
1. To grow or not to grow? Entrepreneurship and sustainable development*

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GROWTH OR SUSTAINABLE DEVELOPMENT

Growth and its connection with the success of the economy and welfare have been taken for granted throughout the history of industrialization. The main question has been how to grow (e.g. Thurik and Wenekers, 1999). In the modern era this dialogue has taken place between large firms and society. In science this story can be identified in the dialogue between economics and sociology. The role of economics has been to ensure continuous growth in the private sector. Sociology on its own behalf has represented society and has focused on looking after either the side-effects produced by continuous growth or the infrastructure needed for growth (Kyrö, 1999). Its main concerns included employment and equal income distribution. In this dialogue the impact of entrepreneurship and small firms has not been valued. When we arrived at the postmodern transition and noticed that large firms were not creating work for citizens, the dialogue between growth and welfare also turned to include small firms. The ideal of growth were applied and are about to be applied to small firms. In this process the question is not raised, either in the mainstream of economics or even in the paradigms of entrepreneurship, as to whether that growth is desirable or not, even though we have empirical evidence all around us of its destructive consequences.

The question, to grow or not to grow, has thus arisen from a different direction. Since the 1980s we have been involved in another dialogue, that is, the debate between sustainable development and economic growth. The Brundtland Commission's report (WCED, 1987) and the United Nations Conference on Environment and Development (UNCED, 1993) in 1992 both strongly suggested that the ideology of continuous economic growth should be replaced by the principles of sustainable development. This dialogue has strengthened in the field of environmental economics, that is, in institutional school and in ecological economics. Both of them, however, have problems about how to combine the two phenomena of economics and sustainable development.

I suggest that through entrepreneurship, economy and sustainable development can join hands with each other and produce a new approach to the discussion between economy and welfare. To delineate this connection, it is necessary to reveal some misinterpretations of the development entrepreneurship and environmental economics theories. The very first misinterpretation concerns the origins of both fields of science. By revealing this misinterpretation we can reach the roots of combining economics and sustainable development. At the same time, however, we create the basis for an alternative discussion of growth. The prerequisite for this is, however, that we follow the development of these paradigms from past to present. This journey isolates the paradigms of entrepreneurship and ecological economics from other paradigms in environmental economics. That is how a renewed connection between Nature and economics can be found.

The final question is, of course: why is this important – why should we look for alternative ideas to growth? The reason for this can also be found in history and its effect on the present day. By evaluating the consequences of growth we can also reflect upon whether these consequences can be regarded as desirable. In this chapter, following the historical development of the paradigms in environmental economics from the eighteenth century until the present day carries out this task. The history reveals how science not only says how things are, but rather also produces the reality. That is why it should also be aware of what kind of reality it regards as valuable. The methodology of social history offers tools for such a journey. I will apply it to the story of growth and its opponent, entrepreneurship and sustainable development.

THE METHODOLOGY OF SOCIAL HISTORY: PAST FOR THE FUTURE

The orientation of social history is multi-scientific and society theoretical. Its research target is society. Social history produces explicit answers to contemporary questions in society (Haapala, 1989). The question of whether to grow or not to grow can be regarded as one of the most critical questions of our day, one which cannot be answered without a multi-scientific approach. Social history therefore offers us an excellent tool to tackle that problem. The most popular research area in social history has been industrialization. This research is now facing a new phase. Culture in its broadest sense has replaced government. Instead of government and power, the emphasis has focused on action, interaction and comparisons. This is exactly what takes place in this chapter.

The problem of growth and connecting sustainable development and economics has been approached as a cultural process. This process has its roots in France during the Enlightenment. From France it expanded and developed along with industrialization. From a historical perspective it can be seen as having undergone two transitions and two eras preceding them (e.g. Dillard, 1967; Beck et al., 1995; Harvey, 1990; Kyrö, 1996; Turner, 1990). The first transition, which is termed here the modern transition, took place at the beginning of industrialization, from the eighteenth to the nineteenth century, when the traditional era closed. Out of this transition developed the modern era, which, for its part, started to come to its end in the 1970s, when the postmodern transition occurred. The development of economics and its consequences can be positioned and analysed through and within these culturally constituted phases (Kyrö, 1999; Kyrö and Suojanen, 1999).

In this process science is not independent of the environment and its incidents, but rather it takes part in constructing the reality around us in interaction with the environment. Culture means a collectively created reality, conscious or unconscious; it is not something that just happened – it is made (Hofstede, 1991; Kyrö, 1996). Through culture, successful patterns of behaviour and values guiding that behaviour will be transferred from the past to the present and on to the future. It is here suggested that growth and its connection with welfare and democracy is one of the most illusionary culturally constituted values ever invented. It is also suggested that this connection is implicit rather than explicit; that is, it is irrational rather than rational.

From this perspective the development of scientific discussions will be followed through time as an interactive, discursive process between scientific descriptions and events in the environment. Such an approach is chronological and theoretical at the same time (Haapala, 1989). The data consists on the one hand of scientific theories, on the other hand the incidents in reality.

The social historical process answers the following questions: (1) What happened? (2) How did it happen? (3) Why did it happen? (4) What was it all about? All of these questions will be asked and also evaluated after reporting the results. Next I report the results of the study. This is a rather unusual choice in historical research, since normally the whole story will be reported. In this chapter, lack of space limits me from doing that. That is why I will present only the summaries of my findings and some of the most critical argument chains.

THE MODERN TRANSITION

Looking for and Losing Nature and the Free Human Being

The roots of environmental economics and entrepreneurship can be traced back to eighteenth-century France to the time known as the Enlightenment. It was a time when society reformed its ideas about itself, Nature and the human being. In France, at the end of the Middle Ages, two systems, feudalism and the crafts system, were coming to an end. People were tired of the court's profligacy and heavy taxation, and the control of mercantilism. Citizens, trade and industry in general started to demand freedom: freedom to decide how to earn a living. Science started to model and describe this new environment. In this diversity, with its new ideas of the human being, are to be found the seeds for entrepreneurship in its broad sense.

Finding difficulties in supporting both its luxurious life and the country's defence, the French court hired a Scottish adventurer, John Law, as secretary of the treasury. He founded a bank with paper money and a trading company. The company soon encountered difficulties and those who had invested in it lost their money. John Law was sacked and a little later the state obtained more responsible treasurers. Richard Cantillon, the Irish-born banker, was one of those who gained from these incidents. He owned shares in the trading company and managed to sell them at a large profit before the bankruptcy in 1720. His ideas of entrepreneurship encompassed these experiences. For him, the entrepreneur is one who identifies the possibility of gaining from the market. He buys at a certain price and sells at an uncertain price. The difference between these two is the profit (Barreto, 1989; Casson, 1982; Kyrö, 1997; Wilken, 1979). The story of Cantillon forms a watershed between the ideas of entrepreneurship and the idols of our modern times.

The first school of entrepreneurship and ecological economics, the French physiocrats, was born to oppose mercantilism and the power of money. In short they opposed the ideas of Cantillon. This is a distinction that has not been generally noted (e.g. Christensen, 1996: 109; <http://www.mtsu.edu/~tvs2/>; Lindeqvist, 1905; Massa, 1995: 25). For them, wealth came from the land. The land provided the products, which industry only further refined (e.g. <http://www.mtsu.edu/~tvs2/quesnay.html>; Hobbes, 1660). The entrepreneur was for them a farmer who hired land from landowners and produced raw materials for the artisan. The farmer was the only one who could add to the value of the product in this process. Entrepreneurship referred to a farmer and farming in free

circumstances. Later the term 'entrepreneurship' started to be applied to emerging industry. It started to refer to unusual human beings who by their own efforts and thinking, under conditions produced by Nature, created something new which on its own behalf created economic progress (e.g. Barreto, 1989; Casson, 1982; Wilken, 1979). This was the opposite of the traditional idea of the human being as a product of his born place in society, and it was also the opposite of the idea of wealth produced by money and expanding trade.

At the same time as the physiocrats were fighting for their beliefs and ideas in France, Adam Smith was visiting the country. He disagreed with the ideas of the physiocrats, and started to write his famous work *The Wealth of Nations* (1776). Above all, Smith based his ideas on free trade. For him not land but work had the greatest value, and it was of the utmost importance for the wealth of nations to expand the demand for it. Smith thought that by expanding trade it was also possible to satisfy citizens' self-interest and to produce welfare. These thoughts laid the base for the modern era. The circumstances in Britain at that time gave rise to those thoughts: trade and the developing manufacturing sector were important; Britain had all the resources needed to expand its trade. Its welfare was based on its 30 colonies and it thus had access to raw materials. It could control prices and production, it had a cheap or free workforce, technical inventions, and domination of the sea. In these circumstances began the story of economic growth that has most deeply affected our understanding of Nature (Dillard, 1967: 238–40).

In the writings of Adam Smith both entrepreneurship and Nature were lost and the illusion of an 'invisible hand' was created. Smith regarded Nature as an unlimited and free source of resources. Rational equilibrium replaced the human being. These ideas generated three different paradigms in economics in general and in environmental economics in particular. Beside the classical school was born the German historical school, the grandfather of sociology, which started to challenge both the methodology and the consequences of equilibrium theories (e.g. Von Böhm-Bawerk, 1890–91; Schmoller, 1881, 1897 [1884]). The third paradigm followed the physiocrats. Its ideas branched off into ecological economics and entrepreneurship (e.g. Ricardo, 1821). In the modern transition these were still living side by side. But toward the end of the transition the classical school and its followers gained dominance. Their domination was possible because demand was growing. I have summarized the development of these three schools in Table 1.1.

The time limits for this transition are not very exact, as can be seen from Table 1.1, since industrialization took place as a process travelling from country to country, from Britain to the USA and then back to Europe.

Perhaps this is the reason why it has been so hard to identify, even in longitudinal analysis, how these different paradigms have developed (Massa, 1995; Raumolin, 1995; Söderbaum, 1993). Perhaps this misunderstanding also prevents one from identifying the existence of an alternative economic idea that could combine both ecological principles and the economy: that is, entrepreneurship. The classical school, however, applied something from physiocrats. It applied Nature's self-sustaining production cycle to the economy. The economy was isolated as a self-sustaining system, which received Nature's raw materials as an unlimited source of wealth (Christensen, 1996; Ricardo, 1821).

The Three Schools in the Modern Transition

Neo-classical school: the story of rationality and growth

The interest of the followers of Adam Smith, the classical and later neo-classical schools lay in macroeconomics and later in the behaviour of the organization in the environment of large-scale enterprises. The main concern lay in the problems of increasing supply as efficiently as possible. The premises for the theories of macroeconomics and, later, of microeconomics relied on the idea of growth, rational actors with full information and their ability to produce work and welfare (Baumol and Blinder, 1985; Bell, 1981; Ricardo, 1821). It was possible to develop this illusion because demand was growing. Smith's ideas of economic success remained predominant throughout the modern era. Nature and the extraordinary, holistic human being disappeared from the economy in the development of the classical school (Daly and Cobb, 1989: 109–10; Ricardo, 1821). These ideas are manifested also in the thoughts of Leon Walras and William Stanley Jevons, and in the later writings of Karl Menger. Nature and the human being persisted during the transition in two directions: Nature in ecological economics and the human being in the paradigm of entrepreneurship. The latter, however, was also mingled in the thoughts of the German historical school.

Ecological economics: follow the physiocrats

Sadi Nicolas Leonard Carnot (1796–1832), discoverer of the first law of thermodynamics, and the Scottish scientist Patrick Geddes (1854–1932), represent ecological economics. Geddes proposed that economics should be rebuilt according to a knowledge of biology, thermodynamics and the doctrine of the physiocrats (<http://www.cce.ed.ac.uk/geddes/research.html/>; Macdonald, 1999). He claimed that our environment (water, air and land) is public. He understood the fallacy of the growth concept and was concerned about material consumption without refer-

ence to the quality of life. For him technology was not anti-ecological, but rather socially embedded. Geddes' holistic ideas and antagonistic views were not appreciated at the time, nor by recent commentators and biographers (Small, 1999). Something in his ideas of a 'public environment', however, continued to live in the thoughts of the German historical school.

The German historical school: challenges to the neo-classical school

The roots of the German historical school and its followers, the institutionalists, can be traced back to the 1850s. Its founder was Wilhelm Roscher (1817–1894) and among its early contributors can be mentioned Bruno Hildebrandt, Karl Knies and Gustav Schmoller (1838–1917) (Von Böhm-Bawerk, 1890–91; Massa, 1995: 26; Söderbaum, 1993).

The German historical school regarded the development of economics as a collective phenomenon. Its focus was on historical and cultural development, and on institutions. Roscher was in disagreement with the physiocrats and also with the classical school (Von Böhm-Bawerk, 1890–91). For Schmoller (1897 [1884]), mercantilism represented the collective power of society, which formed the basis for all economic progress. These ideas are a manifestation of the difference between the classical school and the historical school in their development right through the modern era until today. Whereas the classical school concentrated on the equilibrium between supply and demand and on international trade, the core for the historical school was the power of the state. The classical school thought that welfare could be produced through a growing demand created through a self-sustaining market system, while the historical school thought that the activities of the public sector were foremost. The debate between these two schools forms the grand story of modern times. It is amazing that both of them are categorized as schools of environmental economics, since neither of them was interested in the environment. If the postmodern transition had not revitalized ecological ideas, it could even be questioned whether either of these schools belongs to environmental economics, even though they most certainly can be regarded as schools of economics. This interpretation would allow us to search for the connection between ecological sustainability and economics from its roots in the physiocrats, and leave the fostered interpretation of modern times behind us. Rather similar ideas can be found in the writings of Ilpo Massa (1995).

The school of the American institutionalists brought the ideas of the German historical school into modern times. Their thoughts were submerged, however, beneath those of Keynesian economics, the most popular in modern era's political decision-making in many Western

countries. When ecological economics tried to develop and apply ecological principles to society, the representatives of entrepreneurship on their behalf tried to question the rational equilibrium and defend the role of the human being in economics. Their contributors can be found in the transition in all three different schools. Towards the end of the transition, however, each of the schools chose its main areas of interest. In this process both the classical and the institutional schools finally lost the human being in their descriptions.

Entrepreneurship in the Modern Transition: Trying to Find its Own Path

When Britain lost its position as a leader of industrialization, the story of entrepreneurship revived. It travelled from France to Austria, the USA and Germany. At the turn of the nineteenth and twentieth centuries the ideas of the classical school were questioned. It was noticed that the reality and actors in reality were far more complicated than simply equilibrium, open competition and actors as a rational homogenous group (Von Böhm-Bawerk, 1890–91; Daly and Cobb, 1989; Schmoller, 1881, 1897 [1884]).

Carl Menger is regarded as a founder of the Austrian school. On the other hand, he is also seen as a contributor to the neo-classical school. In the Austrian school he represented subjectivism. An entrepreneur is an individual who can control and coordinate the chain of inputs in the production process. The uniqueness of the entrepreneur lies in his ability to make decisions, acquire knowledge and predict. Action is an insecure process. He also tried to bring subjectivism and insecurity to the neo-classical school with the concept of marginal utility. Menger's follower Friedrich von Wieser (1851–1926) expanded the idea of entrepreneurship into that of the micro unit, the firm. Before him, it had meant a macro-level economic process created by a unique and free human being. Now it started also to refer to a firm. Böhm-Bawerk himself also described entrepreneurship. His follower was Joseph Schumpeter (1883–1950), perhaps most quoted contributor to entrepreneurship.

For Schumpeter the core of entrepreneurship is innovation. The entrepreneur combines resources in an innovative manner, thus creating something new. Innovation breaks with old behaviour in a radical manner. The entrepreneur is one who does things in a novel fashion guided by intuition. Schumpeter's contribution can be divided into two phases: the early contribution took place in Austria and the later one in the USA (e.g. Lovio, 1993). For Schumpeter, economic development was endogenous change. For Menger, economic progress led to the development of entrepreneurship; for Schumpeter, entrepreneurship led to economic progress

by breaking old, static behaviour and by inventing new ways and methods. It is understandable that Schumpeter emphasized innovativeness, since industrialization in Austria was very leisurely or 'rocky' from the eighteenth century to the Second World War, as some scientists describe it (Cameron, 1995: 298).

From the USA, entrepreneurship travelled back to Europe with Max Weber (1864–1929), the representative of the German historical school. The school did not approve of the idea of a human being as being a 'hedonistic atom' (Hebert and Link, 1988: 102). Their ideas mainly followed those of other contributors of entrepreneurship. Economic development was for them a dynamic process, which broke with old ways of behaviour and created new ones.

Max Weber represents the third generation of this school. For Weber, the entrepreneur represented the opposite of the craftsman's privileged formality. In his descriptions can be found the human being, the firm he runs and the economic process. Previously, entrepreneurship had mainly denoted an individual who produces economic welfare. This is understandable, since in Europe the crafts tried to prevent the founding of firms (for example the Bubble Act in Britain).

Different approaches to entrepreneurship theory building in economics, sociology and psychology developed from these roots. Amazingly few differences can be found between the theories of early contributors. They describe entrepreneurship as a special kind of management and ownership. The entrepreneur is a holistic, extraordinary human being who, by combining resources in a novel way, by applying new knowledge, taking risks and making decisions, creates something new. Some of the theories focus more on ownership, some on management (Barreto, 1989; Dahmen et al., 1994; Kovalainen, 1993; Weber, 1969 [1947]). Towards the end of the transition, the concept of the firm started to enter into the explanations of entrepreneurship. This was followed by the disappearance of entrepreneurship from macro-level explanations.

We can now see how different ideas criss-cross in the transition and, on the other hand, how societies, in this case Western industrializing societies, chose the ideas they regarded as successful. The relationship between these three schools is shown in Table 1.1. The neo-classical school achieved dominance. Its ideas of growth and its influence on welfare seemed to fascinate the most. The institutionalists started to question and debate the classical school. For the classical school, the premise for welfare was growth created by open competition, mass production and rational, homogeneous actors with economic motivation. For the institutionalists, state and collective power was the premise for welfare and economic progress. The role of institutionalists was to control the

so-called market, and to create the infrastructure for economic progress, that is, growth. Ecological economics and entrepreneurship, for their part, had their own but at the same time a diminishing identity. Both of them had their bases in the human being as an extraordinary and free actor. Both of them also had a holistic, integrated approach to human beings and society. The difference between them was related to Nature as an explicit phenomenon. Nature seems to have been left on the shoulders of ecological economics alone. It disappeared from all other lines of thought. In the institutionalists it was replaced by collective power; in the neo-classical school the idea of Nature as a self-sustaining system was cloned into economics, and other dimensions of society disappeared. What could not be explained in monetary terms did not have any place in economical explanations. Why this is so amazing is that all these three schools, except entrepreneurship as a separate school, are categorized as schools of environmental economics.

So far I have argued how three different paradigms can be identified, and have also shown their roots and chronological order. I have also tried to show how the choices among and within these paradigms have been made, since these decisions, and the development that followed them, have most deeply influenced the situation we are living in at the moment. Next I will concentrate on the development of the modern era in order to discuss what kind of consequences these decisions produced. Finally, I will proceed to the postmodern transition to show how irrational and ineffective these choices have been. It will be seen how these paradoxes and contradictions start to direct our focus again toward entrepreneurship and ecological principles.

THE DOMINANCE OF GROWTH AND ORDER SUPPRESS ECOLOGICAL THINKING AND ENTREPRENEURSHIP IN THE MODERN ERA

Economic Growth of the Modern Era

The modern era gives us quite a clear picture of society's relationship to ecologically sustainable development and to growth. In the modern era the population has grown exponentially (Miller, 1979: 4–5). This meant growing demand and polarized welfare. Since the 1950s most of the population growth has taken place in the developing countries. Gross domestic product (GDP) has grown too. The time series in most growth research starts in 1820–1860. From the sixteenth to the seventeenth centuries growth is estimated to have fluctuated between 0.1 and 0.3

per cent. After that, with the exception of two world wars, GDP grew all over Europe till the 1970s (1860, 1.6 per cent; 1974, 5.5 per cent). The same trend can be identified in other industrialized countries (e.g. Hjerpe, 1989).

The productivity grew also. More products could be produced with less labour. All kind of transportation grew, by sea, land and air. Growth was expected to reduce the human suffering involved in poverty (Common, 1999). The problem is that instead of helping to alleviate poverty, it increased it (e.g. Giddens, 1997; UNDP, 1999). Open competition also seemed to be an illusion: until 1913 it was reasonably free, but immediately the growth in a country was threatened, it started to use restrictions (Kenwood and Loughed, 1971). Restrictions mostly affected the welfare of developing countries dominated by agriculture and that of women, thus increasing the inequality between countries.

While industrialization was expanding, another kind of ethos started to spread in Western industrialized countries from the late nineteenth century onwards. This was the dominance of organization. We have implicitly followed the very first interpretation of culture in our lives, that is, 'order'. We have organized our lives and Nature, believing that organizing is a way to secure our existence and our success. In this stream of ideas the relationship between Nature and the human being changed. This was followed by the notion that Nature can be controlled and changed through technology. This line of thought became dominant in the modern era. It had no place for entrepreneurship or ecological ideas, focusing instead on increasing efficiency by organizing production and society (e.g. Etzioni, 1968; Morgan, 1986; Zuboff, 1988).

Three Different Schools Maintain their Places in the Modern Era

The neo-classical school strengthens its domination

In the reality of the modern era, the position of the neo-classical school strengthened as a school of economics as well as a school of environmental economics. Within the school of environmental economics, the focus was turned to looking after economic growth so as to be able to secure employment. This can be noticed when we follow the ideas of two contributors in environmental economics, Arthur Cecil Pigou (1877–1959) and John Maynard Keynes (1883–1946).

Pigou used the term 'externalities' when he referred to the effects produced by the market but left outside its concern. He thought that when prices fall, wealth grows, individuals can consume more and thus production can grow (Arnold, 1999). For him economics could only describe those factors that can be measured in monetary terms, that is, by GDP

(Serafy, 1991). The problem is that in practice these other dimensions were left out of the mainstream discussion of wealth. Daly and Cobb (1989: 52–53) describe this as a spillover effect, not noticed until the 1930s. Pigou was Keynes's mentor and teacher. Keynes introduced the idea of modified capitalism and semi-autonomous actors. He also believed that unemployment was a consequence of a lack of purchasing power. The state can help in this, by increasing demand through controlling investments, savings and interest rates. Keynes strongly influenced the politics of Europe and the USA (Daly and Cobb, 1989: 209).

Entrepreneurship fights for its existence

I have now discussed how two main interests started to dominate reality in Western industrialized countries in the modern era, that is, growth and employment. Society was neither interested in entrepreneurship nor in the environment (for similar conclusions, see for example Barreto, 1989; Massa, 1995). The rationalist story of the power and meaning of growth and order in economics is in fact a different story from that of entrepreneurship and environmental concern. The ideas of Adam Smith have followed us through modern times, even though it has been observed in many contexts that their premises produce paradoxical and controversial consequences when verified empirically.

When this illusion of the possibility for continuous growth, producing employment and wealth, gained dominance, entrepreneurship was not valued. It lost its role as a creator of economic progress. Its focus turned to the new, emerging micro-level phenomenon, the firm, and started to mean small business ownership and management. Within the discussion about entrepreneurship, the American approach gained dominance. Enterprise and profit were extremely clear in this approach (e.g. Barreto, 1989: 37). The macro-level meaning of entrepreneurship was lost and the environmental discussion was silenced.

Institutionalists challenge the neo-classical school but remain marginal

Later, the American institutional school, the structural-dynamics school and the ordoliberal school followed the ideas of the institutionalists. The common feature of the institutionalists was their holistic and multidisciplinary approach and dynamics applied from the physiocrats and later from the representatives of entrepreneurship (<http://www.mtsu.edu/tvs2/instit.html>).

The American institutionalists emphasized social responsibility and society's role in the economy. Their culmination can be identified in the 1920s and 1930s. They were, however, left on the sidelines when the doctrine of Keynes spread throughout Western countries, but they re-

emerged in the 1960s (Söderbaum, 1993). In the 1930s, Harold A. Innes presented how the world economy affected national welfare when its natural resources were overcultivated or overused. According to him, this kind of robbery was followed by a one-sided structure of the economy, and further by the economy's instability. The state's role in controlling and guiding the economy was important, therefore. This has happened, in fact, in developing countries.

As its name suggests, the structural-dynamics school was interested in the structures of national and international economy. Its main contribution was made between the world wars. After the Second World War it was marginalized because of the Keynesian influence. The undeniable merit of this school lies in its endeavour to expand the discussion to cover global development. The home of the ordoliberalists is Germany; it also has support in Switzerland. According to this school, the market lacks the ability of self-control; therefore state control is needed.

The institutionalists have given much to environmental economics. They have created the ideas of common responsibility and made explicit the global aspect of this field. Thanks to them the connection between entrepreneurship and environmental economics did not disappear. Even though this connection was modest, it remains open for us to rediscover it in the postmodern transition. Why this is so important will be seen when we start to consider the consequences produced by economic growth. What can be noticed in the scientific discussion of economics in the modern era is that the human actor and Nature as premises still do not interest scientists. These aspects have disappeared from mainstream discussions.

THE POSTMODERN TRANSITION

The Consequences of Growth Show Up

When we look at the empirical evidence resulting from growth, the dilemma between the premises of economics and its consequences can be identified. The mass production techniques used in industry and agriculture have not been employed without consequences. They have affected air, water, land and the welfare of people; in the opposite way, however, to that expected. It is estimated that half of the world's cultivated land will be ruined by the year 2025. Already, 840 million people are malnourished (UNDP, 1999). For the first time food production is also meeting its limits due to the robbery taking place in the sea (Halinen, 1998). We have also experienced changes in the climate, which have global scope. Instead of wealth we have produced poverty and inequality. Instead of

employment we have produced unemployment. Western countries woke up when the growth rate of GDP decreased to the level of the 1900s. At the same time unemployment in Organisation for Economic Co-operation and Development (OECD) countries doubled during the 1980s and also in the 1990s (Naschold, 1995: 18).

At the same time it was noticed that large firms and organizations did not produce work. New work was created in small firms or by self-employed citizens. Large firms grew globally, extended and diversified their production chains all over the world, using the criterion of short-term profit. Even though these facts were noticed, societies did not change their behaviour: they started to put even more pressure on growth. It is still thought that by increasing supply we can produce wealth, and the key to that is growth as measured by GDP.

These consequences can be summarized as growing polarizations not only between countries, areas and regions, but also within them. They concern the whole globe, not only poor countries. As a whole, it is a question of the dialogue between growth and wealth, rather than wealth produced by growth. It poses us the question of whether to grow or not to grow. It also concerns questions of global and local. Some essential polarizations are listed below:

1. Polarizations between rich and poor. This gap has been widening since the early nineteenth century (Table 1.2).
2. We may also note that technology has not been a solution for poor countries. In 1993, ten countries accounted for 84 per cent of global research and development expenditures (UNDP, 1999). Industrialized countries use 93.8 per cent of research expenditures, developing countries 6.2 per cent and Africa only 0.3 per cent (Calder and Newell, 1992).
3. Growth and diversified production techniques have caused damage to Nature. The damage has mostly affected poor nations, while rich industrialized countries have received the advantages. There are global changes in the atmosphere. The temperature of the earth has risen. Industrialized countries use most of the energy and thus also cause most of the damage. It is expected however that poor countries will increase their use of energy in the future (Kuusisto et al., 1996: 33). Also the ozone layer is getting thinner. Every year 3 million people die from air pollution and 5 million as a result of water contamination (UNDP, 1999: 22). It should be noted that human beings have produced all these changes. Simulations predict that the consequences of growth will have their major effect in the near future (Miller, 1979).

Table 1.2 Stark disparities between rich and poor in global opportunities

In 1997	Richest 20% of population (%)	Middle 60% of population (%)	Poorest 20% of population (%)
Shares of world GDP	86	13	1
Shares of exports	82	17	1
Shares of foreign direct investments	68	31	1
Shares of internet users	93.3	6.5	0.2

Source: Summarized from UNDP (1999: 2).

How we have reacted to these threats is that the world has been divided into three regional blocs: Asia, North America and Europe (Spybey, 1996). Each of these has started to link up to those nations having a lower GDP; in this way they can access cheap labour and increasing demand.

Leaning on this empirical evidence, it is hard to draw any other conclusion than that modern economics has failed. Its premises have not produced the expected consequences. It is also obvious that these consequences, for the first time, have an inevitably global impact. Geddes' discovery that we have a common environment seems to be verified. This has had some impact on economical explanations as can be seen when we follow their development in the postmodern transition. It should be noticed however that even though there are some voices questioning growth as an idol, we still rely on it as a solution.

The Dialogue between the Paradigms of Environmental Economics Expands in the Postmodern Transition

The neo-classical school starts to notice the environment

The focus in environmental economics turned more to externalities and their effects, but not actually to Nature (Arnold, 1999; Baumol and Blinder, 1985; Coase, 1991; Zylicz, 1991: 385). The premises of the neo-classical school rested on the fundamental presumptions of the classical school. My assumption is that the school has tried to answer the question of how much it costs to use the common environment, or how much it costs to fix the consequences produced by the market. The difference compared to previous ideas is that there is now a readiness to pay some attention to the environment.

Institutionalists are worried about global welfare

There has been a bit of confusion in separating institutionalists from ecological economists, since their differences over economic thought about entrepreneurship have not been clear (e.g. Massa, 1995). By following this presentation however, the route of the three different schools can be identified. It helps us to identify, as the influential contributors in the school of institutional environmental economics, William Kapp, Bruno S. Frey and Peter Söderbaum. Such scientists as Daniel Bell, Anthony Giddens and Ulrich Beck also belong to the school of institutional environmental economics. They have produced such concepts as reflective sociology, the risk society and reflective modernization (e.g. Beck et al., 1995; Bell, 1981; Giddens, 1997). Their incontestable contribution concerns global effects: they have brought us the idea that local activities produce global consequences, and that what is taking place in and for Western countries affects global welfare, both directly and indirectly.

The difference between the nature of the institutionalists and that of the neo-classical school can be characterized by polarizations. It could be stated that the neo-classical school created economic success for the few – the wealth side of polarizations – while institutionalists for their part were concerned with the ugly side of the polarizations produced by the neo-classical thinking. In the postmodern transition this discussion has ever more closely approached Nature and its limitations.

Direct concern about the environment as Nature can be identified since the 1950s in the ideas of Karl Polanyi and Karl W. Kapp. They show that environmental and social costs have a direct relationship with industrialization and the market economy (Van der Bergh, 1996). Kapp opposed the idea that welfare can be measured in monetary terms (Söderbaum, 1993). According to him, giving a money value to welfare does not solve the problem of choice, nor change the fact that we risk human health and survival (Munda, 1997: 222). Kapp's ideas follow the dialogue which has taken place all throughout the modern era. Frey also continued this dialogue in the 1970s. The value of their contribution can be seen in their questioning the possibility of growth at the explicit level. When the neo-classical school asked how much should be paid for degrading the environment, the institutionalists verified that the consequences of mass production and growth were catastrophic and that society has a responsibility to look after them. Even though both are important and valuable, there still remains the problem of how to combine the economy and ecologically sustainable development; how to produce ecological sustainability. Both schools neglected the fact that the destruction of nature is carried out by human beings. This means that ecologically sustainable development can also be pro-

duced by human behaviour, not by rational equilibrium or by collective structures and institutions. This concerns the fact that Geddes already noticed in claiming that technology is socially constructed. Another fact is that ecological sustainability cannot be produced without ecological premises. This problem cannot be solved by pondering the consequences of destructive behaviour, but rather by describing the conditions and premises for sustainable development. This kind of endeavour can be found in the ideas of the third school, ecological economics. To combine them with economics, however, needs a suitable paradigm in economics. This is entrepreneurship. This final step in my discussion will be taken next.

Ecological economics finds its roots

Georgescu-Roegen, the Anglo-Saxon Kenneth E. Boulding and the French Michel Cepede, the representatives of ecological economics, started to claim that economics should be 'ecologized' (Raumolin, 1995: 45). They tried to find a solution as to how to combine economics and Nature. Georgescu-Roegen claimed that economic theories had totally forgotten the connection between Nature and economics (Christensen, 1996). He applied thermodynamics to economics (Georgescu-Roegen, 1971), and suggested, following the second law of thermodynamics, that the aim of economic activities should be low entropy. Daly suggested that the entropy law is a formalized expression of the general and absolute scarcity that mankind and its economy are subjected to (Van der Bergh, 1996: 21). In conclusion, Georgescu-Roegen suggested that perfect recycling is not possible and that this should be a new law of thermodynamics. Perhaps the most valuable outcome of these thoughts is the realization of the existence of absolute scarcity, not taken seriously by economics before.

Boulding, together with Herman E. Daly, demanded that the economy should rest on evolutionary theories, ecology and thermodynamics (Raumolin, 1995: 47). Boulding claimed that the economy and the biosphere can only survive if short-term-oriented, exploitative, expansive human behaviour is replaced by long-term-oriented, conservative and prudent actions (Van der Bergh, 1996: 17).

With the ideas of these scientists we return to the holistic ideas of the physiocrats, how wealth is produced by human beings within Nature's recycling capacity. Its dependence on the biosphere raises some other issues. During the modern transition the role of Nature was understood mostly through experience and intuitive conclusions. In this transition we actually have concepts to describe these relationships. From the perspective of ecological sustainability they concern ecology, while from the

perspective of human behaviour it is suggested that the keys could be found in entrepreneurship. These constitute the raw materials for combining Nature and economics. It should be emphasized however that this is only an option, since it has not been done before; as Bahtin says, it concerns existential knowledge, the possibility of knowledge but not actually existing knowledge.

The Premises for Ecological Sustainability

We can describe the premises for ecological sustainability through the relatively new concept or phenomenon known as the ecosystem. This was introduced by the British ecologist Sir Arthur Tansley in 1935. It describes an ecological community consisting of living organisms – that is, a biological community – together with a physical and chemical environment – that is, a non-living environment – and their relationship to each other in a certain area. In an ecosystem these interact with each other. This interaction produces unpredictable consequences. Even though there are different ideas about the development of an ecosystem, a consensus has been reached concerning certain principles. These are: (1) the sensitivity of the balance of the ecosystem; (2) its local nature; (3) the long-term development required to form a competitive ecosystem able to survive; (4) the unpredictability of the results of outside interventions.

When we combine these ideas with those of the ecological economists, especially with the laws of thermodynamics, we can produce three premises of ecological economics. The first law of thermodynamics states that in a closed system energy does not disappear but only changes its form of existence. The second law of thermodynamics states that a certain amount of this energy cannot be used effectively, some of it always being used in the changing process or for less useful purposes. All living existence on the earth is dependent on energy. Most of it comes from the sun. Energy use is never 100 per cent efficient; a certain amount of energy is always wasted. This is why 100 per cent recycling is not possible. Less changes in the forms of existence therefore means more efficiency. It also means more ecological sustainability. This means short production chains. Short production chains are even more important when we understand the sensitivity and local nature of the ecosystem. Outside interventions are always threats to an eco-balance.

The second premise concerns the absolute scarcity of natural resources. This requires that we use them as efficiently as possible. This means that each product uses as few natural resources as possible and that we use these products for as long as possible.

By combining the empirical evidence – that is, the fact that the destruc-

tion of nature is produced by one species only, human beings – we are able to conclude that the achievement of ecological sustainability is thus dependent on the ability of this species to understand the consequences of its choices. It can be assumed that we have the ability and possibility to produce ecological sustainability and control the consequences of our consumption in the ecosystem we are part of. Now we have quite rational reasons and premises for ecological sustainability. They form three principles: (1) as efficient recycling as possible; (2) as efficient use of natural resources as possible; (3) as prolonged use of each form of existence as possible. These principles mean short production chains as far as possible, and prolonged use of each part of the chain as far as possible.

When we compare the results of the modern era to these principles, we can see that from the perspective of ecological sustainability the modern era has produced contrary results. This conclusion can be drawn both by analysing the dialogue between the dominating schools of economics, and by looking at the consequences this dialogue has produced.

In the Postmodern Transition, Entrepreneurship is Looking for its Connection to Society

Now that we have found that the world around us is changing and that the illusion of continuous, implied growth, ever-growing prosperity, full employment and the domination of the Western world with its large companies and institutions is not producing the expected welfare for us, a new stream of discussion is about to flow. There is much similarity between this conversation and that in France during the transition from the traditional to the modern era. In this postmodern transition, entrepreneurship has invaded organization theories, other fields of economics, learning theories and so on, but in its original form (Argyris et al., 1985; Minzberg and Quinn, 1991; Morgan, 1986; Näsi, 1991). In the transition from modern to postmodern, it has found a new object which is a product of the modern era, namely the organization. Time has produced three different kinds of present-day entrepreneurship: (1) the small enterprise, meaning the individual entrepreneur and the entrepreneur's firm; (2) intrapreneurship, meaning an organization's collective behaviour; and (3) individual, self-oriented entrepreneurship, meaning an individual's self-oriented behaviour. Probably entrepreneurship has the same role in this transition as in the previous one. It has been used as an instrument for changing the culture and envisioning a new future. Society is using it as a tool to change its culture (Kyrö, 1997).

Now the discussions about entrepreneurship are looking for mutual

Table 1.3 Changes in entrepreneurship paradigms

Time	Whose society?	Entrepreneurship
Traditional era before 18th century	The nobility's, administered through feudalism, the crafts system and mercantilism * Class society, man's place in society was based on his class at birth	Entrepreneurship started its journey in semantics as an individual – adventurer, risk-taker – project-based assignments from the Crown
Theory building in entrepreneurship starts		
The modern transition at the beginning of 18th century till the shift between 19th and 20th centuries	Citizens' society * feudalism and crafts system broke * liberalism and democracy as idols	Entrepreneur as an individual and entrepreneurship as a creator of economic success (macro-level process) * breaks old models of behaviour and old systems, creates new ways of work and ownership * innovator, coordinator, special kind of observer, takes risks and responsibility for his own life, applies new knowledge
1st change in the paradigm of entrepreneurship		
The modern era 19th and 20th centuries	Society of public sector and large firms * homogenizing democracy * order and unified culture * continuous growth and expanding market as idols * unhistorical era * rationality, efficiency, hierarchy, bureaucracy, control, diversification	Entrepreneurship as small business management and ownership, connection to economics (macro level) was lost
2nd change in the paradigm of entrepreneurship		
Postmodern transition 1970–	Polarized society * rich/poor * health/sick * employed/unemployed * civil servant/entrepreneur	Entrepreneurship three forms and again latent meaning in breaking old models and creating new culture 1. individual entrepreneurship

Table 1.3 (continued)

Time	Whose society?	Entrepreneurship
2nd change in the paradigm of entrepreneurship		
	* individuals v. systems' and organizations' society	2. small business management and ownership
	* local/global	3. intrapreneurship = organization's collective behaviour
	* knowledge nobility/ segregated	
3rd change in the paradigm of entrepreneurship as an option for the future		
Postmodern era?	Struggle with local and global? Struggle with welfare and growth?	Will entrepreneurship reach a meaning at the macro level? Will entrepreneurship again find ecological principles? Will ecological economics and entrepreneurship meet each other?

bases all around the world. These can be identified as an endeavour to make a contribution not only at the micro level but also at the macro level in society. Still, however, entrepreneurship is not a partner at the same table with economists but rather as a partner in an employment project. There is however the option to notice the different bases which entrepreneurship represents in welfare discussion. In the following section an attempt will be made to show how this dialogue can be constructed. By following the discussion of economics it could be claimed that the dialogue in which entrepreneurship has been participating all through its history concerns economic and rational growth versus extraordinary human beings. By separating these two stories from one another the paradigmatic changes in the theories of entrepreneurship can also be revealed, and an expectation for the future as an option can be formulated.

There have been two shifts in entrepreneurship paradigm building. The first occurred when entrepreneurship lost its connection to the macro level and Nature and started to refer to the small firm. The next was when it expanded to intrapreneurship. We are now waiting for the next shift, that

is, the connection back to the macro level again, and finally to ecological economics. This path has been built in Table 1.3.

EVALUATION OF THE JOURNEY INTO HISTORY AND SOME CONCLUSIONS

The aim of this journey has been to see if it is possible to combine economics and ecologically sustainable development. This was approached by asking, as a social-historical process, the question: To grow or not to grow? Social historical methodology attempts to answer the questions: What happened? How did it happen? Why did it happen? What was it all about?

The answer to the question ‘What happened?’ seems to indicate that the idea that economical growth measured in monetary terms will produce welfare, has been an illusion. The results have been almost the opposite. Paradoxically enough this relationship has been argued through rationality and objectivity, but it seems to be quite irrational compared to the empirical facts available to us.

The question ‘How did it happen?’ could be answered on these bases. The answer to the first question leads us to conclude that reality is made by scientific descriptions and explanations rather than vice versa. The suggestion that science should also make value statements, instead of just telling how things are, seems to be a reasonable request from this perspective.

Why did it happen? The answer to that seems to be simple. Since economic growth has produced welfare for a few – that is, Western industrialized countries – during the modern era, it has not been questioned, even though empirical evidence had already warned us long ago about its consequences.

What was it all about? To be positive in this final question, I would like to believe that the possibilities and values offered by entrepreneurship in its very first forms, and the tremendous work done by many brilliant scientists over a period of 200 years, will finally be recognized and also valued by the mainstream of economics. This means that economics has the courage to question its very basic premises, such as what efficiency is and how it is measured. Ecologically sustainable development suggests that economic behaviour, also measured by rational and objective yardsticks, means to produce as much wealth as possible with as few resources as possible. If this cannot be measured in contemporary monetary terms, these terms should be re-evaluated. The positive side of this story is that there actually are models and criteria for such an

evaluation, if we are willing to learn from history. I hope this story has revealed some ideas for that: the option offered by entrepreneurship and ecological economics.

Finally, as mentioned at the beginning of the discussion, the reader will be the evaluator of the validity of historical research. You will decide how coherently the story has been told, how ‘truthful’ it seems to be. In the idea of the human being nurtured by entrepreneurship, this means action. Is the picture painted here holistic and reasonable enough to be able to give raw material for acting upon? As Georgescu-Roegen said, being is becoming. If I have succeeded in giving some raw material for new ideas about growth and its consequences, some ideas in rethinking what is valuable and what is not, I think something has been accomplished.

NOTE

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