

ECOLOGICAL ECONOMICS AND THE LIFE-VALUE OF LABOUR

Jeff Noonan

To the extent that classical, neoclassical, and Marxist political economy have traditionally ignored the problem of economic scale and valorized economic growth, all three have much to learn from ecological economics. Its most important contribution is the argument that the human economy is a subsystem of the finite earth's natural life-support system. Implied in this argument is a new metric of economic health, the life-value rather than the money-value of that which economies produce and distribute.

Life-value is a concept that derives from the work of John McMurtry. It refers to the value that any good or service has for human beings, either as a resource that satisfies a requirement without which life cannot survive or develop (i.e., nutritious food, education), or the expression and enjoyment of human capacities (i.e., the gaining of insight through education, the creation of beautiful objects, participation in collective solutions to social problems). As McMurtry argues, "production and distribution for life-need, and that, in turn, for life-capacity and experience in more comprehensive ranges of expression—this is the only *ultimate* value on earth. Any sane economy is there to serve it in opening horizons of life-worth."¹

This life-value metric underlies ecological economics' attempt to explicate the structure of such a materially rational economy. An exclusive focus on use-value (as in the Marxist critique of capitalist exchange value) cannot tell us whether the use-value in question also has life-value, for Marx never grounds his affirmation of a use-value metric in any conception of what life actually requires, but instead treats use-values as relative to given human purposes, with no deeper questioning of the rationality of those purposes.²

Ecological economics does question the overall purposes served by an economic system (e.g., quantitative growth or qualitative development). Its

main limitation, and the underlying focus of this paper, is that it fails to coherently reconcile the natural and social-creative moments of human social-organic nature.

I will begin with an examination of the emergence of the core argument of ecological economics in the pioneering work of Nicolas Georgescu-Roegen. I begin with Georgescu-Roegen because his work engages with both neoclassical and Marxist economics, exposing problems in both, but overlooking in Marx the conception of nonalienated labour that ecological economics ultimately requires. We thus find in Georgescu-Roegen the blind spot out of which emerge three crucial problems. First, the assumption that the problem of economic scale can be distinguished from the allocative function of markets is incorrect. Second, ecological economics fails to consider the social dimensions of life-value fully, a failure that is particularly acute in the case of the life-value of human labour. Finally, as a consequence, ecological economics as a political economy has little of positive value to say to workers as workers, a lacuna with important practical implications.

Labour, Leisure, and Ecological Economics Nicholas Georgescu-Roegen's *The Entropy Law and the Economic Process* is a landmark of ecological economic thought. Georgescu-Roegen critiques neoclassical economics from the inside, arguing that its mathematical models abstract from the most fundamental fact of economic life, that the economy depends upon finite material resources. As both a source of raw materials and a sink for waste, the natural-life support system is finite and no economic theory that ignores this can be sound. Georgescu-Roegen thus draws attention to the need for economic science to pay attention to questions not only of allocation and distribution, but scale. Indeed the scale of economic production—the amount of energy it draws from the environment and the amount of waste it dumps back into it—is the primary question because the extent to which economic production can continue to support human life, or its general life-value, depends upon getting the scale correct.

This point could be rephrased as an argument that economic rationality must be grounded in material rationality. That which economic science aims to understand is the optimal relationship between rates of resource

use and as high a quality of life for as many human beings for as long as possible. “We need no elaborate argument,” he maintains, “to see that the maximum of life-quality requires the minimum of natural resource depletion.”³ In other words, the scale of economic activity must be determined by sustainable levels of resources use and waste production. As noted in the introduction, this insight is the crucial contribution of ecological economics to any democratic and progressive alternative to unsustainable capitalist growth. The problem is that Georgescu-Roegen and subsequent ecological economists do not systematically connect problems of scale to the particular way in which capitalist markets allocate labour and resources. This is a profound oversight because, as Burkett argues, “it is impossible to separate scale from allocation” under capitalism because capitalism allocates resources to profitable investments, and requires that opportunities for profit continually expand.⁴ For Georgescu-Roegen, the problem of scale is not essentially a problem of capitalist markets, but the temporal frame of reference market agents employ in making economic decisions. Ecological economics thus demands that the short-term expectations of individuals be subordinated to the long-term life-requirements of the species:

The primary aim of economic activity is the self-preservation of the human species. Self-preservation, in turn, requires the satisfaction of some basic needs, which are nevertheless subject to evolution. The almost fabulous comfort, let alone exuberant luxury, allowed by many past and present societies has caused us to forget the most elementary fact of economic life: namely, that of all necessities for life only the purely biological ones are absolutely indispensable for survival...since biological life feeds on low entropy, we come across the first important connection between low entropy and economic value.⁵

If it is the case that the primary aim of economic activity is the survival over an indefinite future of the human species, then it follows that materially rational calculations of economic value must be expressed in terms of the life-value of different economic decisions.

This conception of economic value as life-value is impossible in neoclassical models because they assume that economic agents are motivated by concerns of utility maximization and conceive utility maximization in terms

of temporally discrete, incommensurable subjective desires taken as given, rather than shaped by social forces. As von Hayek argues, “there can exist no single ordering of needs.”⁶ If true, it would follow that there is no normative basis for interfering with the luxury consumption of minorities for the sake of devoting greater resources to satisfying the basic life-requirements of majorities, nor even for curtailing such consumption on the grounds of conserving the universally required natural environment. The problem here can be understood only if we shift focus from the discrete choices of consumers to the patterns of social action that these choices generate. While one person consuming one luxury does no harm, an economic system that must constantly stimulate demand for commodities that make no clear contribution to developing meaningful human capacities, but do return profits to private market agents, ultimately produces the materially irrational implications for the future quality of human life that Georgescu-Roegen diagnoses. These effects may be regarded as externalities of no concern to the economist, but this analytic move does the economist no good in so far as he or she is a breathing human organism, dependent as everyone else on the natural system of life-support. Once we ground economic choices in the material reality of our dependence on the natural world, it becomes clear that the rationality or irrationality of these choices must take into account the cumulative impact of consumer choice on the material world.

The real problem of neoclassical economic models is thus that they abstract individual human life from its embeddedness in the natural field of life-support. However, the problem that Georgescu-Roegen’s argument runs into is that he ignores the equal embeddedness of human life in social systems of life-capacity development. In other words, he conceives the relationship between the natural and social moments of life-value in an abstract and unmediated way. On one hand, he argues that economic value must be conceived in terms of the survival of the species, a goal that seems to imply that economic value be restricted to the production of biological life-requirements. On the other hand, at the same time, he maintains that the real product of economic processes is a “psychic flux” of human happiness, without ever coherently relating these two sides in a synthetic understanding of human life-value as equally natural and social.⁷ This

problem follows from the fact that Georgescu-Roegen never completely abandons neoclassical assumptions about consumption as the sole source of enjoyment.⁸

Georgescu-Roegen follows the psychological assumptions of neoclassical thought in so far as he asserts (without criticism or historical context) that happiness is a product of consumption and leisure. Surprisingly, given his wide understanding of the history of philosophy, Georgescu-Roegen ignores the connection, asserted first by Aristotle, between productive activity that challenges the intellectual and practical capacities of human beings and happiness.⁹ For Georgescu-Roegen, labour is a burden that must be borne as an instrumental condition of staying alive. "The daily life-enjoyment," he maintains, "is enhanced by an increase in the flow of consumer goods and a larger leisure time."¹⁰ By contrast, "labour, through its drudgery, only tends to diminish the intensity of this flux [of enjoyment]."¹¹ These claims may be descriptively true of most people's experience under capitalism, but they cannot be asserted as universal psychological laws, especially by a theorist whose main goal is to create a more life-grounded economic system. If labour is essentially drudgery, then so too is human life itself, because that which creates the human world, including its symbolically meaningful expressions, is labour. But labour is not always drudgery, and if it is, it is not because labour by its nature is a burden, but because its social organization has subordinated its life-value to its money-value. But labour must have life-value if anything does, both because physical life is impossible without it and because there would be no human world to contemplate, admire, and enjoy without labour.

As a natural necessity, labour is valuable because it increases the stock of life-supportive goods beyond the levels that nature makes freely available. Georgescu-Roegen recognizes this aspect of labour's life-value in his primary aim: to limit the quantity of goods produced for the sake of maximizing the time during which nature can support human life:

By using these resources too quickly, man throws away that part of the solar energy that will still be reaching the earth a long time after he has departed. And everything man has done during the last two hundred years or so puts

him in the position of a fantastic spendthrift. There can be no doubt about it: any use of natural resources for the satisfaction of non-vital needs means a smaller quantity of life in the future.¹²

Georgescu-Roegen fails to add that life-value is qualitative as well as quantitative. Since labour is human creative activity in general, any economics that concerns itself with life-value must also focus on the alienation of labour in a capitalist economy. While Georgescu-Roegen is more explicit than Marx and much of the Marxist traditions about the ways in which human economies can materially undermine themselves if they ignore natural dependence, his argument is incomplete in so far as he fails to distinguish, along Marxist lines, between alienated and nonalienated labour, between labour as a commodity and labour as intrinsically valuable creative activity, as “life engendering life,” to use Marx’s phrase.¹³ As a conscious, synthetic expression of human life-capacities, labour has social life-value beyond its natural function to the extent that its specific forms are enjoyed by labouring individuals as their unique contribution to the production and development of the human world.¹⁴

Human life cannot be fully understood from the perspective of its metabolism with nature because its meaning and value is not reducible to its biological systems. If it were so reducible, it would be impossible to explain why people risk their lives and indeed die for principles like honour or god, which have absolutely no analogues in animal worlds. The point is that life is valuable and worth living for humans only if certain non-natural, socio-cultural life-requirements are met in addition to obvious physical needs. The most centrally human of these is creative labour that makes real contributions to the lives of consociates and is, as a consequence, individually meaningful and enjoyable for the labourer. As Marx says, what is most distinctive of human beings is that we can “contemplate ourselves in a world we have created,” and labour is the general process by which we create this sociocultural world.¹⁵ A concept of labour that coheres with the requirements of human life must therefore unite both sides of its life-value.

Rather than provide the value basis for a unified understanding of human life, Georgescu-Roegen does not take us beyond neoclassical assumptions about unhappy workers and satisfied consumers. More precisely, he does

not trace the “drudgery” of labour to specific social conditions, and in particular the way in which labour is both allocated and organized under capitalism. This shortcoming is the more surprising because he knows and understands Marx and cites him with (critical) approval at many points in *The Entropy Law and the Economic Process*. My point is not that Georgescu-Roegen should have been just an orthodox Marxist; his arguments add a dimension to the economic critique of capitalism which are perhaps touched upon and implied in Marx, but nowhere as fully elaborated.¹⁶ Rather, my claim is that unless one focuses on how labour is allocated and organized under capitalism, one cannot understand with any historical specificity why it appears to labourers as drudgery. Unless one understands why labour is drudgery under capitalism, one will have little to say to labourers about how their work life could be improved under a materially rational and life-valuable economy. As we will now see, this problematic understanding of labour has not been corrected in the subsequent history of ecological economics.

Ecological Economics and the Allocation and Organization of Labour

Like all goods and services, labour is allocated under capitalism by (more or less regulated) markets. From the perspective of labourers, this means that they will find a purchaser for their labour-power only if there exists some profitable way to employ it. The allocative function of labour markets also has a decisive impact on the way labour is organized under capitalism. Since labour is normally employed only when it is profitable to do so, it follows that the main drive of capitalist industries is to constantly improve the productivity of labour. Historically, this drive has evacuated the concrete forms of labouring activity of skill, of cognitive demands, and thus also of most sources of possible meaning for individual labourers. Read from the life-ground standpoint, the main conclusion of Harry Braverman’s famous study of the deskilling of labour is that labour under capitalism retains its natural life-value (it still contributes to the production and distribution of life-goods), but loses its social life-value as a conscious expression and enjoyment of the human capacities for thought and creation.¹⁷

It might be objected that Braverman’s conclusions are historically specific

and limited to the structure of industrial labour in the early to mid-twentieth century. While it is certainly important to judge Braverman's conclusions in context, as well as to admit, as Richard Florida and others have argued, that capitalist economic development draws upon the creative intelligence of people as the source of product and service innovation, we also must not lose sight of the ongoing reality of the division between mental and manual labour in twenty-first century capitalism.¹⁸ It is thus necessary to be aware of the ways in which exactly the same attempts to deskill labour pioneered in the twentieth century factory continue to deskill even the most highly creative and apparently most autonomous forms of labour. The best example of this process is perhaps academic labour, which, as James Turk and others have demonstrated, has been under assault for more than two decades by managerial strategies that aim to reduce as far as possible the creative input of academics into the teaching and knowledge dissemination process.¹⁹ The driving force of this assault is the demand to reduce the high costs of employing full-time teaching and research tenured faculty. The point is not that there is no creativity or life-value in capitalist work, but rather that the dynamics of capitalist competition tend to concentrate this creativity at the managerial and design level.

In ecological economics, there is little attention paid to any of these effects of capitalist labour markets on work activity. Much has been written about the problems that markets have in pricing nature, with debate focusing on the money-value of ecosystemic contributions to the economy, and the money-value costs of waste.²⁰ We find no critique of the implications of the commodification of labour for working people. Indeed, we find little in the way of critique of capitalist markets in any sense. Herman Daly does recognize the problems of trying to measure market-efficiency solely in terms of Pareto-optimality:

Ecological sustainability of the throughput is not guaranteed by market forces. The market by itself cannot register the costs of its own increasing scale relative to the ecosystem...The best we can hope for from a perfect market is a Pareto optimal allocation of resources...Such an allocation can be made at any scale of throughput, including unsustainable scales, just as it can be achieved with any distribution of income, including unjust ones.²¹

He treats this as a problem of measurement, however, rather than a problem of market forces themselves. As regards the role of markets in the allocation of resources, Daly assumes that markets are the only way to efficiently allocate resources. “The market functions...only within the economic subsystem, where it does one thing: it solves the allocation problem by providing the necessary information [prices] and incentives [money]. It does this one thing very well.”²²

He defines allocation as “the apportioning of resources among alternative productive uses—food, bicycles, cars, medical care. An allocation is efficient if it corresponds to effective demand.”²³

An efficient allocation along these lines does not and cannot tell us whether this allocation is materially rational in life-value terms. Money-value under capitalism does not measure life-value, and the belief that it does is the highest order value confusion of capitalist economics. Capital is normally allocated to uses expected to produce the highest profit. If, for example, it is more profitable to invest in dirty rather than clean energy, then this decision is the one that normally will be taken. If economic health is assumed to be identical to economic growth and investments in dirty energy cause economic growth, then that economy will be judged healthy by the capitalist metric of economic health. When judged from the standpoint of human health, however, the material irrationality of this metric becomes clear: life-conditions for human beings as organisms that depend upon a life-sustaining natural environment are worsened. It is true that capitalist firms could be forced to internalize costs, but the fact that they must be forced by political movements outside the market proves rather than refutes my central claim. If this general example shows that the normal operations of capitalist markets are blind to the life-costs of their investments, it becomes difficult to understand how Daly, focused as he is on judging the economy in terms of its effects on the environment, can conclude that markets do the job of allocating resources “very well.”

Let us explore the problem more deeply by examining the way labour markets allocate labour-power between different possible productive uses. Labour, too, can be allocated to money-valuable yet life-incoherent industries. Life-coherent labour is labour that produces goods and services that

people actually require in order to live and develop their life-capacities, life-incoherent labour the opposite. Teaching, cleaning up pollution, growing food, building houses, and providing health care are just a few of the innumerable examples of life-coherent labour. Producing toxic chemicals, building weapons, or selling mortgage-backed securities to customers who do not know what they are buying are life-incoherent forms of labour. But if we assume that labour markets are allocatively efficient, then it follows that any distribution that corresponds to market demand is efficient. This failure to distinguish between money-valuable and life-valuable allocations of labour is the most egregious failure of all for two reasons. First, if labour were not allocated to the production of toxins, weapons, or mathematical magic money, then it would be available for life-productive uses. Second, and more importantly, since labour is the conscious activities by which we make whatever contributions our lives make to the world, the allocation of labour in life-blind ways actively involves people in the destruction of the natural and social systems upon which their life and its value depends. People are thus set to work making their lives and life-conditions worse rather than better. I will illustrate this claim with the concrete example of the way in which the Canadian labour market has allocated labour to tar sands production.

In a study commissioned in 2006, the group Environmental Defence concluded that the Alberta oil sands were the most destructive project on earth. Collectively, the various tar sands projects emit more carbon dioxide than 145 countries; use vast amounts of water and natural gas to separate the oil; the lakes and rivers in the area have been seriously polluted with dire health consequences for the fish and mammals of the area and the First Nations' that depend on them for their diet; and acid rain is a growing problem in Alberta and Saskatchewan.²⁴ As the price of oil rose in 2007, oil sands production became more profitable than ever before and labour was drawn towards Fort McMurray like matter to a black hole. Capital required labour, labour required an income, no government restrictions impeded the mobility of labour, those seeking work found it. The labour market functioned "efficiently." Yet this use of labour is anything but life-valuable given the long-term destruction the oil sands project is causing to the natural field of life-support. What I want to focus on here is the distortion that

labour markets impose upon the social field of life-development, as it is at this level that Daly's understanding of markets is most problematic.

Labour markets do not function simply by matching buyers and sellers of labour power. While, as consumers, people can choose to buy SUVs or bicycles, as workers people generally have no choice but to sell their labour power to whoever is willing to buy it because life-necessities are priced commodities normally available only to those able to pay. Hence, when labour flows towards Fort McMurray from dying industrial cities like Windsor, it is not by choice but by necessity. In order to maintain their own lives, workers are forced into an industry that threatens, in the short term, the health and lives of the flora, fauna, and people of the First Nations of Northern Alberta, and in the long term everybody on earth to the extent that global warming and its attendant dangers is a global problem. Instead of matching the life-requirement for meaningful and socially valuable labour to jobs that actually develop and improve society, this example of an efficient labour market draws labour into life-destructive work. If we think of society as an institutional field whose purpose is to enable human life to develop and enjoy its human capacities for feeling, thinking, and creative action, then this and analogous examples of efficient labour markets contradict the very purpose of society. Instead of matching life-requirement and life-valuable practice, they turn a life-requirement into a structure of dependence on money-value and channel labour into work that is by any materially rational measure life-destructive.

It may be rejoined that the rechanneling of labour from zones of high to low unemployment is an example of the life-valuable function of market equilibrium. Not only do people find paid employment, but they derive the psychological benefit of increased self-esteem that being employed often brings. Moreover, society as a whole benefits because wealth is created, which, when taxed, funds public infrastructure and generates the money needed to pay for the cleanup of the environments damaged by oil sands mining. Again, this rejoinder has some truth, especially as regards the self-esteem of workers. However, it rests upon a fallacious construction of fixed alternatives. One is asked to choose between environmentally destructive production or economic stagnation, both personal and social. It does not

consider the possibility that there are more life-valuable investment opportunities (say, in clean energy), which, while not as profitable, are ultimately more valuable to society because they would not require some of the social wealth generated to be siphoned off to pay for the environmental costs. More importantly in the present context, the self-esteem of workers would be generated through feeling themselves an active part of a collective effort to turn society away from destructive forms of economic growth. Their labour would not be burdensome, but rather a source of enjoyment stemming from the experience of the contribution their work makes to social development. While ecological economics can understand the value of their labour as a contribution to a healthier environment, it lacks the concepts necessary to understand the value of the labour for the labourer, precisely because it is indifferent to the structure and content of labour, but focuses only on its environmental impact.

Economic Development and Life-Valuable Labour Among mainstream political and economic critics, no platform of ecological economics is more pilloried than its demand for a “steady-state” or zero growth economy.²⁵ If economic growth, as measured by growth of money-value, is accepted uncritically as the only way to solve poverty and create jobs, then it follows that a no growth strategy would be tantamount to abandoning anyone currently poor or unemployed to their present fate. What the neoclassical critics ignore is that the demand for a steady-state economy is not to be imposed at once, but phased in in such a way that the smaller and less energy intensive economies of the global South will be allowed to grow until such a time as they are capable of meeting their citizens’ life-requirement. Moreover, even in the advanced economies a steady-state economy does not mean a static economy. Daly distinguishes clearly between growth and development. The steady-state economy will be a developing economy, but not a growing economy. “To grow,” he argues:

Means to increase in size by accretion or accumulation of material. Growth ...means a quantitative increase in the scale of the physical dimensions of the economy. To develop means to expand or realize the potentialities of, to bring gradually to a fuller, greater, or better state. Development therefore

means the qualitative improvement in the structure, design, and composition of the physical stocks of wealth that result from greater knowledge, both of technique and purpose. A growing economy is getting bigger, a developing economy is getting better.²⁶

This distinction is clearly life-grounded. Many things that grow get worse as they get bigger (e.g., tumours, garbage heaps) while to say something is worse the more developed it is in the sense in which Daly uses “development” would be oxymoronic. Nevertheless, Daly’s distinction relates in the first instance to the economy as a technical system of production, and only implicitly as a network of human life-activities. The lack of explicit attention to what it means for human labour to develop in a steady-state economy creates further difficulties for the overall coherence of the ecological economic perspective.

Note that what develops is the “structure, design, and composition” of the physical stocks of wealth. While these developments derive from better knowledge and technique, Daly does not explicitly challenge the division between mental and manual labour typical of capitalism. Do a small number of scientific experts with a pipeline to governments make recommendations that are then simply imposed on the system of production with no input from front-line production workers? Or are front-line production workers brought together with scientists and community members in new deliberative planning bodies that collectively determine how the immediate costs to displaced workers can be offset?²⁷ If the former, then workers under a developing ecological economic system seem no better off, no more consciously engaged in directing the development of the economy than they are in a capitalist system. If their role is simply to carry out technical improvements designed and mandated by experts, then they remain the objects of technocratic class domination. Their offices and factories might become “greener” and more technically sophisticated, but their own work would remain alienated. Thus, ecological economics needs a much more developed explanation of how human life-activity would develop in a steady-state economy.

Of course, ecological economics is not indifferent to political questions. The primary motivation behind Daly’s model is not the health of the natural

life-support system in the abstract, but the well-being of humanity, in particular those who live in absolute poverty. The North must cease growing so that the South can grow. This aim can be achieved only in the case that income distributions are made more equal, both within the wealthy northern countries and between the North and South. The fundamental ethical principle of ecological economics is thus “sufficient per capita wealth—efficiently maintained and allocated, and equitably distributed—for the maximum number of people that can be sustained over time under these conditions.”²⁸

Valuable as this principle is, it overlooks the fact that human life is not simply respiration and metabolism, but conscious activity developed by and within social institutions. Daly talks about the development of the economy, but what would such development mean for labour?

This question is simply not the focus of most ecological economic work. One exception to this rule is the recent work of Peter Victor, who does explore one important dimension of this problem: the problem of labour-time. According to Victor, economic development in relation to labour means a reduction in the average hours that individuals work as a consequence of higher levels of productivity:

People in rich countries can continue to strive for economic growth despite the strong evidence that continued long term economic growth is not an option from which all can benefit, or we can try a different tack. We can place less emphasis on work, production, and consumption, especially those of us who have them in excess, share what we do have with the less advantaged, and get more out of life by having more time to ourselves. One of the ways of doing this is to further reduce the average hours of employment without loss of real wages.²⁹

The strength of this argument is its recognition that production and consumption are not ends in themselves, but valuable only to the extent that they enable us to “get” something out of life. The vagueness of the expression does not conceal the meaning: the value of human life is expressed by the range and depth of our accomplishments, not our accumulation of things. The latter are valuable only as instrumental inputs to the realization and enjoyment of life-valuable capacities; beyond this (variable) level,

they become substitute satisfactions that draw upon materially unsustainable and therefore materially irrational economic practices. Since each lifetime is finite, doing more requires less time be devoted to paid work. Free time can be increased if technology unburdens us of many reproductive and repetitive tasks.³⁰

There are, however, important limitations to the success of this vision. First, unless the domination of economic forces over human life is challenged and transformed, time outside of the demands of paid labour cannot become free time. Free time, as I have argued in detail elsewhere, is not simply empty time (i.e., time in which one has nothing pressing to do), but “an open matrix of possibilities for life-valuable activity.”³¹ In a capitalist economy, market forces rule free time to the extent that they rule leisure and consumption. Almost everything one chooses to do in a capitalist society requires money, either as a condition of entry to where you want to go and what activity you want to engage in, or as a presupposition of keeping yourself alive in order to have any life-time at all. Perhaps counterintuitively, the poor and unemployed have less time under their own control than the wealthy and employed.³² A life-coherent reduction of socially average labour time—i.e., one which actually benefits individuals by changing their experience of time from imposed routine to open matrix of possibilities for life-valuable activity—would clearly require democratic planning, but Victor does not discuss this fact. Moreover, it is not clear that labour, like production and consumption, is not an intrinsic good. In other words, it is possible that what workers need less of is not work in the abstract, but meaningless, life-valueless or life-destructive, work.

Why should achieving this goal require democratic planning? Recall my argument that labour markets allocate labour power not on the basis of the human worker’s requirement for life-valuable work, but on the basis of the nonliving firm’s requirement for labour. The regulating principle is not sufficient life-valuable work for all who require it, but minimum labour input for maximum output of whatever it is profitable to produce. Certainly Daly and other ecological economists are in favour of a stronger regulatory regime to control the environmentally destructive effects of untrammelled growth. However, regulation of labour markets will not in itself solve the unique

problems that labourers face in a capitalist economy.

Work would still be organized along despotic, rather than democratic, lines; much of it would remain victim to the division between mental and manual labour, there would remain competition between labourers for scarce jobs, and in the case that average hours worked were reduced, those now working less would face the problem of what to do in the time suddenly freed, not by their own democratic efforts, but by government fiat. People freed from old routines suddenly and without any input do not tend to experience this freedom as a liberation, but as a disorienting shock to their lives. Most likely, it would be experienced by workers as akin to a layoff and not welcomed because of the similarity. Job-sharing schemes during the present recession are an example. They are not entered into willingly by employees, but only as a last resort in order to stave off the worse fate of unemployment.

The reason why ecological economics overlooks this problem was already evident in Georgescu-Roegen: a conception of life-value that did not coherently synthesize the natural and social moments of human life-activity. As Alf Hornburg has noted, ecological economics has persistently revealed a “systematic incapacity to deal with [the] mutual interpenetration of material and the social.”³³ Its treating labour as mere drudgery is the perfect illustration of this incapacity. As Marx argued and as I noted earlier, labour is the mediating point between nature and society, that complex set of practices by which we both maintain our existence and build a humanly meaningful world out of nature. The meaning-creating capacity of labour is its human life-value i.e., the way in which it not only helps to keep the species alive, but the manifold ways in which it enables deeper understanding of material processes, objectifies human ideas and talents, creates beauty, develops the communicative capacities required to govern the social world democratically, and, in general, creates the basis for feeling affirmed as a conscious contributing social agent.

It is not labour as such from which people must be freed, but the mindless routines of paid work under capitalism, routines that do not follow from the nature of the tasks themselves, but from the way in which labour power is allocated and organized under the relentless pressure of market forces. If

one assumes that market forces allocate resources “very well,” but only get the scale of activity wrong, it is difficult to see how labour will be qualitatively better in an ecological economy. A qualitatively better economy is the goal of ecological economics, yet its conception of “better” refers only to techniques, knowledge, and the state of physical stocks without having anything to say to the workers who create the knowledge, implement the techniques, and tend the stocks. These workers are the majority of people on the planet by a wide margin. If ecological economics has nothing specific to say to them about how their work will become qualitatively better, it is unlikely to be able to contribute to building the wide political movement that will be required if its life-valuable objectives are to be achieved.

Conclusion: Politics and Life-Values Ecological economics is a political economy in the classic sense of the term: a synthetic investigation of all factors that contribute to the wealth of nations. While its economic insights are clearly life-grounded, its understanding of the political consequences of market forces remains undeveloped at best. Like the neoclassical welfare model from which it struggles to differentiate itself, ecological economics invokes individual choice as the key factor in political decisions that affect economic life without duly considering the systematic way in which ideological forces, undergirded by social constraints on choice unique to capitalism, shape people’s self-understanding and decisions. The cause of materially irrational economic policies is attributed to advertising and consumerism in abstraction from the key question of who actually benefits from the choices they encourage. “The culture of advertising and consumption drives public support for the growth agenda...the never-ending extension of desire totally ignores the pressure that mass desires place on resources of every kind.”³⁴

It is certainly true that mass desire generates unsustainable pressures on the natural environment. It is also true that people understand this unsustainability intellectually. This contradictory self-consciousness is a particular instance of a more general phenomenon in capitalism explained by Gramsci. As he argues:

One might almost say that he (the worker) has two theoretical consciousnesses (or one contradictory consciousness): one which is implicit in his activity...and

one...verbal which he has inherited from the past and uncritically absorbed. But this verbal conception is not without consequences. It holds together a specific social group, it influences moral conduct and the direction of will...often powerfully enough to produce a situation in which the contradictory state of consciousness does not permit of any action, any decision or any choice, and produces a condition of moral and political passivity.³⁵

The passivity in the present context is expressed not so much as indifference to environmental problems as it is in apparently irrational persistence in the high consumption lifestyles that, according to ecological economics, is the cause of unsustainable economic growth.

But this conclusion inverts cause and effect. The material irrationality of unsustainable economic growth is not caused by individual consciousness and choices, but the systemic need of capitalism to create ever new opportunities for profitable investment and the ideological constructions that present this growth as a universal good for all. Advertising is an important component of this ideological construction in its endlessly inventive linking of the human desire to live a good life with the consumption of commodities. Yet advertising alone does not explain the problem because, as even those who study advertising carefully admit, most ads are ignored.³⁶ Instead, the explanation for why people persist in unsustainable lifestyles is because they remain dependent upon labour markets for the money that they require in order to live.

Within these material constraints, consumer choice represents the alienated expression of the desire not only to live, but to live well. People will not be motivated to change their individual behaviour simply on the basis of abstract diagnoses of the material irrationality of the cumulative effect of choices. Only as participants in a democratic movement that reduces and eventually overcomes the material dependence on labour markets will people transform their individual choices.

There is no solution to environmental problems that would not involve, as the central component, changes to working life because it is through labour that the natural world is transformed. Instead of targetting individual desire as the cause and blaming the consumption habits of the masses for

environmental problems, ecological economics needs to build bridges to workers both in so far as workers suffer the most immediate effects of environmental damage, and as the social foundation of a life-valuable and democratic ecological economics.

As Jared Diamond has shown, simple knowledge of the fact that certain patterns of resource use are unsustainable is not always sufficient to motivate changes of behaviour.³⁷ What is required, in addition to empirical knowledge, is an alternative value system that is both objectively more life-coherent and subjectively demanded by people. In order for the subjective condition to be met, people must be convinced that their lives would be qualitatively better under a more life-coherent ruling value-system. In order to be convinced of that potentiality, their ideas and energies must be engaged in the articulation and implementation of the new value system. Ecological economics needs to more clearly grasp the social, self-conscious moment of life-valuable labour and open itself to the necessity of a democratically planned and life-coherent economy.

Notes

1. John McMurtry, *Value Wars*, (London: Pluto, 2002), p. 124. See also Jeff Noonan, "Normative Political Economy," in Walter Levin, (ed.), *Political Economy Research Focus* (Schenectedy, NY: Nova Science Publishers, 2009).
2. Karl Marx, *Capital Volume 1* (Moscow: Progress Publishers, 1986), p. 43.
3. Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process* (Cambridge MA: Harvard, 1971), p. 21.
4. *Ibid.*, p. 158.
5. *Ibid.*, p. 277.
6. Friedrich von Hayek, *Law, Legislation, and Liberty. Volume One: Rules and Order* (Chicago: University of Chicago Press, 1973).
7. Georgescu-Roegen, *The Entropy Law and the Economic Process*, p. 284.
8. Some might be tempted at this point to call a halt to my argument by saying that Marx has already solved the problem of coherently relating the natural and social moments of human life-value in his conception of nonalienated labour. This conception will play an important role in my subsequent argument, but it must be stressed that Marx's argument is not without its ambiguities. Two such ambiguities are worth mentioning. First is the ultimate role that reproductive labour would play in a socialist society. On one hand, in Marx's early work the implication seems to be that, in a socialist society, all forms of labour, once released from the alienation imposed by capitalist class-relations, will be socially as well as naturally life-valuable. In *The 1844 Manuscripts*, Marx defines labour as "life-engendering life" and "free, conscious activity" as the specific difference of human being; Karl Marx, "Economic and Philosophical Manuscripts of 1844" in Karl Marx and Friedrich Engels, *Collected Works Vol. 3* (New York: International Publishers, 1975), p. 276. Later, however, in the *Grundrisse*, the implication seems to be that human life-value depends upon the use of technology to free us from most,

- if not all reproductive demands, thus freeing us from labour. Capitalism will have been overcome, he says, when “labour in which man does what he can make machines do for him has ceased.” Karl Marx, “Outlines of the Critique of Political Economy,” in Karl Marx and Friedrich Engels, *Collected Works Vol. 28* (Moscow: Progress Publishers, 1986), p. 250. For a detailed analysis and defence of the second view, see Moishe Postone, *Time, Labour, and Social Domination* (Cambridge: Cambridge University Press, 1993). Second, Marx is surprisingly not free from assumptions about the relationship between consumer psychology and human happiness that typify classical and neoclassical economics. In a remarkable but little remarked-upon passage, Marx accepts without critical comment the psychology of consumer desire that typifies “bourgeois” political economy. Speaking of housing, Marx argues that people are satisfied with their houses only if a neighbour does not build a bigger house. The principle of life-sufficiency implied by his formula “to each according to their needs” stands in tension with the implication of this passage that feeling oneself on par with one’s neighbours will outweigh the objective life-sufficiency of the goods that one controls. If the latter claim is true, then socialism of any sort will likely not be able to escape from the environmentally destructive cycles engendered by ever-artificially stimulated consumer demand. See Karl Marx, “Wage Labour and Capital,” in Karl Marx and Friedrich Engels, *Selected Works Vol. 1* (Moscow: Progress Publishers, 1973), p. 163.
9. Aristotle, “Nicomachean Ethics,” in Richard McKeon, (ed.), *The Basic Works of Aristotle* (New York: Random House, 1941), p. 1099 (1174^b-1175^a).
 10. Georgescu-Roegen, *The Entropy Law and the Economic Process*, p. 285.
 11. *Ibid.*, p. 18.
 12. *Ibid.*, p. 21.
 13. Karl Marx, “Economic and Philosophical Manuscripts of 1844,” *Karl Marx and Friedrich Engels, Collected Works, Vol. 3* (New York: International Publishers, 1975), p. 277.
 14. In the next section I will explore how this problem reappears in the work of Herman Daly, Georgescu-Roegen’s student and arguably the most well-known and important ecological economist. The contemporary history of ecological economics is notable for its lack of attention to the specific problems faced by labour in a capitalist society, the consequences for its life-value of the fact of alienation, and lack of attention to what labour might be like in an ecologically reformed economy. See the two-part history of the main problems and thematic concerns of ecological economics by Inge Ropke. Inge Ropke, “The Early History of Ecological Economics,” *Ecological Economics* Vol. 50, pp. 293-314; Inge Ropke, “Trends in the Development of Ecological Economics from the Late 1980’s to the Early 2000’s,” *Ecological Economics* Vol. 55, (2005), pp. 262–290.
 15. Marx, “Economic and Philosophical Manuscripts of 1844,” p. 277.
 16. The most elaborate attempt to discover ecological implications in the work of Marx is John Bellamy Foster, *Marx’s Ecology* (New York: Monthly Review Press, 2000). While a superb interpretation, Foster does not uncover any systematic concern within Marx of the necessary opposition between economic growth and material environmental limits. It is true that capitalism generates historically unique pressures to grow, but any economy that prioritizes quantitative growth will eventually confront natural limits to it. By stressing the universality of the problem of scale, Georgescu-Roegen remains relevant to Marxism; in other words, not everything that needs to be said on the problem of scale is said in Marx, although Foster does demonstrate that there is more of ecological relevance in Marx than has been appreciated.
 17. Harry Braverman, *Labour and Monopoly Capitalism* (New York: Monthly Review Press), 1999.
 18. On the role of “creative capital,” see Richard Florida, *The Rise of the Creative Class* (New York: Basic Books, 2004), pp. 44–102. For a contrasting position on the conditions of work in purportedly creative work environments, see Ursula Huws, “The Making of a Cybertariat?” in Leo Panitch and Colin Leys, (eds.), *Socialist Register 2001: Working Classes, Global Realities* (London: Merlin Press, 2001), pp. 1–25.
 19. See James L. Turk, “Restructuring Academic Work,” in James L. Turk, (ed.), *Universities at Risk* (Toronto: Lorimer, 2008), pp. 292–205; Oili-Helena Ylijoki, “Entangled in Academic

- Capitalism? A Case Study on Changing Ideals and Practices of University Research," *Higher Education* 45/2 (2003), pp. 307–335.
20. For an overview of the debates and a critique of the limitations of these perspectives, see Paul Burkett, "The Value Problem in Ecological Economics: Lessons from the Physiocrats and Marx," *Organization and Environment* 16/2 (2003), pp. 137–167.
 21. Herman Daly, *Beyond Growth* (Boston: Beacon Press, 1996), p. 32.
 22. *Ibid.*, p. 50.
 23. *Ibid.*, p. 159.
 24. "Canada's Toxic Tar Sands: the Most Destructive Project on Earth," (Toronto: Environmental Defence, 2006), <<http://www.environmentaldefence.ca>> (accessed 20 November 2008).
 25. See, for example, Martin Wolf, *Why Globalization Works* (New Haven: Yale University Press, 2004). Critics of steady-state economics are not confined to the Right, but include some "ecosocialists" as well. See David Schwartzman, "Ecosocialism or Ecocatastrophe?" *Nature, Capitalism, Socialism* 20/1 (2009), pp. 6–33.
 26. Herman Daly, *Ecological Economics and the Ecology of Economics*, (Cheltenham UK: Edward Elgar), 1999, p. 6.
 27. Although I believe that what Daly means by a developing economy could be realized only in a democratically planned economy, I must, for reasons of space and the internal coherence of my argument, set aside the vexed question of whether such an economy is possible. The best answer to this question that I know of is given in Pat Devine, *Democracy and Economic Planning*, (Boulder CO: Westview Press, 1988). I mention democratic planning bodies here only to emphasize the way in which the changed nature of labour is a blank spot in Daly's argument, with serious theoretical and practical consequence. Hence, I would claim that a democratically planned economy is an entailment of the ecological economic position. However, a proper analysis and defence of the institutions and organization of such a society cannot be examined here.
 28. Daly, *Beyond Growth*, p. 220.
 29. Peter A. Victor, *Managing Without Growth* (Cheltenham UK: Edward Elgar, 2008), p. 212.
 30. As Marx first argued in the *Grundrisse*. See Karl Marx, "Outlines of the Critique of Political Economy," *Karl Marx and Friedrich Engels, Collected Works Volume 28* (New York: International Publishers, 1986), p. 250.
 31. Jeff Noonan, "Free Time as a Condition of a Free Human Life," *Contemporary Political Theory* 8/4 (2009), pp. 377–393.
 32. Robert E. Goodin, James Mahmud Rice, Antti Parpo, Lina Eriksson, *Discretionary Time*, (Cambridge: Cambridge University Press, 2008), pp. 264–265.
 33. Alf Hornburg, "Toward an Ecological Theory of Unequal Exchange: Articulating World-System Theory and Ecological Economics," *Ecological Economics* 25 (1998), p. 129.
 34. Peter G. Brown and Geoffrey Garver, *Right Relationship* (San Francisco: Berrett-Koehler, 2009), p. 83.
 35. Antonio Gramsci, *Prison Notebooks* (New York: International Publishers, 1971), p. 333.
 36. See for example Erik Du Plessis, *The Advertised Mind*, (London: Milward Brown, 2005); Gerard J. Tellis, "Advertising's Role in Capitalist Markets: What Do We Know and Where Can We Go?" *Journal of Advertising Research* 45/2 (2005), pp. 1–8; William M. Weilbacher, "How Advertising Affects Consumers," *Journal of Advertising Research* 43/1 (2003), pp. 230–235.
 37. Jared Diamond, *Collapse* (New York: Penguin, 2005).