

A MORE CRITICAL LOOK AT MARKET SOCIALISM

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1. THE ROLE OF THE MARKET IN A PLANNED SOCIALIST ECONOMY

The capacity of any society to produce is finite. So too, is the demand for any one particular good. Some goods, e.g. water in a rainy country, can be produced to satisfy our needs with a minimal expenditure of labor. But by definition these goods account for only a small part of the value of a nation's output. The more valuable part is hard won by labor, our ultimate scarce resource.

Technology may reduce the labor required for some things, or even abolish whole branches of the division of labor. But as fast as it does this it creates new trades and specialisms, and, by opening up new vistas of the possible, engenders new and more sophisticated tastes. By the standards of the nineteenth-century founders of the socialist movement, the workers of Eastern Europe in 1989 lived a life of plenty: Owen and Lassalle had never heard of CDs and personal computers.

It is a fact, not of economics but of geology, that 1,300,000,000 Chinese and 1,150,000,000 Indians are not all going to be able to drive BMWs or Audis. Since scarcity cannot be imagined away, socialism must have a practical and fair way of dealing with it. Basically, there are two options, the rationing of scarce goods, or a price system of some kind.

- (1) Rationing makes good sense for services such as health care, where needs can be determined objectively rather than subjectively. In countries with socialized medicine, decisions about the medical procedures needed by a patient are made by doctors, not patients. The assumption is that doctors are better placed to arrive at an objective assessment of what is wrong with the patient, and thus the treatment needed, than the patients themselves.
- (2) Where needs are best judged by the individual, on the other hand, the wisdom of rationing depends on the distribution of income. Rationing is the best way of ensuring that scarce goods are fairly distributed if incomes are unequal, since it prevents the rich cornering the market. In case of food in an emergency,

formal rationing will ensure that everyone can get enough to survive. Given the sort of egalitarian income distribution discussed earlier, however, a price system is more efficient than rationing.

1.1. The limited role for markets. Advocates of the market compare it to a system of voting which makes the consumer ‘sovereign.’ This it does, but as the consumers and the people are two different groups.

Consumers are those with money. Only those who already possess something can have their wants satisfied. The unemployed, with only their unwanted labor to offer, have no votes in this system.

If, however, we first assume a highly egalitarian income distribution this objection to the market would not apply. So long as the market is restricted to consumer goods, there is no reason why it should be incompatible with socialism.

The basic principle of a socialist market in consumer goods can be stated quite simply. All consumer goods are marked with their labor values, i.e. the total amount of social labor which is required to produce them. But aside from this, the actual prices (in labor tokens) of consumer goods will be set, so far as possible, at market-clearing levels. Market-clearing prices are prices which balance the supply of goods (previously decided upon when the plan is formulated) and the demand. By definition, these prices avoid manifest shortages and surpluses. The appearance of a shortage (excess demand) will result in a rise in price which will cause consumers to reduce their consumption of the good in question. The available supply will then go to those who are willing to pay the most. The appearance of a surplus will result in a fall in price, encouraging consumers to increase their demands for the item.

Suppose a radio requires 10 hours of labor. It will then be marked with a labor value of 10 hours, but if an excess demand emerges, the price will be raised so as to eliminate the excess demand. Suppose this price happens to be 12 labor tokens. The radio then has a price to labor-value ratio of $\frac{12}{10}$, or 1.2. Planners (or their computers) record this ratio for each consumer good. The ratio will vary from product to product, sometimes around 1.0, sometimes above (if the product is in strong demand), and sometimes below (if the product is relatively unpopular). The planners then follow this rule: Increase the target output of goods with a ratio in excess of 1.0, and reduce it for those with a ratio less than 1.0.

The point is that these ratios provide a measure of the effectiveness of social labor in meeting consumers' needs (production of 'use-value,' in Marx's terminology) across the different industries. If a product has a ratio of market-clearing price to labor-value above 1.0, this indicates that people are willing to spend more labor tokens on the item (i.e. work more hours to acquire it) than the labor time required to produce it. But this in turn indicates that the labor devoted to producing this product is of above-average 'social effectiveness.' Conversely, if the market-clearing price falls below the labor-value, that tells us that consumers do not 'value' the product at its full value: labor devoted to this good is of below-average effectiveness. Parity, or a ratio of 1.0, is an equilibrium condition: in this case consumers 'value' the product, in terms of their own labor time, at just what it costs society to produce it. This means that the objective of socialist retail markets should be to run at break even level, making neither a profit nor a loss; the goods being sold off cheap compensate for those sold at a premium.

There are therefore two mechanisms whereby the citizens of a socialist commonwealth can determine the allocation of their combined labor time. At one level, they vote periodically on the allocation of their labor between broadly-defined uses such as consumer goods, investment in means of production, and the health service. At another level, they 'vote' on the allocation of labor within the consumer goods sector via the spending of their labor tokens.

1.2. Payment in labor tokens. It was a common assumption of nineteenth-century socialism that people should be paid in labor tokens. We encounter the idea in various forms in Owen, Marx, Lassalle, Rodbertus and Proudhon. Debate centred on whether or not this implied a fully planned economy. The Critique of the Gotha Programme[Mar70] contains a particularly clear account of the idea: '[T]he individual producer gets back from society-after the deductions-exactly what he has given to it. What he has given it is his individual quantum of labour. For instance, the social working day consists of the sum of the individual hours of work. The individual labour time of the individual producer thus constitutes his contribution to the social working day, his share of it. Society gives him a certificate stating that he has done such and such an amount of work (after the labour done for the comunal fund has been deducted), and with this certificate he can withdraw from the social supply of means of consumption as much as costs an equivalent amount of labour. The same amount of labour he has given to society in one form, he receives back in another' .

With the enthusiasm of a pioneer, Owen tried to introduce the principle into England via voluntary co-operatives. Later socialists concluded that Owen's goal would be attainable only with the complete replacement of the capitalist economy.

Whilst Marx was very complimentary about Owen, he was critical of the schemes of Proudhon and Rodbertus. It is worth considering the Marxian critique of 'labour money' schemes; for there may appear to be a tension between the latter critique and Marx's own proposals. Indeed, the 'critique of labour money' is open to a (mis)reading which takes it as critical of any attempt to depart from the market system, towards a direct calculus of labour time. This reading has been made by writers as far apart as Karl Kautsky and Terence Hutchison.

The basic object of Marx and Engels's critique might be described as a naive socialist's appropriation of the Ricardian theory of value. If only, the reformers argue, we could impose the condition that all commodities really exchange according to the labour embodied in them, then surely exploitation would be ruled out. Hence the schemes, from John Gray in England, through a long list of English 'Ricardian socialists', to Proudhon in France, to Rodbertus in Germany, for enforcing exchange in accordance with labour values. Marx criticizes Proudhon's scheme in his *Poverty of philosophy* ([Mar75]), and deals with John Gray in his *Contribution to the critique of political economy* [Mar71], while Engels tackles Rodbertus's variant in his 1884 Preface to the first German edition of *The poverty of philosophy*. Between Marx in 1847 and Engels in 1884 we find a consistent line of attack on such proposals. From the standpoint of Marx and Engels, such schemes, however honourable the intentions of their propagators, represent a Utopian and indeed reactionary attempt to turn back the clock to a world of 'simple commodity production' and exchange between independent producers owning their own means of production. The labour-money utopians failed to recognize two vital points. First, capitalist exploitation occurs through the exchange of commodities in accordance with their labour values (with the value of the special commodity labour-power determined by the labour content of the workers' means of subsistence). Secondly, although labour content governs the long-run equilibrium exchange ratios of commodities under capitalism, the mechanism whereby production is continually adjusted in line with changing demand, and in the light of changing technologies, under the market system, relies on the divergence of market prices from their long-run equilibrium values. Such divergences generate differential rates of profit, which in turn guide capital into branches of production where supply is inadequate,

and push capital out of branches where supply is excessive, in the classic Smith/Ricardo manner. If such divergence is ruled out by fiat, and the signalling mechanism of market prices is hence disabled, there will be chaos, with shortages and surpluses of specific commodities arising everywhere.

One point which emerges repeatedly in the Marxian critique is this: according to the labour theory of value, it is socially necessary labour time which governs equilibrium prices, and not just 'raw' labour content. But in commodity-producing society, what is socially necessary labour emerges only through market competition. Labour is first of all 'private' (carried out in independent workshops and enterprises), and it is validated or constituted as social only through commodity exchange. The social necessity of labour has two dimensions. First of all, we are referred to the technical conditions of production and the physical productivity of labour. Inefficient or lazy producers, or those using outmoded technology, will fail to realize a market price in line with their actual labour input, but only with the lesser amount which is defined as 'necessary'. Secondly, there is a sense in which the social necessity of labour is relative to the prevailing structure of demand. If a certain commodity is overproduced relative to demand, it will fail to realize a price in line with its labour value - even if it is produced with average or better technical efficiency. The proponents of labour money want to shortcircuit this process, to act as if all labour were immediately social. The effects within commodity-producing society cannot but be disastrous.

Now the lesson which Marx and Engels read to the labour-money socialists, concerning the beauties of the supply/demand mechanism under capitalism and the foolishness of the arbitrary fixing of prices in line with actual labour content, are obviously rather pleasing to the critics of socialism. It appears that Kautsky also read the critique of labour money as casting doubt on the Marxian objective of direct calculation in terms of labour content, so that by the 1920s the figure widely regarded as the authoritative guardian of the Marxian legacy in the west had effectively abandoned this central tenet of classical Marxism. From the account of the critique of labour money we have given, the limits of that critique should be apparent. What Marx and Engels are rejecting is the notion of fixing prices according to actual labour content in the context of a commodity-producing economy where production is private. In an economy where the means of production are under communal control, on the other hand, labour does become 'directly social', in the sense that it is subordinated to a preestablished central plan. Here the calculation of the labour content of goods is an

important element in the planning process. And here the reshuffling of resources in line with changing social needs and priorities does not proceed via the response of profit-seeking firms to divergences between market prices and long-run equilibrium values, so the critique of labour money is simply irrelevant. This is the context for Marx's suggestion for the distribution of consumer goods through labour tokens.

The significance of labor tokens is that they establish the obligation on all to work by abolishing unearned incomes; they make the economic relations between people transparently obvious; and they are egalitarian, ensuring that all labor is counted as equal. It is the last point that ensured that they were never adopted under the bureaucratic state socialisms of the twentieth century. What ruler or manager was willing to see his work as equal to that of a mere laborer?

1.3. Labor tokens are payment for work done. The difference between a labor-token system and the hire of labor-power can be shown via some contemporary illustrations.

Suppose you engage a self-employed plumber to fix the toilet. The plumber will judge how long it will take and quote on that basis. On completion of the job you pay the plumber for parts and labor. You do not purchase his ability to work for a day, you pay for the actual work done. If he does not finish the job he does not get paid—it was up to him to judge how long it would take. Self-employed, he has an incentive to get his estimates right.

Suppose, on the other hand, you call out a repairman employed by a service company to fix the heating. You are likely to be charged for time actually taken. The service company need have no control over how hard or efficiently the repairman works, as the system of charging means that it can never lose. The company purchases his labor-power at \$10 per hour and sells it on to you at \$40. In this case you are being re-sold labor-power, not the labor actually performed.

Finally, suppose that you took out a maintenance contract for \$80 per annum. The service company is now selling you the promise of work actually done, labor, and has the responsibility and incentive to ensure that the work is done efficiently and to time.

Payment in labor tokens implies payment for work actually done as in cases 1 and 3. When Owen proposed such payment for artisans, this was unproblematic. Proof of work done was provided by the product delivered to the 'labor exchange.' In a modern economy it implies either a system of piecework, or detailed work study to arrive at estimates of time required under conditions of average skill to perform a task.

2. GENERAL ARGUMENT AGAINST MARKET SOCIALISM

The ideas presented in Section 1 summarise the arguments about the role of the market under socialism that we presented in [CC92]. Towards a New Socialism was written in the late 80s when ideas of market socialism were coming to the fore under Gorbachov in the USSR. The book was in a way a polemic against market socialism. Whilst it recognised a necessary role for a consumer goods market, it took strong issue with any generalisation of the market to labour and capital goods. The argument was that advances in information technology allowed an efficient planning system to be constructed which could replace the market in the allocation of means of production, whilst socialist concerns for equity should prohibit a market for labour. We took this stand because we believed that the idea of market socialism was fundamentally corrosive. It would undermine such socialist achievements as had been built up during the 20th century and would legitimate a transition to capitalism. Subsequent events validated this intuition.

In this section we present general arguments against market socialism before going on to look at specific Western market socialist writers.

It has long been noted by socialists that economies based on simple commodity production tend to give rise to capitalism. Lenin wrote : "small production engenders capitalism and the bourgeoisie continuously, daily, hourly, spontaneously, and on a mass scale"[Len99], a view he probably formed from his extensive sociological research on the Russian agrarian economy[Len67]. This view led orthodox communists to oppose the extension of market relations[Sta39, Cc75, Say80], even if these did not initially involve exploitative labour contracts. The suspicion was that some people would get rich and others poorer if market relations were extended, and that over time these differences would solidify into a new class hierarchy.

Market economies are fundamentally chaotic. The incomes of individual economic agents, be these people, firms or cooperatives are subject to constant random variation. A seller of commodities will have good and bad months, good years and bad years. This random process means that even if there is initially no buying and selling of labour power income inequalities must arise.

In a market economy, hundreds of thousands of firms and individuals interact, buying and selling goods and services. This is similar to a gas in which very large numbers of molecules interact, bouncing off one another. Physics speaks of such systems as having a 'high degree of freedom', by which it means that the movements of all individual molecules are 'free' or random. But despite the individual molecules

being free to move, we can still say things about them in the aggregate. We can say what their average speed will be (their temperature) and what their likely distributions in space will be.

The branch of physics which studies this is statistical mechanics or thermodynamics. Instead of making deterministic statements, it deals with probabilities and averages, but it still comes up with fundamental laws, the laws of thermodynamics, which have been found to govern the behaviour of our universe.

When the methods of statistical mechanics are applied to the capitalist economy[Wri05, Wri, FM83], the predictions it make coincide almost exactly with the labour theory of value as set out in volume 1 of Marx's Capital[Mar54]. Statistical mechanics showed that the selling prices of goods would vary in proportion to their labour content just as Marx had assumed. Because the market is chaotic, individual prices would not be exactly equal to labour values, but they would cluster very closely around labour values. Whilst in Capital I the labour theory of value is just taken as an empirically valid rule of thumb. Marx knew it was right, but did not say why. Here at last was a sound scientific theory explaining it.

It is the job of science to uncover causal mechanisms. Once it has done this it can make predictions which can be tested. If two competing theories make different predictions about reality, we can by observation determine which theory is right. This is the normal scientific method.

Farjoun and Machover's theory made certain predictions which went directly against the predictions made by critics of Marx such as Samuelson. In particular their theory predicts that industries with a high labour to capital ratio will be more profitable. Conventional economics predicts that there will be no such systematic difference between the profit rates in different industries. When put to the test it turned out that Farjoun and Machover were right. Industries with a high labour to capital ratio are more profitable[CC03]. But this is exactly what we should expect if the source of profit was the exploitation of labour rather than capital. Their theory made predictions which not only turned out to be empirically spot on, but at the same time verified Marx's theory of the exploitation of the worker.

The next big advance was made by the physicist Yakovenko, who showed[DY00, CCM⁺09] that money in a market economy played the same role as energy in physics. Just as energy is conserved in collisions between molecules, so money is conserved in the acts of buying and selling. So far so obvious!

What was not obvious was what this implies. Yakovenko showed that the laws of thermodynamics then imply that the distribution of

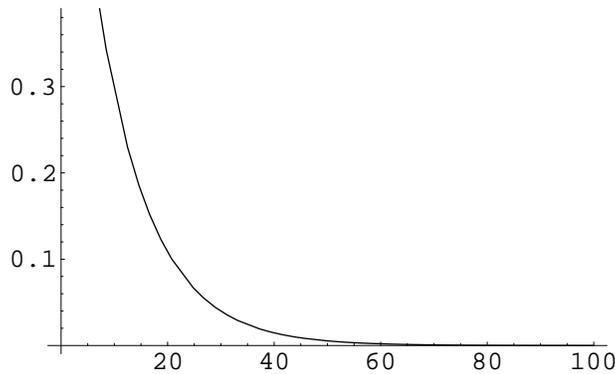


FIGURE 2.1. The Gibbs Boltzman distribution. If money is distributed this way a lot of people have a little money and a few people have a lot.

money between people will follow the same form as the distribution of energy between molecules in a gas : the so called Gibbs-Boltzmann distribution. This sounds very scientific, but what does it actually mean?

What the Gibbs-Boltzmann distribution of money says is that a few people will end up with a lot of money and a lot of people will end up with very little money. It says that the distribution of money will be very uneven, just as we see in capitalist society. In fact Yakovenko showed that the distribution of wealth in the USA fits the Gibbs-Boltzmann distribution pretty closely.

There is a tendency to think that rich people owe their wealth to intelligence or effort, but physics tells us no. Given a market economy, then the laws of chance mean that a lot of money will end up in the hands of a few people.

In fact when we look at the USA we find that the distribution of wealth is even more uneven than we would expect from the Gibbs-Boltzmann law. If the Gibbs Boltzmann law held, there would be millionaires but no billionaires. Why the disparity?

Yakovenko's original equations represented an economy that is rather like what Marx called simple commodity production. It assumed only buying and selling. More recent work by Yakovenko and Wright [DY02, Wri05], has shown that if you modify these equations to allow either the earning of interest on money, or the hiring of wage labour, then the equations predict a polarisation of the population into two groups. The great bulk of the population, the working class and petty bourgeois, follow a Gibbs-Boltzmann income distribution. But there is a second

class, those whose income derives from capital, whose wealth will follow a different law, what is called a power-law. Again, look in detail at the distribution of wealth in and you provide exactly the distribution predicted by Yakovenko's theory. This, says Yakovenko, proves that Marx was right when he said that modern society was comprised of two distinct and opposed classes : capitalists and workers.

What conclusions can we draw from this with respect to market socialism?

The first point is that as soon as you have a set of private agents, be they individuals, firms or cooperatives engaging in monetary trade, the laws of thermodynamics mean that the maximal entropy (most probable) distribution of money between the agents will be very uneven. Since, as Adam Smith said, money is the power to command the labour of others, this uneven distribution of money translates into an uneven distribution of social power. Those agents with more money are in a position to hire other agents under contractual terms favourable to the hirers. As soon as this happens the process of differentiation of income accelerates, and you move from the Gibbs Boltzman to the even more unequal power-law distribution of income characteristic of capitalist society.

This is a prediction that arises from simulation models of economies, but if we look at a real example of a socialist economy taking the market socialist path - China under Deng, we see in reality the sort of income inequalities the models predict.

It may be argued that in China the introduction of market relations went much further than is advocated by some market socialists. That may well be true, but this sort of process acquires its own dynamic:

My own work, inspired by the reform experience, contributed additional arguments for refuting the Lange-theory. It seems to be highly improbable to generate the strong cost-minimizing or profit-maximizing incentive, taken as granted in the world of Lange's theory, in a public firm under a soft budget constraint regime.

It is impossible to couple an arbitrarily chosen ownership structure and an also arbitrarily chosen set of coordination mechanisms. There is close affinity between certain ownership forms and certain coordination mechanisms. Decentralized market and private ownership belong together. A further important counter-argument comes from the political and ideological sphere. The

smooth functioning of the market depends on the "climate". It requires a market-friendly environment. If the politicians ruling a country are sworn enemies of genuine decentralization, the market will be banned to the black and grey area of the economy and cannot become the fundamental coordinator and integrator.) [Kor]

The converse of this is that if we want to stop a highly unequal distribution of income, we either have to remove the mechanism that generates it, or do work to reduce the entropy of the system. Marx's proposal for abolishing money and instituting labour accounts which do not circulate, do not function as money, removes the underlying random process which generates inequality. The Swedish model works to reduce entropy through redistributive taxes. It has to constantly work against the tendency of the market economy to generate a high degree of inequality, and can at most partially mitigate this inequality.

3. AN EVALUATION OF YUNKER

In a series of articles (for instance [Yun79, Yun88]) Yunker has made out the case for a form of market socialism. In these articles his main concern has been to defend market socialism against the criticisms of neo-classical economists who may be favourable to a capitalist economy. Since readers may not be familiar with his ideas we will give a brief summary of his proposals and his defence of them, before going on to make a critical assessment of them.

Yunker envisages what he calls a profit oriented model of socialism. The economy would be run, as now, by companies whose legal status would be largely unchanged. The companies will be able to engage in the full range of commercial transactions currently engaged in by US firms. These firms would employ people under the same sort of labour contracts as a present, and attempt to maximise their profits. Firms would be allowed to own shares in or make loans to each other as at present. The only limitation on capitalist activity would be that beneficial ownership of shares could not be vested in individuals. Instead, all shares not held or managed by other companies would be vested with a public body which he terms the Bureau of Public Ownership (BPO). The BPO would be obliged to maximise the return on the capital that it held. Capital income would then be distributed by the BPO to all employees in the economy as a percentage supplement to their wage incomes.

It is evident that the form of socialism advocated by Yunker is very similar to capitalism. Whether it should be termed socialism or state

owned capitalism is a moot point, but Yunker's intention is evidently to deflect much of the criticism that capitalist inclined economists level at socialism by saying : look, socialism could be pretty much like the capitalism you know and love, so your criticisms of socialism are mostly ill founded.

Yunker devotes considerable attention to the problem of incentives for socialist managers as compared to private capitalists. An owner manager gains the full benefit from any increase in profit which would not be the case for a salaried manager under market socialist conditions. Yunker points out that in practice most large firms today are already run by salaried managers so that in some ways the situation would be no different. The issue then becomes whether the fund managers of the BPO would pursue the efficient use of capital as well as private shareholders do?

Again one of his responses is to say that already a large portion of shares are held by institutional investors who pay salaries and bonuses to fund managers, so the situation is again not dissimilar.

He has done empirical studies of the effort that private shareholders have to expend to influence the rate of return that they get on their capital [YK74], from which he concludes that they needed only to spend 9 hours a month in order to get close to the maximal rate of return on their capital. He therefore concludes that the BPO could be expected to earn close to the maximal rate of return with only a relatively small effort of fund management.

He goes on to construct a relatively elaborate theoretical economic model which purports to help us understand the relationship between return on capital and the effort put in by managers, and concludes from this that efficient management could be obtained at much lower levels of incentives than are typical for CEOs in American companies.

3.1. Assessment. Yunker's work has to be assessed from the standpoint of the ideological milieu in which it is embedded, for its theoretical and scientific cogency and finally in terms of its social and political implications.

3.1.1. Ideological. The ideological context of his writing is very clearly that of mainstream academic economics in the USA. The economics profession in the USA is probably as hostile to socialism as that of any other country. This means that Yunker swims against a tide of hostility to any form of socialism, and exists within a universe of discourse that is quite quite different from that of Marxian socialists. He could have opted out of the milieu of neo-classical economics and formulated an external critique of capitalism, but he has chosen instead the path of

internal critique. He uses the familiar conceptual apparatus of his opponents and the familiar institutions of American capitalism to make his case for socialism. In a sense this is to be expected. Spontaneously developed socialist critiques of the existing order can be expected to start out from the dominant economic ideas of the day. Owenite and Marxian socialism built themselves on a critical appraisal of classical British political economy, so it is not surprising that a modern socialism, arising in the USA builds itself on the conceptual framework of the dominant neo-classical economics. The advantage of this approach is that Yunker's socialism may be harder for neoclassicals to simply dismiss than Marxian socialism. The disadvantage is that his approach is unlikely to appeal so much to grass-roots activists, because it seems to offer a society that is only slightly different from today's. Even a cursory examination of current activist web discussion of socialism, as opposed to discussion in academic journals, shows that Yunker's vision has generated much less interest than the more radical vision of Michael Albert[AH91] for example.

3.1.2. *Theoretical.* But ideological reception is not everything. One also has to assess the scientific status of his arguments. From our standpoint as Marxian socialists, we would want to know why Yunker chooses to reject planning as part of socialism. Support for planning as opposed to market competition has been the prevalent position among socialists, so one would expect that Yunker would devote some energy to justifying his rejection of it. On the contrary in [Yun88] he contents himself with a single sentence:

Among Western economists, it is virtually axiomatic that the “market capitalist” economy of the United States is highly efficient relative to the “planned socialist” economy of the Soviet Union. ([Yun88], page 71)

He then goes on to assume that this belief is justified and build all his further arguments on this assumption. His formulation is revealing in many ways. Firstly his use of the term “Western economists”. By saying this he can not just have meant economists who lived to the west of the Iron Curtain, since there existed at the time he was writing, a small, but still real, fraction of Marxian economists in Western countries. These economists would not have taken it as axiomatic that market capitalism was more efficient than planned socialism. By Western economists he meant those economists, wherever they lived, who adhered to the neo-liberal Washington Consensus. It was a reference to, and affirmation of ideological allegiance rather than geography that he was making.

The next revealing thing is his use of the word axiomatic. One has to ask why he thinks axioms are relevant to an empirical study like economics?

The place for axioms is in formal theories such as set theory, number theory or predicate logic. Axioms and laws of inference provide a means by which it is possible for the validity of some, but not all, propositions within such a theory to be evaluated. Given a set of axioms and rules of inference it is possible to use a deterministic procedure¹ to divide propositions into those that are provably true, those that are provably false, and those for which no deterministic answer can be obtained. People constructing formal theories are at liberty to select axioms, and by selecting different axioms different formal theories arise, the most famous historical example probably being the alternative axiomatisation of geometry by Riemann in 1854.

Yunker's reference to "virtually axiomatic" reveals the bias that neo-classical economists have towards treating economics as a formal system rather than an empirical science. Neoclassical economics proceeds by a discourse of proof from axioms rather than by the contrasting method of the empirical sciences : hypothesis, experimental or observational tests, modification of hypothesis. Biology does not proceed in an axiomatic fashion, why should economics?

Is it not possible that the axiomatic approach says something about the social role of neoclassical economic theory?

Couldn't it be the case that the function of the theory is to prove certain political propositions – that all is for the best in best of all possible worlds?

But then there is the adjective : virtually. It is "virtually axiomatic" that market capitalism is superior to planned socialism. Why the qualification?

Because neoclassical economists have not been able to prove the superiority of market economy to planned economy from their prior set of axioms. On the contrary, for the century since Barone [Bar08], it has been evident that the axioms of neo-classical economics could be used to show that planned socialism was just as efficient as market capitalism. So it becomes necessary for "Western economists" to add a final "virtual axiom"; to assume what they want to prove in the first place.

Yunker seems to have felt uneasy about disposing of hitherto existing socialism in one sentence, so he adds a footnote to the work of

¹In principle, and now often in practice, a computer program.

TABLE 1. Decline of Russian GDP following the switch from a planned to a market economy.

year	GDP in 1990 US \$Millions
1990	569709
1991	541224
1992	462746
1993	422487
1994	368831
1995	353709
1996	340948
1997	345657
1998	327182
1999	347962

Bergson[Ber78] who is claimed to have empirically validated this virtual axiom. We have a critical look at Bergson's work in section 4. But Bergson's work uses data from the 1960s and 1970s. It claimed to show that the Soviet economy was less efficient in its use of resources than the US one. Such comparisons are bedeviled by the difficulty of compensating for factors other than the social system that distinguish the two countries: stage of industrialisation, available level of technology, level of technical culture in the workforce, differences in national cultures etc. But such debates from the 70s are now history. We have the results of a controlled experiment in Russia to go on. From 1989 the Russian government took the advice of American economist who took it as virtually axiomatic that replacing the planned economy with a free market would result in an enormous improvement in economic efficiency. Had these economist been right, were it the case that the main thing holding back the Russian economy was the constraints imposed by central planning, then we should have expected a Russia to have experienced a leap in prosperity and economic growth post 1989. In fact the effect was completely the opposite. The institution of a market economy led to a catastrophic decline in overall economic output, (table 1).

We are not saying that the Soviet planning system, or its system of economic calculation and valuation were adequate. We argue in TNS that considerable inefficiencies arose from the under-valuation of labour in the USSR; that planning was based on aggregate rather than detailed targets; that it failed to make effective use of modern computer and

telecoms technology; that consumer goods prices often diverged excessively from labour values. But our response, writing in 1989, was not to advocate market oriented reforms, which we considered would have catastrophic consequences for the working classes of the USSR. Instead we advocated a modernised, technologically sophisticated, and democratic model of planning. We think, in retrospect, that our scepticism about the market socialist reforms then being advocated in the USSR have turned out to be well founded. In contrast the 1990s seem to have passed Yunker's by. He seems to have nothing to say about the signal failure of Gorbachov's market socialist trajectory. He still holds to a rejection of planning based on little more than US cold war prejudices.

One of the key points of Yunker's arguments concerns the role of management under socialism and capitalism. He is concerned to show that salaried employees of the BPO would be as effective in the efficient management of publicly held capital assets as current fund managers or individual capitalists are with privately held funds. His concern here is with efficient use of capital as a key component of overall efficiency. He takes return on capital employed to be the key indicator of economic efficiency, and argues that if socialist industry were to be oriented towards this, it would be as efficient as current capitalist industry, whilst allowing for greater equity.

There are several theoretical questions to be addressed here:

- (1) What is meant by the management of capital?
- (2) Could a single agency like the BPO operate in a manner analogous to multiple private fund managers?
- (3) Is profit really a good indication of capital efficiency?
- (4) Is the return on capital determined by the effort of capital managers or by quite other factors?

In Yunker's empirical study of capital management[YK74] he focused on individual 'investors'. But these were investors only in a very limited sense. They did not engage in the direct purchase of plant or equipment, instead they bought and sold financial assets. They were what used to be called rentiers, people whose wealth consisted in paper titles to future income streams. Management of capital, understood this way, is a much simpler task than efficient management of real capital assets and real capitalist production processes. But it is the latter which affects the productivity of a real economy. The former does affect the income of an individual rentier, but in a zero sum game. When a Mr A sells a low performing stock and buys a high performing one, he gains, but only at the expense of a Mr B who bought the low performing stock, and a Ms C who sold him the high performing stock. Contrast

this with the task of organising the production of the A380 super jumbo jet. This requires the efficient coordination of a huge number of distinct labour processes, spread across multiple nations and using a vast variety of capital equipment. Efficient execution of this sort of management directly affects aggregate welfare. It determines the timeliness of delivery of the jets. It determines their reliability and safety. Such management decisions influence their fuel consumption, etc. So there are two quite different sorts of capital management involved here, one of which has purely selfish implications, the other has social implications.

In the sort of economy that Yunker advocates, with only one ultimate owner, the BPO, the private rentier type of capital management would be irrelevant. The state is the ultimate owner of all shares and can not affect its income by portfolio adjustments. So Yunker's empirical studies are irrelevant to the issue he is addressing.

He might object that whilst buying and selling existing stock may be a zero sum game, the same can not be said about new issues of stock. Here, a consequence of stock purchase is the funding of real capital investment, and judgements by the market as to whether or not to fund such stock issues, have a real effect on future production. It is in this context that we have to ask : could a single agency like the BPO operate in a manner analogous to multiple private fund managers?

No.

The BPO as the only ultimate shareholder will have a synoptic view of the investment plans of all firms in the economy. Since the investment plans of one firm will affect other firms, the BPO must take this into account. Knowing the planned investments of all airlines for example, and knowing the best projections available to these firms for the growth of the airtravel market, it will be in a position to judge if the overall investment plans are excessive. It will thus be subject to none of the 'animal spirits' that motivate private investors during a bull market. A system of capital investment funded by a BPO will be much less likely to engender the bubbles which have time and again caused disastrous waste of real capital in the US economy, from the railway bubble of the late 19th century to the real-estate bubble that collapsed so dramatically in 2008. Many would judge this a good thing. But note that in the process, the BPO will have to act more and more like GOSPLAN.

If it is to make sound investment judgements, it will have to construct increasingly sophisticated econometric input-output models of the whole US economy. Only then will it be in a position to assess whether or not a particular investment in new stock issues is likely to give a good overall return. In will, in other words, have to plan.

3.1.3. *Social and political implications of Yunker's model.* Given the position of the USA in the world economic and political system, and given the absence of any significant socialdemocratic workers movement there, discussion of American Socialism has a slightly artificial air. However, it is not inconceivable that during the course of the 21st century this will change. The USA has moved from being the world's greatest creditor to its greatest debtor. In China it is faced for the first time with an industrial rival with the population resources to potentially overtake it. At the time of writing (March 2009) it is entering what looks like being its worst recession in three generations. All of these factors could lead to a serious socialist or social democratic movement taking root in the USA over the next quarter century. But would the ideology put forward by Yunker's be a plausible basis for such a movement?

We believe not.

Yunker's proposals are too timid to inspire a new generation of working class organisers. Although his ideas would, if somehow put into practice, mean some improvement in the income of workers, they would leave most of the structure of society unchanged. The very top stratum of capitalists would be removed, but the rest of the class structure would remain. The managerial and professional classes would retain their position vis a vis the working class. Workers would be employed by the same companies, managed in the same way but with the sole difference that the state would be the ultimate shareholder. Because his proposals do nothing to narrow income differentials arising from wages and salaries, because they provide no guarantee of full employment, they would be seen as having little to offer to the working class. They might perhaps win a certain middle class following, but in the ideological struggles that would take place within a growing working class socialist movement, they would be displaced by more radical doctrines.

One has to realise that for socialism to become 'on the agenda' in the USA will presuppose

- (1) A political movement at least comparable to classical German or Swedish social democracy, or the large communist movements of the post WWII period,
- (2) A major war resulting either
 - (a) in a defeat, comparable to those suffered by France in 1870, Russia 1917 or Germany 1918/45
 - (b) a pyrrhic victory that could only be won after years of national sacrifice, in which the social democratic movement advanced its position like Britain in 1945.

In these circumstances, different socialist doctrines, memes to borrow Dawkin's term, will contend for extended reproduction. The laws of evolution will favour those best suited to the new political and economic environment. Yunker's doctrines have been tailored to a particular evolutionary niche on the margins of American economic orthodoxy, in a climate of US world domination. It seems unlikely that they will successfully reproduce themselves in a working class movement in a defeated or declining USA.

4. APPENDIX ON BERGSON

Bergson was concerned with comparing the comparative performance of the US and Soviet economies. He devotes considerable econometric and statistical effort to try and come up with quantitative comparisons of these two economies. This is inherently a very hard problem. If one approaches this in a disaggregated way, comparing the outputs of the US and Soviet steel or coal industries, then some reasonable results can be arrived at, but the problem comes from the sheer number of different products in modern economies. Steel and oil are pretty standardised commodities, measurable in tons or barrels. In principle one could construct a comparison of outputs in kind for associated industries in the two countries, but any attempt to do this in practice soon leads to difficulties. Complete data will not be available for all industries. The products of the different countries industries may not be comparable. If we consider the aircraft industry, counting numbers of passenger aircraft is obviously only a start, since the carrying capacity and range of different models of aircraft are very different. How is one to come up with a standard measure of the outputs of the Soviet and US industries? One could perhaps use final passenger miles delivered, but that would not take into account factors like speed or fuel consumption. Then one has the problem that there are many products that are only produced in one country and not the other: Il-62s in Russia, Boeing 707s in the USA.

In asking "what was the ratio of Soviet to US economic output in 1955" Bergson was posing an ill formed question. One can only validly ask such a question between two scalar quantities. Since the outputs of the two countries are vectors not scalars, it is only possible to obtain a scalar ratio between them if they produce exactly the same commodities in the same ratios.

On this basis an attempt is made to erect a quantitative science. But it is a grave objection to this definition for such a purpose that the community's output of goods

and services is a non-homogeneous complex which cannot be measured, strictly speaking, except in certain special cases, as for example when all the items of one output are included in the same proportions in another output.....

But the proper place for such things as net real output and the general level of prices lies within the field of historical and statistical description, and their purpose should be to satisfy historical or social curiosity, a purpose for which perfect precision—such as our causal analysis requires, whether or not our knowledge of the actual values of the relevant quantities is complete or exact—is neither usual nor necessary. To say that net output to-day is greater, but the price-level lower, than ten years ago or one year ago, is a proposition of a similar character to the statement that Queen Victoria was a better queen but not a happier woman than Queen Elizabeth—a proposition not without meaning and not without interest, but unsuitable as material for the differential calculus. ([Key36]pp 38-39)

In practice Bergson had to work with aggregated data for many industries expressed in money: Rubles or Dollars. The use of money quantities gives rise to the illusion that scalar comparisons are possible, but such comparability remains illusory. The monetary valuation of different sectors' outputs depends on the structure of industrial prices in the two countries. Because of the difference between the price vectors the end result depends heavily on which countries price system you use. Using the Soviet price system to value the output of both economies in terms of rubles gives a Soviet economy that was 22% the size of the US one in 1955, but using dollars to value the outputs of each economy, the Soviet economy comes out at 38% of the US economy²: a margin of uncertainty of 75% on the original figure. Bergson did not like the 38% figure, feeling that it over estimated the value of the medical and social services provided in the USSR since, he says: “more women are employed in such services in the USSR than in the United States, and one perhaps need not be an anti-feminist to feel that quality is sometimes inferior on that account”³. If the comparison of the relative sizes of the Soviet and US economy gave such indeterminate results, and allowed such scope for cultural biases, we can imagine how much harder

²[Ber78]page 50.

³[Ber78] page 56.

the task of comparing the relative efficiency of planned socialist versus market capitalist systems was going to be.

Bergson's methodological argument starts out as follows. Consider two countries Marxiana and Smithiana. In the former production conforms to this formula⁴:

$$(4.1) \quad F^m(x_m; g_m) = 0$$

Here x_m is a vector of length n of final goods and g_m is a vector of length t of inputs required for production. A similar equation is given for production in Smithiana:

$$(4.2) \quad F^s(x_s; g_s) = 0$$

Bergson's notation here is rather obscure. F^m seems to be a function which takes two vector parameters and returns a scalar, i.e., it has type $F^m : (x : \text{vec}, g : \text{vec}) \rightarrow \text{scalar}$ but does he mean that this scalar is always 0 for all vectors x, g or that there exists a unique pair of vectors x_m, g_m for which the output of F^m is 0? He says: "In other words, for any given volume of employment of the different factors and given outputs of all but one product, (4.1) indicates the amount of the remaining one that may be produced in Marxiana with due regard to both available technological knowledge and inefficiency."

This definition is complete nonsense since it implies that for any allowed production scenario least one element of the output vector must be zero. What he presumably wishes to say is that x_m is on the production possibility frontier set by inputs g_m . In order to do this we have to reformulate his argument something like this: we define

$$(4.3) \quad F^m : (g : \text{vec}) \rightarrow \text{set}$$

to be the production function where $\forall i \in F^m(g)$, i is an n element vector of outputs. One then defines a function

$$(4.4) \quad B(x : \text{set}) \rightarrow \text{set}$$

which when given a set of vectors of finds the boundary set. An output vector $y \in B(x)$ if $y \in x$ and there exists no vector of possible production $z \in x$ with $\forall_i z_i \geq y_i$, or more generally there exists no $z \in x : \frac{y \cdot z}{\|y\|} > 1$. Then for any given vector of inputs g there exists

⁴[Ber78], page 69.

a production possibility frontier obtained by functional composition to be

$$(4.5) \quad B(F(g))$$

Returning to Bergson, he now assumes that Marxiana and Smithiana have the same underlying production technology ideally available to them. He denoted this ideal production possibility configuration as

$$(4.6) \quad F(x; g) = 0,$$

discarding his confused notation, this is equivalent to 4.5. Marxiana and Smithiana are assumed to fall short of the ideal production possibility frontier due to specific inefficiencies that will differ between the two countries. Bergson assumes that equations 4.1 and 4.2 can be obtained from 4.6 via multiplicative scalar transforms such that

$$(4.7) \quad x_s = \alpha_s x$$

$$(4.8) \quad x_m = \alpha_m x$$

$$(4.9) \quad g_m = \beta_m g$$

$$(4.10) \quad g_s = \beta_s g$$

Given this it is easy for him to specify the relative efficiencies of the two economies by:

$$(4.11) \quad \frac{e_m}{e_s} = \frac{\alpha_m}{\beta_m} / \frac{\alpha_s}{\beta_s}$$

Is this valid?

No not at all.

You can not assume that if two economies are of different efficiencies, then these different efficiency will be expressible as simple scalar transforms. First let us consider his output scalars α . It is quite possible that Marxiana may have an aircraft industry that close to the optimal efficiency given by F but that its textile industry may fall far short, Smithiana on the other hand may have a comparative advantage in textiles relative to aircraft. This possibility has been recognised ever since Ricardo mused on trade in textiles and wine between England and Portugal. So we can not assume that there will exist any single

scalar multiplier α_m or α_s that will give us the achievable output vector of a given country as a scalar fraction of some ideal output vector. Should the relative efficiencies of countries stand in this sort of simple scalar relation, then our understanding of international trade must fall by the wayside.

We can look at the problem the other way round. Suppose that we constrain each economy to produce outputs in exactly the same ratio, so that the output of Marxiana is a scalar multiple of that of Smithiana as Bergson's math requires. This is counterfactual, as Bergson's earlier examination of the relative outputs of the USA and USSR showed, but is just theoretically conceivable if the planners in Marxiana decided to exactly shadow the output composition of Smithiana. But were they to do this, because each country has its own specific form of inefficiency, it is very improbable that the ratio of inputs used would also be exactly the same. Suppose that the most efficient form of electrical input comes from hydro power, but, each for their own reasons the two countries prefer other forms: Smithiana uses oil fuel, Marxiana coal. The lobbying of oil companies or coal miners being responsible for this divergence. In that case, there can be no scalar multipliers β that will transform an input mix using predominately hydro power into mixes using predominantly coal or oil.

It should now be clear that the theoretical basis for Bergson's measurements are incoherent.

The empirical study that goes on from these theoretical premises purports to show that when he applies equation to the USA and USSR the USA was more efficient. But this study does not even meet his own prior theoretical constraints. The technologies available to the USA and the USSR were not the same, whereas his prior arguments require that they are. The output mix of the US and Soviet economies was very different, there was no way that they could be described as having output vectors that were scalar multiples of one another as equations 4.7 and 4.8 demand. He therefore has to return to the methods that he had previously used to compare Soviet and US national incomes, measuring their outputs in money. But if he is going to do this, what was the point his earlier theoretical arguments, incoherent though these are?

We already know that his measurement of national incomes in money terms was subject to huge uncertainties, a margin or error of 75%, so what reliance can be placed on his 'total factor productivity' measures of comparative efficiency of the USA and USSR in the 1960s?

Applying monetary measures to inter temporal comparisons of inputs and outputs is even more uncertain. Bergson ends up with an input vector having only two components : an aggregate capital good,

and labour. But measuring input and output in money over two time periods introduces a whole new set of errors. Bergson purports to show that the productivity of capital in the USSR was not only falling, it was lower than in the USA. But recall that the basic economic doctrine in the USSR was that of Karl Marx according to which prices should be proportional to the sum direct and indirect labour inputs. As new products are introduced and industry climbs the learning curve, the productivity of labour rises, and in consequence the labour value of products falls. With the USSR approximately following this pricing policy, the growth of output in money terms would lag behind the growth in material terms. A monetary measure of output will thus underestimate the hypothetical scalar α_m , pushing down the apparent efficiency of the USSR. Bergson further loads the dice, by adding to the actual monetary cost of inputs of capital goods an imputed interest or capital charge of 12%, even though there was no such charge used in the real Soviet economy of the 60s.

4.1. Conclusion. Although the 'total factor productivity' measurements done by Bergson had a superficial air of scientificity, this was spurious. His arguments contain plenty of formulae, but these take such liberties with mathematical notation as to be effectively meaningless. Even if one takes the most charitable interpretation of what he is trying to say with his maths, the substantive mathematical propositions are invalid. The margins of uncertainty in his empirical work are so large that his conclusions tell us more about his prior cold-war prejudices than anything else.

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