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Issue: *Ecological Economics Reviews***Is steady-state capitalism viable?****A review of the issues and an answer in the affirmative**

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Most ecological economists believe that the transition to a steady-state economy is necessary to ensure ecological sustainability and to maximize a nation's economic welfare. While some observers agree with the necessity of the steady-state economy, they are nonetheless critical of the suggestion made by ecological economists—in particular, Herman Daly—that a steady-state economy is compatible with a capitalist system. First, they believe that steady-state capitalism is based on the untenable assumption that growth is an optional rather than in-built element of capitalism. Second, they argue that capitalist notions of efficient resource allocation are too restrictive to facilitate the transition to an “ecological” or steady-state economy. I believe these observers are outright wrong with their first criticism and, because they misunderstand Daly's vision of a steady-state economy, are misplaced with their second criticism. The nature of a capitalist system depends upon the institutional framework that supports and shapes it. Hence, a capitalist system can exist in a wide variety of forms. Unfortunately, many observers fail to recognize that the current “growth imperative” is the result of capitalist systems everywhere being institutionally designed to grow. They need not be designed this way to survive and thrive. Indeed, because continued growth is both existentially undesirable and ecologically unsustainable, redesigning capitalist systems through the introduction of Daly-like institutions would prove to be capitalism's savior. What's more, it would constitute humankind's best hope of achieving sustainable development.

**Keywords:** steady-state economy; capitalism; socialism; ecological economics

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**Introduction**

This paper constitutes a review of the issues concerning the steady-state economy and its compatibility with a capitalist system. Numerous commentaries in the past have advanced the thesis that capitalism is incompatible with ecological sustainability.<sup>1–5</sup> In a recent critique, Richard Smith has gone much further by suggesting that if capitalism and ecological sustainability are incompatible, it follows that a steady-state economy—which many believe is necessary to achieve ecological sustainability—is also incompatible with a capitalist system.<sup>6</sup> Many of the views expressed by Smith typify the views articulated in the above references. I will therefore conduct this review by focusing most of my attention on the issues raised, and claims made, by Smith.

Smith's critique of steady-state capitalism begins with a reference to two recent and highly publicized reports—*Growth Isn't Possible* by the New Economic Foundation (NEF)<sup>7</sup> and Tim Jackson's *Prosperity Without Growth*.<sup>8</sup> Both reports argue that the growth of economic activity must be curtailed to align the rate of resource throughput with the ecosphere's carrying capacity and to improve the well-being of current and future human beings. As a means of restraining growth, both the NEF and Jackson call for the transition to Herman Daly's concept of a steady-state economy; albeit, they recognize that the world's most impoverished nations require a phase of equitable and efficient growth. Although Smith agrees with the need to restrain economic activity, redistribute wealth, and discard consumerism, Smith rejects any notion that a

steady-state economy can coexist with a capitalist system. He does this by stating, from the outset, that Daly and his disciples don't understand capitalist economics. Smith devotes the remainder of his paper to explaining why steady-state capitalism is a so-called fantasy and why, as a consequence, it is obvious that Daly and company are oblivious to the fundamental workings of a capitalist system.

On the contrary, having been brainwashed by pro-growth advocates that capitalist economies must grow to survive, it is Smith, like many, who do not fully understand capitalist economics. Furthermore, it is clear from Smith's paper that he has failed to acquaint himself with the full range of Daly's steady-state proposals. In fact, Smith's descriptions of steady-state capitalism, what is required to achieve it, and what benefits it would bring are palpably misleading. As a self-confessed advocate of the steady-state economy, it is my aim to convince readers that steady-state capitalism is not only entirely feasible, but also the most appropriate means of achieving sustainable qualitative improvement, otherwise known as sustainable development.

### Definitional formalities

Before I begin my review, I will first define a number of terms and emphasize some critical distinctions. The first term worth defining is that of the *steady-state economy*. A steady-state economy is a physically nongrowing economy where the production of new goods essentially matches the consumption and physical depreciation of existing goods.<sup>a</sup> Also constant in a steady-state economy is the population of human beings. Quite deliberately, the physical scale of a steady-state economy is one where its continued maintenance requires a rate of resource throughput that is no greater than the regenerative and waste-assimilative capacities of the supporting ecosphere. In other words, at the very least, a steady-state economy is designed to be ecologically sustainable.

The second term that needs to be defined is *capitalism*. One can debate what capitalism is and how it differs to socialism, but I see capitalism as an economic system, where a large proportion of the

human-made capital within it is privately owned, and where most of the goods and services produced are bought and sold by individuals or privately owned businesses in formally established markets. Moreover, market prices are generally free to fluctuate in accordance with changing demand and supply forces, albeit collective (government) decisions serve an important price-influencing function. On the other hand, I see socialism as an economic system where the human-made capital within it is predominantly or entirely government owned, and where many of the goods and services produced are distributed or sold by the government to the nation's citizens. Unlike capitalism, prices are largely set by the government, which may or may not reflect changing demand and supply forces.

In this sense, I believe the distinction between capitalism and socialism has less to do with government intervention and more to do with property ownership and the use of markets as a resource allocation mechanism. This doesn't mean that some capitalist systems are likely to exhibit more government intervention than some socialist systems. However, it is widely understood that well-defined and enforceable private property rights are necessary for a free-market economy to exist. Indeed, as many have shown, markets exist and function not in spite of institutional and other formal arrangements, but because of them.<sup>9-11</sup> Clearly, while free markets are at the core of a capitalist system, some government intervention is an essential feature of capitalism. Furthermore, since markets have a propensity to "fail," an effective form of capitalism is likely to demand more government intervention than any base level of intervention required for a capitalist economy to exist. All in all, it is wrong to argue that an economic system characterized by more government intervention than another is less of a capitalist system. It might simply be a more socially beneficial form of capitalism.

Finally, it is important to recognize the crucial distinction between *growth* and *development*. In the introduction to his paper, Smith refers to a comment made by Tom Clougherty, executive director of the Adam Smith Institute, that the pro-capitalist, anti-growth position embraced by the advocates of steady-state capitalism is a nonstarter.<sup>6</sup> To support this view, we are told that, by rejecting no-growth capitalism, Clougherty is reaffirming the orthodox view of economists "that growth is an iron law of

<sup>a</sup> A steady-state economy would mildly fluctuate in size around what ecological economists would consider to be the optimal scale of the macroeconomy.

capitalist development” and that “capitalism cannot exist without the constant revolutionizing of productive forces, without constantly expanding markets, without the ever-growing consumption of resources” (p. 29).<sup>6</sup>

I will address the “growth is necessary” issue shortly. For now, I want to highlight the common mistake, here made by Smith, of using the terms “growth” and “development” interchangeably. Although the competitive forces present in many capitalist markets can help drive the economic development process, it is wrong to suggest that economic development is always characterized by constantly expanding markets and the ever-growing consumption of resources. It is also wrong to suggest that these same competitive forces always lead to economic development. Development is a process of “betterment” or “qualitative improvement” and occurs when economic activity increases benefits more than costs. If a process of this kind involves the growth of a nation’s gross domestic product (GDP), then the GDP growth in question is development enhancing. It also constitutes a case of “economic” growth, since, like development, something that is truly “economic” is something that increases benefits faster than costs (a notion that mainstream economists recognize at the microeconomic level but conveniently overlook at the macroeconomic level). If, however, a phase of GDP growth increases costs faster than benefits—something that appears to be happening in most industrialized countries and some poor nations<sup>12,13</sup>—then the growth in GDP constitutes “uneconomic” growth. Moreover, the process would be development-impeding.

The key point here is that growth may or may not be equivalent to development. Given the well-known principles of diminishing marginal benefits and increasing marginal costs, we would expect growth to be “economic” early on in a nation’s development process but eventually reach a point where it becomes “uneconomic.”<sup>b</sup> It is at this point—the so-called “optimal” scale of economic activity—where

<sup>b</sup> Empirical evidence confirms this expectation.<sup>12,13</sup> The empirical evidence is based on the Index of Sustainable Economic Welfare and the Genuine Progress Indicator. These two recently devised indicators essentially differ in name only, with the latter now becoming the more popular term. Both indicators aim to identify, measure,

Daly believes that national economies should stabilize. This may require many industrialized nations to physically shrink or “de-grow” their economies.<sup>14–17</sup> Critically, the operation of a steady-state economy at the optimal scale does not imply “stasis.” Because there is always the need for replacement of consumed and depreciated goods, and given that replacement can involve the creation of something better than that being replaced, a steady-state economy can remain dynamic as well as facilitate economic development.

### Capitalist systems do not need to grow

Critics of steady-state capitalism believe that a capitalist system collapses without ongoing growth. Having alluded to this common perception, Smith proceeds to explain why the growth imperative is a supposed tenet of capitalism.<sup>6</sup> Smith begins his explanation by quoting Tim Jackson’s vision of diminished profitability in a steady-state economy *vis-à-vis* the growth economy—a vision, by the way, that I don’t agree with. I believe that large profits can still be made in a steady-state economy. Although profit margins might initially be smaller in a steady-state economy and would eventually decline as efficiency advances approach inevitable thermodynamic limits,<sup>c</sup> it is humankind’s persistence with

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and compare the benefits and costs of economic activity at the macro level.

<sup>c</sup> The first and second laws of thermodynamics impose severe limits on the capacity to increase the technical efficiency of production. The first law is the *law of conservation of matter-energy*. It dictates that no matter or energy can be created or destroyed during its transformation from one form to another. The second law is the *Entropy Law*. It dictates that, following its transformation, the quantity of matter and energy “available” for future use is diminished. Because of the first and second laws of thermodynamics, 100% technical efficiency is impossible. As a means of illustration, consider the technical efficiency of production ( $E$ ), which constitutes the ratio of energy-matter embodied in physical goods ( $Q$ ) to the energy-matter embodied in the resources ( $R$ ) used to produce them (i.e.,  $E = Q/R$ ). Although the value of  $E$  can be increased via technological progress (i.e., by reducing the quantity of  $R$  that immediately becomes production waste),  $E$  must always remain less than a value of one. Hence, there are inevitable limits to advances in technical efficiency. In addition, 100% recycling of matter is impossible, while energy cannot be recycled at all.

unsustainable growth that will eat dramatically into future corporate profits. Thus, far from eliminating profits, steady-state capitalism is a pathway to sustained, healthy profits.

Putting this aside for a moment, there is no doubt that real GDP would effectively cease to grow in a steady-state economy.<sup>d</sup> It is the prospect of non-growing real GDP that many people believe would lead to mass unemployment and a host of other problems, such as increased poverty. What is common among many observers is the view that capitalism can only exist in one particular form—namely, one that must continue to grow. Along with this, there is a similarly narrow view that employment levels are inextricably linked to real GDP. How often have you heard that real GDP must rise by 2–3% per annum simply to prevent the unemployment rate from rising? This link is not a natural one—it exists because of the institutional framework that shapes and connects labor markets with product markets and because currency-issuing central governments fail to act as an employer-of-last-resort.

I must admit that the employment issue has been inadequately addressed by advocates of the steady-state economy.<sup>e</sup> However, a number of detailed ways of achieving full employment in a steady-state economy have recently been explored.<sup>19,20</sup> Word limits prevent me from outlining all the possible solutions. I shall briefly discuss two of them. The first relates

to the emphasis on qualitative improvement in a steady-state economy that would replace the current growth predilection. *Ceteris paribus*, better quality goods command higher prices.<sup>f</sup> Provided workers can share in the larger profits that the higher prices would generate, workers can potentially earn higher nominal wages. True, if the percentage rise in wages is subsequently offset by a similar percentage increase in the price of the better-quality goods (constant real wages), workers can only afford the same quantity of goods. But being better-quality goods (i.e., goods possessing higher use values), workers would enjoy higher levels of economic welfare. More than this, provided there is adequate labor market flexibility, workers would be in a position to reduce their work hours, increase their leisure time, and ultimately choose a work-leisure mix that increases their well-being.<sup>g</sup> The consequent reduction in work hours would enable the total work required to produce a given real GDP to be better shared among the labor force, thereby helping to reduce unemployment.

Second, since the above does not guarantee full employment, central governments need to become an employer-of-last-resort. Mitchell and Muysken have put forward a so-called Job Guarantee as a means of institutionalizing a full employment policy.<sup>21</sup> If introduced, the Job Guarantee would provide all unemployed people with jobs primarily designed to produce goods and services with public goods characteristics (i.e., much needed goods not

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<sup>d</sup> Some people will be puzzled by the idea that profits could remain high if real GDP stabilizes. This is because many people fail to understand that real GDP has no necessary relationship with profit-earning capacity. Real GDP is a monetary measure of the quantity of goods and services produced from the use of domestically located factors of production. Since real GDP includes the cost of environmental damage, resource depletion, and defensive and rehabilitative measures, it is possible for real GDP to rise even though the true cost of economic activity can be increasing faster than production benefits, the latter of which would reduce the profits earned by most firms. Similarly, it is possible for the difference between production benefits and social and environmental costs to rise as real GDP remains constant, where the former would increase the profits earned by most firms.

<sup>e</sup> To Herman Daly's credit, he has at least brought the employment issue to attention and suggested some possible solutions.<sup>18</sup> Having said this, Daly's offerings are nowhere near as detailed as his other steady-state proposals.

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<sup>f</sup> Of course, we don't live in a *ceteris paribus* world. There are an increasing number of cases where the prices of improving goods have fallen over time as the average cost of production has declined (e.g., personal computers). That said, from a profit perspective, the important thing is the difference between price and the average cost of production. If this difference increases, then the profit earned from the production and sale of a given quantity of goods rises, even if prices are falling (i.e., average cost would be falling at a greater rate). Consider, then, a situation where the rate of reduction in average costs is about the same for standard and prestige cars, yet the quality of all new cars is rising. One would expect the difference between the price and average cost of cars to be increasing over time, thereby allowing higher profits to be earned even as the growth in production and sales ceases.

<sup>g</sup> This assumes the continued protection of workers' rights.

normally provided by the private sector).<sup>h</sup> All Job Guarantee workers would receive a minimum living wage. Apart from assisting central governments to achieve a Rawlsian-like equity goal,<sup>i</sup> a minimum living wage would both set a wage floor for the entire economy and circumvent any competition for labor with the private sector that would otherwise drive up wages and be cost-push inflationary.

Because not all unemployed people want full-time work, a Job Guarantee program would include fractional jobs. Also provided would be training and work flexibility. This would force private-sector employers to do likewise, thereby allowing governments to simplify existing industrial relations regulations. The induced increase in labor market flexibility would promote job sharing, with all its above-described benefits, which would reduce the need for central governments to facilitate increases in real GDP to achieve full employment.

Many people believe that the additional aggregate spending required to institute the Job Guarantee would trigger an episode of demand-pull inflation. Should it do so, the central government may have to reduce its spending or raise taxes. Alternatively, as long as the resultant inflation is not excessive, a central government could simply allow the inflationary pressure to reduce private-sector spending. Although this would reduce private-sector employment across a range of wage levels, it would be matched by an increase in the number of people employed by the Job Guarantee at the minimum living wage, thereby enabling full employment to be maintained at a lower level of real GDP. The spillover of labor from the private sector to the Job Guarantee would continue until a noninflationary ratio of Job Guarantee workers to conventional workers was reached, where the stabilization of the inflation rate would arise as a consequence of the newly engaged Job Guarantee workers having less spending power than when previously employed at higher private-sector wages. This noninflationary ratio of Job Guarantee workers to conventional workers is referred to

by Mitchell and Muysken as a “non-accelerating inflation employment buffer ratio” or NAIBER.<sup>21</sup>

Although mainstream macroeconomists object to the Job Guarantee, they have little grounds for doing so. After all, they recommend a similar strategy often referred to as the NAIRU approach to inflation control (NAIRU denotes “non-accelerating inflation rate of unemployment”). It involves reducing aggregate demand through monetary policy settings (i.e., higher interest rates) in order to allow unemployment to rise sufficiently to achieve an inflation-controlling ratio of unemployed labor to conventional workers. The NAIRU approach, which is adopted by almost all central governments around the world, is an insidious means of controlling inflation since it requires the permanent existence of a sacrificial pool of unemployed labor. The Job Guarantee would do away with this unjust and unnecessary policy.

A further advantage of the Job Guarantee is that it is a more precise means of stabilizing inflation. This is because the conventional NAIRU approach requires central bankers to estimate the NAIRU and then estimate the appropriate interest rate to achieve it. There is much guesswork involved. Conversely, with the Job Guarantee, there would be no need to estimate the NAIBER, nor any need to determine the level of spending required to achieve it. The NAIBER would simply fluctuate in accordance with variations in private-sector spending (i.e., more/less private-sector spending would result in a lower/higher NAIBER). Moreover, central-government spending on the Job Guarantee would automatically adjust as either more unemployed people entered Job Guarantee offices (increased spending) or as more Job Guarantee workers took up growing private-sector job offers (decreased spending). Indeed, the level of spending on the Job Guarantee would always adjust to the exact amount required to achieve a noninflationary form of full employment—no more, no less. This would not only be superior to the NAIRU approach to inflation control, but also constitute a major advance over the imprecise pump-priming exercises of the Keynesian era.

From a sustainability perspective, there is the potential concern that if a nation is situated on an ecological precipice, a Job Guarantee would initially increase real GDP and tip a nation’s economy into unsustainable territory. At first blush, it

<sup>h</sup> The ability of currency-issuing central governments to finance the Job Guarantee program is irrelevant given that currency-issuing central governments are not budget constrained.<sup>21–23</sup>

<sup>i</sup> Based on the principle of justice developed by John Rawls.<sup>24</sup>

would seem that the Job Guarantee is inconsistent with achieving ecological sustainability. This need not be the case. One of the policies recommended by steady-state advocates is a comprehensive cap-auction-trade system to keep the rate of resource throughput within the ecosphere's sustainable carrying capacity.<sup>j</sup> I'll have more to say about this policy later. Should such a policy be in place, it would be impossible for the demand stimulus generated by the Job Guarantee to translate into an unsustainable level of real GDP because the intensity of resource throughput required to produce the nation's real output would be restricted to the maximum sustainable rate. Since the aim of the cap-auction-trade system is to compel resource buyers to purchase the limited number of resource-access permits periodically auctioned by a government authority, the demand stimulus would simply increase permit prices. This, in turn, would increase the cost of resource use, raise the cost of production, inflate goods prices, and reduce real income. The fall in real income would deflate private-sector spending and reduce private-sector employment. With a Job Guarantee in place, the workers laid off in the private sector would obtain Job Guarantee occupations. Thus, even in circumstances where ecological limits render the stimulation of aggregate demand untenable, the Job Guarantee would always ration paid work to the extent required to achieve and maintain full employment.<sup>20</sup> Hence, the Job Guarantee would serve as an invaluable distributional device in an ecologically constrained world.<sup>k</sup>

<sup>j</sup> For more on how a comprehensive cap-auction-trade system might work, see Ref. 25.

<sup>k</sup> Some observers would no doubt object to the idea of a portion of the labor force being "forced" out of the private sector and into a lower-paid Job Guarantee occupation (i.e., if the NAIBER is initially higher than the NAIRU). This is a potentially undesirable aspect of the Job Guarantee. However, consider the following. First, having some people employed on a lower income is more equitable than having a great deal more people permanently unemployed under a NAIRU policy stance. Second, the higher resource costs induced by a cap-auction-trade system would presumably (1) stimulate the development and uptake of resource-saving technology and (2) facilitate the allocation of the incoming resource flow to higher value-adding forms of production. In other words, higher resource costs would increase labor productivity over time.

Some people would no doubt question whether the Job Guarantee would ever be introduced in a capitalist system given the tacit opposition to full employment often displayed by politically influential capitalists. Since Kalecki,<sup>26</sup> many have argued that powerful capitalists prefer the existence of some unemployment because it reduces labor-union power and thus makes it difficult for workers to demand wage rises in excess of productivity advances.

Although not immediately obvious, I believe a Job Guarantee would discipline wage demands more than unemployment. The disciplining role of unemployment is based on the unrealistic assumption that unemployed laborers are a perfect substitute for currently employed workers. However, even during relatively short periods of unemployment, it has been shown that many people rapidly lose their human capital skills, particularly if their usual occupation involves the utilization of regularly updated physical capital.<sup>27</sup> Conversely, with a Job Guarantee program in place, Job Guarantee workers would be placed in jobs that best suit their current skills. This would enable people who would otherwise be unemployed to maintain their human capital. Also, as mentioned, the Job Guarantee program would provide training for people who currently lack adequate skills. By serving as a near-perfect substitute for currently employed workers, a willing and able reserve of Job Guarantee workers would quell excessive wage rises considerably more than a pool of unemployed and potentially inferior workers.

All in all, capitalists should have nothing to fear from the Job Guarantee. In fact, they have much to gain from it since it would boost the average skill level of the workforce and enable employers to draw from a ready supply of able workers in times of high labor demand. Provided this additional benefit of the Job Guarantee is well articulated and widely understood, I see no reason why capitalists would oppose its introduction.

As for the stabilization of real GDP making it difficult to eliminate poverty, it is the predilection with growth that, by recently increasing costs faster than benefits, is making us poorer rather than

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I believe this would result in the NAIBER being considerably lower than the NAIRU in the long run, which is an undeniably better outcome on all fronts.

genuinely richer. It is also forcing governments to undertake ever-more defensive and rehabilitative measures, thus drawing resources away from poverty-alleviation programs. As difficult as it is for many mainstream economists to accept, we will have to rely more heavily on the redistribution of income and wealth to overcome poverty. This need not be a cause for concern if qualitative improvements allow the well-being of the poor to be raised without having to dramatically reduce the well-being of the rich.

### *Governments can reduce the capitalist dependency on the market*

To further support the “growth is necessary” argument, Smith<sup>6</sup> puts forward three commonly perceived principles that supposedly define and shape the course of any capitalist system. In what follows, I will argue that these are not fundamental principles of capitalism at all. At best, they are principles pertaining to one particular form of capitalism—namely, one that must grow as a consequence of the growth imperative built into the institutional framework that supports it.

Smith explains how, in a capitalist system, specialized producers do not generate their own means of consumption, but produce a particular commodity in abundance that they can sell within markets to obtain the spending power needed to finance their consumption of a range of commodities. Some of the spending power is also used to purchase/hire new means of production (capital investment), raw materials, and additional labor to continue the production process. On the other hand, workers, insufficiently endowed with productive capital, are forced to sell their labor to acquire the spending power needed to purchase some of the goods and services generated and offered for sale by producers. As such, each member of society is dependent upon the market in the sense they are compelled to engage in the market to meet their needs and wants. Thus, left to their own devices, each member’s well-being is determined by the ups-and-downs of whimsical market forces, where workers, effectively devoid of productive capital, remain the most vulnerable in society (i.e., they constantly face the prospect of falling real wages or retrenchment).

To a point, I have no problem with this description of capitalism. May I say, it is the high degree of specialization facilitated by markets that

has helped drive technological progress, greater productivity, and increased efficiency, and which goes some of the way toward explaining, at least in the industrialized world, the difference between the well-being of the average person today as compared to centuries past.<sup>7</sup> I say this because Smith describes the process as if it is inherently undesirable.

There is no doubt that some market-determined outcomes are potentially harmful, but it is the role of governments to prevent or limit such harm. For example, through antitrust and industrial relations legislation, governments can do much to prevent the abuse of market power. Governments can also reduce potential inequities by redistributing income and wealth to the poor—the former needed to ensure each citizen has access to basic necessities; the latter required to equitably disperse the ownership of productive capital. Governments can and should do more to tax economic rents (i.e., unearned income equal to payments received above minimum supply price), which continues to be an equity issue in desperate need of action. In addition, I have explained how currency-issuing central governments can use their unique spending powers to act as an employer-of-last-resort to guarantee a noninflationary form of full employment.

What should be clear is that governments can intervene in ways that ensure people are not solely dependent on the market. Moreover, none of the above measures threaten the viability of capitalism. In fact, they are more likely to enhance it. Importantly, while Daly’s vision of steady-state capitalism embraces the efficiency-facilitating role of markets, it presupposes many of the interventionist measures needed to limit the citizenry’s vulnerability to market forces and outcomes.

### *Myths about competition and economic development*

Smith<sup>6</sup> describes how competition forces producers to accept going market prices and perform at least as well as market rivals to survive. In doing so, Smith argues that competition compels producers to not

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<sup>7</sup> It only goes some of the way because the well-being of the average person in the industrialized world has also been boosted over the past two centuries by the plundering of natural resources and the exploitation of cheap Third World labor.

only reinvest some of their profits into productivity-enhancing technologies and production processes, but to forever find ways to increase efficiency, seek cheaper raw materials and labor, shed labor by employing labor-saving machinery, [or] grow the business to exploit economies of scale.

I'll get onto my reason for emphasizing the word "or" soon, but let me first say that competition is not a universal force in capitalist systems. Many contemporary markets are oligopolistic in nature (i.e., characterized by a small number of large firms), where incumbents often enjoy considerable "price setting" power. While, in oligopolistic markets, the level of actual competition can still be high, oligopolistic industries are invariably capital-intensive and, therefore, characterized by significant sunk costs. The presence of large sunk costs can greatly reduce the threat of potential competition that has been shown to be as important as actual competition in disciplining incumbent firms.<sup>28</sup>

Another feature of competition is that competition today does not imply competition tomorrow. Competition involves winners and losers and today's winners are usually better placed to be tomorrow's winners. Provided that winning (profits) constitutes a firm's reward for operating efficiently, this is desirable. But if winning today allows a firm to succeed tomorrow by exploiting its market power rather than by operating more efficiently, this is undesirable. The prospect of the latter constitutes another solid reason for having in place legislation that minimizes abuses of market power and prevents the evolution of bigger but less efficient firms.<sup>29</sup>

In addition, operating more efficiently and/or producing better quality goods can be costly and time consuming. It can often be cheaper and easier for firms to engage in economic rent-seeking behavior, to lobby governments for subsidies and other dispensations, or to merge with other firms. Thus, without appropriate antitrust legislation and taxes designed to confiscate economic rents, competition itself can lead to commercial practices aimed at reducing future competition and lessening the need to operate in welfare-increasing ways.

As for economic development not requiring growth, I have already explained that growth and development are not the same thing and that growth beyond the optimal scale of economic activity impedes the economic development process by increasing costs faster than benefits (uneconomic

growth). Furthermore, I have also explained how qualitative improvements can facilitate further economic development within the context of a steady-state economy.

However, Smith<sup>6</sup> would have you believe that qualitative improvements are not enough to keep the wheels of capitalism turning. Early on in his paper, Smith stresses the capitalist need for growth by arguing that a "market-propelled 'motor' of economic development" was what Karl Marx saw as the distinguishing feature between the capitalist mode of production and "all previous historical modes of production like slavery and feudalism which contained no such in-built motor of development and so suffered repeatedly from stagnation, crises of *underproduction*, famine, and collapse (Smith's italics)" (p. 29).<sup>6</sup>

No one would deny that systems based on slavery and feudalism were essentially stultifying and subject to repeated failures, such as chronic output shortages. But it does not follow that a capitalist system, with its in-built incentive structures, must grow to survive.<sup>m</sup> As I have alluded to and will soon explain in greater detail, a capitalist system could just as easily expand until it reaches its optimal scale, where upon attention could be diverted to qualitatively improving the stock of wealth and the means by which a society organizes itself in maintaining it, including efforts to reduce the maintenance cost, such as reductions in the rate of resource throughput. All such advances are welfare increasing and potentially profit generating.

If that seems enough to prevent a steady-state capitalist system from collapsing, Smith believes not by including a footnote referring to Adam Smith's theorization of growth (footnote *d*).<sup>6</sup> Adam Smith believed that the division of labor is limited only by the extent of the market. Since the division of labor is able to expand markets by increasing output and sales, it facilitates the further division of labor, which stimulates more growth. Thus, by exhibiting increasing returns to scale, growth becomes a self-reinforcing process.

The problem with Adam Smith's theorization of growth is that it describes the process of

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<sup>m</sup> Nor does Daly's steady-state capitalism resemble slavery, feudalism, or any other previously failed mode of production, such as 20th-century communism.



economic development in 18th-century Europe, a time when large-scale industrial development had just begun, when surplus labor was abundant, when basic goods and services were in short supply, and when the physical scale of the economic subsystem was small in comparison to the supporting ecosphere. At this early stage, Adam Smith could not have envisaged the eventual emergence of decreasing returns to scale in many established industries caused, at the microeconomic level, by the growth of firms beyond their most efficient size and, at the macroeconomic level, by constraints imposed by growing resource scarcities and the ecosphere's limited waste-sink capacity. Hence, it was entirely reasonable for Adam Smith to assume that the division of labor, and growth more particularly, was limited only by the extent to which markets could be expanded.

Given that Richard Smith<sup>6</sup> agrees with the advocates of the steady-state economy in as much as he acknowledges the existence of ecological and existential limits to growth, it is puzzling that he should choose as his support a theory that runs counter to such limits and contemporary economic views on returns to scale. What's more, Smith implicitly recognizes this by saying that competition compels producers to undertake a range of measures of which business growth is merely an option, as evidenced by his use of the word "or" instead of "and" when referring to the growth of businesses via the exploitation of economies of scale. Smith is indeed correct to use the word "or" because the continuous growth of businesses is neither necessary nor economically desirable in a capitalist system.

***"Profit or die" is the law of survival, and profit does not require growth***

Smith<sup>6</sup> outlines a range of reasons commonly given as to why firms in a capitalist system must supposedly "grow or die." They include Adam Smith's growth theory; the need for producers to expand their market share or buy out marginal operators to defend their position against competitors; the ability of larger producers to take advantage of economies of scale and use their might to invest in technological improvements to more effectively dominate markets; and the pressure on corporate CEOs from shareholders to grow the business rather than subordinate profit making to ecological and social concerns (p. 31).<sup>6</sup>

Before I go through each of these factors, it first needs to be recognized that it is "profit or die" not "grow or die" that constitutes the law of survival in the *competitive* marketplace, and I emphasise the word "competitive" for reasons just outlined—competitive markets are not a given in a capitalist economy and a great deal of business behavior is aimed at lessening competitive forces.

Assuming the existence of competitive markets, the need to "profit or die" compels producers to engage in whatever they can do legally to maintain a profitable advantage over competitors.<sup>7</sup> If there are numerous ways in which a firm can increase profits, it will be obliged to exploit them since failure to do so will put it at a competitive disadvantage. Importantly, whatever avenues exist to maintain or increase profits depend not just on the various means by which a firm can improve its performance, but by the institutional framework that supports and shapes the capitalist system within which it operates. If, for example, the institutions of a capitalist economy allow producers to pay workers very low wages and avoid having to provide a safe and comfortable workplace, managers of firms will have difficulty going beyond their legal obligations to employees without being seriously cost-disadvantaged. Similarly, if institutions permit the ecologically unsustainable exploitation of natural resources and this lowers resource prices by keeping them below the true cost of their use, managers of firms will be compelled to make full use of the cheaper resources or face the prospect of being undercut by competitors.<sup>8</sup>

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<sup>7</sup> Firms will, at times, be tempted to undertake illegal avenues to maintain or increase profits. In some cases, firms may be tempted to engage in behavior it may consider immoral, even if it is not illegal. Unfortunately, behavior of this latter kind is rising because of the corrosive effect of individualistic self-interest on the moral capital underpinning capitalist markets.<sup>30</sup> To reverse this trend, it will be necessary for societies to regenerate moral capital in the same way that the ecosphere regenerates natural capital.<sup>29</sup>  
<sup>8</sup> Some people would argue that the unsustainable exploitation of natural resources would, by increasing the absolute scarcity of various resource types, lead to rising resource prices. While natural resource prices must eventually rise as resources become extremely scarce, the idea that resource prices always rise as they become absolutely scarcer is a fallacy. Resource prices almost always decline in real terms during the early stages of the depletion

In many cases, this will force firms to expand to remain profitable even though the attendant growth is likely to increase the costs to society more so than benefits.

If, instead, a Herman Daly-like institution was installed to restrict the rate of resource throughput to one consistent with ecosystem's carrying capacity, the impact on the economy would depend on whether (1) the restriction allows for further rises in resource use and waste generation (i.e., where the rate of throughput is currently less than maximum carrying capacity); (2) the restriction limits the rate of resource throughput to the current rate; or (3) the restriction reduces the rate of throughput (i.e., where the rate of throughput is currently greater than maximum carrying capacity). For argument sake, let's assume that the rate of resource throughput is being restricted to its current rate. This would limit the real output of the entire economy to something near its current level.<sup>p</sup> Apart from two general exceptions, this would effectively curtail improvement in business performance via expansion. The first exception would involve instances where economies of scale can still be enjoyed, although, in many cases, this would not translate to growth of the industry (i.e., industries would be of similar scale but possess fewer, larger firms).<sup>q</sup> The second exception would involve the expansion of industries generating new, innovative goods and services. In this second instance, industries elsewhere in the economy would diminish, although most of these industries would already be in natural decline. Hence, the increase in output in an expanding in-

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process – a consequence of the price-deflating impact of an increasing quantity of resources flowing into resource markets (flow effect) dominating the price-inflating impact of diminishing resource stocks (stock effect). We are, however, beginning to see a reversal in this trend, but only after many resource stocks have been greatly diminished.<sup>25,31</sup>

<sup>p</sup> Any increase in the technical efficiency of production would allow more goods to be produced from a given rate of resource throughput. However, increases in technical efficiency emerge slowly and gradually and are ultimately limited by the first and second laws of thermodynamics.

<sup>q</sup> Exploiting economies of scale through business growth is not a case of being stronger by being bigger. It is a case of being more efficient by being bigger (i.e., harnessing natural efficiencies), at least up to the point where diseconomies of scale begin to emerge.

dustry would merely displace the output of a declining sector. Overall, improvement in firm performance would be largely confined to efficiency gains and the production of better quality goods. It would certainly not be the result of growth brought about by the obligatory need to take advantage of cheap, overexploited resources.

Furthermore, with a Daly-like institution in place, the potential for increased profitability would exist as long as the potential to increase efficiency and/or produce better quality goods remained. Just how profitable would firms be and would it be enough to prevent a steady-state capitalist system from collapsing? Let me say a few important things. To begin with, at lectures and seminar presentations on this subject, I occasionally ask the audience to suggest ways that a business manager can maintain or increase the profitability of a firm. While I receive many suggestions, I find they can be sorted into three basic categories. They are (1) increase output and sell more; (2) produce better quality goods and sell the same quantity of output at a higher price (revenue rises and costs remain unchanged); and (3) produce the same quantity of output more efficiently (revenue remains unchanged and costs decline). Of these three main categories of profit making, only the first involves growth. Even then, the expansion of output by any one firm need not constitute growth at the macro level if, as pointed out, the rise in output merely displaces the output of another firm in the same industry or the output of another industry.

As for the other two categories of profit making, both constitute examples of development if the profits derived from the lowering of costs reflects a genuine increase in the efficiency of resource use, not the utilization of underpaid labor or the use of natural resources rendered cheaper through the unsustainable exploitation of natural capital. Again, for the latter two categories of profit making to facilitate economic development, it will be necessary to have appropriate institutional arrangements in place. As I will highlight soon, Daly has gone to great lengths to outline a range of steady-state institutions that would not only guarantee ecological sustainability and distributional equity, but facilitate efficiency advances (profit making) of the genuine development-enhancing kind. All things considered, one cannot ignore the fact that two of the three major categories of profit making bear no

relation to growth. They would consequently remain open in a steady-state capitalist system.

Second, I earlier alluded to the idea that profitability in a steady-state economy might initially be lower than in a growth economy and eventually decline as the capacity to increase efficiency approaches thermodynamic limits. Does the prospect of lower and declining profits render steady-state capitalism untenable? Certainly not. After all, if declining profit levels lead to the collapse of a capitalist economy, why haven't a number of poorly performed capitalist economies collapsed since the onset of the global financial crisis? If the answer is that suppressed profits over a longer time scale is required before capitalist disintegration occurs, why wasn't there a widespread collapse of capitalist economies during the 1930s Great Depression? Despite declining and suppressed profit levels for nearly a decade, investment continued during the 1930s, albeit at much reduced levels. Why? Ostensibly because people are still willing to invest in low-return ventures if, first, they offer the best possible returns available, and second, if they offer a rate of return higher than their personal discount rate.<sup>r</sup> The prospect of low profitability does not trigger the wholesale withdrawal of all capital from investment markets. In fact, even when economies are growing strongly, people still demonstrate a propensity to invest in declining industries. They do so because industries in relative decline can still remain a vital component of a national economy (e.g., agriculture) and because business operators in such industries can still thrive by discovering more efficient ways to produce and/or by adding greater value to their product. Thus, even declining industries can continue to offer viable investment opportunities. Overall, Smith has done nothing more than explain and demonstrate why the "grow or die" imperative is peculiar to a capitalist system that is institutionally designed to grow, but need not have to in order to survive and thrive.

Focusing, now, on the specific reasons given by Smith as to why producers in a capitalist system

must "grow or die," I have already explained the irrelevance of Adam Smith's 18th-century growth theory. As for producers having to expand their market share or buy out marginal operators to defend their position, this undoubtedly constitutes an imperative for many firms, but, again, only because the institutional framework of every capitalist economy compels businesses to expand for all manner of reasons, many of which have no relation to improved efficiency, the production of better quality goods, or economic development more generally. The imperative does not exist because the survival of a capitalist economy requires the wholesale expansion of firms. On the contrary, expansion of firms for reasons other than those related to increased efficiency undermines the effective operation of markets that underpins a successful capitalist economy. I might also add that international economic institutions also compel firms to expand in ways that are not always beneficial. I will return to this issue later.

There are a number of things that can be said in response to Smith's third reason for the "grow or die" imperative—namely, that large producers can take advantage of economies of scale and invest in technological improvements in order to dominate markets. First, exploiting economies of scale and investing in efficiency-increasing technological progress is desirable and would occur even in a steady-state economy.<sup>s</sup> Second, because there are limits to economies of scale, the expansion of individual firms would not continue indefinitely. Third, as explained, expansion of the firm through exploitation of economies of scale and/or technological improvements doesn't necessarily imply growth of the pertinent industry or growth of the economy as a whole.

Finally, Smith's argument that corporate CEOs are pressured by shareholders to grow the business is misguided for a reason already given—CEOs are pressured by shareholders to increase profits, which

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<sup>r</sup> If the rate of return is less than the personal discount rates of prospective investors, they will have a greater tendency to consume rather than invest since the present value of consumption financed out of future profits will be less than the present value of consuming now.

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<sup>s</sup> Since the exploitation of economies of scale or investment in technological improvements can bestow firms with new found market power, it is necessary to enact legislation to prohibit its abuse. In Australia, this legislation exists as the Trade Practices Act, although it is debatable whether it, like similar legislation in other countries, is sufficiently stringent and overarching to adequately prevent the abuse of market power.

may or may not require the growth of the firm. Where it does involve growth, it will again be largely due to the profit opportunities made possible by institutional and other policy mechanisms. I will have more to say about shareholder pressures shortly.

It is interesting that Smith and others should overlook an area that many ecological economists believe is central to the growth imperative underlying contemporary capitalist economies. This area concerns money, perhaps one of the most misunderstood aspects of economics. As a liquid financial asset, money constitutes a financial claim on real wealth. Should a nation's real money supply grow exponentially, as is permitted in all capitalist economies, the stock of salable real wealth must increase at a similar rate to prevent an unacceptably high rate of price inflation and/or to circumvent widespread debt repudiation. Thus, while humankind expands real wealth in an effort to prevent a financial crisis—which is not guaranteed (e.g., witness the recent global financial crisis)—it exacerbates the growing existential and ecological crises. To extinguish this deleterious influence, Daly<sup>18</sup> has recently argued for the introduction of a new steady-state institution to shift the control of a nation's money supply from private banks and other financial intermediaries to the central government.

### Ecological economics and the problem of growth

It is widely but falsely believed that the profit motive is the primary force driving ecological destruction. Smith<sup>6</sup> holds the same false belief, but makes a further error by suggesting that two ecological schools of thought—namely, the steady-state school propounded by Herman Daly and the green-growth school promoted by Paul Hawken<sup>32</sup>—assume that corporations can be induced to subordinate their profit making to help “save the Earth.” Smith also makes the misleading claim that all ecological economists are anti-growth.

It first needs to be recognized that the green-growth approach is a Cornucopian pipe-dream that won't save the Earth under any circumstances. Second, Daly's steady-state economy, which *can* save the Earth, is not about subordinating profit making. To achieve sustainable development through the agency of a steady-state economy, Daly believes it is necessary to install a range of institutions that guarantee an ecologically sustainable rate of resource

throughput and an equitable distribution of income and wealth. Only then should markets be engaged to efficiently allocate what would always be a sustainable and equitably distributed resource flow.<sup>18,33,34</sup> Since allocative efficiency involves making the best of a given set of initial circumstances, and given that considerable potential exists to make better with a sustainable and equitably distributed resource flow, a steady-state economy provides plenty of scope for profit making. Sure, Daly wants us to “save the Earth” first, and this may initially reduce some profit making opportunities, but saving the Earth first doesn't forbid or terminate all profit making. As already emphasized, a steady-state economy will facilitate profit making long after an economy wedded to continued growth has collapsed and most profit making opportunities have evaporated with it.

Smith<sup>6</sup> continues on by arguing that the two ecological schools of thought are united in their rejection of any kind of economic planning or socialism. Because of my views on the green-growth position, I'm going to ignore this approach. As for Daly's steady-state approach, apart from the legitimate role that governments have in providing public goods (i.e., goods that society demands but the private sector cannot produce in sufficient quantities), Daly is opposed to the use of central planning when it comes to efficiently allocating the incoming resource flow. According to Daly, this is a job best left to markets, albeit with some assistance from governments where markets “fail.”<sup>t</sup> Nevertheless, central planning would still play a key role in a steady-state economy because, as Daly rightly stresses, decisions regarding the sustainable rate of resource throughput and the equitable distribution of income and wealth must be based on ecological and ethical criteria.<sup>18,34</sup> Moreover, these decisions, which would be heavily conditioned by democratic processes, must be made outside the domain of markets and prior to the market allocation of the incoming resource

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<sup>t</sup> By market “failure,” I do not mean the wholesale failure of markets. I mean the failure of markets to efficiently allocate the incoming resource flow due to (1) imperfect competition; (2) imperfect information; (3) public goods; (4) natural monopolies; and (5) externalities (i.e., the failure of markets to incorporate the full social benefits and costs of particular economic activities).

flow. Clearly, determining the appropriate ecological and ethical criteria and invoking appropriate decisions in both instances would require considerable bureaucratic resources and planning. However, given the steady-state emphasis on private property and the efficiency-facilitating role of markets, one could hardly liken the steady-state economy to conventional socialism.

Would there be more bureaucratic planning in a steady-state economy than at present? Oddly enough, it is my belief that many forms of bureaucratic intervention would be rendered obsolete in a steady-state economy because the macro controls in place would massively limit the scale-related externalities now emerging as economies grow beyond their optimal scale. This would reduce the enormous quantity of resources now expended by governments to implement a growing array of defensive and rehabilitative measures.

Finally, on the claim that ecological economists are antigrowth, most ecological economists don't have a problem with growth that occurs up to an economy's optimal scale. As I explained earlier, ecological economists dislike "uneconomic" growth and believe that growth becomes uneconomic well before it becomes ecologically unsustainable (i.e., they believe that an economic system reaches its optimal scale prior to reaching its maximum sustainable scale). Because growth becomes "uneconomic" and eventually unsustainable if an economy continues to grow, ecological economists' main problem is with the notion of *continued* growth, not with growth *per se*.

### Capitalism without growth? Absolutely!

Continuing on with a "capitalism requires growth" theme, Smith outlines what he believes is a major contradiction of steady-state economics—despite a radical break from the mainstream growth fetish, it remains firmly wedded to the market organization of production typically present in all capitalist economies (p. 33).<sup>6</sup> The latter is not strictly true. Although the advocates of a steady-state economy believe that markets are best suited to efficiently allocate resources, the decisions they believe should be made to ensure a sustainable rate of resource use and an equitable distribution of income and wealth would significantly affect the organization of production. Daly and his supporters are well aware of this and very supportive of it. Smith,

on the other hand, seems totally ignorant of this fact.

In what is a clear misinterpretation of steady-state economics, Smith<sup>6</sup> overlooks or fails to understand the important distinction that Daly has repeatedly made between price-influencing decisions and price-determined outcomes.<sup>4</sup> Throughput and equity decisions, among others, reveal themselves not just in terms of their immediate and obvious effects, but in terms of their indirect impact on market prices—hence why they are referred to as price-influencing decisions.<sup>7</sup> These price-influencing decisions subsequently impose themselves on price-determined market outcomes by altering the market allocation of the incoming resource flow. For example, a Daly-like institution to ensure a sustainable rate of resource throughput, particularly if instituted by way of a cap-auction-trade system, would limit the incoming resource flow and thus keep resource prices higher than if no such institution existed. If combined with lower taxes on income and labor,<sup>8</sup> this would promote greater efficiency of resource use and value-adding in production, as well as facilitate a rapid transition from nonrenewable to renewable resources. In sum, this and other steady-state institutions would dramatically revolutionize production systems in capitalist economies. It is therefore invalid to say that advocates of the steady-state economy believe that the nature and scale of production systems and the distribution of the products they generate should be entirely organized and governed by market forces.

Following a summary of Daly's vision of how a steady-state economy would curtail physical growth but still facilitate qualitative improvement, Smith asks, "How could there ever be a capitalist economy that does not grow *quantitatively*?" (Smith's italics; p. 33).<sup>6</sup> Smith then immediately claims that Daly has "yet to explain, in any concrete way, how an actual capitalist economy comprized of capitalists,

<sup>4</sup> See the following Daly references: (pp. 98–99);<sup>18</sup> (pp. 64, 74, 80, 221–222, 276–277);<sup>33</sup> (pp. 188–189);<sup>34</sup> (pp. 88–89);<sup>35</sup> (pp. 53–55).<sup>36</sup>

<sup>7</sup> In this sense, ecological and distributional limits, not just costs, are "internalized" into market prices.

<sup>8</sup> The raising of taxes and charges on resource use and waste generation and the lowering of taxes on income, labor, and value-adding in production is commonly referred to as *ecological tax reform*.

investors, employees, and consumers could carry on from day to day in stasis” (p. 33).<sup>6</sup>

I’m not going to dwell on the first question. I believe I have already explained why a capitalist economy need not grow quantitatively. There are two things to say about Smith’s claim about Daly’s explanatory shortcoming. First, as I described earlier, a steady-state economy would not be one in stasis. Characterized by an internal commitment to qualitative improvement, it would be highly dynamic, perhaps more so than a perpetual-growth economy, which tends to deliver much of the same, only more of it.<sup>x</sup> Second, it is my view that Daly has very successfully explained how a capitalist economy would thrive without growth. The same cannot be said of pro-socialist protagonists whom have made little if any progress within the transdisciplinary field of ecological economics.

In a further attempt to discredit the Daly position, Smith focuses on the pressure that investor-shareholders exert on corporate CEOs to maximize investment returns. According to Smith, this pressure denies CEOs the freedom to decide how much to produce and in what way (p. 33).<sup>6</sup> Instead, CEOs face relentless pressure to maximize profits, increase profit levels over time, maximize sales, and expand quantitatively (p. 34).<sup>6</sup>

This is gobbledeygook. It is widely understood that sales-maximization is unlikely to lead to profit-maximization.<sup>y</sup> If investor-shareholders want maximum returns, they will pressure CEOs to maximize

profits. Hence, an increase in production will only ensue if it boosts corporate profits. I have already explained the various circumstances where this might occur and why undesirable forms of business expansion invariably emerge because unnecessary capitalist institutions compel firms to undertake them. I have also stressed that undesirable forms of business expansion would effectively be arrested by steady-state institutions. While the same steady-state institutions would not arrest desirable forms of business expansion, any form of business expansion that might occur would, as I have explained, result in either fewer, larger firms in some industries or industry displacement.

What’s more, while most investor-shareholders prefer higher returns over time, the real issue is what happens during periods when profits and returns decline. Do investor-shareholders withdraw all their financial capital? No. They may seek to invest in other assets, but they grudgingly accept low returns when high returns evaporate. True, if profits initially declined in a steady-state economy, investor-shareholders may vent their displeasure by lobbying governments to remove steady-state institutions. If so, this would have nothing to do with the viability of state-state capitalism and everything to do with greed and a lack of concern for future generations. Greed of this nature would prevent the ongoing existence of any no-growth economy—even the vague, post-capitalist, ecological economy prescribed by Smith. More on this later.

Moving on, we are then sold a story from Smith<sup>6</sup> that corporations, in their quest to grow profits, must increase their output and sales because there are limits to the profits generated from accessing cheaper resources, cutting wages, and developing and installing labor-saving technology. Strangely, Smith believes these limits exist because competitors will undertake the same cost-cutting measures and this will cancel out all profit gains, yet the same cancelling out of profits won’t occur if all competing firms boost output and increase sales. It is also odd that Smith should omit resource-saving technology and value-adding as profit-generating sources. Perhaps Smith has deliberately omitted them because they are central to achieving development in a steady-state economy. I’m prepared to give Smith the benefit of the doubt in this instance.

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<sup>x</sup> Some readers would point to the array of new products that growth economies churn out as evidence that growth is not simply more of the same. My point is that a steady-state economy would generate more useful new goods and be characterized by much greater advances in efficiency-increasing technology. As it is, growth economies are overwhelmingly characterized by advances in throughput-increasing technology,<sup>25</sup> which has simply allowed humankind to grow its economies by extracting resources and generating wastes at rates that exceed the ecosphere’s regenerative and waste-assimilative capacities. <sup>y</sup> Profit is maximized at output levels where the marginal revenue of the last unit produced equals the marginal cost of producing it. Firms facing a downward-sloping demand curve for their product maximize sales revenue by producing the output level where the price elasticity of demand for their product equals  $-1$ . Only by pure coincidence would the two output levels be the same.

Although Smith is right about the ultimate limits to cost-cutting, corporations in the industrialized world can push these limits to extremes, thanks to the recent rise of globalization.<sup>z</sup> Ecological economists refer to globalization as the integration of many national economies into a single global economy through free trade and free capital mobility. In a globalized world, the free mobility of capital allows transnational corporations to bypass the many regulations that exist at the national level to achieve social, economic, and environmental goals.<sup>aa</sup> Moreover, international trade is governed, not by the economic principle of comparative advantage, but by the principle of absolute advantage.<sup>18, 25, 36, 37</sup>

It is the mobility of capital together with the more limited cost-cutting opportunities in wealthy nations (i.e., higher wages and more stringent environmental standards) that compels many firms to move their operations off-shore to exploit cheaper resources and lower labor and environmental compliance costs—a shift known as “industrial flight.” Furthermore, the threat of industrial flight often forces governments to introduce inadequate regulations or weaken those already in existence, thus forestalling the installation of the steady-state institutions advocated by Daly and his followers.<sup>bb</sup> For this reason, many ecological economists believe that

<sup>z</sup> There are many who believe that the rise of globalization began in 1971 when President Nixon severed the link between gold and the U.S. dollar.

<sup>aa</sup> In direct contrast to globalization is internationalization. Ecological economists refer to internationalization as a global economic environment where national economies exist as separate and autonomous entities tied together in recognition of the importance of international trade, treaties, and alliances. In an internationalist world, regulations imposed within the nation-state impinge on economic activities for the purposes for which they were intended. Accordingly, the fundamental unit of concern is the nation state and the people residing within them are viewed as a community of citizens rather than a collection of individual consumers. Because, in an internationalist world, there are limits on the mobility of capital, international trade is governed by the more desirable principle of comparative advantage.

<sup>bb</sup> This is no better exemplified than in my own country, Australia, where opposition to a price on carbon and a resource rent tax has been based on the fear of industries and jobs moving off-shore.

the forces of globalization are leading to a global “race to the bottom,” which is allowing and indeed compelling corporations to further exploit profit opportunities—many growth related—that are often detrimental to the new host country and its trading partners. Ecological economists are therefore calling for urgent institutional reform at the international level, in particular, reform of the Bretton Woods institutions, such as the World Bank, the International Monetary Fund, and the World Trade Organization (formerly the General Agreement on Tariffs and Trade).<sup>cc</sup> Importantly, international institutional reform is an integral part of Daly’s steady-state agenda.

### Steady-state capitalism: the best means of achieving sustainable development

There are many critics of the steady-state economy who liken it to a failed growth economy. Smith<sup>6</sup> is no exception. According to Smith, because a steady-state economy doesn’t grow and because periods where economies have failed to grow in the past (e.g., recessions and depressions) have resulted in capital destruction, mass unemployment, devastated communities, foreclosures, spreading poverty, homelessness, and the casting aside of environmental considerations, we can expect similar mayhem if the advocates of steady-state capitalism ever have their way (p. 34).<sup>6</sup>

This depiction of a steady-state economy is misleading. If an economic system is institutionally designed to grow and doesn’t, what would one expect other than disaster? If an aircraft is designed to move forward to fly and ceases to do so mid-flight, it crashes. But if I produce a helicopter—an aircraft designed to fly without moving laterally—its failure to move forward is of no consequence whatsoever.

A qualitatively improving steady-state economy would be the equivalent of a rising helicopter. It would not, therefore, be characterized by capital destruction, but by capital renewal, albeit at slower turnover rates, where the new capital would be far superior to the outgoing capital. Mass unemployment would not eventuate if a Job Guarantee and suitable labor market flexibility were both introduced as steady-state institutions. Poverty would

<sup>cc</sup> See Daly<sup>36</sup> and Lawn<sup>25</sup> for more on the type of international institutional reforms required.

be alleviated via the redistribution of income and wealth and by ensuring minimum income levels and full employment. Businesses would still flourish by efficiently producing high value-added goods. Full employment, greater leisure time, and lower stress levels would reduce social disorders. Finally, environmental concerns would be attended to if only because ecological sustainability is a front-and-center policy consideration in a steady-state economy.

By the way, I mentioned earlier that many industrialized nations are now experiencing “uneconomic growth” as they grow their economies beyond their optimal scale. Thus, when critics talk about the need for capitalist economies to grow to succeed, what they really mean, but don’t realize, is that many growth economies are only succeeding by limiting the decline in the nation’s economic welfare, not by enhancing it. Only a well-designed steady-state capitalist economy can achieve the triple policy optima of ecological sustainability, distributional equity, and allocative efficiency needed to facilitate the sustainable development process. It is for this reason that I also believe that steady-state capitalism is the ideal “de-growth” strategy for countries that must shrink their bloated economies to enjoy future increases in per capita economic welfare.

### Limiting scale in a capitalist economy

As alluded to, achieving and maintaining a steady-state economy will require the imposition of a quantitative limit on the rate of resource throughput.<sup>dd</sup>

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<sup>dd</sup> Mainstream economists would argue that an imposition of this kind is not necessary. They would generally argue that what is required is the “internalization” of any environmental costs into the market price of all goods and services through either a Pigouvian tax or a Coasean property rights solution. This idea is based on the belief that Pareto efficiency, which can be achieved by “getting resource prices right,” will also guarantee ecological sustainability. Ecological economists have consistently shown that this is not the case. Increased efficiency simply means that fewer resources are likely to be expended in the generation of a given real dollar of GDP. This is very important, but what if the percentage increase in efficiency is exceeded by a higher percentage increase in real GDP? The rate of resource throughput would, of course, rise. The problem with internalizing environmental costs alone is that there is nothing about it that ensures the scale effect does not overwhelm the efficiency effect (sometimes referred to as

Smith<sup>6</sup> recognizes this but asks how any capitalist government could deliberately impose a throughput restriction that would restrict the growth or physical scale of the national economy.

This is a very important question. Daly and his followers are under no illusion that it will be very difficult to facilitate the transition to a steady-state economy. Regardless of what system is adopted, for a restriction on growth to become politically palatable, there will need to be, as Daly suggests, “a change of heart, a renewal of the mind, and a healthy dose of repentance” (p. 201).<sup>36</sup> Elsewhere, Daly<sup>33</sup> has argued that moral growth will be required to achieve sustainable development. Of course, humanity may elect not to restrict the growth of production and consumption.<sup>ee</sup> If it adopts this hard-nosed approach, it will simply have a steady-state or physically declining economy imposed upon it by Mother Nature, if not by the prior collapse of social systems. Either way, the world would become a more brutish place than many wish to imagine.

Contrary to what Smith and others like him would have you believe, I’m convinced that the transition to a qualitatively improving steady-state economy is more probable than a transition to a post-capitalist (socialist) economy. This is because steady-state capitalism would be better suited to increasing human welfare in a sustainable and equitable manner than a maladroit socialist system.

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the *Jevons’ effect or rebound effect*). There is, therefore, a need to impose a quantitative limit on the rate of resource throughput to ensure it is consistent with the ecosphere’s regenerative and waste-assimilative capacities. Efficiently allocating the sustainable resource flow is then dependent upon a government agency auctioning off the rights for the private sector to access resources and generate wastes, as is the feature of cap-auction-trade systems.<sup>25,33,36</sup>

<sup>ee</sup> There is every reason to believe that it will not. As Smith (p. 36)<sup>6</sup> points out, humanity’s addiction to growth is what lies at the heart of the U.S. Congress’s rejection of a cap-and-trade bill and the failure of the Copenhagen Conference to produce meaningful and binding emissions targets. By demonstrating that growth has become “uneconomic” in many countries, ecological economists have been striving to convince people that humanity’s addiction to growth is already reducing human welfare. If successful, ecological economists are hopeful that a growth-addicted humanity will take the measures necessary to free it from its addiction. But humanity’s addiction to growth has nothing to do with capitalism *per se*.



In fact, given the past record of socialism, I doubt whether it would increase human welfare at all. Yet, Smith and his ilk go on as if all the problems associated with a poorly designed capitalist system would disappear in a steady-state socialist system—as if people’s demands and goals would alter by having them swap their “capitalist” hat for a “socialist” hat, and as if unemployment and poverty would vanish overnight.

Not to be outdone, Smith again questions the ability of steady-state capitalism to achieve sustainable development by arguing that the crisis we face is not just caused by the scale of production and consumption, but by the “*inefficient, wasteful, and destructive nature of the capitalist market’s allocation of resources*—and equally, by the market’s failure to allocate resources to things we *do need*” (Smith’s italics) (p. 36).<sup>36</sup> Although I reject Smith’s lack of faith in steady-state capitalism, I couldn’t agree more with Smith’s explanation of the sources of our current crisis. But why are resources being used inefficiently and thus being wasted? Why do some people consume so much illth while others are deprived of necessary goods? And why do capitalist economies destroy ecosystems, natural capital stocks, and society’s built heritage? Simply because the governments of capitalist economies worldwide have failed to install anything like the steady-state institutions advocated by Daly. Worse still, few have gone so far as to facilitate efficiency advances by correcting market failures in the mainstream economic tradition. So addicted to growth have we become, our decision makers wouldn’t dare impose a Pigouvian tax to internalize environmental costs, let alone consider a quantitative restriction on the rate of resource throughput. Nor would they consider taxing and redistributing economic rents to confiscate unearned income, improve the equity of income distribution, and minimize the incidence of asset-price bubbles. But if our politicians and decision makers won’t replace growth-based capitalism with steady-state capitalism, what makes Smith and others like him believe they would replace it with steady-state socialism?

Getting back to the sources of our current crisis, I said before that well-performed markets are effective at making the best of a given set of circumstances. I also said that decisions in relation to the rate of resource throughput and the distribution of income and wealth reveal themselves indirectly

by influencing market prices (price-influencing decisions). Thus, in a growth-based economy, where the rate of throughput is permitted to exceed the ecosphere’s maximum carrying capacity, resource prices remain artificially low, at least while the price-deflating impact of a rising rate of resource extraction (flow effect) dominates the price-inflating impact of diminishing resource stocks (stock effect).<sup>ff</sup> In a world where resource prices remain low, why would any producer use resources more efficiently? Conversely, in a steady-state capitalist system, where resource prices would reflect ecological limits not just ecological costs, and therefore would be much higher, a producer would be compelled to make the maximum use of each resource unit since the competitive cost disadvantage of failing to do so would be fatal. Moreover, the development and uptake of resource-saving technologies would become a potential source of competitive advantage.

As for markets failing to produce many of the things we do need, advocates of steady-state capitalism have never claimed that markets can provide adequate supplies of goods with public goods characteristics. They are the first to argue that governments should do more to provide them. From an equity perspective, the lack of access to basic goods and services by the poor would be solved by the minimum income limits recommended by steady-state advocates—in particular, the introduction of a Job Guarantee. These policies would also influence market prices because they would increase the ability of the poor to register their demand for basic goods and services *vis-à-vis* the demand for luxuries by the wealthy. Since greater profit opportunities would flow from the production of basic goods and services, a larger proportion of the incoming resource flow would be allocated to produce necessities.

The overall message here is that markets are effective allocation mechanisms as long as they are appropriately harnessed, which they would be in a steady-state capitalist system. To put it another way, markets are only as effective at enhancing human welfare as the institutional framework within which they operate—not unlike a butcher’s knife, which is only as effective as the person holding it; namely, a butcher, not a homicidal murderer.

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<sup>ff</sup> See footnote *o* for a better explanation.

## The lineaments of an ecological economy

As a means of overcoming the destructive impact of capitalism, the concept of “eco-socialism” or “eco-socialist democracy” has emerged as a possible solution to humanity’s ills.<sup>4,38</sup> After proclaiming himself as an eco-socialist, Smith<sup>6</sup> proposes an agenda for discussion should humankind ever adopt an eco-socialist democracy to save the world. Despite no explanation as to how such a system would work, let alone what it actually is, Smith outlines six changes that nations must make in order to set their economies on the road to salvation. I’ll go through each very briefly. However, I’ll make the point upfront that basically all the modifications recommended by Smith would eventuate in a steady-state capitalist economy.

### *The brakes have to be put on out-of-control growth*

As mentioned, the advocates of steady-state capitalism believe that, to achieve ecological sustainability, quantitative limits need to be imposed on the rate of resource throughput. Because natural resources constitute the only true input of the economic process,<sup>gg</sup> a limit on the rate of throughput would put an immediate brake on the growth of real output, just as Smith and other eco-socialists desire.

Moreover, if the restriction on the incoming resource flow was instituted by way of a cap-auction-trade system for individual resource types, the price of natural resources would rise. A cap-auction-trade system would also be introduced for some pollutants (e.g., greenhouse gas emissions).<sup>hh</sup> This would almost certainly lead to the demise of most resource-intensive, high-polluting industries. At the same

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<sup>gg</sup> Labor and human-made capital are often referred to as inputs to the economic process. They are not. They are the resource-transforming agents of the economic process that, themselves, require the input of natural resources to exist. Natural resources, alone, constitute the true input of the economic process.

<sup>hh</sup> A cap-auction-trade system would not have to be introduced for all forms of pollution because many forms of pollution would be controlled by limits on resource use (first and second laws of thermodynamics). It would be necessary to introduce a cap-auction-trade system for pollutants where the critical limiting factor is the ecosystem’s sink capacity—for example, its limited capacity to absorb greenhouse gases.

time, it would stimulate the emergence of resource-efficient, high value-adding industries, many of which would generate healthy profits by producing fewer, better quality goods. Hence, the probable demise of many industries should be no cause for alarm.

### *Restructuring production and rationing resources*

The dramatic shift, just mentioned, from resource-intensive, high-polluting industries to resource-efficient, high value-adding industries provides a basic illustration of how radically production would be restructured by the steady-state institutions advocated by Daly and his followers. I need say no more. As for rationing resources, it should be obvious to most people that the cap-auction-trade systems recommended by steady-state advocates are rationing devices. They are also rationing devices that, by distributing the majority of the scarcity rents raised from the sale of resource use and emissions permits to the needy, would improve the equity of income distribution. Further, they are also rationing devices that, by internalizing ecological limits into the price of all natural resources, would facilitate greater allocative efficiency.

### *Public-sector investment needs to be boosted*

Cap-auction-trade systems would raise the price of some resources more than others. Because the aim is to keep the stock of natural capital intact, and given that nonrenewable resources have no regenerative powers, the price of nonrenewable resources would rise much more than the price of renewable resources. Indeed, it has been suggested by some ecological economists, including Daly, that some of the profits from nonrenewable resource depletion should be set aside to establish renewable resource substitutes, thus keeping the total stock of natural capital intact (strong sustainability).<sup>ii</sup> Apart from

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<sup>ii</sup> Strong sustainability requires both natural capital and human-made capital to be kept intact. Weak sustainability merely requires the combined stock of natural and human-made capital to remain intact. Ecological economists believe that weak sustainability is insufficient because human-made capital is an inadequate substitute for natural capital.<sup>25,36</sup> The manner in which nonrenewable resource depletion profits should be set aside to keep the stock of natural capital intact is based on Salah El Serafy’s “user cost” theory.<sup>20,25,39</sup>

promoting investment in renewable resources directly, this reorienting of depletion profits would indirectly promote investment in renewables by raising the price of nonrenewable resources relative to the price of their renewable resource counterparts.

In view of the public goods characteristics inherently possessed by natural capital and the importance that steady-state advocates place on keeping natural capital intact, a great deal of the investment in all forms of renewable natural capital would be undertaken by governments. Public infrastructure also has a tendency to possess public goods characteristics. As I previously pointed out, advocates of steady-state capitalism believe in the efficiency virtues of the market, but they also recognize the need for governments to intervene when markets fail. Government investment in critical infrastructure would fall into this category.

### *Mindless consumption, product durability, and recycling*

Few would doubt that mindless consumption occurs on a wide scale. However, we must be careful when it comes to defining what is “mindless.” Consumption of a particular good will seem mindless to one individual but not to someone else. I don’t believe it is up to society to determine what does and does not constitute “mindless consumption.” What matters is that production and consumption levels are ecologically sustainable and that the distribution of income—one’s share of total consumption—is fair and equitable. If Daly’s steady-state institutions are installed, this would be guaranteed no matter what is produced.

Without dictating what people can and cannot consume, steady-state institutions would also guarantee the diminution of mindless consumption and the increased durability and improvement of most products. How do we know? Because the much higher cost of resource use and waste generation would increase the relative cost of large-scale, superficial consumption as well as the cost of consuming fragile goods comprised mostly or entirely of nonrecyclable materials. In addition, mindless consumption would become more costly in terms of foregone leisure and other psychologically-related pursuits. This is because, in circumstances where a person’s consumption habits remain unchanged, the welfare-increasing value of an hour of work would fall (i.e., the capacity to purchase trivial goods and

services would decrease), meaning that, with adequate labor market flexibility, the welfare-increasing value of an hour of leisure (nonwork) would rise. A shift away from superficial consumption would consequently be welfare-increasing. How much of a shift would occur is difficult to say because it depends on how much people value trivial goods and services. However, unlike decisions regarding the rate of resource throughput and distribution of income and wealth, which should be made collectively and democratically, I believe these decisions should, apart from minor exceptions, remain the prerogative of the individual consumer. With steady-state institutions in place, consumer sovereignty would not threaten the sustainability or equity goals.

### *Waste must be minimized and toxic pollution outlawed*

Because of the first law of thermodynamics, the restriction on the intensity of resource use recommended by steady-state advocates would also impose a restriction on the quantity of waste generated by an economic system.<sup>jj</sup> Furthermore, cap-auction-trade systems, by increasing the cost of resource use and waste generation, and by facilitating greater allocative efficiency, are likely to reduce the quantity of waste immediately generated by the production of new goods.<sup>kk</sup> If so, the benefit of the latter can be seen in two ways—either more goods would be produced from the same intensity of resource use, or the same quantity of goods would be produced from a reduced intensity of resource use. Which is most beneficial depends on the marginal

<sup>jj</sup> Having said this, the quantity of waste (high entropy matter-energy) exiting an economic system at a single point in time does not necessarily equal the quantity of resources (low entropy matter-energy) entering it at the same point in time. The reason for this is that some of the matter-energy used in the economic process remains “frozen” in physical goods until such time as the goods are consumed or fully depreciate.

<sup>kk</sup> An increase in allocative efficiency may not necessarily reduce waste in a physical sense. It might simply lead to the production of fewer, better quality goods (i.e., goods possessing higher use values). This second alternative would be encouraged if the marginal benefit of producing fewer, better goods is greater than the marginal benefit of producing more goods of the same quality. Regardless, society would be better off in both instances. I’ll have more to say about allocative efficiency soon.

benefit of additional goods in the first case *vis-à-vis* the marginal benefit of a lower required rate of resource use in the second case. Where the physical scale of the economy is large relative to the accommodating ecosphere, as is common with most nations, the marginal benefit is likely to be higher in the second case, meaning that a nation would be better off reducing the rate of resource throughput rather than increasing the quantity of goods produced, even though the latter would still, technically, be ecologically sustainable.

Of course, limits on the intensity of resource use have no bearing on the quality or types of waste generated. Because of this, a number of ecological economists have recommended the introduction of pollution assurance bonds.<sup>40</sup> The bonds work by mandating that polluters pay a premium up-front to reflect the cost of worst-case pollution scenarios. Should the worst eventuate, the polluter's bond is fully confiscated. Where a less costly pollution event occurs, a portion of the bond is returned. The bond is only returned in full if the pollution generated incurs no major cost to society. The rationale for imposing assurance bonds instead of pollution taxes is that the latter are often paid after the pollution event has taken place—sometimes well after the event if the impact of pollution takes time to manifest itself in the natural environment—and people have a tendency to discount future costs. As such, the prospect of paying a pollution fee well into the future constitutes less of a disincentive to pollute than the payment of a bond up-front.

Despite the potential usefulness of pollution assurance bonds, they fail in circumstances where the impact of a pollution event is potentially catastrophic. In these instances, either the activity or the generation of a particular form of pollution should be outlawed. Because ecological sustainability is paramount in a steady-state economy, many advocates of steady-state capitalism support prohibition of this kind, including Daly.<sup>11</sup>

### *Alternative employment needs to be provided for displaced workers*

I have already mentioned how steady-state institutions would stimulate the emergence of resource-efficient, high value-adding industries that would

replace declining resource-intensive, high-polluting industries. Most workers losing their jobs in the latter would gain employment in the former. For those who do not, the proposed Job Guarantee would come to their rescue, thus providing some of the labor-power required by governments to maintain natural capital and provide critical infrastructure.

Overall, the so-called lineaments of an ecological economy spelt out by Smith are virtually the same lineaments of a qualitatively improving steady-state economy. Given this, I see no reason why Smith and others like him should have any concern with steady-state capitalism.

### **Constraining markets in a steady-state capitalist economy**

In an attempt to discredit the ability of markets to efficiently allocate scarce resources, Smith makes the totally misleading statement that, “Daly rejects any interference with the market organization of production . . .” (p. 39).<sup>6</sup> In support, Smith includes a footnote referring the reader to various pages from Daly's works (footnote *jj*).<sup>6</sup>

There are a number of reasons why the above statement is misleading. First, it is plain wrong! Part of the reason for this is that Smith confuses the “allocation of resources” with the “organization of production.” The allocation of resources refers to the relative division of the incoming resource flow to the production of various goods and services. On the other hand, the organization of production refers to the entire production process. It therefore includes: How much of what resource types should be extracted for use? How should the incoming resource flow be distributed among a nation's citizens prior to being allocated for production purposes?<sup>1111</sup>

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<sup>1111</sup> The incoming resource flow would not be distributed to all citizens in a literal, physical sense. Where resources are jointly owned by society, a central government would act as a custodian on society's behalf. In the case of cap-auction-trade systems, the government would distribute to society the proceeds from the initial auctioning of resource use permits or emission permits. In this sense, the government would be distributing resources to society insofar as the distribution of scarcity rents and any other redistributed income would provide all citizens with the capacity to purchase a fair share of the total resource flow either in its raw form or as embodied in final goods and services.

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<sup>11</sup> See Daly's position on the “plutonium economy” (Chapter 6).<sup>33</sup>

What should be produced, how should it be produced, for whom should goods and services be produced, and what types of waste will be immediately and subsequently generated from the production and eventual consumption of goods and services? Since resource allocation pertains to some of the third lot of questions,<sup>mm</sup> not the first two questions, resource allocation constitutes just one aspect of the organization of production.

Second, a check of the references given by Smith confirms that Daly is adamant that the two problems of sustainable throughput and just distribution have to be solved politically—not by the market—and constitute preconditions for the market to operate in an efficient and effective manner. Not only this, Daly and coauthor John Cobb spend three pages convincingly explaining why the market is the best resource allocation mechanism so far devised, and why, when it comes to *the efficient allocation of the incoming resource flow*, centralization fails dismally (pp. 44–47).<sup>29</sup> Nowhere in Smith’s paper are we given an explanation as to how central planning would ensure allocative efficiency.

Overall, Daly’s insistence that throughput and distribution decisions must be respectively based on ecological and ethical criteria, and second, must be made prior to the market allocation of the incoming resource flow, indicates the extent to which collective and democratic decisions embodied in steady-state institutions would influence the organization of production. Indeed, if introduced, Daly’s notion of quantitative throughput restrictions and minimum/maximum income limits would constitute the most radical institutional controls ever imposed on the organization of production in a capitalist system.<sup>oo</sup>

Not content to mislead the reader once, Smith misleads the reader further by suggesting that Daly’s perceived role of the state in a steady-state economy would be confined to imposing quantitative limits

on aggregate throughput, after which it would leave the market alone (p. 39).<sup>36</sup> Apart from quoting Daly completely out of context, one has to ask whether Smith has bothered to read Chapter 3 of the very book from which he extracts his quote. In Chapter 3 of Daly,<sup>33</sup> and elsewhere,<sup>18,29,35,36</sup> Daly has outlined a range of institutions, some of which I have already alluded to, which would not allow producers to do almost as they like.

In what constitutes a gross misrepresentation of Daly’s sustainability institution, Smith suggests that, following the imposition of a resource throughput constraint, producers would remain free to engage in socially and ecologically destructive business practices (e.g., mountain top removal by mining companies, overharvesting by satellite-guided fishing trawlers, and the production and sale of toxic chemicals by pesticide companies). If one takes the care to thoroughly investigate Daly’s sustainability institution, they soon learn that the so-called “throughput constraint” recommended by Daly is much more than the term suggests. Sure, a throughput constraint involves imposing a quantitative restriction on the rate of resource throughput, but it also serves as a catch-phrase for a range of measures designed to prevent ecological destruction. A broad institution has to be given a name of some description and I believe Daly’s choice of “throughput constraint” is apt since it captures the essence of the unsustainability crisis we face—a growing economy inevitably requires a growing rate of resource throughput,<sup>pp</sup> and a growing rate of throughput must inevitably exceed the regenerative and waste assimilative capacities of the supporting ecosphere.

In any event, how does Smith think that satellite-guided fishing trawlers can deplete fish stocks if the total fish harvest is quantitatively restricted by a Daly-like cap-auction-trade system? Admittedly, anglers can exceed a harvesting quota by operating illegally and corruptly. What’s more, they might

<sup>mm</sup> Some forms of waste will need to be quantitatively limited by cap-auction-trade systems (e.g., greenhouse gas emissions) and others prohibited (some toxic pollutants). In both instances, decisions will need to be made collectively and outside the domain of the market.

<sup>oo</sup> Despite their constraining influence, these macro controls would greatly increase micro freedoms that are currently being undermined by the growth of economies beyond their optimal scale.

<sup>pp</sup> If the rate at which technical efficiency rises exceeds the percentage increase in the quantity of new goods produced, it is possible for the rate of resource throughput to decline as an economy grows. However, large and rapid advances in technical efficiency are rare and there is an ultimate limit to technical efficiency (see footnotes *c* and *p*). Hence, if the economy continues to grow, it is inevitable that the rate of resource throughput fueling it must also increase over time.

get away with it long enough to irreparably damage a particular fish species. However, since every system is vulnerable to corruption, the possibility of corruption cannot be used to argue against Daly's sustainability institution.

### Capitalist efficiency versus eco-socialist efficiency

Not only does Smith misunderstand the difference between the "allocation of resources" and the "organization of production," he doesn't understand what is meant by the term "allocative efficiency." He's not alone. In a strict welfare-related sense, allocative efficiency occurs when the incoming resource flow is allocated in a manner that maximizes the economic welfare enjoyed from all new goods produced and eventually consumed.<sup>99</sup> However, Smith, like many, likens allocative efficiency to an increase in the technical efficiency of production—that is, the production of more physical goods from a given quantity of resource inputs, or the same quantity of goods produced from a reduced quantity of resource inputs. Hence, according to Smith, anything that does the opposite is socially undesirable because it means fewer goods available for consumption or an increase in the intensity of resource use, or both. As I will now explain, Smith and many like him are misguided because the production of fewer goods does not necessarily reduce the economic welfare yielded by all newly produced goods.

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<sup>99</sup> Importantly, the maximum welfare obtainable from the efficient allocation of the incoming resource flow not only depends how well markets are functioning, but on the magnitude (scale) of the incoming resource flow and the initial distribution of income and wealth. For example, a very large incoming resource flow implies a very large quantity of newly produced goods and the potential for greater consumption-related welfare. But it also implies more significant environmental damage and higher social costs from, for example, having to work longer hours to transform the larger incoming resource flow into more human-made goods. Because of the principles of diminishing marginal benefits and increasing marginal costs, we would expect the *increase* in economic welfare generated from a larger incoming resource flow to be declining regardless of how well it is allocated. In fact, beyond the optimal scale of economic activity, economic welfare itself would be falling. In these circumstances, an efficient allocation of a larger incoming resource flow would merely minimize the welfare loss.

In addition, with the throughput of resources limited to an ecologically sustainable rate, any increase in the resources that might be required to produce new goods cannot be ecologically unsustainable.

First and foremost, it is wrong to say that the aim of the resource allocation process should be the wholesale elimination of any instances of declining technical efficiency—that is, no more instances of increased waste *per unit* of real output produced, of reduced recycling rates, or of reduced durability. For example, consider the following: would it be desirable to allocate a given quantity of resources to the production of a large quantity of "useless" widgets rather than a small quantity of "useful" gadgets simply because the generation of widgets involves a technically more efficient production process? According to Smith, yes—because the production of gadgets is more wasteful. But does it not also matter what we produce? If the production of a small bundle of high-quality goods generates greater welfare benefits (higher overall use value) than the production of a large bundle of useless goods, then surely society is better off opting for the technically less-efficient production process.

There is no doubt that, *ceteris paribus*, an increase in the technical efficiency of production would increase the economic welfare yielded by newly-produced goods and would thus be socially desirable. Hence, Smith's reference to the benefits of increased product durability, higher recycling rates, and reduced waste and obsolescence is unquestionably valid. Indeed, as I've already explained, advances of this nature would eventually take place very widely in a steady-state capitalist system because of the price-influencing effect of Daly-like institutions.<sup>100</sup> Nevertheless, we don't live in a *ceteris*

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<sup>100</sup> I say "eventually" because these advances may not occur at a broad level until a growing economy begins to approach its optimal scale. This is because Daly-like institutions would have less of a price-influencing effect when an economy is still small relative to the supporting ecosphere and sociosphere. This said, the lack of such advances at this early stage is of no great consequence because, first, the rate of resource throughput would be ecologically sustainable, and second, the marginal benefits of increased output would more than likely exceed the marginal benefits of a broad uptake of recycling and significant waste reduction.

*paribus* world. Thus, in some cases, it would be better to sacrifice some technical efficiency if, in the end, it means that society enjoys greater economic welfare. These choices and tradeoffs are clearly better left to markets where people can readily register their consumer preferences and where producers can more adequately respond to them. They should not be made by a centralized bureaucracy, as Smith desires.<sup>55</sup>

The typical response to this more accurate view of allocative efficiency is that, with the rate of resource use rising and with the poor underconsuming, we can't afford to have waste of any kind and we certainly can't afford the luxury of sacrificing technical efficiency for the sake of better quality goods, some of which will be consumed by people already consuming more than enough to live a decent, meaningful life. All of these concerns are allayed by the prior installation of Daly-like institutions. Whatever increase in resource wastage there is, it can never result in the rate of resource throughput exceeding the ecosphere's maximum carrying capacity because the incoming resource flow is appropriately constrained prior to being allocated by the market. In addition, the poor can never underconsume because they are guaranteed a sufficient share of the total quantity of goods available for consumption. Moreover, in a "very full" world (i.e., one where the economy is very large relative to the ecosphere that supports it), the price-influencing impact of Daly-like institutions bite harder, wastage becomes more costly and less common, and a smaller surplus remains for the rich to consume excessively.

Overall, it needs to be recognized that the technical efficiency of production is a mere subset of the domain of allocative efficiency. Technical efficiency is neither a necessary nor sufficient condition to achieve allocative efficiency, although it becomes an increasingly more important element of the allocative efficiency equation as the scale of economic

activity grows and as human population numbers rise. Unfortunately, some observers, by reducing the domain of allocative efficiency to that of the technical efficiency of production, have clouded the issue by proposing such things as the "maximum power principle"<sup>41</sup> and the "energy theory of value."<sup>42</sup> By proceeding this way, these observers have fallen into the trap of adopting what Daly<sup>33</sup> calls "ecological reductionism"—an exercise designed to explain all economic phenomenon in terms of a biophysical metric. In my view, eco-socialist efficiency also falls into this category of ecological reductionism.

I might also add that the throughput constraint advocated by Daly and his followers would prevent the so-called Jevons' effect from delivering an ecologically unsustainable outcome. Smith quite rightly raises the problem originally sighted by William Jevons in the 1860s that any natural resources saved by an increase in allocative efficiency tend to be consumed in the form of more goods and services (p. 41).<sup>36</sup> In fact, the relatively lower resource prices that invariably follows an increase in allocative efficiency often boosts the overall demand for natural resources, which leads to even more resources being consumed, albeit they are consumed more efficiently.<sup>18,25</sup> Although a limit on the rate of resource throughput cannot prevent the onset of the Jevons' effect when the current rate of resource use is less than the resource constraint, it will when the two are the same because more resources cannot be consumed. In this latter circumstance, the increase in resource demand induced by a decline in resource prices simply triggers a resource price rise (i.e., the supply curves for different resource types would be vertical at the various price equilibria). In the former instance, the ensuing Jevons' effect need not be undesirable if the marginal benefit of more goods is greater than the marginal cost of producing them. Furthermore, the larger quantity of goods would be ecologically sustainable.

Finally, I empathize with Smith and others who mistakenly associate capitalist efficiency with unjust and destructive profit making. It is, after all, what we witness daily. However, without wanting to sound like a broken record, many profits are generated at society's net expense because of the inadequate institutional framework within which capitalist economies operate and because governments fail to act in the most basic of ways to

<sup>55</sup> A major exception is where choices between different types of goods are made in a political market. This essentially involves instances where the public registers its demand for public goods yet they are not adequately provided by the private sector, as expected. Frustrated, the public invariably registers its demand for public goods by lobbying politicians, where, if successful, the public goods are ultimately provided by governments.

overcome the problem of market failure. Quite simply, at present, capitalist profit making (chrematistics) does not align itself sufficiently with the three primary goals of ecological sustainability, distributional equity, and allocative efficiency. Only in a well-designed steady-state economy, such as that proposed by Daly, will capitalist efficiency play its part in achieving the triple policy optimally required to realize the goal of sustainable development.

### **Eco-socialist democracy: a warm, unworkable, fuzzy utopia**

In the final section of his paper, Smith claims that ecological economists like Herman Daly and Tim Jackson offer nothing more than an “unworkable, warm, and fuzzy capitalist utopia, with no plausible means of escaping the iron cage of consumerism or the ‘growthmania’ of the market” (p. 42).<sup>6</sup> Smith then goes on to say that “it’s time to abandon the fantasy of steady-state capitalism, to go back to the drawing boards and come up with a . . . post-capitalist ecological economy . . . by the people, for the people, that is geared to production for need, not for profit” (p. 42).<sup>6</sup>

I believe I have successfully shown that Daly’s steady-state capitalism is both workable and capable of releasing humanity from consumerism and its current growth addiction. Daly’s steady-state capitalism is also a system designed to ensure that production meets humanity’s needs and many of its wants. Daly does not shy away from the use of markets and the profit motive as an incentive for producers to efficiently meet human needs and aspirations. Nor should he. When observers say they oppose a profit-based system, do they mean that I cannot give my neighbor some of my surplus backyard peaches in exchange for surplus backyard oranges? As informal as this is, it still constitutes profit making. And if this form of exchange is allowed, where would these critics like to draw the line between permissible and nonpermissible profit making? Fortunately, Daly has shown the way by indicating that profit making is possible without growth and generally desirable except, broadly speaking, when it is undertaken at the expense of ecological sustainability and distributional equity.

Despite what Smith says, Daly’s vision of a steady-state capitalist system is anything but vague and fuzzy. Daly has not only assembled a skeleton of

the type of system required to achieve sustainable development, he has spent 40 years meticulously putting the flesh on the bones. The same can’t be said for Smith, who not only fails to explain how his alternative system might work but can’t even find a name for it. I think I have the answer—it’s called a “warm, unworkable, fuzzy utopia.”

### **Concluding comments**

In my view, critics of steady-state capitalism have failed to prove its non-viability. What they have repeatedly done is explain why a particular type of capitalist system—namely, one that is institutionally designed to grow—must grow. Furthermore, they continue to focus on why humankind is unlikely to begin an orderly and self-imposed transition to a qualitatively improving steady-state economy.

Although I agree with critics on both counts, neither observation is particularly enlightening. What else must a system designed to grow do but keep growing, even if it is suicidal? The error generally made is to believe that a capitalist economy that is designed to cease growing once it reaches its optimal scale cannot survive and thrive. Furthermore, humankind’s unwillingness to move to a qualitatively improving steady-state economy—despite evidence showing that growth in many countries is undesirable—constitutes no proof whatsoever of the nonviability of steady-state capitalism.

Steady-state capitalism is the best and most democratically compatible system on offer to achieve the broader goal of sustainable development. Despite humankind’s inaction in the face of this logic, ecological economists will continue to highlight the viability of the steady-state capitalist alternative. I only hope that this review of some of the substantive issues has convinced more people to come onboard and spread the urgent word.

### **Conflicts of interest**

The author declares no conflicts of interest.

### **References**

1. Deléage, J.-P. 1994. Eco-Marxist critique of political economy. In *Is Capitalism Sustainable?* M. O’Connor, Ed.: 37–52. The Guilford Press. New York.
2. O’Connor, J. 1994. Is sustainable capitalism possible? In *Is Capitalism Sustainable?* M. O’Connor, Ed.: 152–175. The Guilford Press. New York.



3. Foster, J.B. 2002. Capitalism and ecology: the nature of the contradiction. *Mon. Rev.* **54**: 6–16.
4. Kovel, J. 2007. *The Enemy of Nature: The End of Capitalism or the End of the World*. 2nd ed. Zed Books. London.
5. Schweickart, D. 2009. A new capitalism—or a new world? *World Watch* **September/October**: 12–19.
6. Smith, R. 2010. Beyond growth or beyond capitalism? *Real-World Economics Review* **53**: 28–42.
7. New Economic Foundation. 2010. *Growth Isn't Possible*. NEF. London, <http://www.neweconomics.org/publications/growth-isnt-possible>.
8. Jackson, T. 2009. *Prosperity Without Growth*. Earthscan. London.
9. McLeod, J. & S. Chaffee. 1972. The construction of social reality. In *The Social Influence Process*. J. Tedeschi, Ed.: Aldine-Atherton. Chicago.
10. Hodgson, G. 1988. *Economics and Institutions*. Polity Press. Cambridge, UK.
11. O'Connor, M. 1991. Entropy, structure, and organisational change. *Ecol. Econ.* **3**: 95–122.
12. Max-Neef, M. 1995. Economic growth and the quality of life. *Ecol. Econ.* **15**: 115–118.
13. Lawn, P. & M. Clarke, Eds. 2008. *Sustainable Welfare in the Asia-Pacific*. Edward-Elgar. Cheltenham, UK.
14. Latouche, S. 2007. Sustainable consumption in a de-growth perspective. In *Sustainable Consumption, Ecology, and Fair Trade*. E. Zaccai, Ed.: 178–185. Routledge. London.
15. Martinez-Alier, J. 2009. Socially sustainable economic de-growth. *Dev. Change* **40**: 1099–1119.
16. Kerschner, C. 2010. Economic de-growth vs. steady-state economy. *J. Clean. Prod.* **18**: 544–551.
17. Schneider, F., G. Kallis & J. Martinez-Alier. 2010. Crisis or opportunity? Economic de-growth for social equity and ecological sustainability. *J. Clean. Prod.* **18**: 511–518.
18. Daly, H. 2007. *Ecological Economics and Sustainable Development: Selected Essays of Herman Daly*. Edward-Elgar. Cheltenham, UK.
19. Victor, P. 2008. *Managing Without Growth*. Edward-Elgar. Cheltenham, UK.
20. Lawn, P., Ed. 2009. *Environment and Employment: A Reconciliation*. Routledge. Abingdon.
21. Mitchell, W. & J. Muysken. 2008. *Full Employment Abandoned: Shifting Sands and Policy Failures*. Edward-Elgar. Cheltenham, UK.
22. Wray, L.R. 1998. *Understanding Modern Money: The Key to Full Employment and Price Stability*. Edward-Elgar. Cheltenham, UK.
23. Bell, S. 2000. Do taxes and bonds finance government spending? *J. Econ. Issues* **34**: 603–620.
24. Rawls, J. 1972. *A Theory of Justice*. Oxford University Press. Oxford.
25. Lawn, P. 2007. *Frontier Issues in Ecological Economics*. Edward-Elgar. Cheltenham, UK.
26. Kalecki, M. 1943. Political aspects of full employment. *Polit. Q.* **14**: 322–331.
27. Mitchell, W. 2001. The pathology of unemployment. In *Unemployment: The Tip of the Iceberg*. W. Mitchell & E. Carlson, Eds.: 11–32. Center for Applied Economic Research. Sydney.
28. Baumol, W., J. Panzar & R. Willig. 1982. *Contestable Markets and the Theory of Industry Structure*. Harcourt Brace Jovanovich. San Diego.
29. Daly, H. & J. Cobb. 1989. *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*. Beacon Press. Boston.
30. Hirsch, F. 1976. *Social Limits to Growth*. Harvard University Press. Cambridge, MA.
31. Lawn, P. 2010. On the Ehrlich-Simon bet: both were unskilled and Simon was lucky. *Ecol. Econ.* **69**: 2045–2046.
32. Hawken, P. 1993. *Ecological Commerce*. Harper-Collins. New York.
33. Daly, H. 1991. *Steady-State Economics*. 2nd ed. Island Press. San Francisco.
34. Daly, H. 1992. Allocation, distribution, and scale: towards an economics that is efficient, just, and sustainable. *Ecol. Econ.* **6**: 185–193.
35. Daly, H. 1979. Entropy, growth, and the political economy of scarcity. In *Scarcity and Growth Reconsidered*. V.K. Smith, Ed.: John Hopkins University Press. Baltimore.
36. Daly, H. 1996. *Beyond Growth*. Beacon Press. Boston.
37. Ekins, P., C. Folke & R. Costanza. 1994. Trade, environment, and development: the issues in perspective. *Ecol. Econ.* **9**: 1–12.
38. Pepper, D. 1994. *Ecosocialism: From Deep Ecology to Social Justice*. Routledge. London.
39. El Serafy, S. 1989. The proper calculation of income from depletable natural resources. In *Environmental Accounting for Sustainable Development*. Y. Ahmad, S. El Serafy & E. Lutz, Eds.: 10–18. World Bank. Washington, DC.
40. Costanza, R. & C. Perrings. 1990. A flexible assurance bonding system for improved environmental management. *Ecol. Econ.* **2**: 57–76.
41. Odum, H. & E. Odum. 1981. *Energy Bases for Man and Nature*. McGraw-Hill. New York.
42. Cleveland, C., R. Costanza, C. Hall & R. Kaufmann. 1984. Energy and the US economy: a biophysical perspective. *Science* **225**: 890–897.