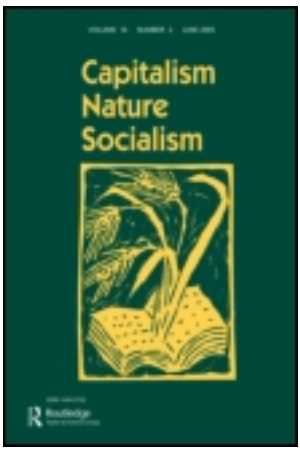

Capitalism Nature Socialism
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/rcns20

Degrowth: Tools for a Complex Analysis of the Multidimensional Crisis

Mauro Bonaiuti

To cite this article: Mauro Bonaiuti (2012): Degrowth: Tools for a Complex Analysis of the Multidimensional Crisis, Capitalism Nature Socialism, 23:1, 30-50

To link to this article: http://dx.doi.org/10.1080/10455752.2011.648838

CAPITALISM NATURE SOCIALISM VOLUME 23 NUMBER 1 (MARCH 2012)

Degrowth: Tools for a Complex Analysis of the Multidimensional Crisis

*Mauro Bonaiuti**

A new spectre is haunting Europe, the spectre of (real) degrowth.[1] Faced with a widespread economic, ecological, and social crisis, with injustice, a loss of meaning, insecurity and finally the possibility of the collapse of the very economic system itself, political movements and growing sectors of the public are wondering what new plans and political proposals might be conceived. It is a very knotty question. Serge Latouche himself, when asked to comment, frequently emphasizes that *degrowth* is above all a *slogan*, and that there are no "ready-made political solutions."

In the opposite camp, that of economic orthodoxy, economists and policy makers, who are called upon more and more frequently to pronounce their diagnoses at the bedside of the sick global economy, continue to appeal in unison for the thaumaturgic gift of growth—an appeal to which their God seems increasingly deaf. Meanwhile, the various alternative movements are revealed to be structurally weak, fragmentary and, above all, lacking a shared imaginary.

This article intends first of all to offer a contribution to the analysis of the current multidimensional crisis and to help construct this shared view; at the same time, it reveals why orthodox economic prescriptions, of both neoclassical and Keynsian inspiration, cannot lead to a lasting solution to the crisis.

Growth, Accumulation and Innovation as a Self-increasing Emergent Process

Figure 1 shows Angus Maddison's data (2005; 2009) on economic growth over the very long term, from the 5th century AD to the year 2000. Although calculation of GDP prior to 1870 must be taken very cautiously, Maddison's computations reveal that the European economy was basically in a steady state (or in slight real degrowth) from the fall of the Roman Empire until the 10th century. This period was followed by slow, gradual growth until 1820—about 30 percent in eight centuries.

*mauro.bonaiuti@unibo.it

[1]The term "real degrowth" is used here to refer to "economic crisis," "recession," or "negative growth." On the other hand, according to the Paris Declaration, we can define "degrowth" as "a voluntary transition towards a just, participatory, and ecologically sustainable society." See http://www.degrowth.org/Paris-2008-Declaration.

ISSN 1045-5752 print/ISSN 1548-3290 online

http://dx.doi.org/10.1080/10455752.2011.648838

Routledge
Taylor & Francis Group

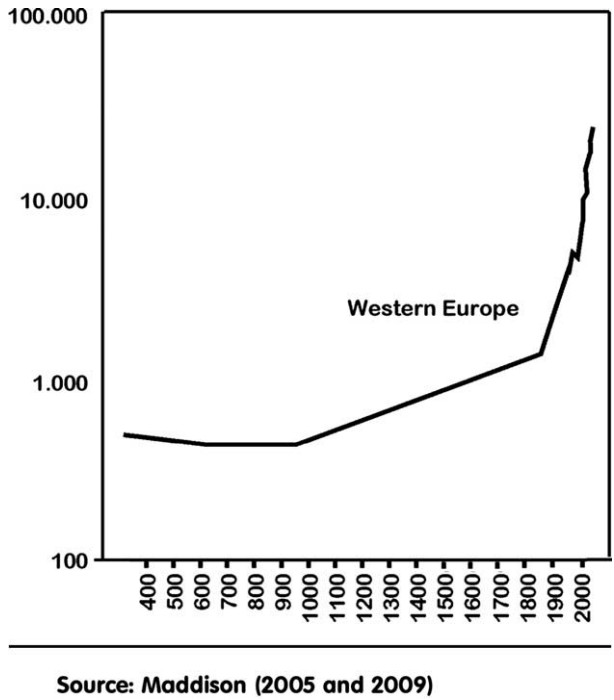

Figure 1. GDP Growth in the very long run (in 1990 International Dollars).

However, from the Industrial Revolution, the curve reveals a decidedly exponential trend, with a 50-fold increase in production in less than two centuries. More precisely, the European economy has grown 47 times between the start of the industrial process around 1820 and 2001. Economic growth during that time in Northern America increased 678 times in real terms and 53 times in the global economy. Population growth follows the same trend.[2]

The principle that part of the profit made by enterprises should be reinvested to increase their endowment of capital, which then becomes the basis on which to make new products and new profit, is the fundamental trait of the modern, capitalistic economy. However, very little attention has been paid to the nature of this relationship in cybernetic terms: this is a process of positive feedback. It is this dynamic, with its persistence throughout the extraordinary transformations that have taken place in these centuries, which explains the exponential economic growth that has characterized these economies since the Industrial Revolution. Such exponential

[2]Using Maddison's data (2005), population has increased 2.9 times in Europe in the same period (from 133 to 392 million inhabitants), 30.9 times in North America (from 11 to 340 million), and globally 6.1 times from 1 to 6.1 billion (six years later, global population is now at 7 billion). Despite the great increase in the population, income per capita has grown on average 1.2 times per year since 1820 and 24 times more quickly compared to the estimates between the period from 1000 to 1820 (Maddison 2005).

economic growth was unknown to all previous forms of economic and social organization.

Classical economists, especially Adam Smith, and Marx, understood very well that this circular, recursive process of increased profit, new investments, and new profits (in Marxian terms, the Money-Commodities-Money cycle) is the underlying singular logic of the modern capitalist economic system. By contrast, the neoclassical interpretation—despite the fact that it has devoted hundreds of pages to praising the (presumed) self-regulatory nature of markets—has said very little about the evolutionary nature of the process of accumulation; instead it holds a view of general equilibrium that is basically not supported by the historical record. Obviously growth cannot be denied, but in neoclassical models (*à la* Solow 1974), it is essentially attributed to increases in productivity—that is, to technological progress, which is considered to be exogenous.[3]

Nowadays the sciences of complexity permit us to interpret the relationship among growth, accumulation, and innovation in a radically different, far more promising light. First of all, innovation, as Schumpeter (1934; 1951) had already intuited, occurs in a process of "discontinuous change," transforming both the goods produced and the productive processes. In other words, growth implies the emergence of qualitative transformations that, as Georgescu-Roegen claimed, can hardly be implanted in the arithmomorphic shape of neoclassical theory. Furthermore, within this perspective, particularly in competitive situations, growth, accumulation, and innovation are part of the very same self-increasing process, where not only does technological progress sustain growth, but growth becomes the source of further innovations, precisely in a recursive, self-expanding spiral.

To put it very briefly, in following the sciences of complexity, we can state that the exponential trend of the growth curve reveals the presence of two fundamental processes:

1. A long-term positive (self-reinforcing) feedback among growth, accumulation, and innovation; and

2. The emergence of new structures/institutions connected to the multi-scale process of growth.

Karl Polanyi in *The Great Transformation* memorably describes the passage from an economic system based on agriculture to one based on industry. Polanyi

[3]More recent models on endogenous growth (Romer 1986) have tried to remedy this major drawback, taking into consideration the role human capital and knowledge play in explaining growth. However, these models also avoid considering the structural change that arises from the fact that neither human beings nor artefacts are "homogeneous substances" (in Georgescu-Roegen's sense), and their interaction, therefore, is frequently the cause of discontinuous changes and the emergence of new properties.

elucidates how some processes of structural change—from enclosures to the creation of a labor market—are necessary for the process of accumulation to begin. The simple fact that labor could be bought and sold like any other chattel—something practically unknown to any previous form of social organization—was not a chance occurrence. Making labor (and nature) a commodity, subject to the rules of the self-regulating market, involves such a deep social change that it set the stage for the emergence of not only another economy but also another society.

Baran and Sweezy (1968) astutely described a second phase of major structural change: the emergence of *monopolistic capitalism*. This phase of dynamic of growth was characterized by a profound change in productive structures—i.e., in enterprises. This process reached its first full maturity at the beginning of the 20th century, when the American economy reached a powerful concentration of production. Profiting from the economies-of-scale created by Fordist mass production, enterprises capable of making the most profit incorporated the weaker ones, which established the shift towards the *concentration of production* within a few large companies. This growth in size further strengthened their economies-of-scale, which resulted in further cost reduction and further increases in profit. In this way, too, a process of positive feedback was set in motion.

Later, as the trade union movement, particularly in Europe, gathered strength, the cost of labor rose, reducing profit (and savings). The gains for workers resulted in lower growth rates in the more advanced countries, inducing the enterprises to transfer significant parts of their production (outsourcing) to countries where labor costs were lower. In the process, the large transnational groups have given up their direct management of the productive process, though they have, at the same time, increased their control over financial activities, which has maintained their strategic advantage. This development has led financial organizations to play a leading role and increase their dominance over the real economy (Dore 2008). The emergence of this new economic structure enabled financial organizations to bypass the regulatory mechanisms instituted by national states.

This transformation of the economic and institutional structures has had significant consequences on both the theoretical level and socio-economic reality. On the theoretical level, these developments reveal the methodological approach of neoclassical economics as sheer fiction: based on assumptions of reversibility and methodological individualism, where the behavior of the whole can be traced back to the sum of individual behaviors, neoclassical economics has proved to be wholly inadequate in predicting or describing economic reality, which is characterized by the presence of long-term self-reinforcing feedback and emergent processes.

On the socio-economic plane, despite the extraordinary variety of historical, geographic, and political scenarios, these ''megamachines'' (multinationals, bureaucracies, systems of communication, of transport, of medical treatment, and so on),

using monopolistic control over resources (Amin 2002) or simply because of their very size, have been able to maintain or further increase their position of strength. Thus, they have become a permanent feature of the socio-economic systems of "mature" capitalism. Structural transformations, therefore, have accompanied these changes in scale so that these social organizations (e.g., multinational companies) represent today something very different than that which characterized the initial stages of the industrial revolution.

Following the "great transformation," the process of growth/accumulation/innovation assumed a central role in the dynamics of the world system. This has occurred because of the unquestionable strength and pervasiveness of growth and accumulation. But there is also another significant and self-destructive factor in all of this: the spiral of the ecological crisis and its connection to the various forms of social crisis, which are closely linked to growth.

Growth, Innovation, and the Ecological Crisis

The entry of new enterprises in competing markets, together with the natural exhaustion of the life cycle of products in mature sectors, leads to declining profit rates in the long run. This phenomenon, which Ricardo was already aware of at the beginning of the 19th century, constitutes the basic homoeostatic process at work in any competitive market economy. Ultimately this negative feedback would dampen economic growth, since it would cancel out the essential process of accumulation of capital. Therefore, if a society wishes to encourage continual economic growth lasting over several generations, it must find ways to render this opposing process ineffective. There are two basic ways that enterprises can ensure lasting extra profits. The first is to create a barrier to other firms entering the market, usually by exercising some type of monopolistic power. As we have seen, this is exactly what happened in America at the beginning of the 20th century (concentration processes) and later on in other capitalistic economies. The second is to gear their production towards continually renewed goods and new markets. The continual differentiation of products and the creation of truly new goods/services/markets (what is generally meant by the term *innovation*) represents the second basic process by which the productive system has avoided, for more than a century, decreasing marginal returns and a consequent drop in the profit rate.

However, this continual *racing ahead* does not escape the laws of thermodynamics: a new product is nothing but a "new" combination of matter/energy/information. Thus its production involves not only the irreversible degradation of a certain amount of energy, but also the "loss" of a certain amount of *available* matter, which, in actual fact, cannot be recycled at the end of the process. We can sum up the underlying causes of the ecological crisis in this dynamic.

This "bioeconomic criticism" is the first pillar of degrowth (Georgescu-Roegen 1971a, 1971b). Georgescu-Roegen was an eclectic, original author[4] who is credited with numerous seminal contributions in several fields of economic theory. However, his most original and significant contribution is his bioeconomic theory (Bonaiuti 2011). Based on a profound rethinking of the epistemological foundations of neoclassical economics, bioeconomics represents a new paradigm alongside both the *standard* and the Marxist approach.[5]

The empirical evidence accumulated over the last 30 years has confirmed Georgescu-Roegen's statements. As is well-known, Georgescu-Roegen particularly stressed the role that the exhaustion of fossil fuels would play. According to Colin Campbell, one of the world's leading depletion analysts (co-author of the 1998 *Scientific American* article, "The End of Cheap Oil"), data seem to confirm Georgescu-Roegen's predictions. Campbell maintains that the peak of production was reached in 2008, an occurrence that could also explain the surge in the price of crude oil that year to over US$140 a barrel (Hamilton 2009). Debate continues to rage as to the precise date of the overall peak, but it rather misses the point. What matters is the fact that the world has entered a long-term decline in cheap energy.[6]

Although it is not possible in this paper to provide an exhaustive survey of data about the ecological crisis (see Victor 2008), we can note that the process of accelerated growth that has taken place since the beginning of the industrial age must sooner or later come up against the biophysical limitations of the planet. To summarize, we can recall that the ecological footprint of the global economy—the area of the land and water ecosystems need to produce the resources and assimilate the waste products—exceeds the regenerative capacity by about 30 percent. European

[4]There are now quite a few studies on Georgescu-Roegen. Among the most significant, the monographs by M. Bonaiuti (2011, 2001); K. Mayumi (2001); G. Lozada and R. Beard (1999); K. Mayumi and J. Gowdy (1999); J.C. Dragan and M.C. Demetrescu (1986); The Contribution of Nicholas Georgescu-Roegen, the Special Issue of *Ecological Economics* 22 (3) 1997; the collection of essays published after the EABS conferences (Roma 1991; Palma de Mallorca 1994), as well as several articles that have appeared, in particular, in *Ecological Economics*.

[5]Georgescu-Roegen included in the notion of *standard* economics both the neoclassical theories and those deriving from Keynes—i.e., practically everything that constituted 20th century *mainstream* economic thought. The relationships between Georgescu-Roegen and Marx are more complex. Briefly we can say that Georgescu-Roegen appreciated Marx as a comprehensive social scientist and shared his idea of the evolutionary nature of the economic process. He further accepted his theory of capitalist accumulation, with its circular nature and consequent unfair distribution of wealth. Partly similar, but partly distinct, are their notions of dialectics, which Marx in his turn had derived from Hegel. Georgescu-Roegen definitely did not accept the Marxist doctrine of a revolutionary class, in the sense that he was well aware that the abolition of private property, and the replacement of one class with another in wielding power, would not solve the problem of the relationship between the rulers and the ruled. (Cf. the Paragraph *The evolution of Bioeconomics*, and the essay, *Inequality, Limits and Growth* (Bonaiuti, 2011). Above all, Georgescu-Roegen rejects the emancipatory vision of growth and progress found in Marx and Marxism.

[6]According to ASPO researchers following fifteen different models (Bakhtiari, Smith, Staniford, Loglets, Shock model, GBM, ASPO, Robelius Low/High, HSM, Duncan & Youngquist), 95 percent of the predictions see a production peak between 2008 and 2010 at 77.5-85.0 million barrels per day. See http://www.theoildrum.com.

values are three times greater than the average regenerative capacity, and American about five times. This means that if the American lifestyle were to be extended worldwide, we would need roughly five planets to sustain it (Chambers, Simmons, and Wackernagel 2000).

Needless to say, other more specific indices, such as matter/energy flows and the human appropriation of net primary production (HANPP), must accompany the aggregate indicators as far as more specific or local items are concerned. On the borders between ecological economics and political ecology, the continual growth of production and consumption involves an increase in the flows of matter and energy usually from the poorest countries, generating social conflicts in the lands where such resources are exploited. This "environmentalism of the poor," analyzed in particular by Joan Martínez-Alier's school, represents an important process, both because it significantly impacts the culture of the local populations and because the prices of many resources essential to the world productive system are tied to the outcome of these conflicts (Martínez-Alier 2002). The increase in the costs of the resources can play an important role in conditioning long-term scenarios.

Social Limits to Growth

The analysis of the consequences of economic growth on social systems (what we might call social sustainability) is certainly more complex and controversial than that concerning ecosystems. We must admit that our understanding of the dynamics of social systems is still extremely limited. Yet, if we do not intend to renounce an attempt to analyze future scenarios, the questions that arise concerning this level of complexity are, in many respects, unavoidable. Considered as a whole, the analysis of the social limits to growth represents a second pillar of degrowth.

Inequality and the Criticism of Development

Very generally speaking, we could say that until today the problem of social sustainability has basically been faced in terms of equity (Sachs and Tilman 2007). The widely shared belief is that greater inequality is considered to be a cause of conflict, social instability, and loss of well-being (Wilkinson and Pickett 2009).

The first question underlying this dynamic is whether growth and development may be considered, as the neoclassical theory of convergence maintains, the bearers of a more equitable distribution of wealth among different countries, or rather its contrary. At first glance, the empirical evidence in this regard reveals contradictory results. On the one hand, from the end of the Second World War, European countries (and Japan) have had close to the income levels of the U.S.A., and some other Asian countries have recently followed this experience. On the other hand, some poor countries, particularly in sub-Saharan Africa, have remained unaffected or even seen, at least in relative terms, a drop in their income rates (Piketty 1997). It is

enough to recall that the annual income of the richest 1 percent of the people on earth is more than the annual income of 57 percent of the world's poorest populations. The difference in incomes between the richest 20 percent and the poorest 20 percent increased from a ratio of 30:1 in 1960 to 74:1 in 1997 (UNDP 1997, 2002).

According to the orthodox approach, poverty and exclusion are explained as the effect of the delay (underdevelopment) of some countries to undertake the process of growth and development, which is seen as basically progressive and universal.

On the contrary, what characterizes the "criticism of development"—a thread of thought, presented by Ivan Illich (1973), F. Partant (1982), G. Rist (1996), and S. Latouche (2004) that lies at the heart of the prospect of degrowth—is its overturning of the former interpretation of the phenomenon of poverty and exclusion. According to "critics of development," on the basis of evidence of a prevalently historical-social and anthropological nature, the main factor responsible for poverty and exclusion must be sought precisely where it was claimed the solution was to be found—that is, in the process of growth and development. In our opinion, this paradox is consonant with a systemic approach for two reasons. On the one hand, as we have seen, the process of growth and accumulation has a self-increasing nature. Given the competitive framework of international markets, it follows that those areas that have not succeeded in keeping pace with innovations and technological progress find themselves facing a technological gap that is increasingly difficult to bridge. In the more advanced countries, the process of growth has led to a series of cumulative transformations in the productive, educational and financial systems, whose complexity is far beyond the reach of the poorest economies.[7] On the other hand, a systemic perspective emphasizes that "positive" results (such as the improvement in the life standards of the Western middle-to-upper classes) and negative ones (such as poverty and exclusion in the poorest areas) are, according to Latouche and the other "critics," seen as the offspring of related processes, where different actors/territories reach different results (starting from different initial conditions). They are not seen as different "stages" in the same convergent process.

This does not mean that the principle of "declining marginal returns" (that is basic to the theory of convergence) is incompatible with complex system theory (Tainter 1988).[8] It seems, rather, that it is the disparities in the initial conditions of the different countries (in the cultural, institutional, educational, financial structures,

[7]At the same time, the advanced countries are capable of controlling the strategic markets in which these structures operate, in conditions that are far from perfect competition. This has increased the inequality of the exchange (Amin, 2002).

[8]On the contrary, it seems to be valid in both the short and the very long terms. In general, in fact, it is reasonable to hypothesize that the simplest and safest investment projects, hence of high expected returns, will be tackled first, followed at a later stage by those that are more complex and risky, hence of low expected returns. In the very long run it can be explained also by the limitation of "natural capital." This fundamental point requires further extensive research.

etc.) together with temporary cumulative processes (positive feedback) that explain the extraordinary diversity of the results reached by different countries. In point of fact, although they use different analytical tools, even the theory of endogenous growth recognizes that—in the presence of increasing returns—growth may favor those territories/countries that are already more advantaged (Romer 1986).

However, a complex approach cannot fail to recognize that alongside this self-reinforcing dynamic, we also have to consider processes of a self-correcting nature. On a national scale, we have to take account of the process of the redistribution of wages (often connected to the efficacy of trade-union struggles) and, to a lesser extent, the spread of welfare-state services. On the international level, we have to consider the re-equilibrating effects of foreign investments. And, finally, in peripheral areas, we must acknowledge the processes of imitation and learning. On the whole, while inequalities in income were gradually reduced in Western countries from the beginning of the 20th century to the 1970s, the chronic weakness of foreign investments, together with the lack of welfare institutes on an international level, explain why the inequalities on a global level are far more acute than they are within single countries. The opening of national economies to globalization from the 1980s may thus explain why the "magnificent and progressive destinies" associated with Kuznet's U curve have gradually been disregarded: greater competitiveness has indeed had the effect that the great inequalities on an international level have now flowed into the "advanced" national economies, lowering salaries and standards of living (Piketty and Saez 2003).

In conclusion, as John Maynard Keynes warned, Keynesian policies are not sustainable recipes in the very long run. Nowadays in particular, the cumulated public debt and the declining marginal returns shown by Western economies make deficit spending policy an option that is only feasible in the short run.

Growth and the Dissolution of Social Ties

If the problem of social unsustainability finds its first basic anchorage in the question of poverty and exclusion, contemporary socio-anthropological analysis makes clear that it is not possible to restrict oneself solely to the question of *equity*. Marx himself, in his illuminating description of the *fetishism of commodities*, already understood very well that a particular structure of social relationships was hidden behind the exchange of goods.

Continuing this interpretation, but enriched by the seminal acquisitions of early 20th-century anthropology on "primitive," and more generally pre-industrial, societies (Mauss 1990, 1st ed. [1922]) the trend of thought that goes "from Mauss to MAUSS," passing through the fundamental contribution of Karl Polanyi (1944), permits us to place the Marxian lesson within a far more extensive socio-anthropological background and, above all, to set out, alongside inequality, what we might consider a long-term fundamental social dynamic. This dynamic is related

to the processes by which human beings organize themselves into societies and hence to the making and unmaking of social ties.

For Karl Polanyi, the capitalist process—the great transformation that accompanied the industrial revolution—implies a dual process of commodification: factors of production, human beings, and nature must be reduced to commodities. It is the ''mega-machine'' that demands this: a continuous supply of work and natural resources is essential if the productive process is to be carried out regularly and, above all, for huge sources of invested capital to find adequate, relatively safe returns. Thus, in the 18th and 19th centuries, the conditions were created for the exploitation of natural resources and labor markets.

This process resembles a social metamorphosis—in systemic terms, the *emergence* of a new form of social organization—rather than a gradual process of natural development. Polanyi himself stressed this point: never before, in earlier economic-social organizations, had labor been bought and sold as it was in England at the beginning of the 19th century. A series of institutional mechanisms comprising rules strongly enforced by laws and customs had previously acted as *negative feedback* systems, preventing labor, with all the importance of social and symbolic relationships it involved, from being bought and sold in the market. This process of reorganization meant that the reciprocal relationships on which traditional socio-economic systems were based were disbanded and replaced by the exchange of goods. To use the words of the great economist, the economy advances on the desertification of society.

According to Polanyi, this great transformation involved the emergence not only of a new type of economy but also of a new type of society. In the first phase it required the disbandment of the rules and relationships that characterized the previous type of social organization and of the homoeostatic processes that ensured its stability. This was accompanied by the rise of an almost autonomous sphere of economic relationships, together with a successive increase in the complexity of this sphere (specialization of labor, etc.), which ended up by dominating and shaping them.

It is important to understand, as the process of transformation gradually reached full maturity and the market economy spread throughout new countries and towards new societies, how this process involved a progressive dissolution of social ties.

As has been shown by the pioneering work of Marcel Mauss (1990) and by the studies of the *Mouvement anti-utilitariste dans les sciences sociales* (MAUSS) that he inspired (in particular by Caillé, Godbout, and Latouche), what characterizes traditional societies is the threefold obligation of giving, receiving, and reciprocating (Godbout and Caillé 1998). In other words, it is through the multiplication of giving and taking that social ties are maintained and strengthened.

In contrast, what characterizes market relations is their *impersonal* nature. Market relationships are based on what economists call an ''exchange of equivalents.'' The equivalence of what is exchanged makes it possible for market relationships to cease at the same time as the exchange takes place without any personal ties being formed as a result. As Milton Friedman, the Chicago school ideologist of neoliberalism, cleverly said: ''In the great global market it is not necessary to know, let alone to sympathize with, one another.'' This fundamental characteristic of the market offers significant advantages. First of all, it has permitted an extraordinary multiplication of the number and types of goods exchanged: it has been calculated that in New York City the consumer can choose among a hundred thousand million different types of goods. Together with the break-up of traditional social ties, for many people this has meant an increase in personal freedom. However, what is not normally mentioned is that there is another side to the coin: the spread of market relations is accompanied by a progressive dissolution of social ties.

This process escalated from the early 1980s along with neoliberalism and the globalization of the markets, as many sociological studies have recognized. In Bauman's interpretation (2005; 2007), the disintegration of social ties today can be seen in the form of social *liquidity*. It is not merely by chance that modern, liquid society is ''a consumer society''—that is, a society in which all things, goods, and people are treated as consumer objects, hence as objects that very quickly lose their usefulness, appeal, and finally, their value. Liquid society is thus a mobile, transient, precarious society where anything of worth soon changes into its contrary—human beings and their relationships included. All in all, as Bauman describes, the disintegration of social ties reaches levels in modern society that were hitherto unknown.

That said, there are compensatory dynamics (negative feedbacks) operating in modern, liquid societies alongside this fundamental, long-term process. Even liquid societies present new forms of socialization, but in this case, too, we believe that the ''primary'' process, which is linked to the all-pervasive nature of the market, is moving towards greater social instability.

The process we have described permits us to formulate a few hypotheses about the relationship that it has with other social processes that are of some significance to us.

First of all, the process of the progressive dissolution of social ties may be seen as a common framework for different kinds of social malaise. A loss of satisfying human relationships, a loss of security (Beck 1988; 2009), precarious conditions of life and work, and problems connected to migration and drug abuse are just a few examples of problems that social scientists split into different categories but which can be tied to the same historical process.

The dynamic of the progressive dissolution of social relationships may in its turn:

1. lead to the spread of individualistic behaviors and hence to positional competition;

2. be significantly responsible for the loss of well-being that contemporary societies show;

3. lead to a loss of resilience of social organization when faced with external stress (such as economic or ecological crises); and

4. offer us a clue to comprehending why contemporary societies seem to show very little reaction when confronted with the multidimensional crisis we are facing.[9]

The first two points deserve a few specific considerations.

The Systemic Dynamic of Positional Competition

In the mid-1970s, in an innovative text that was far ahead of its time, Fred Hirsch (1976) explicitly posed the following question: Aside from ecological limits (which he considered ''uncertain and in the distant future''), Hirsch asked whether there are *social limits to growth*. Hirsch intuits that the structure of individuals' preferences undergoes qualitative transformations when the average yields grow. This is highly interesting from our point of view, since it foresees the emergence of new types of behavior connected to the scale of the process. Observing consumers' behavior reveals how, along with the growth in the scale of consumption, an increasing amount of a family's expenses shifts from the consumption of ''basic goods'' (i.e., those that are needed to live, eat, clothe themselves, and so on) to the consumption of *positional goods*. ''Pure'' positional goods are characterized by the fact that the well-being they procure is not tied to their ''use value,'' as in the case of food, but to their relative scarcity. In other words, what motivates the acquisition of positional goods is the difference between what each individual possesses and what others possess. All those goods or services rightly called ''status symbols'' (which can be objects of prestige, exclusive services, but also professional roles of leadership, etc.) are examples of positional goods. Education can also be a positional good if it is

[9]This type of explanation, which undoubtedly requires further research, must be considered complementary to the traditional explanation based on the material conditions of the population. Certainly, in a rough comparison with the crisis in the 1930s, the conditions of the lower class in Western countries—while having significantly worsened in relative terms during the last 30 years—are still much better if compared to those in the first decades of the 20th century. This does not mean that the dissolution of social ties, together with the transformations in the social imaginary, does not play an important role in explaining the diminished social reactions to the present crisis.

considered solely as a means of obtaining a coveted job: as the number of graduates increases, so the benefit of having a university degree decreases. Naturally, there is an enormous variety of minor differences. And each type of goods may offer, along with the value connected to the relationship with the object itself (for example, the convenience of travelling by car), a varied positional connotation (e.g., the well-being tied to the fact of owning a more prestigious, faster car than others).

The systemic nature of positional interaction must be borne in mind: while we can ignore the interaction with other individuals as far as basic goods are concerned (for example, the pleasure we get from drinking a glass of water can quite reasonably be considered to be independent of what others do), the well-being associated with the consumption of positional goods depends on the behavior of others. In this case, too, as the scale increases, discontinuous effects appear. Once a certain threshold has been crossed, individuals become "sensitive" to interactions with their "neighbors." This can be seen, for instance, in the case of physical congestion (a traffic jam), but also when the number of people sharing a certain social area (a street, a beach, a club) increases along with growing consumption. When the number of people who own that object or frequent that place crosses a certain threshold, individual well-being quickly diminishes, prompting individuals and groups to move towards other objects, places, or symbols. Thus however impossible it may be to measure exactly the effects on aggregate well-being, positional competitiveness is usually found to be a zero sum game.

We are not interested in analyzing individual behaviors, but rather recognizing, behind the dynamics of positional competition, whether an aggregate effect—with long-term self-increasing consequences—emerges. According to Hirsch's reasoning, economic growth increases positional congestion/competition. However, we might also argue that positional competition fuels growth. It is possible here to discern a dynamic that is in many respects complementary to that enacted by enterprises through continual *innovation*. The desire to own "unique" objects (even when millions of the same type are produced) often manifests in chasing after the "latest model" or following the latest trend in fashion. Marketing experts, through the loudspeakers of the media, are both interpreters and modellers of these desires, which serve to continually stimulate the production of new objects and symbols that reinforce economic growth. In this way the self-increasing loop is closed, with the important aggravation that, unlike the consumption of basic goods, the demand for positional goods is, in its very nature, essentially unlimited.

At this point, some historical and anthropological questions arise concerning the establishment, evolution, and extension of positional consumption in each society. These questions require further clarification of the tie that exists between consumption patterns and social and economic hierarchies (Dumont 1970, 1986) and await more research. Nevertheless, we can outline enough points to reach a few initial conclusions.

The need for *distinction* seems to be deeply rooted in human beings and is found in highly different cultures (Bourdieu 1984), even the most archaic and simplest.

Therefore, the need for distinction as such, cannot be judged to be negative. We must, then, see the specificity that characterizes positional consumption in today's industrial societies. Since ancient times, positional consumption has always been connected to a social *status* that usually had its roots outside the economic sphere. Needless to say, things changed with the advent of the market society and mass consumption. Once again we find at the root a problem sensitive to scale. It is obvious that it is only after the advent of the market economy—in particular with the structural transformation known as "consumerism"—that a significant part of consumption becomes *mass* positional consumption.

It is on this scale that the circular relationship between growth and positional consumption becomes, ecologically speaking, unsustainable. As noted above, about 20 percent of the world population consumes 82.7 percent of world production, while the intermediate 60 percent of the world population consume only 15.9 percent of global production. A very significant percentage has so far been excluded from positional competition but is knocking at the door and wants to take part in the game. Considering that at present rates of consumption, the ecological footprint already exceeds the regenerative capacity of the planet by 30 percent, we don't need sophisticated calculations to conclude that it is impossible to extend the lifestyle of the richest 20 percent to the "intermediate 60 percent," let alone the remaining 20 percent that currently live on just 1.4 percent of global production. Thus, contrary to what Hirsch maintained, we have shown that on a global scale, *there is a close relationship between the social and the ecological crises*: the dissolution of social ties, through the spread of positional competition, fuels the ecological crisis.

These considerations permit us to conclude that neoclassical recipes/imaginary, founded on free trade and above all on the extension of the assumption of self-interest and non-satiety for the "intermediate 60 percent," represent a catastrophic option as a global policy for the 21st century.

Furthermore, the continual entry of new players into the cycle of positional competitiveness gives rise to the systematic frustration of individuals' expectations, which are reflected in a loss of well-being. These considerations lead us to the following point.

The Paradox of Happiness

Despite an increase—even a substantial one—in income *per capita*, subjective well-being either has not grown or has diminished. More precisely, the index diminished in the U.S.A. from 2.4 to 2.2 between 1946 and 1991, while *per capita* income increased 250 percent over the same period. Even more striking results occurred in Japan, where from 1958 to 1991 *per capita* income rose 600 percent, but the number of people who said they were "very happy" remained essentially unchanged. None of the ten most advanced countries present a positive correlation

between income *per capita* and the index of subjective well-being, while two of them, the U.S.A and Belgium, show a significantly negative correlation (Kenny 1999; Diener and Suh 1997; Diener, Lucas, and Napa Scollon 2006).

Standard economic theory seems unable to encompass this paradox, which a complex approach may easily explain. When the economic process was in its initial stages of development, the pressure on ecosystems was low, consumption consisted mostly of basic (private) goods, and positional interaction was on the whole weak, the general assumption held that growth in income meant higher subjective well-being. Yet when a certain scale threshold is crossed and the system enters a scenario where growth of the economy and the population pressure on ecosystems reduce their ability to support life and economic activities, the dissolution of social ties advances and positional competition becomes more intense. In this situation it is not surprising that further growth is associated with lesser subjective well-being. Nor is it surprising that significant modifications in ecological, economic, and social structures (the funds, in Georgescu-Roegen's sense) may produce irreversible changes in the ecological, economic, and social flows/services and hence in the *enjoyment of life* (or *bien vivir*) of a certain social organization.

From a systemic point of view, despite the fact that research in this perspective is just beginning, we already see that the standard theory is inadequate to deal with this issue in at least two respects:

a) Enjoyment of life depends on a complex adaptation dynamic (*hedonic treadmill*), and not on the absolute quantities of goods consumed (Kahneman and Tversky, 2000; Diener, Lucas, and Napa Scollon 2006);

b) Standard theory does not take into account that the enjoyment of life is the outcome of a complex interaction among the transformations in the structure of the representations (or preferences/values) and the changes in the flows of goods and services, of an economic, ecological, and social nature.

Unlike what is assumed by standard theory, the system of preferences, or more precisely the system of representations/imaginary, must be considered fluid over the course of time. This needs much more study (particularly by economists), since it plays a crucial role in the sustainability game.

The Imaginary between Post-modern Fragmentation and Mediatic Colonization

What characterizes biological and social systems and distinguishes them from physical systems is their capacity to form ''representations'' of the universe in which they live. What characterizes human socio-cultural organizations is their ability to

negotiate such representations, giving rise to *shared representations* (Lane, Pumain, van der Leeuw, and West 2009). In other words, *the formation of a shared imaginary is the premise necessary for any common action.* However, Lyotard (1979) maintains that with the end of great narratives and the advent of *post-modern* society, any possibility of shared meaning has been lost. As long as religious tradition (Christianity in the Western world) and, above all, Marxism, offered a common horizon of meaning, with heroes and myths people could identify with, it was not difficult for people to take up a standpoint and see a sense in what they did. Since the 1970s, the sense of shared meaning has disappeared, or somehow lost its influence on the social imaginary.

The post-modern imaginary is polymorphic and fragmented; quotations replace the great narratives, and the multiplicity of codes and forms substitutes the universalism that characterized the great emancipatory project of modernity. However much the post-modern condition is characterized by an undeniable freedom and variety of expression, it simultaneously camouflages the deeper reasons for fragmentation and dependence (Mattelart 2000, 2003).

We hypothesize that the fragmentation of the imaginary is connected to the dissolution of the social ties that characterizes the passage from traditional society to that of the market. In other words, it is feasible that the dissolution of the traditional social ties and the symbolic mechanism they possess constitutes the indispensable ground for the progress of modernity and its symbols. Furthermore, as David Harvey (1990) emphasized, it is necessary to clarify that *the post-modern condition* does not appear to be a break with modernity but rather an ''internal revolution'' within modernity itself that thus ends up by accentuating its deepest and most characteristic traits. What marks common experience in all modernity if not uncertainty and fragmentation, transience and a sense of chaotic change? In the words of one of its greatest exponents, ''being modern means finding ourselves in an environment that promises adventure, power, joy, growth and the transformation of ourselves and the world, and yet at the same time threatens to destroy everything we have'' (Berman 1981). The passage to post-modernity has only accentuated this tendency.

We have here, at least in neo-Marxist interpretations, a close tie between the common experience of being modern and the transformations in the underlying economic and social structures. Marx did not just happen to underline how a fundamental trait of capitalist economy was its condemnation to ceaseless innovation. Harvey goes even further than this, clearly showing how the transformation that marks the post-modern imaginary is linked to the transition from the Fordist socio-economic organization to the post-Fordist one. It is a foregone conclusion that post-Fordism, like Fordism, does not simply mean for Harvey a system of labor organization but a new system of economic and social organization where public institutions and civilian society adapt to the changed conditions proper to ''flexible accumulation.'' The disappearance of the large factory, the financialization of economic processes, enforced flexibility on the labor market

(part-time, temporary or subcontract work), the central role assumed by services (e.g., for marketing, insurance, landed property, informatics), the extraordinary differentiation among products, and the acceleration in the rotation of consumer goods are inseparable from the specific way of thinking, feeling, and living in what we call post-modern society.

If anything, the most surprising fact is the total acceptance of the liquidity and fragmentation that characterizes post-modernism, its ''floating and splashing about in the chaotic currents of change as if there were nothing else.'' We should not, therefore, be surprised that what characterizes, for example, post-modern architecture is its ''deliberate superficiality,'' a judgement that easily applies to many other fields, in particular to fashion, entertainment, and the industry of cultural events (Jameson 1984, 1990, 1991).

Hence, the fragmentation of the imaginary is (recursively) linked to the multiplication of the artefacts characterizing consumer society. We must realize that the objects we surround ourselves with, thanks to the time we spend *with* them, and *for* them, become for each of us a source of meaning and identity, however restricted and fragmentary. There is no doubt that enterprises employ many resources in order to feed this process. The budget relative to marketing and publicity is inferior only to that of military expenses, and, as experts in this field are well aware, the might of the media system is such that the efficacy of a ''campaign'' is never questioned. Contrary to what many post-modernist intellectuals claim, the capacity of the media system to colonize the imaginary is boundless (Brune 2005). Must all this, therefore, lead us to the conclusion that there is no shared imaginary in a liquid society? As Serge Latouche warns us (2006; 2009), this would be a thoughtless mistake.

Today, in the society without a great narrative, the consumer imaginary is the *only* shared imaginary. We can understand this apparent paradox if we see that the lack of sense and the dissolution of great narratives is precisely the ground the spread of the dominant imaginary is based on.

Of course, some compensatory processes are possible, as some scholars of complex systems also remind us, attributing new functions to the artefacts that issue from the capitalist cornucopia.[10] It is possible, for instance, using information technology originally planned for military purposes to promote the formation of social or solidarity networks. There are also examples of advertising being used against advertising (e.g., *Adbusters*, *Casseur de Pub*). Yet, these reactions have not been able to counteract the power of the processes of fragmentation and colonization.

There can be no doubt that *homo consumens* has a seemingly unlimited freedom of choice at his disposal, yet the consumer-citizen can make his choices only within predefined *frames* (Goffmann 1974; Lakoff 2008) and cannot determine *ex ante* the

[10]D. Lane, et al. (2009) speak in this regard of *exaptive bootstrapping*, Ch. 1.

set of things from which to choose (Bauman 2007). Technology undoubtedly is to be found within this set. This means that decisions relating to "how" and "what" to produce in a certain area and under what social and ecological conditions are out of the control of communities, territories, and even states. Thus the market system promises freedom (on a micro scale) but creates dependence (on a larger scale).

The question of the imaginary is clearly closely linked to that of *autonomy* (Castoriadis 1987), and autonomy to that of *scale*.[11] Unfortunately, very little attention has been paid, within both the mainstream and Marxist traditions, to the fact that dependence and autonomy are closely linked to the scale of the processes: basically, no autonomy and no chance of any real participation and self-determination are possible in the long chains of the global economy.

Towards a Degrowth Perspective

In the conflict between economic growth and autonomy, humankind has chosen growth. This has been the history of Western modern civilization, and it has not been the choice of merely a few people in power, whose self-interests drove them in this direction. It has also been the choice, although frequently not explicit, widely shared by enterprises, states, bureaucracies, trade unions, and common people themselves, which has shaped the dominant imaginary that Latouche speaks of.

Although it is far beyond the aim of this essay to elaborate future scenarios, it is reasonable to imagine that in the face of increased resource costs (peak oil, climate change, social conflicts, etc.) and the approaching framework of *declining marginal returns* in many crucial organizations (Tainter 1988; Wallerstein 2009; Beinstein 2009), the capitalist system likely will not be able to relaunch another long-term phase of growth and global expansion.[12] In this critical context, it is important to understand that the institutions that have been perfectly well suited to the context of long-term growth will find themselves having to face an increasingly difficult situation. More precisely, if the economic structure based on competitiveness and large-scale economic processes (multinational companies, global institutions based on free trade, etc.) has proved to work "very well" in an expanding economic context—whose dominant, shared aim was the growth of material production—when the framework changes, as the sciences of complexity teach us, there will be other forms of economic and social organization more suited to the new situation.

[11]Autonomy is essentially taken to mean making one's own laws (both on institutional and economic levels), self-determination and explicit self-establishment. Ivan Illich (1973), who had a significant role in Latouche's thought, as in many other degrowth thinkers, preferred the term *conviviality*, but the basic idea is the same: a convivial society is one that maintains control over its own tools, in other words, one that decides how and what to produce without delegating decisions to experts or representatives.

[12]To consider these points, even briefly, would initiate a very lengthy debate that goes far beyond the scope of the present work.

References

Amin, S. 2002. *Au-delà du capitalisme sénile*. Paris: PUF.

Baran, P.A. and P.M. Sweezy. 1968. *Monopoly capital*. New York: Monthly Review Press.

Bauman, Z. 2005. *Liquid life*. Cambridge: Polity Press.

———. 2007. *Consuming life*. Cambridge: Polity Press.

Beck, U. 1988. *Risk society: Towards a new modernity*. London: Sage.

———. 2009. *World at risk*. Cambridge: Polity Press.

Beinstein, J. 2009. *El largo crepúscolo del capitalismo*. Buenos Aires: Cartago Ediciones.

Berman, M. 1981. *All that is solid melts in the air: The experience of modernity*. New York: Simon & Schuster.

Bonaiuti, M. 2001. *La teoria bioeconomica: La nuova economia di N. Georgescu-Roegen*. Roma: Carocci.

———, ed. 2011. *From bioeconomics to degrowth: Georgescu-Roegen "new economics" in eight essays*. London and New York: Routledge.

Bourdieu, P. 1984. *Distinction: A social critique of the judgement of taste*. Cambridge, MA: Harvard Univ. Press.

Brune, F. 2005. *De l'idéologie, Aujourd'hui*. Lyon: Parangon.

Campbell, C. and J.H. Laherrère. 1998. The end of cheap oil. *Scientific American* 278 (3): 78–83.

Castoriadis, C. 1987. *The imaginary institution of society*. Cambridge: Polity Press.

Chambers, N., C. Simmons, and M. Wackernagel. 2000. *Sharing nature's interest*. London: Earthscan Publications.

Diener, E. and R. Biswas-Diener. 2002. Will money increase subjective well-being? *Social Indicator Research* 57 (2): 119–169.

Diener, E. and E.M. Suh. 1997. Measuring quality of life: Economic, social and subjective indicators. *Social Indicators Research* 40: 187–216.

Diener, E., R.E. Lucas, and C. Napa Scollon. 2006. Beyond the hedonic treadmill: Revising the adaptation theory of well-being. *American Psychologist* 61: 305–314.

Dore, R. 2008. Financialization of the global economy. *Oxford Journals, Industrial and Corporate Change* 17 (6): 1097–1112.

Dragan, J.C. and M.C. Demetrescu. 1986. *Entropy and bioeconomics: The new paradigm of Nicholas Georgescu-Roegen*. Milano: Nagard.

Dumont, L. 1970. *Homo hierarchicus: The caste system and its implications*. Chicago: Univ. of Chicago Press.

———. 1986. *Essays on individualism*. Chicago: Univ. of Chicago Press.

Georgescu-Roegen, N. 1971a. The Entropy Law and the Economic Problem. *From bioeconomics to degrowth*, ed. M. Bonaiuti. London and New York: Routledge.

———. 1971b. *The entropy law and the economic process*, Cambridge: Harvard Univ. Press.

Godbout, J.T. and A. Caillé. 1998. *The world of the gift*. Montréal: McGill-Queen's Univ. Press.

Goffmann, E. 1974. *Frame analysis: An essay on the organization of experience*. New York: Harper & Row.

Hamilton, J.D. 2009. *Causes and consequences of the oil shock 2007–2008*. Univ. of California at San Diego, Department of Economics. http://www.brookings.edu/economics/bpea/bpea.aspx.

Harvey, D. 1990. *The condition of post-modernity*. New York: Blackwell.

Hirsch, F. 1976. *Social limits to growth*. London: Routledge.

Illich, I. 1973. *Tools for conviviality*. New York: Harper & Row.

Jameson, F. 1984. The politics of theory: Ideological positions in the postmodernism. *New German Critique* 33: 53–65.

———. 1990. Cognitive mapping. In *Marxism and the interpretation of culture*, C. Nelson and L. Grossberg, eds. 347–360. Chicago: Univ. of Illinois Press.
———. 1991. *Postmodernism: Or, the cultural logic of late capitalism*. Durham, NC: Duke Univ. Press.
Kahneman, D. and A. Tversky. 2000. *Choices, values and frames*. Cambridge: Cambridge Univ. Press.
Kenny, C. 1999. Does growth cause happiness, or does happiness cause growth? *Kyklos* 52 (1): 3–25.
Lakoff, G. 2008. *The political mind*. New York: Viking Penguin.
Lane, D. 2006. Hierarchy, complexity, society. In *Hierarchy in natural and social sciences*, ed. D. Pumain, 81–119. Dordrecht: Springer.
Lane, D., D. Pumain, S. van der Leeuw, and G. West, eds. 2009. *Complexity perspectives in innovation and social change*. Berlin: Springer-Verlag.
Latouche, S. 2004. *Survivre au développement*. Paris: Fayard.
———. 2006. *Le pari de la décroissance*. Paris: Fayard.
———. 2009. *Farewell to Growth*, New York: John Wiley & Sons.
Lozada, G.A. and T.R. Beard. 1999. *Economics, entropy and the environment: The extraordinary economics of N. Georgescu-Roegen*. Cheltenham: Edward Elgar Publishing.
Lyotard, J.F. 1979. *La condition postmoderne: Rapport sur le savoir*. Paris: Minuit.
Maddison, A. 2005. *Growth and interaction in the world economy*. Washington D.C: AEI Press.
———. 2009. *Statistics on world population, GDP and per capita GDP*. Maddison Project, at www.ggdc.net/maddison.
Martínez-Alier, J. 2002. *The Environmentalism of the poor*. Cheltenham: Edward Elgar Publishing.
Mattelart, A. 2000. *Histoire de l'utopie planétaire: De la cité prophétique a la société globale*. Paris: La Découverte.
———. 2003. The information society: An introduction. London: Sage Publications.
Mauss, M. 1990. *The gift: Forms and functions of exchange in archaic societies*. London: Routledge.
Mayumi, K. 2001. *The origins of ecological economics: The bioeconomics of Georgescu-Roegen*. London: Routledge.
Mayumi, K. and J.M. Gowdy. 1999. Introduction: Theory and reality—The life, work and thoughts of Nicholas Georgescu-Roegen. In *Bioeconomics and sustainability: Essays in honor of Nicholas Georgescu-Roegen*, eds. J. Gowdy & K. Mayumi. Cheltenham: Edward Elgar Publishing.
Partant, F. 1982. *La fin du développement*. Paris: La Découverte.
Piketty, T. 1997. *Economie des inégalités*. Paris: Ed. la Découverte.
Piketty, T. and E. Sáez. 2003. Income inequality in the United States, 1913–1998. *Quarterly Journal of Economics* 118 (1): 1–39.
Polanyi, K. 1944. *The great transformation: The political and economic origins of our time*. New York: Holt, Rinehart & Winston Inc.
Rist, G. 1996. *Le développement : Histoire d' une croyance occidentale*. Paris: Presses de la Fondation National des Sciences Politique.
Romer, P.M. 1986. Increasing returns and long run growth. *Journal of Political Economy* 94 (5): 1002–1037.
Sachs, W. and S. Tilman. 2007. *Fair future: Resource conflicts, security, and global justice*. London: Zed Books.
Schumpeter, J.A. 1934. *The theory of economic development*. Cambridge, MA: Harvard Univ. Press.
———. 1951. *Ten great economists from Marx to Keynes*. New York: Oxford Univ. Press.
Solow, R.M. 1974. Intergenerational equity and exhaustible resources. *Review of Economic Studies* 45 (2): 347–352.

Tainter, J. 1988. *The collapse of complex societies*. Cambridge: Cambridge Univ. Press.
UNDP. 1997. Human Development Report. New York and Oxford: Oxford University Press.
———. 2002. Human Development Report. Deepening democracy in a fragmented world. http://hdr.undp.org/en/reports/global/hdr2002/.
Victor, P.A. 2008. *Managing without growth: Slower by design not disaster*. Cheltenham, U.K. and Northampton, MA: Edward Elgar.
Wallerstein, I. 2009. Capitalism's demise. *The Asia-Pacific Journal: Japan Focus* 2: 4.
Wilkinson, R. and K. Pickett. 2009. *The spirit level: Why more equal societies almost always do better*. London: Allen Lane.