

CHAPTER 11

SOCIAL ENTREPRENEURSHIP, SOCIAL VALUE, AND THE ENVIRONMENTAL “BIG PUSH”: SOME REMARKS

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The US is stuck at a low-level equilibrium characterized by suboptimal environmental conditions and inadequate amounts of social entrepreneurship and social value production. The paper argues that: (1) because the equilibrium is locally stable, attaining a more desirable dynamically stable equilibrium requires an abrupt “leap” instead of gradual movement; (2) the leap to a higher point requires a mix of policy incentives here termed the environmental “big push;” and (3) the environmental big push is necessary but may not be sufficient to bring about the desired change. Designing the proper policy incentives—the ones that accurately reflect all the relevant values in the market—may require policymakers to dispense with some of their more facile quantitative indicators and take more nuanced approaches involving qualitative data and incommensurable criteria.

Introduction

Over recent years the world has experienced growing environmental and social problems of many types. Despite much uncertainty about the details, climate change figures to change the lives and lifestyles of future generations of people—and mostly not for the better. The recent oil price spike again had many experts speaking amount imminent energy shortages, while world population continues to grow despite evidence that we may be reaching a global peak in food production. And unemployment and underemployment remain rampant in many if not most parts of the world, in no small part explaining substantial movement of migrant workers to new countries.

What is business to make of this? It is increasingly clear that such problems, and many others, often adversely affect business’s “bottom line” (i.e., profits). Scarcity will raise the price of resource inputs, making it more costly to do business, for example. Or unemployment, if severe enough, may hurt businesses through dampened consumer spending.¹ In response, recent years have seen an increase in number of social entrepreneurs, as well as a growing theo-

1. We might say that this is all the more true today. Over the past forty years job insecurity need not have been a deterrent to consumer spending with the debt culture alive and well. After events beginning in September of 2008, however, an economic recession is much more likely to be self-reinforcing as credit becomes far less available.

retical interest in social entrepreneurship (e.g., Goldstein, Hazy & Silberstang, 2008). Social entrepreneurs engage in ventures that seek to produce social value, in contrast to traditional entrepreneurs who merely look to create economic value. By social value I mean net benefits to business stakeholders instead of merely shareholders (who seek economic value). Shareholders are prominent among a company's stakeholders, but the latter also include employees, consumers, citizens, and local or even national governments (see Hazy, Torras & Ashley, 2008). Shareholder interests need not always be in conflict with those of other stakeholders. Fiskel (2003), for example, argues that reducing material and energy intensity and converting wastes into valuable secondary products creates value for shareholders as well as for society.

Social entrepreneurship represents the idea or hope that many of the existing environmental and social problems can be eliminated through the market system. What would be required is a switch from traditional bottom line accounting (economics only) to so-called triple bottom line accounting, which considers economic, environmental, and social net benefits (see, e.g., Foran *et al.*, 2005).

Many of the problems we confront today are a product of path dependence and are therefore historically contingent. This paper makes the case that we are presently stuck in what I call a low-level dynamic equilibrium, where economic value creation often generates significant environmental or social costs, and where the social entrepreneurship aimed at redressing it is necessarily limited in scale (though not necessarily in scope). Achieving a higher-level equilibrium is unlikely to be possible through mere adaptation, as believed by many (e.g., Reed, 1993). As noted by Gowdy (1993), the work by evolutionary biologists Steven Jay Gould and Niles Eldredge on "punctuated equilibrium," precisely because of historical contingency, is a more appropriate perspective around which to build a model to describe the evolution of economic systems.

For our purposes, the "punctuation" or "jump," as I will argue, is a substantial "environmental big push"—akin to Rosenstein-Rodan's (1943) "big push" in the development economics literature—through which new government incentive structures aim to create harmony between economic and social value. Since, as I will argue, excessive focus on quantitative measures of success is part of the problem, a necessary part of the solution is more frequent recourse to multi-criteria assessment or wholesale qualitative analysis.

In what follows, I provide detail about the low-level dynamic equilibrium as I see it, offer a game theoretic diagnosis, and then consider possible means of achieving a superior equilibrium. The final section presents concluding thoughts.

The Problem

The US is, at present, stuck in a sub-optimal long run state that I characterize as a "low-level dynamic equilibrium" (LLDE). What I mean is that there is only a modest amount of social entrepreneurship present in society, and that economic value generated often conflicts with the creation of social value, to the expense of the latter. Social value refers to net social and envi-

ronmental benefits that affect not only shareholders, but also a broader group of stakeholders that also includes employees, consumers, citizens, and governments. It is related to, though distinct from, the idea of sustainable value added (Figge & Hahn, 2004), which refers to the extra economic value (profits) being created under the stipulation that adverse social and environmental impacts do not increase.

A “high level” dynamic equilibrium, as I envision it, is a state in which there exists a substantial degree of social entrepreneurship, and where economic value creation may be more, the same, or even less than in the LLDE. The key difference, however, is that far more social value is created, where economic value is a subset of social value and the former reinforces rather than conflicts with creation of “non-economic” social value.

I assert that *path dependence* largely explains how we arrived at the present LLDE, and why it is difficult to break away from it. Indeed, the “dynamic” in LLDE suggests that the present state of affairs is never static, rather always evolving. Such an outlook is in stark contrast to traditional economic models that employ static analysis to arrive at an equilibrium devoid of any time dimension. What path dependence means is that outcomes tend to be historically determined—i.e., that the LLDE depends at least partly on the process involved in getting there. Yet there is no *unique* pre-determined equilibrium. Rather, the outcome at any point in time reaches one of several candidate equilibria. Here we might think of the “path” on which we move as our orbit, and the actual outcome (the LLDE) as our point in state space, always within said orbit.

The term “stasis” employed by biologists Gould and Eldredge is related to the notion of an orbit: circumstances change over time, but only in a circumscribed fashion. To Gowdy (1993), our latest relatively long period of stasis is the convention of profits, or more specifically the pursuit of shareholder value.² We exist in an orbit within which adaptation produces greater efficiency and higher profits—that is, improvements over time *but only along our historically locked-in path or orbit*. So while we may be “locally efficient,” there is no reason to believe that such adaptation moves in the direction of a globally efficient solution. I claim that the institution of social or stakeholder value creation constitutes a higher-level equilibrium, but that attaining it will require a historical punctuation of sorts, about which more later.

Below I discuss six key characteristics of our present LLDE, although by no means is the list exhaustive. The first three address policy or practice, while the latter three deal more with economic theory.

Shareholder value and its limitations

For many years publicly-owned companies have sought to provide maximum value for their shareholders. While in practice there certainly are many devia-

2. Other economists and social scientists, most notably Kenneth Boulding, theorized along similar lines decades before Gowdy—or Gould and Eldredge for that matter—without actually employing the “punctuated equilibrium” terminology. For a sample of his more recent work utilizing punctationalism, see Boulding (1989).

tions from this—based on e.g., conflicts between the short and long run, or managers whose interests supersede those of owners—for the most part it has been the practice of maximizing shareholder value that has contributed to relatively consistent economic growth in mature economies, most notably the US.

Emphasis on shareholder value unfortunately often disregards interests to the broader society. For example, while General Motors or Chrysler today may be most interested in doing right by its shareholders, there are other groups affected by the fate of these companies, which is as of this writing very much in jeopardy. Benefit cuts or layoffs may serve shareholders but not workers. Continued production of fuel-inefficient automobiles may also benefit shareholders—and consumers—but not citizens concerned about resource scarcity, the environment, and global political conflicts. These are the “stakeholders” in such companies, and this broad group encompasses the shareholders as well. Our present state is an LLDE in part because concerns outside the narrow focus of shareholders are too often ignored, with resulting social or environmental costs to society.³ Social entrepreneurs aim to address the problem, but at present the scale of social entrepreneurial ventures (SEVs) is inadequate to credibly challenge the status quo.

Our Fetish with Quantitative Indicators

Our economic policy has long been guided by quantitative indicators. This is especially so since the early 1940s, after the creation of the system of national accounts, which defined the gross domestic product (GDP) as the value of all goods and services produced in a national economy. GDP growth has since then become almost synonymous with progress, which makes GDP the macro-scale analog of the preceding item. While production of consumer goods is not itself undesirable, the external costs of such production that should be considered in any notion of “progress”—e.g., wage exploitation, the consumer rat race, resource depletion, pollution—are disregarded by GDP.

Quantitative indicators are not, in and of themselves, a problem. A concern arises, however, where for convenience we focus on the quantitative at the expense of other important variables that are not as easily quantifiable. As noted by Pearce (1991: 242-43):

Typically, development benefits can be fairly readily calculated because there are attendant cash flows... Conservation benefits, on the other hand, are a mix of associated cash flows and 'non-market' benefits. Components with associated cash flows are made to appear more 'real' than those without such cash flows. ...[D]ecisions are likely to be biased in favor of the development option because conservation benefits are not readily calculable... Unless incentives are devised whereby the non-market benefits are 'internalized'... conservation benefits will automatically

3. Ukidwe and Bakshi (2005) note that the failure and inadequacy of most contemporary accounting techniques is at least in part due to the fact that they take what they term natural capital (or, more broadly, the environment) for granted. Rather than triple bottom line accounting, however, they propose an input-output analysis scheme that is informed by thermodynamics.

be downgraded ...This ‘asymmetry of values’ imparts a considerable bias in favor of the development option.

While his focus was on the issue of conservation versus development, his reasoning can be generalized to any instance of bias in which what is easily calculable takes precedence over murkier, less easy to define variables.⁴ Invariably, market-driven production activities motivated by the generation of profits are easy enough to quantify (using the dollar metric), while indirect effects—some positive, but many negative—are in general disregarded because they do not influence cash flows. The bias in favor of the quantitative applies as much to shareholder value as to GDP, and it is undoubtedly a bias that social entrepreneurs must confront.

Belief in the Linear Stages Hypothesis of Economic Development Theory

Belief remains widespread that economic development proceeds in a sequence of five stages (a framework first introduced by W.W. Rostow in the 1950s), and that it should follow in this manner for all countries. The stages are agrarian (pre-capitalist), pre-conditions for takeoff, takeoff, drive to maturity, and high consumption. The expectation is that any country, however poor, that succeeds in attracting sufficient foreign investment will be propelled to the stage (takeoff) where economic growth becomes self-sustaining. According to this hypothesis, eventually every country becomes a mature industrialized society.

There is no doubt that such thinking has been influential in the evolution of the global economic landscape. It has contributed to a substantial liberalization of developing economies, and the climate overall has been quite favorable to both trade and foreign investment. But there is increasing doubt about whether the stages theory is true; that is, whether today’s emerging economies are really catching up to those of the rich countries (see, e.g., Pritchett, 1997). Developing countries are finding the path far more challenging, not the least because they often find themselves at significant economic disadvantage vis-à-vis the industrialized economies (it is a problem that the latter countries did not face when they were beginning to industrialize).

Perhaps equally important is whether it is *possible* for all the developing countries to follow the linear stages process to its final stage. It seems that there would be significant ecological constraints to such an outcome. It is widely believed that the world’s endowment of natural resources would not support the entire world’s population living at our present standard. Indeed, some (Daly, 1996) believe that the world *already* consumes resources to an extent that exceeds carrying capacity. Given recent worldwide food shortages and energy price volatility, the argument at least seems plausible.

Belief in a linear-stages approach to development contributes to our present LLDE, and it relates to the first two items. In linear stages, mass consump-

4. This is similar to the claim by Hermele and Hollander (2006) that “only what *counts* counts.”

tion is considered the highest stage. We have long believed it to be the primary goal of developing countries, and their success at approaching it is indicated by GDP growth. But other important indicators of development, not present in GDP, tend to be underemphasized. In 1990 the United Nations introduced the human development index (HDI) which is an alternative indicator that emphasizes other variables such as longevity and literacy. It shows that despite rapid rates of GDP growth, many countries are failing to develop in a broader sense.

Externalities

Externalities arise when an agreement or transaction between two parties affects others not party to it. They may be in the form of indirect benefits. Take, for example, the act of individual members of our society investing in college or graduate degrees. Not only recipients of the degrees benefit. Society as a whole experiences all the indirect benefits that accrue from having a more educated population.

But externalities are often negative. Perhaps the most common example is the factory that dumps pollution into a neighboring river or stream. The motivation for doing so is to reduce its costs—private costs, that is. Externalities are also known as *social* costs, costs that are not paid out of pocket. Everyone in the vicinity—including the factory workers, although often not the factory owner—is adversely affected by the pollution. Yet here again is the problem: We do not know the extent of the harm. Such effects are not quantified and therefore, as noted earlier, externalities tend to be disregarded.

It is why in economics we often refer to externalities as “missing markets.” No market exists for pollution, for workplace safety, or many other types of externality. Consequently, economics based on the “bottom line” proceeds as usual, at the expense of citizens who are non-shareholders yet are stakeholders in economic outcomes. Again, such outcomes represent opportunities for social entrepreneurs, and have inspired recent interest in so-called triple bottom line (TBL) accounting (Foran *et al.*, 2005), or accounting methods that consider not only private profits, but also social and environmental costs. At the macro-scale, the index of sustainable economic welfare (ISEW) of Daly and Cobb (1989) offers an alternative to GDP that accounts for positive and negative externalities.⁵

Delinking of Economic Theory from the Physical World

Ever since the “marginal revolution” in the late 1800s, which gave rise to neo-classical economic theory, economics has ceased being an area of inquiry in any way grounded in the physical world. What was fundamental to economic analysis during the classical period—employment of factors of production like land,

5. A number of country case studies have been conducted which compare GDP to ISEW over time (see, for example, Stockhammer *et al.*, 1997). Invariably, the studies find a growing divergence between the two indicators over time, with the ISEW reaching a plateau or even decreasing, while GDP growth continues. In other words, they provide evidence in support of claims that economic value as represented by GDP may not be in the interests of broader society.

labor, and capital with the end of producing durable goods—has since waned in importance. Precedence has since been given to economic variables like utility and monetary values.

As noted by Nadeau (2008), this change in emphasis would not be not a problem were it not for the mounting environmental problems and probable crisis that we face in future decades. Indeed, during the late 1800s, available resources appeared almost infinite in their ability to satisfy our needs, and therefore there seemed little reason to account for flows of materials and energy, despite their fundamental importance to economics. Today, however, we face an entirely different reality, one in which what Herman Daly has called the “limiting factor” is nature (i.e., material and energy flows).⁶ In comparison, labor, once believed scarce, is now abundant. Economic logic dictates that we economize on what is more scarce, but the pace of technological advance and automation suggests that we have been slow in learning this lesson. Consequences include severe unemployment in many parts of the world and an impending scarcity of numerous primary resources. As noted by Heinberg (2005), the fossil fuel bounty discovered starting at the turn of last century was in a historical sense analogous to an individual winning a lottery and then squandering the proceeds. In his view, our reluctance to adapt to the fact that fossil fuels—particularly petroleum—are now limiting factors promises significant economic hardship in the years to come.

Disregard for Complexity in Economic Analyses

Granted, it is far easier to theorize about economics if we assume that relationships between variables are linear, or at least monotonic. Yet the need for mathematical tractability has unduly influenced both the design of theory and policy. Reality is far more complex, and complexity is indeed an important issue that economics largely ignores. Even mainstream environmental economics fails to reflect this reality.

As an example, we assume that the marginal cost of continued deforestation rises the more we deforest, as seems reasonable, but also that cost is a continuous function of remaining forest. Is the continuity assumption realistic? While nobody can be certain where the “tipping point” exists, it is almost certainly mistaken to presume that costs would continue to increase gradually until no forest remained.

Ecosystems are complex, so a tropical forest is much more than an inventory of trees or an area of land alternatively used for cattle ranching. Climate change is another example of complexity. We have no assurance that the climatic feedback effects of continued CO₂ concentrations in the atmosphere will change gradually. Indeed, some scientists estimate that the critical point beyond which irreparable harm to the world’s population will ensue is twice the concentration

6. The term “limiting factor” presumes a degree of complementarity among factors. Were substitutability perfect, such an issue would not arise since we could theoretically exhaust any resource (e.g., timber) and substitute others in its place. Yet the assumption of perfect substitutability is highly unrealistic. For interesting discussions of this question, see Daly (1996) and Prugh *et al.* (1995).

level as was present at the beginning of the Industrial Revolution (Socolow & Pacala, 2006).

We fail to grasp complexity in other ways as well. The present economic crisis is creating losses the world over. Ordinary investors are losing sizable portfolio wealth but, more ominously, business failures are only beginning to produce notable job loss. It is of course impossible to know where exactly this will lead but one has a sense that continued decline beyond a certain threshold—in terms of job loss and consumption decline producing further economic contraction—will begin to produce massive destabilizing effects. One can only hope that enlightened policy responses keep us from ever arriving at this point, about which more later.

The Diagnosis

As noted, the LLDE in which we find ourselves is a result of a path dependent process. What matters more in the present discussion is not how specifically we got here—i.e., what historical contingencies were instrumental in producing the LLDE—but what process is required to achieve a higher level dynamic equilibrium.

The notion of stability of equilibrium is important. As we know from game theory, equilibria can be either stable or unstable. The notion of a LLDE is akin to a local maximum (or risk dominant equilibrium), where all neighboring points in state space (in the so-called basin of attraction) are inferior—hence the equilibrium is stable—but where there may exist other points—in other orbits—which may be far superior. An unstable equilibrium, in contrast, is what in two dimensions is known as the knife edge solution, where the slightest movement away from the equilibrium is self-reinforcing.

Unstable equilibria often if not always exist at points along paths between stable equilibria, as should make sense since movement away from unstable equilibria result in gravitation toward one of the candidate stable equilibria. I presume that the LLDE as described in the preceding section is stable for the simple (if tautological) reason that it is highly improbable for it to have persisted as it has if it were unstable. Based on this I argue that a movement from our present LLDE to a higher level dynamic equilibrium that is stable (often referred to in game theory as the equilibrium that is payoff dominant) will require an abrupt leap, in the same sense of the “punctuated equilibrium” solutions described by Gould and Eldredge. The simple reason is that points in the LLDE orbit are all inferior, so there is no natural tendency for movement away from the equilibrium, never mind outside, the orbit.

The preceding helps us understand why social entrepreneurship and social value creation are at lower than desirable levels. If potential social entrepreneurs perceive that others are unlikely to make similar investments (i.e., their expectations are low), their incentive to do so will be slight, since undertaking such investments following TBL accounting instead of narrow profits or shareholder value will put such individuals at significant disadvantage, economically speaking. If, on the other hand, they perceive that TBL accounting is becoming

more widespread (expectations are high), they will be more likely to undertake social or environmental investments. Yet as we will see, the situation is akin to what game theorists would call an “assurance game,” a situation with at least two stable equilibria.⁷

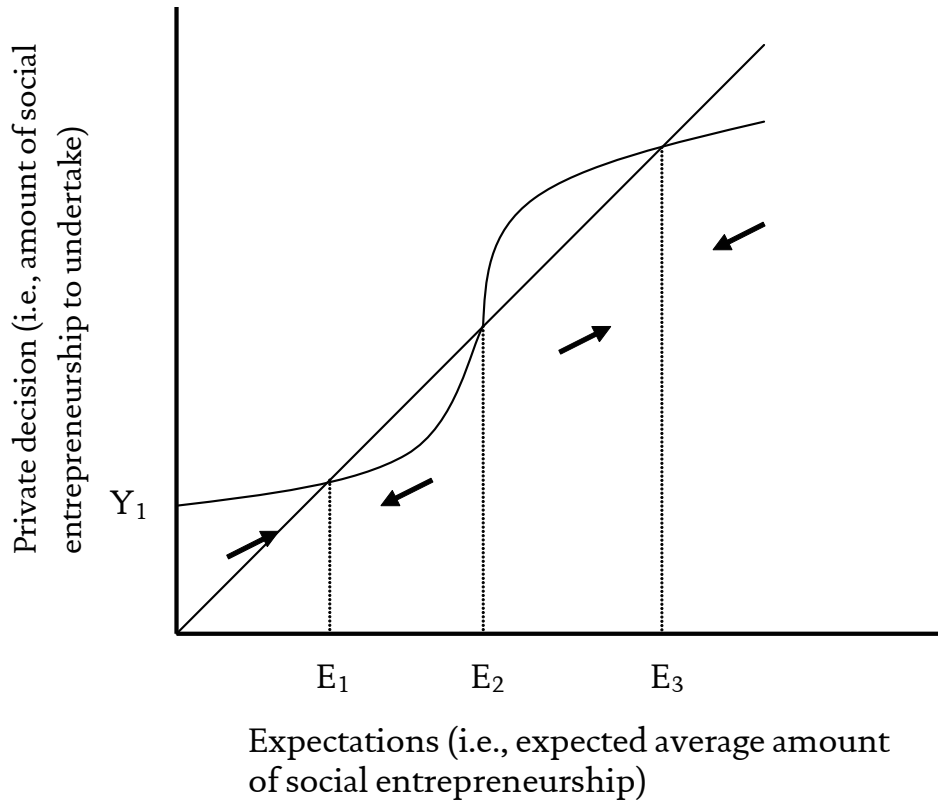


Figure 1 *Social entrepreneurship: A tale of two equilibria*

The relationship is illustrated in Figure 1, where the function shown is the time derivative. Some individuals are likely to invest in SEVs simply because “it is the right thing to do.” It explains why the y-intercept (Y_1) is positive instead of being at the origin. If actual social entrepreneurship exceeds expectations—i.e., if we find ourselves above the 45 degree line, as at Y_1 —expectations will rise, causing SEVs to increase, until they equal each other at E_1 . We might think of E_1 as the present state of affairs.

To see why we are “stuck” at E_1 , imagine what happens if we move slightly to the right. Here we dip below the 45 degree line, signifying that the amount of SEV expected exceeds the actual amount. In such a case the expected amount would correct downward, until the stable equilibrium E_1 obtained again. It should follow from this that E_2 is the “knife edge” equilibrium, unstable in both directions. In the direction of E_1 , movement to E_1 is self-reinforcing since actual SEV is less than expected SEV, lowering the latter. Going toward E_3 , movement

7. Assurance games are also known as stag hunt games, and possibly go by other names as well.

to E_3 is also self-reinforcing since here the SEV level exceeds the expected level, as in the move from Y_1 to E_1 .

There is no reason to expect the LLDE represented by E_1 in the graph to gradually move to the higher-level equilibrium (E_3), since all of the neighboring points gravitate back to E_1 . It follows that an abrupt “jump” is necessary to move from E_1 to E_3 , which represents a high-level equilibrium with a substantial degree of social entrepreneurship and far more social value created than under the LLDE.

Solutions

The “big push” in the development economics literature (e.g., Rosenstein-Rodan, 1943, is the pioneer, but see also Easterly, 2006, and Murphy, Schleifer, Vishny, 1989) refers to the government-directed infrastructural investments believed necessary to attract a steady flow of private investment, eventually pushing the economy up to a higher level. I would characterize the set of policies required to bring about a high level of SEVs as an “environmental big push” although, as I will explain, I view them as necessary but not sufficient to bring it about.

Change in Relative Scarcity of Factors

One critically necessary change stems from the earlier observation that humans have been highly uneconomical in their use of productive factors. Economic logic dictates that we economize on what is scarce (i.e., what is the limiting factor) and develop technologies to exploit what is abundant. A century and a half ago, we wisely began to design an economic infrastructure around what was then abundant—fossil fuel energy. We also started to develop technologies that facilitated automation, which was also smart given that labor had become relatively scarce.⁸

Such changes were smart economics and they served us well, contributing to substantial economic growth over the succeeding century or so. Yet at some point perhaps 40 or 50 years ago such thinking began to outlive its usefulness. Population growth had progressed to the point where labor was no longer relatively scarce. Most certainly related to this is that the unsustainable rate at which we were using fossil fuels meant that they were no longer relatively abundant—they had become the limiting factor.

What it implies is that we must move in the direction of smart technologies that are based on this new reality. Change in production ought to utilize the abundant labor pool that is now available and economize on what is scarce—natural resources and energy. It means envisioning less automation and more labor-intensive modes of production. While seemingly contrary to the notion of progress, it is the same smart economics that we followed 150 years ago. Only the context is different.

8. Not to mention a remarkably inefficient means of doing work compared to cheap energy. For more on this accounting, see Heinberg (2005).

In order to accomplish this, proper economic incentives must be introduced. There are many means of accomplishing this through policy, and some steps have already been taken—particularly in Europe, but also in the US. For example, a regime that issues permits to emit a pollutant—nitrous oxide or sulfur dioxide, for example—can generate an incentive to pollute less if the permits were traded in an open market. Each recipient would have an economic incentive to develop a cleaner technology so as to retain surplus permits that might then be sold for a profit. Another option is to levy a per-unit tax on pollution. Internalizing the pollution externality—that is, making the private firm pay the social cost of pollution—generates a further incentive to pollute less. Best of all, such a policy does not necessarily imply a more active role of government in the economy. As Herman Daly (e.g., 1996) has long argued, revenue raised through the taxation of pollution can help reduce the revenue required from income taxes. It is a direct manner of encouraging what we want more of—the energy of human labor—and discouraging what we want less of—artificially cheap and unsustainable, polluting, fossil fuel energy.

Finally, and along similar lines, our subsidy policy should be reexamined. While it is true that such alternative forms of energy as wind and solar are lately being subsidized by the Federal government, a preponderance of such benefits are still received by companies that do not inspire much in the way of SEVs. To provide just a few examples, the big three automobile companies are recipients of enormous subsidies—additional billions of dollars now in the wake of the financial crisis. They are organizations that not only mostly produce massively fuel-inefficient vehicles—and some would say perpetuate an inefficient way of life dependent on the private automobile—but also do so in such an automated fashion that makes it impossible to take advantage of a significant pool of unemployed or underemployed laborers. Of course there are those who would object that doing so would significantly cut into company profits. Yet this is precisely the point: We should not be subsidizing organizations that profit from going against what economic logic dictates (economizing on natural resources and utilizing and developing what is abundant—labor).

Another example of misdirected subsidies is in agriculture. Most government money supports large companies that social entrepreneurs would likely shun, for a variety of reasons. The monocropping that is so pervasive in big agriculture threatens the long-run sustainability of the soil, while the chemical fertilizers and pesticides do so as well, in addition to polluting the ground water. The artificial genetic selection for “advantageous” crop attributes actually detracts from crop resilience because the resulting loss of diversity creates greater vulnerability to particular pests and pathogens. Finally, and arguably most important, the capital intensification of agriculture over the past century has contributed to a massive employment shift away from agriculture and to industry. Again, the process followed sound economic logic; the problem is that today, with the “limiting factor” being nature and the environment and not labor, economic logic no longer supports the policy of subsidizing large farms.

Small farms that produce multiple crops, employ a relatively large amount of people, and eschew the use of chemicals, are on the ascendance. It

is evident from greater consumer demand for locally produced and/or organic food, and philanthropic dollars (some potentially from social entrepreneurs) are flowing in to new small farm projects. Whether it is economically feasible for such farms to produce at a scale sufficient to meet the country's needs is a question, due to space limitations, beyond my present scope. But there is little doubt that such a model tends to be more economical: It employs the soil more sustainably and does not pollute the water supply; it facilitates the preservation of crop diversity; and, being far less capital-intensive, it utilizes to a greater degree the economic factor that we now possess in relative abundance—labor.

The policy shifts noted above are what would be required for a successful “environmental big push.” But would they be sufficient?

Social Value and the Triple Bottom Line

Challenges certainly remain. First, to be successful, changes in our tax and subsidy policies must enable a jump from low level equilibrium E_1 all the way past E_2 , after which market forces would presumably propel us to the higher level stable equilibrium E_3 . It means, of course, that the scale of the initial change must be substantial, since anything more modest would only move us *in the direction of* E_2 , in the region where the expected amount of SEVs exceeds the actual amount, resulting in a reversion to E_1 .

Second, even if we could imagine such a momentous shift in policy priorities, the environmental big push may not be self-sustaining in the same way as the “original” big push. Unlike as with the latter, there is no complementary government infrastructural investment implied by the environmental big push scheme. If high—even optimal—SEV levels were achieved, would they be maintained into the future? We cannot say for certain. Much as we would like, it is difficult to visualize the private sector or social entrepreneurs designing a uniform metric for measuring environmental and social costs and benefits, a requirement for triple bottom line (TBL) accounting. It would seem impossible to accomplish this in such a decentralized setting, not the least because of a constant threat of “defection”—that is, a particular social entrepreneur unilaterally abandoning TBL accounting in favor of traditional profits.

Finally, even for government the challenge is daunting. The problem of internalizing “non-economic” costs and benefits through the design of proper incentives, while difficult, is not intractable. Policymakers need not actually put explicit monetary values on the extra-market dimensions of social value, since the values will become evident in the response of social entrepreneurs and other businesspeople to the new incentive structure. The real conundrum is over what metric to follow *internally* in order to adjudicate among outcomes for which, as discussed earlier, markets are missing. The temptation is to devise a scheme for putting dollars and cents on environmental and social outcomes—perhaps by hiring economists to perform the calculations—but, as noted by Torras (2008), among others, doing so inevitably introduces subjectivity into the analysis.

I would argue that an entirely new outlook is necessary, and dictated by present circumstances. Overemphasis on quantitative criteria, as noted earlier, is partly to blame for the LLDE we experience, and we therefore need to move

away from it. Here it is illuminating to reflect on the words of E.F. Schumacher (1999: 33):

[Q]uality is more difficult to ‘handle’ than quantity, just as exercise of judgment is a higher function than the ability to count and calculate. Quantitative differences can be more easily grasped and certainly more easily defined than qualitative differences; their concreteness is beguiling and gives them the appearance of scientific precision, even when this precision has been purchased by the suppression of vital differences of quality. (My emphasis).

In other words, what probably matters more is not the quantitative outputs artificially produced by some arbitrary function or methodology, but subjective inputs that, if quantifiable, are rarely commensurable or even comparable to each other.⁹ Yes, the solution to the LLDE problem may require fundamental government reform. When confronted with policy criteria that are incommensurable or incomparable, or even entirely non-quantitative, we must engage in enlightened policy discourse about it. Such discourse should aim to facilitate the development of the proper policy incentives discussed earlier. If done properly, the monetary value of the social and environmental values that form part of a social entrepreneur’s TBL should emerge from the market response to the new incentives.

I stated earlier that I viewed the environmental big push as necessary but probably not sufficient to ensure a move to the higher equilibrium E_3 . I would not call a change in outlook along the lines described above a “sufficient” condition for a dynamically stable high level equilibrium. I would argue that it is necessary, however, and possibly sufficient if taken together with the environmental big push policies described earlier.

Conclusion

Due to countless historical contingencies, we find ourselves trapped in a low-level dynamic equilibrium—the “stasis” of profit seeking or traditional shareholder value. I have provided a framework for thinking of the problem in terms of insufficient social entrepreneurial ventures aimed at creating social value. To improve the situation in any appreciable way, however, we must think about a shift substantial enough to propel us away from the stable, or risk dominant, equilibrium in which we find ourselves. The critical necessary initiatives will involve a radical change in our tax and subsidy policy, a change that induces us to economize on what is now our limiting factor in production—energy and natural resources—and intensively use what is abundant, namely labor.

Because environmental and social values do not “count” in the traditional market calculus, a policy regime based on quantitative indicators is necessarily biased in favor of private profits and shareholder value. There is therefore

9. For a lengthier discussion of this topic I recommend Martinez-Alier, Munda, and O’Neill (2001).

little question that a move away from our fetish with quantitative indicators would help. Yet a jump to a higher-level equilibrium is not possible in the absence of a government role in the process since many of the existing adverse environmental and social effects costs are a direct product of profit seeking (which generally involves reducing costs to their minimum). I should emphasize that I am *not* advocating another new government spending program; indeed, if the government properly sets the incentives needed to move to a triple bottom line regime, there is no reason to expect more than a minimal role for government in the economy. Referring to his work on spin glasses, biocomplexity scholar Stuart Kaufman (2006) asserts that too much control freezes physical systems into limited configurations; but too little causes them to wander aimlessly. Analogously, the government has a role in the economy, but it is primarily to ensure that markets do their job.

Future research in this area might consider comparing among the possible tax and subsidy policies and assessing the effectiveness with which they would contribute to achieving a higher-level equilibrium. More important—and daunting—is the matter of how to move to a wholesale acceptance of more qualitative criteria in policy decisions.

References

- Boulding, K. (1989). "Punctualism in societal evolution," *Journal of Social and Biological Structures*, ISSN 0140-1750, 12: 213-223.
- Daly, H. (1996). *Beyond Growth: The Economics of Sustainable Development*, ISBN 0807047090.
- Daly, H., and Cobb, Jr., J. (1989). *For the Common Good: Redirecting the Economy Toward Community, the Environment, and a Sustainable Future*, ISBN 0807047058.
- Easterly, W. (2006). "The big push déjà vu," *Journal of Economic Literature*, ISSN 0022-0515, 44(1): 96-105.
- Figge, F. and Hahn, T. (2004). "Sustainable value added: Measuring corporate contributions to sustainability beyond eco-efficiency," *Ecological Economics*, ISSN 0921-8009, 48: 173-187.
- Fiskel, J. (2003). "Designing resilient, sustainable systems," *Environmental Science and Technology*, ISSN 1382-3124, 37(23): 5330-5339.
- Foran, B., M. Lenzen, C. Dey and M. Bilek (2005). "Integrating sustainable chain management with triple bottom line accounting," *Ecological Economics*, ISSN 0921-8009, 52: 143-157.
- Goldstein, J., Hazy, J. and Silberstang, J. (2008). "Complexity and social entrepreneurship: A fortuitous meeting," *Emergence: Complexity & Organization*, ISSN 1532-7000, 10(3): 9-24.
- Gowdy, J. (1993). "The implications of punctuated equilibrium for economic theory and policy," *Methodus*, ISSN 1438-0625, June, pp. 111-113.
- Hazy, J., Torras, M. and Ashley, A. (2008). "Reconceptualizing value creation with limited resources," *Journal of Technology Management and Innovation*, ISSN 0718-2724, 3(3): 45-54.
- Heinberg, R. (2005). *The Party's Over: Oil, War, and the Fate of Industrial Societies*, ISBN 0865714827.
- Hermele, K. and Hollander, E. (2006). "Only what counts counts: Sustainability accounting innovations as tools to open new fields of enquiry," Conference paper, Eu-

- ropean Association of Evolutionary Political Economy, November 2-4, Galatasaray University, Istanbul, Turkey.
- Kaufman, S. (2006). “The evolution of future wealth,” *Scientific American*, ISSN 0036-8733, November, 44.
- Martinez-Alier, J., Munda, G. and O’Neill, J., (2001). “Theories and methods in ecological economics: A tentative classification,” in C. Cleveland, D. Stern and R. Costanza (eds.), *The Economics of Nature and the Nature of Economics*, ISBN 1858989809, pp. 34-56.
- Murphy, K., Shleifer, A. and Vishny, R. (1989). “Industrialization and the big push,” *Journal of Political Economy*, ISSN 0022-3808, 97(5): 1003-1026.
- Nadeau, R. (2008). “The economist has no clothes,” *Scientific American*, ISSN 0036-8733, April, 42.
- Pearce, D.W. (1991). “An economic approach to saving the tropical forests,” in D. Helm (ed.), *Economic Policy Towards the Environment*, ISBN 0631182012, pp. 239-62.
- Pritchett, L. (1997). “Divergence, big time,” *Journal of Economic Perspectives*, ISSN 0895-3309, 11(3): 3-17.
- Prugh, T., Costanza, R. Cumberland, J. Daly, H. Goodland, R. and Norgaard, R. (1995). *Natural Capital and Human Economic Survival*, ISBN 1887490019.
- Reed, A. (1993). “The concept of ‘shareholder value’ and evolutionary analogue economics,” in J. Dragan, E. Seifert and M. Demetrescu (eds.), *Entropy and Bioeconomics*, ISBN 8885010113, pp. 484-500.
- Rosenstein-Rodan, P. (1943). “The problems of industrialization of Eastern and South-Eastern Europe,” *The Economic Journal*, ISSN 0013-0133, 53(210-211): 202-211.
- Schumacher, E.H., (1999). *Small is Beautiful: Economics as if People Mattered*, ISBN 0881791695.
- Socolow, R. and Pacala, S. (2006). “A plan to keep carbon in check,” *Scientific American*, ISSN 0036-8733, September, 50-57.
- Stockhammer, E., Hochreiter, H., Obermayr, B. and Steiner, K. (1997). “The Index of sustainable economic welfare (ISEW) as an alternative to GDP in measuring economic welfare. The results of the Austrian (revised) ISEW calculation 1955-1992,” *Ecological Economics*, ISSN 0921-8009, 21: 19-34.
- Torras, M. (2008). “The subjectivity inherent in objective measures of well-being,” *Journal of Happiness Studies*, ISSN 1389-4978, 9: 475-487.
- Ukidwe, N. and B. Bakshi (2005). “Flow of natural versus economic capital in industrial supply networks and its implications to sustainability,” *Environmental Science and Technology*, ISSN 1382-3124, 39(24): 9759-9769.