ELSEVIER

Ecological Economics 36 (2001) 499–511

ECOLOGICAL ECONOMICS

www.elsevier.com/locate/ecolecon

ANALYSIS

The poverty of money: Marxian insights for ecological economists

Anitra Nelson *

Social Science and Planning & Centre for Design, RMIT University, G.P.O. Box 2476V, Melbourne, Vic. 3000, Australia

Received 8 May 2000; received in revised form 11 September 2000; accepted 19 September 2000

Abstract

Karl Marx's philosophical, political and sociological analysis of the workings of capitalism provides insights regarding the character of monetary value (price) and the role of the market that are relevant to ecological economists. Ecological economists are divided over the utility of pricing components of ecological systems and the potential role of the market in achieving ecologically sustainable societies. In the Marxian-influenced socialist movements of the 19th and 20th centuries, similar issues were raised by those preoccupied with organising state policy and manipulating the market to achieve social justice. For example, at particular points in the Russian and Cuban revolutionary processes, the potential and limitations of monetary pricing and market exchange were debated in a heated and detailed way. In as much as ecological economists hold certain interests in common, it is worth reflecting on Marx's view of the human role within nature and analysing the discussions and experiences of Marxian experimenters in social transformation that relate specifically to exchange. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Karl Marx; Ecological economics; Monetary evaluation; Sustainable development; Commodity fetishism; Exchange

1. Introduction

In the early years of his career as a scholar and communist revolutionary, Karl Marx wrote *The Poverty of Philosophy* (1975), a strident attack on the utopian socialist Proudhon's work, *The Philosophy of Poverty*. He criticised Proudhon for proposing simplistic reforms to achieve social justice, proposals that Marx suggested were based on a shallow critique of the capitalist system. Current debates between ecological economists involve similar issues to those that have preoccupied utopian socialists and Marxians. Social reformers have suggested plans to manipulate prices to achieve social justice, just as ecological economists are devising market mechanisms to embody ecologically rational policies. This paper focuses on Marxian insights that are relevant to ecological economists; Marx's philosophy about the human

* Tel.: + 61-3-9712-0010.

E-mail address: anitra.nelson@rmit.edu.au (A. Nelson).

0921-8009/01/$ - see front matter
PII: S0921-8009(00)00248-2

role in nature; Marx's views on the potential and limitations of monetary evaluation and the market; and discussions and experimentation by practical socialists — the Bolsheviks and Cubans — about policies for social transformation that involved monetary reforms, prices and nonmonetary exchange.

Significant points were raised in the controversies surrounding monetary evaluation and calculation in the first special issue of *Ecological Economics* 25 (1998). Various theoretical, methodological, qualitative and quantitative concerns were canvassed, focusing on an ecosystem valuation in dollar terms by Robert Costanza et al. that initially appeared in an article in *Nature*. In their defence, Costanza et al. (1998) referred to the fact that ecological economics involves the 'three integrated goals of sustainable scale, social fairness and economic efficiency' and argued that prices offered the appropriate framework for discussing these social goals. However, given that market mentalities and behaviour may be responsible for our environmental difficulties, there was no adequate explanation for either the necessity or legitimacy of assigning artificial prices to nonmarketed goods and services. Prices and the value of the monetary unit are created and recreated in the market, which is the vital context for interventions in the pricing process. Similarly, environmental legislation and regulatory rules that are applied via price policies or mechanisms often seem to be based on cavalier assumptions about the way a market functions.

The common vision of ecological economists is indisputable; a sustainable dynamic between human and nonhuman nature wherein human practices optimise the potential of nonhuman nature. However, individuals define 'potential' variously, just as divisions arise over exactly what constitutes ecologically sustainable behaviour and the best policy prescriptions. Nevertheless, the vast majority of ecological economists, like Costanza, suggest simple reforms to both state and market, assuming that price making and market exchange are subject to the collective will. Marx contrasted himself to reformist utopian socialists, as rigorously as he opposed communism to bourgeois economics, precisely because they made such assumptions.

According to Marx, utopian socialists exaggerated the potential of monetary and price reform to alter the social system. He argued that the social defects of the economic system could not be removed by tinkering with money and prices, which were surface phenomenon; talk of controlling the value and/or supply of money and of redefining prices was useless and idealistic. Marx suggested that the market was not subject to social control, therefore, state policy involving market reforms would be continually fraught with difficulties. He pointed out that, if prices were to be determined by other than market practices, then we would not have a free market and he asked, What would the term 'price' mean then? He believed faulty analysis would result in the wrong revolutionary strategy. Marx regarded it crucial to get the analysis right and, after numerous drafts, developed his ideas into *Capital* 1 (1976). But Marx's mature work was firmly grounded in the philosophy of his early works and that is where a proper appreciation of the place he gave nature begins.

2. Humanity and nature

It is a commonly held Green view that Marx's work exemplifies the environmentally damaging mentality of dualism characteristic of modern Western thinking.[1] It is stressed that Marx's emphasis on technological development highlights an exploitative mentality towards nature. While it is true that Marx and Engels shared a positive view of modern technologies, Marx's analyses of capitalism included many descriptions of the destructive effects of industry and modern agriculture on nature as well as on workers (see below). Such observations by Marx tend to have been overlooked in favour of simplistic conclusions implied by policies adopted by Eastern European communist regimes which involved large scale and environmentally destructive technologies.

[1] See the first section of the recent collection edited by Jessop and Wheatley (1999) on Marx's appreciation of nature and it's place in his philosophy. The richest work on this subject by Marx is his Economic and Philosophic Manuscripts 1844 (1977).

Marx's critique of the capitalist system derided productivism and his vision of a communism of freely associated producers is described in terms of a simple lifestyle. Benton (in Jessop et al., 1999) argues that Marx's analysis of the capitalist labour process incorporates 'a number of insights into the ecological crisis-generating tendencies of capitalist accumulation' and suggests that Marx's communist vision indicates 'a form of interaction with nature which integrates ecological self-regulation within its intentional structure'. In fact, in *Capital III*, Marx (1981) quite clearly states that:

> "From the standpoint of a higher socio-economic formation, the private property of particular individuals in the earth will appear just as absurd as the private property of one man in other men. Even an entire society, a nation, or all simultaneously existing societies taken together, are not the owners of the earth. They are simply its possessors, its beneficiaries, and have to bequeath it in an improved state to succeeding generations".

Further, Benton (1999) argues that Marx's method incorporates the human reliance on nature to such an extent that it is the closest existing example of an 'ecology of humanity'; Marx's historical materialism is 'a proposal for an ecological approach to the understanding of human nature and history'. Marx (1976) explicitly acknowledged nature as the source of all materials and instruments of labour and reminded the German Workers' Party (1960, p. 11) that labour was a force of nature too. Historical materialism involves a consideration of concrete limitations, both social and natural, that is almost absent from popular capitalist ideology.

It is fair for Jung (in Jessop et al., 1999) to point out that even if 'Marx was an impeccable and unsurpassable humanist' this does not necessarily imply a respect for nature. However, Marx explicitly defined humanity as part of nature:

> "Man lives on nature — means that nature is his body, with which he must remain in continuous interchange if he is not to die. That man's physical and spiritual life is linked to nature means simply that nature is linked to itself, for man is a part of nature.' (1977, p. 73)"

Marx's theory of alienation develops within a philosophy of humanity being essentially inseparable from nature. He argues that capitalist relations of private property imply an unnatural divorce of worker from nonhuman and human nature. Capitalists have little regard for human or nonhuman nature; they commodify nature and employ workers to produce profits. In communism, writes Marx (1977), humanity will attain a proper relation with nature and coalesce with it.

Marx suggests that human empathy with the rest of nature and people's identity with the products they create within nature make them unique animals, ideally suited as stewards of the earth (1977, p. 74). Marx's philosophy is unapologetically anthropocentric. Haywood (1997) points out that being anthropocentric can include ecocentrism to the extent that a self-interested species is capable of maintaining due respect for other natural beings and things; conversely, it is very difficult to argue that humans can act in a wholly disinterested (ecocentric) way. This point seems pertinent to Marx's position, which is distinct from radical 'deep ecology' views, but similar to the position of ecological economists.

3. Use value, exchange value and the growth of capital

Marx's analysis of the capitalist system begins with the commodity[2] and its 'twofold aspect' (1970, p. 27): as a use value for consumption, and as an exchange value, to gain money for its producer. While wealth is based on use values and, therefore, ultimately nature (1976, pp. 283–92), the social constitution of exchange value in the market is in no way associated with the natural,

[2] For more detail on the terms 'use value', 'exchange value', commodity fetishism' (treated below in section 4) and the process whereby money becomes capital, see Nelson (1999).

physical and qualitative aspects of the commodity. It is impossible for the 'paradox of value' — that diamonds are more valuable than water even while they are less useful — to arise as a serious question within Marx's analysis; making exchange value distinct from use value dispenses with the so-called paradox.

Marx's analysis concentrates on the main object of political economy, the social relations of production and exchange value, consistent with the orthodox view that natural resources represent 'externalities'. Nevertheless, as Benton (1999) points out, the sharp distinction that Marx makes between use value and exchange value highlights the potential disjuncture and other contradictions inherent in the use value and exchange value dimensions that ultimately unite in the commodity:

> "The social-structural conditions governing economic action under capitalism require that this second, value-maximising intentional structure must be superimposed upon, and predominate over, the intentional structure of production in its aspect as a utility-producing labour-process." (p. 86)

With production for the market, monetary calculations determine what and how we produce goods and services:

> "Moreover, the value-maximising intentional structure which is superimposed upon and predominates over the productive intentional structure *intensifies* the latter's insensitivity to material conditions, resources and limits by its very indifference to the concrete character of the process." (p. 99)

Financial, speculative factors tend to dominate decision-making about the use of environmental resources to the detriment of ecological concerns.

For Marx, capitalism presents dialectical asymmetry; exchange value implies use value but not necessarily the reverse. This framework indicates how ecological values are marginalised within the social dynamics of capitalism where, instead, monetary values dominate. This framework challenges the 'pricing-the-environment' direction of many ecological economists who view the market in a naive way, like the utopian socialists whom Marx criticised. The dominance of the exchange value dimension in a capitalist society encourages both alienation from nature and an instrumental view of nature. Of course, not only do capitalist attitudes disregard nature but production for the market means that monetary considerations have priority over ecological values in decision-making by capitalists. Imposing environmental taxes and internalising externalities are costly reforms to devise, implement, monitor and revise. Further, if they came to involve or affect many goods and services, such reforms would lead to new systems of exchange and production altogether.

Marx's concept of money is grounded in commodity circulation, in relations between producers expressed as relations between things, as exchange values, in prices. Money is the 'value form' of exchange value. Marx (1976) argues that the constitution of money inevitably leads to the concept and function of capital as a dominating power; money is, historically and logically, 'the first form of appearance of capital'. Marx's theory of how money becomes capital is the first step in an argument that leads to the ecologically relevant conclusion that capitalism cannot experience negative growth without collapse. Further, recurrent and sharp economic cycles that characterise capital accumulation involve the limits of nature (a recent example is the 'oil crisis').

Marx (1981) presents a series of concepts, 'product (activity)–commodity–exchange-value–money', which he elaborates in a dialectical way in order to address the main question that he believes the utopian socialists and other monetary reformers have failed to address, viz. 'Why is money *necessary*?' This explanation (1986, pp. 179–80, 197) involves not only the necessity for money within commodity circulation — and for money being a commodity albeit of a special kind — but also for the almost inevitable development of labour and capital from commodity and money; 'the antagonism of wages and capital, etc. is already latent in the simple determination of exchange value and money'. The existence of commodities and money allows wage labour to appear, labour becomes a commodity sold for money, money thereby becomes capital. The dialectic of concepts follows the elaboration of 'value' created by labour in production and manifested in commodity circulation as 'exchange value', which necessarily becomes independent in the money form and finally 'preserves itself' as capital. So, the final concept in the series is money which procures labour, 'capital'.

Production is the vehicle for exploitation in capitalism. Money is invested in workers' wages and in the means, materials and instruments of production in order to produce commodities that recoup the original money plus profits. Constant reinvestment of money and productive transformation is vital for capital accumulation; without it, recession, depression and crises. Capital accumulation proceeds like a spiral. Lowering social consumption is incompatible with capitalism as a social system with a peculiar dynamic and behaviour established between capitalists and between capitalists and workers. Growth and profit making are defining characteristics and intrinsic demands of the capitalist system. A capitalist economy, following the capitalist entrepreneur, must grow; the goal is unfettered growth, M — C — P — C' — M' (money, commodity, production, greater value of commodities, increased money). Consequently, as capitalism has expanded, capitalist activities have been the central and increasingly dominant factor structuring humanity's relations with the rest of nature.

Important requirements of ecologically sustainable development, like diminished production and consumption, seem impossible to achieve within capitalism. To the extent that policies designed to ensure biological diversity, ecological integrity and a variety of natural resources involve less consumption and production, they must disrupt the business system (M — C — P — C' — M') in a fatal manner. One might argue that to the extent that green policies and practices are put in place, we are actually living this confusion. Ecological economists must question: whose interests price making serves; what prices represent; and why money and monetary evaluation are considered so useful and persuasive as a sign of ultimate worth. Marx would see the attempt to monetarily evaluate ecosystem services as a symptom of 'commodity fetishism'.

4. Commodity fetishism

In 1843, Marx (1967b) foreshadowed his concept of commodity fetishism as both an attitude and a form of behaviour characteristic of capitalism:

> "Money is the general, self-sufficient value of everything. Hence it has robbed the whole world, the human world as well as nature, of its proper worth. Money is the alienated essence of man's labour and life, and this alien essence dominates him as he worships it."

In these spare sentences he conveys the source and complex consequences of 'commodity fetishism' epitomised in money and monetary evaluation. Marx quotes from Shakespeare (1977, p. 130) to illustrate that money is an omnipotent 'visible divinity'. Within a monetary economy, demand is only acknowledged if backed by money; if not supported by money, real human needs are invisible, just like ecosystem externalities. In this way the market reverses 'an image into reality and reality into an image' (1977, p. 131).

In *Capital I* (1976, p 167), Marx elaborates on commodity fetishism, likening monetary values expressed in prices to religious forces:

> "Value…transforms every product of labour into a social hieroglyphic. Later on, men try to decipher the hieroglyphic, to get behind the secret of their own social product; for the characteristic which objects of utility have of being values is as much men's social product as is their language."

Marx's theory of commodity fetishism develops from Aristotle's question about how a variety of distinctive, and therefore incomparable, goods and services can be made comparable by market exchange in monetary evaluation:

> "Since exchange-value is a definite social manner of expressing the labour bestowed on a thing, it can have no more natural content than has, for example, the rate of exchange." (Marx (1976) p. 176)

While Marx's distinction between use value and exchange value and his theory of labour value answer Aristotle's question in the narrow sense, of explaining how capitalism works, in the wider sense — say, from the perspective of an ecological economist — Aristotle's question remains pertinent.

It is incumbent on those ecological economists who are set on evaluating natural services in monetary terms to define exactly what money means and how value, in its various senses, relates to price. For instance, given that market prices are relative and every change in one price must affect others, is it possible to set prices involving environmental factors without influencing all prices? Set prices are not market prices. However they arise, prices are abstractions created by humans and presumably are intended to collectively represent patterns that ensure rational reproduction of an economic system. The pragmatic ecological economists' view that prices are just instruments to use to achieve desired outcomes fails to acknowledge that pricing and monetary systems are so complex that tinkering with individual prices in ignorance of systematic interactions invites unintended and undesirable (and even uncontrollable) consequences. These outcomes have been experienced and observed in command economies (see Section 6 below). Not only is there a question about whether prices are the most efficient way to represent ecological values and ensure we respect and maintain them, but also and more fundamentally, the question is whether prices and the monetary system are capable of doing the job at all.

From a Marxian perspective, artificially pricing environmental resources and services seems like a theoretical or sophisticated form of commodity fetishism. More insidious examples appear, for instance, in a recent article entitled 'The Soil Bank' in *Whole Earth* where the soil is not only described as 'natural capital' but also like a bank, with nutrients as money, plants as customers and a Humus fund earning interest! The author (pp. 23–4) suggests that such 'word games are perhaps more than analogies or metaphors; they may point toward reconvergence of the thinking of economics and ecology', yet having 'pushed the analogy of financial and soil banks hard', also admits that 'there is no way to completely monetize soil goods and services'!

Marx presents value and price as cultural categories designed to ensure production and exchange, reproduction and expanding accumulation of a particular form of *social* power. In as much as monetary values and prices are assigned to human and nonhuman nature, they provide a one-dimensional and purely market-based point of comparison which obliterates other social and ecological qualities. The concept of artificially evaluating ecosystem services seems like a symptom and expression of commodity fetishism. In fact, Marx expected that:

> "The religious reflections of the real world can …vanish only when the practical relations of everyday life between man and man, and man and nature, generally present themselves to him in a transparent and rational form. The veil is not removed from the countenance of the social life-process, i.e. the process of material production, until it becomes production by freely associated men, and stands under their conscious and planned control'. (1976, p. 173)

Marx points here to the necessary transition to communism.

5. The transition

As Fischer (1970, p. 125) puts it, 'dialogue with nature' was essential to Marx's conception of revolution. Given that people are both united to and struggle with nature via their industry, Marx (1967a) attacks Bruno Bauer for drawing an 'antithesis' between nature and history 'as if…man did not always have before him an historical nature and a natural history'. Further, Marx's dialectical materialism suggests that the development of social and natural productive forces results in continual impasses when 'the existing relationships cause nothing but mischief and are no longer productive forces but rather destructive ones' (1967a, p. 430).

Marx saw advanced communism as a synthesis of naturalism and humanism, 'the *genuine* resolution of the conflict between man and nature and between man and man' (1977, p. 97). While the state — like money — institutionalises and therefore symbolises alienation, a sharing and caring society would involve social empowerment and organisation based on consensus decision-making. Communism would represent a degree of conscious social control of interactions, both between people and between them as a society and nature, that cannot exist in capitalism. Marx's vision of a stateless, moneyless and classless society was aimed to encourage the fullest development of human consciousness and creativity.

There are few detailed visions, let alone experiments in socialism that have phased out the market and the state entirely. However, the theoretical ideal of 'nonmarket socialism', of a cooperative, sharing and caring society that has dispensed with money and the state, has various adherents. Current limitations and possibilities for such a scenario are discussed by 'nonmarket socialists', socialists who acknowledge the importance of new relationships of exchange, nonmonetary exchange (Rubel and Crump, 1987). In the nonmarket socialists' vision, production is not for sale and work is not remunerated via the market. What is produced and how it is produced is decided collectively. Work is a sought creative right. The social product is shared freely and consumption subject to social constraint. Crump, 1987(in Rubel and Crump, 1987) shares Marx's belief that advanced capitalist technologies provide a step to creating the material basis for socialism. While admitting the need for 'temporary measures', Crump believes it necessary to make a 'great leap' to socialism. He roundly rejects efforts to construct a transitional society and believes that socialism must exist worldwide. The common goal of nonmarket socialists is a diverse, united, global, human community.

While nonmarket socialists present thoughtful ideas about the principles and values which might give order and organisation to nonmarket socialism, they tend to assume abundance. They often ignore environmental limits that imply that all the needs and desires of all people cannot be freely and generously met. Although Bordiga (Buick in Rubel and Crump, 1987) admits limitations on consumption, not just social limitations, but also environmental ones, his undemocratic political style is controversial. In short, the readings in Rubel and Crump (1987) do not indicate that alternative, nonmarket plans for production and exchange are necessarily more environmentally sensitive than capitalism. However, the removal of the capitalist impetus to produce and exchange to make money and focus instead on use values and human needs theoretically has the potential to avoid environmental threats associated with capitalism discussed above.

Most nonmarket socialists argue for wholesale revolution and stress the integrity of economics and politics in a 'logic of sharing'. Their ideas include interesting alternatives involving direct exchange and labour vouchers and accounting with 'physical' units, like labour hours. But this is all highly theoretical. We have few empirical examples of widespread experimentation in the area of nonmonetary exchange in modern societies. They include a period, towards the end of Allende's socialism, in some districts of Chile and certain locales during the Spanish Civil War in the 1930s. The Cuban and Russian case studies are discussed in the following section.

6. Communist societies in the twentieth century

In the early years of Soviet power there was serious discussion amongst the party elite about instituting a moneyless economy. A debate about diminishing the role of money in Cuba occurred in the mid 1960s too. In both discussions serious social issues regarding monetary evaluation and calculation were raised. However, neither discussion gave any importance to evaluating and calculating environmental resources and services in terms of ecological sustainability. Nevertheless, both cases indicate that policies involving price setting and nonmonetary exchange must be feasible and gain popular consent to succeed.

It seems reasonable to suggest that difficulties encountered in efforts to improve social justice via price controls would need to be considered by ecological economists attempting to encourage change using similar methods. Policies commonly mooted amongst environmentalists involve cutting and more evenly distributing work hours; reducing consumption or introducing rations; and setting prices to reflect or express environmental rationalities. Minority thrusts in the Russian and Cuban socialist movements argued for nonmonetary exchange but the practical focus was on alternative ways of using monetary systems to rationalise production and exchange. Rather than offering any clear way forward for ecological economists bent on pricing the environment, these case studies act as important cautionary tales.

In neither the Bolshevik nor the Cuban examples did the revolutionaries adequately theorise or plan for how socialist exchanges would differ from market evaluation and behaviour. The difficulties of finding socially just and practical forms of exchange were thrust on the revolutionaries and weren't resolved. They were ill prepared for these difficulties in terms of theory and, once exchange became a practical issue, they were deeply divided over what ways socialist exchanges should be conducted, particularly over how far to, or in what ways to, dispense with money. These difficulties were ones of psychology, of social behaviour and political control; they were not simply technical or economic.

6.1. The neglect of money under 'war communism'

The Russian case opens all the main conceptual as well as practical issues surrounding exchanges based on socialist values, issues that have some parallels in discussions about ecological values. Aspects of social justice and ecological sustainability are comparable and sometimes even coincide; they both involve incomparable qualities, complex processes and diverse consequences. How do we compare and measure differences in work efforts, different work, different people doing it, and products being produced in different ways? Assessing and economising on human labour can be compared with calculating and measuring efficiencies in varieties of nonhuman energy expenditure. Are monetary values useful to do this? If not, is socially necessary labour time best measured in units of time or calorific energy or what? And, how is the question of needs addressed?

After the October revolution in 1917, the Bolsheviks initially adopted 'strict financial orthodoxy' and continued to use the printing press to meet their financial needs (Carr, 1966).[3] At the first All-Russian Congress of Councils of National Economy, May 1918, financial matters were openly debated. The Right's protagonist, Gukovsky, demanded gold support for paper money 'so long as we have money in circulation'. The Left was unconcerned about introducing what seemed to be a temporary measure because 'when the full triumph of socialism occurs, the ruble will be worth nothing and we shall have moneyless exchange'. Sokolnikov welded these views into a practical position; gold was significant for foreign transactions but unnecessary for national ones. He also suggested that fixing or stabilising prices would counteract the ill-effects of too much money in circulation. Meanwhile the state was to be supported by monetary taxes.

Initially the Bolsheviks aimed to control distribution but shop 'workers' weren't organised and consumers' cooperatives were inadequately supervised. The state set prices but because neither the disturbed market nor new state initiatives to monopolise trade and ration products were effective, speculation spread and a black market started to flourish. The civil war prompted a set of economic steps known as 'war communism'. The note-printing presses were enlisted; money steadily became valueless. This depreciation, writes Carr, 'came from 1919 onwards to dominate every aspect of Soviet financial and economic policy, and gave to the policies of war communism their final and characteristic shape'. The state increased requisitions and cooperatives became the state's main collecting and distributing structure. By 1920 the gap between official fixed and free market prices widened alarmingly; 'the list of fixed prices grew till almost every object of consumption was cov-

[3] The main source for the discussion in this section is Carr (1966, pp. 136–50, 247–68, 343–57) along with Yurovsky (1995). Unless otherwise indicated, all quotes in this section, are from references in Carr.

ered'. Rationing was extended as barter became attractive and frequent (even factories paid suppliers and workers in products finished by them or by another factory with which it made exchanges in kind).

Carr suggests that the phasing out of money was not an original aim of the Bolsheviks but that once money became ineffective 'a virtue was made of necessity and the view became popular that the destruction of the currency had been a deliberate act of policy'. Most officials, including Trotsky (quoted in Bettleheim, 1968, p. 60) and Stalin (quoted in Rosdolsky, 1977, p. 130), expected a monetary economy to evaporate with the advance of communism. However, money remained a tool of state policy; Lenin pleaded with the peasants to accept the state's tokens for their grain. For this reason, Krestinsky pointed out that 'our ruin or salvation depends on a race between the decreasing value of money — with the consequent need for printing notes in ever greater quantities — and our growing ability to do without money altogether'. Observe the wording here. Krestinsky uses a logic opposed to Carr's; the diminishing value of the currency forces the government to issue more notes rather than the reverse. Carr suggests that only the practical circumstance of run-away inflation forced them into introducing nonmonetary exchanges. Anyway, the role of money had now become an important issue; material circumstances were determining the political and theoretical agenda.

While the second All-Russian Congress of Councils of National Economy, December 1918, passed a resolution condoning 'the elimination in the last resort of all influence of money on the relations between economic factors', the practical measures decided on involved settlements without cash but not without monetary accounting. Discussion about eliminating money became especially confused once the state supervised transactions in the industrial sector, so industry only needed cash to pay wages. This was understood as a step towards eliminating money. Not surprisingly banking officials thought only of monetary accounting but, especially once the unions organised wages in kind, monetary accounting itself seemed unnecessary.

One contributor to the debate, cited by Carr, suggested that 'we shall come in the end to doing without any calculations in rubles, reckoning the energy used by number of days and hours'. He, like Larin, who pointed out that now 'the only question can be how many days must be spent to produce how many articles in a given branch of production', anticipated the focus of future debate. Still, it was Milyutin who encapsulated the ambiguity and confusion in the debate over money and state affairs when he said that 'a system without money is not a system without payments'! Initially it seemed obvious, especially to the conservatives, that 'monetary symbols' would remain even though 'monetary tokens' were becoming less necessary. In short, money would exist as a unit of account. And, if it is correct that this is money's defining function, this effectively meant a system of monetary exchange would remain.

As the depreciating ruble was less and less a stable unit of account, material circumstances determined that the role of money in its primary function as a unit of account would become the theoretical and political issue of the day. According to Carr, the debate over substituting a monetary unit of account with one based on labour, in terms of time or energy expended, 'occupied an enormous place in the economic literature of 1920 and the first few months of 1921' and was influenced by Otto Neurath's work.[4] At the January 1920 Congress, it was decided that accounts might involve a unit of labour, commonly referred to as *tred* [abbreviated from *trudovaya edinitsa*]. This matter was passed on to a special commission and 'occupied for many months the best economic brains of the country'. A unit of labour time was a familiar concept to readers of socialist literature and political economy, however, Carr's comment here — that 'it also seemed to be based on sheer common sense' — is worth discussing. It had already been mooted in Russia that such a unit might eventuate in 'a universal unit of account of living energy — the calorie' (the *ened*). However, this had no influence on Soviet accountants who

[4] The pre-history of this subject is covered in a fascinating study by Juan Martinez-Alier (1987).

persisted in reckoning in rubles; they followed official directions that reiterated the phasing out of cash but fell short of instructing a change from using the national currency as a unit of account.

At this point a 'return' to a natural economy or advance to a moneyless communism was halted because all state industries were directed to follow *khozraschet* ['principles of precise economic accounting']; monetary taxes were demanded; cash was required for state-produced goods and services; state budgets were reintroduced; and local authorities regained financial independence. Such policies implied a renewed reliance on money as cash, not just as a unit of account. Lenin (cited in Tablada, 1989) acknowledged that free trade would 'inevitably' result in 'a revival of capitalist wage–slavery' but spoke of the New Economic Policy as 'retreating in order to make better preparations for a new offensive against capitalism'. Carr seems correct to suggest that the fresh direction of the New Economic Policy, and its financial imperatives, amounted to a return to all of the fiscal, financial, banking and monetary orthodoxies of capitalism.

Devising, implementing, monitoring and revising an artificial price system for various assets, goods and services within an otherwise free market system for environmental reasons similarly risks being time-consuming, costly and vulnerable to avoidance tactics and corruption. Carr's account suggests that no discussion of assessing the various values of environmental resources occurred in the Russian debates. This was a matter of relative neglect in the Cuban case as well. However, these case studies indicate the kinds of social considerations ecological economists need to take into account when attempting to make prices or other economic policies reflect ecological values.

6.2. Che Guevara and the question of money

During 1963–1965, there was a great economic debate in Cuba with contributions from overseas. The debate concentrated on whether work ought to be encouraged by moral or material incentives and whether the state ought to adhere to a centralised budgetary system or allow enterprises financial autonomy. Distinctive positions on these issues related to different interpretations of Marx's concept and law of value and different visions of socialist planning. The debaters argued about whether production by the state constituted production of 'commodities'. As with ecological economics, superficially the issue for the socialist revolutionaries was not so much where are we going, but how will we get there? In this debate Major Alberto Mora, Cuban Minister of Foreign Trade, and Carlos Rafael Rodríguez, Director of the National Institute of Agrarian Reform were supported by the French economist Charles Bettleheim in opposition to Che Guevara, Director of the Ministry of Industries.[5]

Che (1987a, pp. 204–205) quoted from Marx in defence of his position; Che' s 'revolutionary humanism' fundamentally distinguished his perspective from that of his opponents (Lowy, 1973). Following Marx, Che (see Lowy, 1973) had decided that freedom meant freedom from the forces of the capitalist market, freedom from alienation, the freedom to directly control and plan human life.

While acknowledging that investment must take account of non-economic factors, Mora (in Lowy (1973) pp. 46–7) suggested that Marx's law of value must not be neglected but, rather, found its most perfect expression under socialism! This position was not supported by Marx's work, Mora's definition of value being a rather conventional 'relation between limited available resources and man's (sic) increasing wants'. Furthermore, Mora argued that state enterprises should be financially autonomous, utilise business accounting methods of economic calculation, and produce commodities for profits. The point made by Bettleheim (1968, p. 190) was that 'if we try to apply forms of organisation and forms of circulation to the (lower) level of development attained by the productive forces, we shall achieve only a great deal of waste.' In his commentary on the discussion, Lowy (1973) argued that without a market it was unclear what people wanted.

[5] The main English sources for this discussion are various works by Che Guevara (1987a, 1987b, 1991) and the commentaries in Lowy (1973) and Tablada (1989).

In opposition to Mora and his supporters, Guevara followed Marx, stating that 'value' was related to abstract labour, not to wants and environmental resources. He argued that in as much as the state sector of the economy approximated a single unit and transfers of products between state factories were all supervised under one budgetary finance system, these products did not constitute commodities. Administered prices were not market prices nor could they be associated with Marx's law of value. This reasoning was applied to transactions between the private and state sectors too. For Che, the plan ought not mimic market forces; planning was the very process which enabled noneconomic factors to be taken into account and, being a conscious act, led away from the law of value. Guevara, 1987b wanted 'to eliminate as vigorously as possible the old categories, including the market, money, and, therefore the lever of material interest — or, to put it better,' he wrote, 'to eliminate the conditions for their existence'. Che (1987a, pp. 214, 229) believed that 'the development of consciousness can advance ahead of the particular state of the productive forces in any given country'. Mandel (Lowy, 1973) supported Che; planning ought to minimise both the working of the law of value and the commodity character of the state workers' product. Che distinguished himself from Stalinist bureaucratic planning and opposed the competitive aspects of the Yugoslavian model. For Che and Mandel, centralised budgetary planning would minimise expensive bureaucratic management.

The other main question in this debate focused on the relative merits of material and moral incentives. Not surprisingly, Che Guevara was the protagonist for encouraging work through moral incentives, while his opponents argued that monetary incentives were absolutely necessary. Guevara, 1991 (in Lowy, 1973) argued that use of capitalism's 'fetishes' or 'the worn-out weapons left by capitalism' (i.e. profit, material incentives and so on) would result in a 'dead end', not in communism; what was necessary was a new attitude, a sense of social duty, a collectivist consciousness, a new 'man'. He was pragmatic enough to recognise that such changes do not occur overnight. One policy involved phasing out material incentives and focusing social benefits on exemplary workers in social[ist] fields and maintaining minimal wage differentials in accordance with various skills. Guevara emphasised education in creating a new consciousness. His faith in the viability of voluntary cooperative labour was based on his political experience of popular mobilisations which had produced results that demonstrably surpassed those observed when effort was individually rewarded.

The general public was much more engaged by the debate over incentives and voluntary labour than that over financing. According to Dumont (in Lowy, 1973) Guevara criticised monetary rewards given to Soviet workers and likened them to North American employees. For Che (1987b) voluntary labour involved breaking down the mental/manual duality and creating a spirited, cooperative culture. Like Marx, Che conceived of voluntary labour as the pinnacle of a nonalienated existence and the expression of a truly fulfilled human.

Che's detailed and complex budgetary finance system certainly exhibited more collective human control over production and distribution than occurs in a free market or in the economic accounting methods of his opponents in Cuba. Tablada (1989) lauds Che's 'model' system as 'an original contribution to the theory of the transition period', and as 'the driving force behind new forms of human relations and communist consciousness.' Che (1987a, p. 220) himself wrote that:

> "centralized planning is the mode of existence of socialist society, its defining characteristic, and the point at which man's consciousness finally succeeds in synthesizing and directing the economy toward its goal: the full liberation of the human being within the framework of communist society."

However, he stressed that Cuba was only in the first phase of a transition to communism and deplored the lack of relevant Marxian theory on this matter.

Significantly, Che's budgetary system did not do without money as a unit of account. Enterprises simply had no cash for investment because finance was centrally organised. The banker became an administrator. Money was still 'an economic indicator' (Tablada, 1989) and 'a unit of analysis' (Guevara, 1987a), i.e. a standard of price or measure of value. Castro (in Habel, 1991, p. 47) accurately represented Guevara's position when, much later in 1987, he claimed that:

> "If there was one thing Che paid absolute attention to, it was accountancy and the analysis, cent for cent, of expenses and costs…Che used to dream of using information technology to gauge economic efficiency under socialism and saw this as essential."

Furthermore, as Tablada (1989) points out, but without observing the obvious contradiction, Guevara was impressed by the efficient administration of the most advanced imperialist monopoly enterprises. Indeed Che (1987a, p. 209) felt that their economic methods could be used 'without fear of being 'infected' by bourgeois ideology'. The adoption of advanced, capitalist, technology was viewed in a similar way. Guevara's model was highly centralised and supervised by a politicised elite who still took world market prices into account when setting prices that related to organising Cuba's production.

Guevara did not indicate how this system might lead to the state devolving its powers over production and distribution to the people directly or to a stage where a unit of account like money would not exist at all. Guevara did suggest that the latter eventuality relied on the progress of socialism internationally and presented ideas about the terms of exchange between socialist countries that might be followed meantime. Later, Castro (cited in Lowy, 1973) seemed to wholly support his positions, claiming that 'we want…to de-mystify money, not to rehabilitate it' and that, '[w]e even propose to abolish it altogether.' But, by then, Che had suffered a resounding defeat in the great economic debate, a defeat that had given him reason to leave Cuba altogether.

Neither the Cuban nor the Soviet debaters explicitly made the issue of transferring power to the grassroots a central one. The retention of a state structure and the use of money went hand in hand. State planning of the economy and regulation of the distribution of goods and services seemed to require some kind of money, at least as a unit of account. In such situations products retain some of the characteristics of commodities and workers are likely to be remunerated in wages, or at least a package of goods and services quantifiable by way of a single unit.

Bettleheim (1968) argued that Soviet communism equated to state capitalism precisely because it adopted monetary economic calculation; transitional societies cannot avoid the influences of world prices and foreign trade unless they resort to autarchy or self-sufficiency. We are returned, then, to the arguments of nonmarket socialists regarding the challenge for broad scale change that a global society constantly engaged in monetary exchange of goods and services creates. For all ecological economists too — whether they consider reforms within capitalism sufficient to bring ecological concerns within the realm of the economy, or argue for another system — this international, not just national or local dimension for change remains a challenge.

7. Conclusion

Marx's strength lies in the breadth and complexity of his social analysis. He challenges assumptions about markets and the state that are taken on face value by most ecological economists. In practice, communist movements have found it as difficult to break from capitalist custom associated with monetary evaluation and exchange as to follow Marx's direction in substituting the state apparatus with grass roots political forms. Communist countries have experienced environmental crises too. It is highly questionable that it is possible for ecological economists to devise any holistic system or set of interrelated systems that are sustainable ecologically and economically, in the narrow capitalist — monetary — sense of the term. Yet, if we abstract from the necessity of money, if the economy is interpreted as a set of social practices involving nature and aimed at physical and social reproduction of human cultures, sustainability in ecosystem and human terms does appear possible. The formulation of a sound paradigm for ecological economy must be based on clarifying issues involving the market, monetary prices and the state. In fact, the definition and direction of this *superdiscipline* is indeterminate mainly because there is no clarity on such fundamental points.

Acknowledgements

I thank my supervisor Mike Berry and the three reviewers — Walter W. Haines, Patrick Madden and one anonymous — for their helpful comments.

References

Benton, T., 1999. In: Jessop, J., Wheatley, W. (Eds.), Marxism and natural limits: an ecological critique and reconstruction, pp. 70–107.

Bettleheim, C., 1968. Planification et rapports de production. In: La Transition Vers l'Économie Socialiste. Maspero, Paris.

Buick, A., 1987. Bordigism. In Rubel, M., Crump, J., (Eds.). Non-Market socialism in the nineteenth and twentieth centuries. Macmillan Press, London, pp. 127-150.

Carr, E.H., 1966. The Bolshevik Revolution, vol. 2. Pelican, London, pp. 1917–1923.

Costanza, R., et al., 1998. The value of ecosystem services; putting the issues in perspective. Ecological Economics 25 (1), 67–72.

Crump, J., 1987. The thin red line; non-market socialism in the twentieth century. In: Rubel, M., Crump, J., (Eds.). Non-Market socialism in the nineteenth and twentieth centuries. Macmillan Press, London, pp. 35-59.

Guevara, C., 1987a. On the budgetary finance system. In: Che Guevarra and the Cuban Revolution. Pathfinder/Pacific and Asia, Sydney, pp. 203–230.

Guevara, C., 1987b. Voluntary work is a school for communist consciousness. In: Che Guevarra and the Cuban Revolution. Pathfinder/Pacific and Asia, Sydney, pp. 231–245.

Guevara, C., 1991. Economic planning and the Cuban experience. In: Deutchmann, D. (Ed.), Che Guevara-A New Society; Reflections for Today's World. Ocean Press, Melbourne, pp. 159–168.

Habel, J., 1991. Cuba; The Revolution in Peril. Verso, London.

Haywood, T., 1997. Anthropocentrism: a misunderstood problem. Environmental Values 6, 49–63.

Jessop, B., Wheatley, R., (Eds.), 1999. Karl Marx's Social and Political Thought; Critical Assessments of Leading Political Philosophers, Second Series, Vol. VIII. Routledge, London.

Jung, H.Y., 1999. In: Jessop, Wheatley (Eds.), Marxism and Deep Ecology in Postmodernity: From Homo Oeoconomicus to Homo Ecologicus, pp. 57–69.

Lowy, M., 1973. The Marxism of Che Guevara; Philosophy, Economy and Revolutionary Warfare. Monthly Review Press, New York.

Martinez-Alier, J., 1987. Ecological Economics. Basil Blackwell, Oxford.

Marx, K., 1960. Critique of the Gotha Programme. Progress Publishers, Moscow.

Marx, K., 1967. The German Ideology. In: Easton, L.D., Guddat, K.H. (Eds.), Writings of the Young Marx on Philosophy and Society. Anchor Books, New York, pp. 403–473.

Marx, K., 1967. On the Jewish question. In: Easton, L.D., Guddat, K.H. (Eds.), Writings of the Young Marx on Philosophy and Society. Anchor Books, New York, pp. 216–264.

Marx, K., 1970. A Contribution to the Critique of Political Economy. Progress Publishers, Moscow.

Marx, K., 1975. The Poverty of Philosophy. Progress Publishers, Moscow.

Marx, K., 1976. Capital, vol. I. Penguin, Harmondsworth.

Marx, K., 1977. Economic and Philosophic Manuscripts of 1844. Progress Publishers, Moscow.

Marx, K., 1981. Capital, vol. III. Penguin, Harmondsworth.

Nelson, A., 1999. Marx's Concept of Money; the God of Commodities. Routledge, London.

Rosdolsky, R., 1977. The Making of Marx's 'Capital'. Pluto Press, London.

Rubel, M., Crump, J., 1987. Non-Market Socialism in the nineteenth and twentieth centuries, Macmillan Press, London.

Tablada, C., 1989. Che Guevara: Economics and Politics in the Transition to Socialism. Pathfinder, New York.

Yurovsky, L.N., 1995. Problems of a moneyless economy. In: Nove, A., Thatcher, I.D. (Eds.), Markets and Socialism. Edward Elgar, London, pp. 63–87.