman and Carchedi 1996) as a general equilibrium theorist. Economics even threw out non-equilibrium marginalism, so-called 'Austrian' theory which is today itself marginalised.

There are countless other examples are: Real Business Cycle models, Rational Expectations, Schumpeterian Long Wave theory – whenever economics faces a real choice between an equilibrium and a non-equilibrium explanation, it *invariably* selects the equilibrium version, *regardless* of its predictive capabilities.

These 'choices' were not dictated by observation or evidence. They were determined by a systematic process – the appointment, publication, funding and promotion of economists – in which at every stage, the people that get selected are those that will *delegitimise* anti-equilibrium theories of any kind.

Religion without gods

It will not have escaped you that economics lacks an apparently essential requirement for a candidate religion: namely, a god. In modern times, *natural agency* has replaced heavenly influence as the esoteric foundation of bourgeois systems of 'right conduct'.

Its most developed form is *positivism*, the idea which we get from French writers such as Laplace and Comte, that society is governed by immutably governed by natural laws that we cannot change. This has had no small influence in Marxism; it is the basic system of thought that governed late soviet doctrines, for example.

Economics is a *naturalistic* system of external agency in which the market is ascribed divine powers inaccessible to humans.

It really expresses, of course, the specific private interests of a particular class - the capitalists – which have been re-packaged, alienated just like Feuerbach's somewhat more human gods, so that they appear as untouchable external agencies.

The esoteric core of the equilibrium paradigm is that it make it impossible for the market to produce failure from within itself. Where, then, does failure come from? In mediaeval times, human misery was treated as an act of God. Economics has reversed this concept of agency. The market itself – actually a uniquely human product – is explained as a product of exogenous forces. Its plagues and famines are still the outcome of exogenous forces but these are no longer divine. The new gods are the technical relations of production and the innate biological drives of agents, and the new sin is to stop them having their way with our markets.

The road to market serfdom

Interference with this market now becomes a crime against nature. Moreover all the private benefits of the capitalists are the result of natural forces: capitalists are rich because nature intended them to be. Take their riches from them, and things can only get worse. Poverty, destitution, famine: these are sad but inevitable consequences of nature. Any policy designed to offset or overcome them is misguided. Nature, in a word, has been enthroned as a God, by excluding humans from Nature.

But now we come to the crux of the matter: such a system removes *choice* purely human agency from the field. This is quite a remarkable point, since Hayek and his followers have made such an issue of claiming

that the 'serfdom' comes from interfering with the market. But actually what Hayek proposes is *submit* to the market. His is the freedom of the slave who accepts his destiny. We have no *choice* but what the market ordains.

If we stop supposing that the market is perfect or optimal, then it is merely one among many possible human creations. We may use it to fix the price of hamburgers, but not for health, for jewellery, but not for education. We can override property rights, insisting that capitalists can't pollute, discriminate, or underpay their workers, or introduce laws saying before they can build anywhere, the people affected must democratically decide whether they agree.

We are free to decide when we want to act collectively, and when we want to act individually. We are free to transfer incomes and wealth from one class to another, and also to take both power from one class and give it to another.

The equilibrium system eliminates this threat. The market is no longer 'one system of organisation among others' but perfect system, which we can only make worse by interfering.

The market as alienated private right

Equilibrium theories possess one further formal property, which explains their selection mechanism. They make it seem (in fact they *mathematically express the idea*) that the interest of one small group of society – the classes with money – is really the interest of all of society. In fact insofar as economics has disputes, the 'varieties' of economic theory are really those that say different fractions of the capitalist class are more important than others. Neoliberal theory essentially makes the interests of *finance* capital into the supreme interest; bastard Keynesianism conveys the notion of an identity of interest between industry and a privileged managerial technocracy.

Economic theory achieves this by making the special privileges of these groups of people appear like a law of nature, justifying measures like austerity which, if the true consequences were put directly and explicitly to people, would be rejected as partisan and unjust.

This language has immense social power. When Argentina's currency collapsed, when almost no politician retained anything approaching sufficient support to govern, the economist Rudiger Dornbusch proposed to hand Argentina's economy to a committee of economists – a proposal not far from handing over the fire brigade to the arsonists. Yet the Argentine people, who had forced out three successive presidents, supported this by 50 to 60 percent. Greece, Italy, Portugal, Britain, Spain and Russia are being told that 'economic laws' oblige them to accept punishing and indeed fatal attacks not just on their material well-being but on their *rights*. Half of Europe is now under the dictatorship of bankers. 'Normal' democracy is being suspended in country after country – in the name of an abstract, divine agency, a terrible Chronos of modern times, 'the market'. Yet people still believe it. As the crisis advances, the 'invisible hand shakes' and it is getting less and less plausible. The important fact remains that vast swathes of society, whose lives will clearly and obviously get worse, still support such policies, believing and almost praying that it's all for the best.

This spells out the conditions for reform. It is at the precise point when ordinary people begin to doubt the social order that a thirst arises for different economic explanations. The ethical economist, therefore, has a duty not to offer a new 'authority' – a new heterodox orthodoxy – but a genuine pluralism, genuine access to the full range of options. What is required from equilibrium theory – which it almost never concedes – is a statute of toleration, an acceptance that the public has the right of access to the full range of alternatives: in short, genuine pluralism.

This is also the truly 'scientific' solution: only when the public itself is made the judge of which policies it will choose to adopt, only when it has access to the full range of theories to draw on, and only when the principle of informed consent becomes the basis on which any economic policy will be proposed or acted on, then we really will have a scientific political economy; it will be no different from a democratic one, for the two are in fact one and the same idea under a different name.

References and further reading

- Barbour, Ian G (1990). Religion in an age of science, London: SCM.
- Chamberlain (2003) *The Bad Popes*, Sutton Publishing.
- Copernicus, N (1543) *De revolutionibus orbium coelestium*, published in English translation at <http://webexhibits.org/calendars/year-text-Copernicus.html> (accessed 23/2/2006)
- Davidson, P. (1991) *Controversies in Post-Keynesian Economics*, Aldershot and Vermont: Edward Elgar.
- Debreu, G (1959), *Theory of Value: An Axiomatic Analysis of Economic Equilibrium*, New Haven, CT: Yale University Press
- Drake, S (1980). *Galileo*. Oxford and New York: OUP.
- Eatwell, J, Murray Milgate and Peter Newman (1989) *General Equilibrium*, London and Basingstoke: McMillan.
- Ekeland, A(2006) 'Haavelmo – a low key heterodox?', paper submitted to the 2006 conference of the Association for Heterodox Economics.
- Fara, P (2002) *Newton: The Making of Genius*, Basingstoke and Oxford: McMillan
- Farrington, B. (1939), *Science and Politics in the Ancient World*. London: George Allen and Unwin.
- Freeman (2004) 'Science, religion and the reform of economics', presented to the fourth annual conference of the Association of Heterodox Economists, Nottingham, July 2004.
- Freeman, A. and Guglielmo Carchedi (1995) *Marx and Non-Equilibrium Economics*, Aldershot and Vermont: Edward Elgar.
- Freeman, A. Andrew Kliman and Julian Wells (2004) *The New Value Theory Controversy in Economics*, Aldershot and Vermont: Edward Elgar.
- Jaffé, W (ed) (1965) Correspondence of Léon Walras and related papers, Amsterdam: North Holland.
- Kliman, A and Freeman, A (2000) 'Two Concepts of Value, Two Rates of Profit, Two Laws of Motion' in *Research in Political Economy* 18.
- Kliman, A. (2006) *Reclaiming Marx's Capital: A Refutation of the Myth of Inconsistency*. Lexington.
- Kuhn, T. S. (1962) *The Structure of Scientific Revolutions*, Chicago and London: University of Chicago Press.
- Laibman, D. (2004) 'Rhetoric and Substance in Value Theory: an Appraisal of the New Orthodox Marxism' in Freeman, Kliman and Wells (eds) 2004, *The New Value Controversy in Economics*, Aldershot and Vermont: Edward Elgar.
- Lattis, J (1994) *Between Copernicus and Galileo: Christopher Clavius and the Collapse of Ptolemaic Cosmology*, Chicago: University of Chicago Press.
- Manning, A (2003) *Monopsony in Motion*. Princeton: PUP
- O'Driscoll, G. and Mario J. Rizzo (1985), *The Economics of Time and Ignorance*, London and New York: Routledge.
- Okishio, Nobuo (1961) 'Technical Changes and the Rate of Profit', *Kobe University Economic Review* 7. pp 86-99.
- Ormerod, P (1994) *The Death of Economics*, London:Faber and Faber.
- Sambursky, P (1987:44) *The Physical World of the Greeks*, Princeton: Princeton University Press.

Samuelson, P and William D Nordhaus (1992) *Economics*. New York: McGraw-Hill.
Sobel, D (1999). *Galileo's Daughter*. London and New York: Penguin.
Sowell, T (1972) *Say's Law, An Historical Analysis*, Princeton: Princeton University Press.
Townshend, H. (1937) 'Liquidity-premium and the theory of value', *Economic Journal*, vol. XLVII.