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[“Replacing the Concept of Externalities to Analyze Constraints on Global Economic Growth and Move Toward a New Economic Paradigm”](#) by **Jim Lunday** examines how the divorce of economics from governance and society leads economic theory to ignore the central role of political and social factors in economic performance and human welfare.

Erich Hoedl discusses the problems generated by application of traditional economic theory to the transition of East European societies in [“European Transition into a Socio-ecological Market Economy”](#).

In [“New Paradigm in the Service Economy – The Search of Economics for Scientific Credibility: In Between Hard and Soft Sciences”](#), **Orio Giarini** points out fundamental differences in the factors influencing performance of the industrial model of economy and the modern knowledge-based service economy and calls for formulation of theory and measures appropriate to the new context.

We hope you enjoy this part.

The Editors

Fictitious Capital and the Elusive Quest in Understanding its Implications: Illusions and Paradoxes*

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Abstract

This paper deals with the interaction between fictitious capital and the neoliberal model of growth and distribution, inspired by the classical economic tradition. Our renewed interest in this literature has a close connection with the recent international crisis in the capitalist economy. However, this discussion takes as its point of departure the fact that standard economic theory teaches that financial capital, in this world of increasing globalization, leads to new investment opportunities which improve levels of growth, employment, income distribution, and equilibrium. Accordingly, it is said that such financial resources expand the welfare of people and countries worldwide. Here we examine some illusions and paradoxes of such a paradigm. We show some theoretical and empirical consequences of this vision, which are quite different and have harmful constraints.

1. Introduction

There is an extensive controversy concerning traditional models of economic equilibrium and new development paradigms based on an interdisciplinary, broader study of economics. When faced with the harmful effects of misguided directives in an economic and global sense, theorists have the obligation not only to explain their causes, but also to offer a practical solution or alternate thinking. After all, consistent levels of poverty, unemployment and low growth are results which were not expected in orthodox economic models of equilibrium and should be dealt with instead of being thrown aside as a politically restricted issue. Moreover, typical third world problems such as unemployment, recession, debt and social turbulence sided with corruption are now appearing in developed countries. There is an ethical dimension in social sciences which must not be forgotten, when presenting new views on solving crises.

It is in this sense that Jacobs points out an arrangement of guidelines destined to comprehend new economic theory.¹ Amongst an extensive list, he points out that all economic theory must be goal-oriented. This means that social sciences should have a practical use,

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that of improving human welfare. They must abandon hope of achieving a fully complete and dynamic model able to explain and control all variances of the environment. Elegance and Originality may shine through abstract theory; but it is necessary, moreover imperative, that such a theory have its adequate means in adapting itself to the reality of material means of existence.

In this paper we focus on the capitalist world after the surge of globalization, following the global 2008 crisis. For us, it is essential that the analysis of such an occurrence be linked with other disciplines, particularly the Social Sciences. After all, Economics places itself in a faulty position when it fails to emphasize human welfare as the ultimate purpose. It is in this vein that Jacobs also emphasizes that new theory “must integrate with all other fields of social life (...) and replace the concept of externalities with a growing awareness of the complex nexus of political, legal, commercial, organizational, technological, social, cultural and psychological factors that determine economic performance and results.”

In order to make an interdisciplinary study on the reasons why crises occur (and what can be done), it is important to get to the roots of conventional economic theory and then to point out its differences in empirical reality.

According to neoclassical economics, a commodity's economic value is determined by the amount of labour time spent in its production process. In the classical world, labour-value and competitive market prices rearrange each other in a state of equilibrium in which money plays an intermediate role of neutral effect. Its only effect or defect would be, as a last resort, a perverse influence on price rearrangement through inflation.

Such a theory receives merit for its elegance and simplicity. However, reductionism and critical omissions may be spotted on labour-value theory, which could compromise the entire structure of the model if taken under consideration. In fact, the chosen exchange background is as simple as a barter economy. And if we can find a variety of economies based on barter, medievalism, mercantilism or slavery, the capitalist mode of production makes the approach more complex. Even though in archaic societies, cattle creation sufficed for nourishment, today our complex relations demand the rise of industry, slaughterhouses and distribution channels for socialization of consumption. In the same manner, the specialization of technology demands less hours of labour-time and more of capital use.

Thus on adding a historical component, capitalism offers an essential controversy to the model: the role of Money not as a passive extra, but as the main actor in a system where the quest for Money (and not exchange) reigns. The idiosyncrasy of such affirmation signals the importance of Money and its expanding network on the rearrangements of power structures involved in the capitalist mode of production. In this vein, Weber, Bloch and Braudel have commented notably on the role of Money throughout historical development.^{2,3,4} But it was Marx who was the main analyst on the importance of Money, and the harmful effects that could occur should Money be detached from the productive dimension of an economy.⁵

Marx in *Capital* has arrived at a specific conclusion: in capitalism, circulation of Money and production of goods are relatively independent of one another, where Money is the

central axis which reflects the social labour division. It does so not only because average income is determined by social needs, but also because generated income plays a greater part in determining the consumption of produced goods. However, this monetization that allows for the exchange and circulation of commodities at a generalized level is subject to a number of disturbances. These are given by credit, by the creation of money without anchorage on production, and by the “magic formulas” in which invested money may render income, without the intermediate process of merchandise and production necessary for the division of socialized labour.

Since the exchange of commodities is always underlined within the statute of production prices, one manner in which crises could occur would be through Fictitious Capital. Hence, heterodox economic theory of value does not assert its position based on a reductionist model, but as the main generalization of private and social processes at an accurate moment in history (capitalism).

This paper is organized as follows: after this introduction, Section 2 presents an overview of the theory which deals with fictitious capital, its definitions and the quest in understanding its foundations. Section 3 is concerned with implications of fictitious capital, crises, illusions and paradoxes of the liberal approach to economic policy. Section 4 concludes with some aspects of orthodox economics’ adventures and misadventures in global development.

2. Fictitious Capital

A clearly observable role of Money is its possibility to separate in time operations of purchase and sale. With the rise of capitalism, money can also be seen as capable of generating surplus value and thus becomes a commodity desirable in itself. In the process of credit overture, lent money has the ability to synchronize the production capability of distinct time periods – present and future. Thus, through a credit document a firm may gain instantly an expectation of future income. It should be noted, however, that such lent credit ratifies only the supposition that a firm could generate such competence through a forthcoming capital accumulation not yet realized within the circulation process.

It should also be considered that such credit carries out periodically a charge of interest. Marx pondered on the idea that interests are not derived from supply and demand forces between lenders and borrowers of credit, but are in fact anticipations from a share of hypothetical surplus value which the capitalist would obtain if he were inclined to follow its enterprise solely on his capital accumulation. This separation between time periods conferred by credit may generate two results: i) the well-succeeded flow of capital throughout its different phases, or ii) crisis.

An especial type of capital that may produce crises is Fictitious Capital. In this vein, heterodox thinkers present alternative views or meanings.^{6,7,8,9}

On the one hand, it is possible to see fictitious capital as resources that (in the same manner as credit) possess a double value, an imaginary component without anchorage on production, but may have value after a productive investment. In such matters, one can

consider government bonds as fictitious capital, since they render interest based on debt. Suffice it to say that it makes its owner richer starting from indebtedness.

On the other hand, amongst Mollo's thesis and others, fictitious capital can be seen as a secondary and artificial valorisation of applied capital, without anchorage on production. In this matter, the primary issue of a stock is without doubt linked to the corresponding firm's use-value; significant changes in the use-value (excessive capital accumulation or loss of it) also influence the stock price. Nonetheless, financial market is much more than the primary issuance of a stock. Usually, assets are securitized, issued amongst investment portfolios with derivative credit. Hence their generated income surpasses far beyond a company's use-value, and is instead determined by speculative supply and demand of a number of assets.

This alteration on an enterprise's production process and its assets' profitability arises because the spring of credit allows the creation of endogenous money without correspondence to production. At first, the portrayer of such assets will always become wealthier with new profit, but in the scheme of circulation of commodities there was no productive creation enough to support such creation of wealth. As fictitious capital also presents a higher and faster profitability compared to the production process, the exceeding profits of the latter also tend to be reinvested on the former. The dissociation between prices and value intensifies, whereas the real market of production relatively impoverishes at a steep pace.¹⁰

The creation of credit has allowed banks to create money endogenously without an anchorage of production and has opened the room to the possibility of crises. Gradually, fictitious capital started to gain immense powers – it has the tendency to create, like a spell, money that becomes more money, richness which prompts more richness in an uncontrolled spiral. In the capitalist system where the quest for easy and fast profit is imperative for survival, it is not surprising that a great amount of money can be reallocated and invested in the financial market leading to an artificial creation of capital through interests. This severely damages the accumulation of capital and the circulation of commodities, whether by great capital outflow, or by the direct and indirect effects that the speculative market has on production. Notwithstanding, in the medium term, the attractiveness of fictitious capital binds a group of powerful followers which will advocate free capital flow. This support is given not only by governmental institutions with high economic expertise and low engagement with history, but also by theoretical economists themselves, who present a sufficient argument for wealth provided by fictitious capital and thereby the maintenance of orthodox economic theory.

In this vein, liberal mentality brought by standard economics is strengthened, the same mentality that always cared for global economic balance between all nations' exchange rates and balance of payments, paying hardly any consideration to the issue of domestic poverty and income concentration.¹¹ However, the so-called balance reached during the Pax Britannica hegemony was deformed to the free flow of fictitious capital within the globe, as remarked by Chesnais and Teixeira & Ferreira.^{12,13}

3. Fictitious Capital and Crises

Credit is a kind of capital with double-value which links production and circulation of

commodities through the anticipation of surplus-value in a manner that its entire amount is invested (though through compression of time) in production. Fictitious Capital is (in our reasoning and also of Foley and Mollo) the artificial and secondary valuation of such credit, subordinate to speculation schemes without anchorage of production and whose main interest resides on the asset itself, not the object portrayed by the asset.

If one were interested in portraying an accurate historical development of credit, it would become clear that such development is heavily linked with political thinking throughout the last few decades. Subsequent to the Second World War, economic models of minimum intervention from the state were questioned, as a reaction to their poor effects: the rise of monopolies, the deprivation of basic and beneficial conditions of life (such as health and education), the shrinkage of small businesses, and so on. This led to the *Welfare State*, a political and socio-economic model aiming at warranting human dignity through state intervention at all costs where assistance was needed.

However, in the 70s orthodox economics began to have its voice strengthened by the election of several conservative political leaders such as Thatcher, Reagan/Bush and Chirac. Such events were linked with the rise in prices brought by the rise of oil prices, amongst other crises in the decade. The result was that the Welfare State was gradually altered and capital gained more power through flexibilisation and globalization. The development of the Washington Consensus was a key event that occurred after that time and continued during the 90s. It aimed for a world with free global capital flows, and emergence of the euro-dollar market, which made it more difficult to trace money back to its origin and to establish full, effective regulation.

As a result, during the last few decades, capital has multiplied sharply. It is estimated that in 2007, generated income in the U.S. financial markets was ten times bigger than the country's GDP. Balance Payments Deficits and private indebtedness have also escalated rapidly in the United States since the beginning of this century.¹⁴ Whereas on the financial side, wealth was uphill: big companies could splurge in swaps, debt securitization, leverage, and derivative credit to prosper without constraints. Hegemonic nations also have worked consistently to provide free capital flow and also to evade themselves from any responsibility.

For a better regard of such massive fictitious capital flow, Teixeira & Ferreira signal that in 2007 the five largest investment banks in the U.S. possessed leveraged loans up to US \$4.1 trillion, which amounted to 30% of the U.S. GDP.¹⁵ Around the same period, the appreciation of house value rose 124% from 1997 to 2006 whereas assets derived from said mortgages (such as synthetic collateralized debt obligations and naked CDS) have had their face value estimated at US \$35 trillion, that is to say, 14 times the value of the same mortgages which supposedly backed them.¹⁶ By 2009 the global financial market already possessed a face value of US \$614,674 trillion, which is the equivalent of the global production of the previous 10 years.¹⁷ Duyn's estimates are similar to Mollo's findings, in which financeirization represented, in face value, almost 10.8 times the global GDP.¹⁸ In Teixeira and Ferreira's work, since some hedge funds promised a 30% annual interest, investing in short run speculative bonds became widespread instead of investing in the productive sector.

However, the free assimilation of Fictitious Capital increases the amount of presumed wealth in the globe, without further possibility of realization in the commodities' circulation field. This internal contradiction can only resolve itself through periodic crises, in which capital needs to destroy itself in order to realize its ultimate devaluation.

The triggering of the crisis is correlated with a rise in interest rates, which conveys a difficulty in accessing credit but renders bigger profits for fictitious capital. When the interest rate rises, the payment of loans previously made are compromised and firms need to sell more assets in order to reimburse

money for such loans. As many of the firms usually suffer the same conditions, the vast selling of assets knocks down prices and worsens the situation of the firms which need to sell themselves. This triggers the crisis.

In this vein, it is possible to consider that crises are not caused by exogenous and random shocks due to state carelessness, nor do markets spontaneously reach a state of equilibrium. On the contrary, the relative autonomy between prices and value and between production and circulation – entitled by money and credit – is an intrinsic conflict innate in capitalism and it must solve itself periodically through the occurrence of crises. Crisis, depression and recession are elements as common as money and speculative resource allocation in capitalism. Unfortunately, it results that the fictitious capital scheme works in favour of privatization of gains and socialization of losses. There was not, according to FeD's reasoning, a mere bureaucratic deregulation which ended up in unexpected crisis. Crises are the only symptom through which capitalism can be reborn and still sustain itself with all its inner contradictions.

“Crises are the only symptom through which capitalism can be reborn and still sustain itself with all its inner contradictions.”

4. The Orthodox Theory, its Harmful Effects on Growth and Concluding Remarks

Neoliberal theory is strongly based on models of equilibrium proposed by the founding fathers of Economics. Such framework also demands, for its consolidation, the free flow of capital. Believing that capital flexibilisation will converge global economy to a state of equilibrium is the same as assuming that a casual and grotesque fact may imprint on reality the idealized forms of a theory, and that in economics the platonic epistemology applies.

The pseudo-neutrality of equilibrium models (in all its makings) is consubstantiated by formalization born in mathematics. This approach has its origin in positivist reductionism with a normative appeal, for it does not take under consideration the real dilemmas of material means of existence. Amongst them we can cite class conflict, structures of power, and *ad hoc* political choice perpetrated in a global development and poverty reduction context.

A brief historical and political research shows first-hand that greater flexibilisation of capital does not result in a harmonic price rearrangement, but, rather, in a rash and uncontrollable crusade in which capital hunts, at every concealed hideout of the globe and the markets,

which are new ways to improve exponentially its profitability.^{19,20} And on this quest, the first things to run over are the jobs, the ideals of social welfare and the environment. From time to time, workers themselves are blamed for poverty, whence they are found guilty for the harm they inflict upon themselves.²¹

“Crisis is not the disease: it is the main solution through which capitalism can sustain itself in time, even when carrying within itself the “seeds of its own destruction”.”

In regard to the analyses on crises, conventional thinking still puts the blame on a cause-effect relation external to the logical and formal equilibrium model. Accordingly, it would be sufficient to eliminate the exterior cause (financial deregulation) as a way of healing and preventing any other crises. This assertion is precisely what our study of fictitious capital aims to criticize. Crises do not occur through an exterior cause, they are embodied within the internal contradictions of capitalism itself. Capitalism is a living historical organism anchored in time and the bearer of a number of symptoms and internal conflicts which can only be resolved through crises. Therefore, crisis is not the disease: it is the main solution through which capitalism can sustain itself in time, even when carrying within itself the “seeds of its own destruction”. This pattern of thinking is parallel to how Freud and Lacan addressed their patients: if a psychotic patient is in a delirium, delirium itself is not considered the disease.^{22,23} It is a crutch the patient – a crystallized and broken subject – uses to address the disease’s existence. In the same manner, the study of capitalism should not begin from a supposed state of “normality” and “convergent equilibrium” but, rather, as an analysis of a broken subject, an unstable mechanism, uneven, with strong tendencies to capital concentration. In this vein, the subject lends itself to be understood as “delirium”, an unexpected state of affairs which also aims to provide the meaning of its existence. If Freud and Lacan listened to their patients’ delirium, so should we listen to the symptoms of the crisis instead of ignoring them and strengthening our weak faith in normality.

Conventional and normative discourse has been used to bury underneath the ground all historical importance of resource reallocation. Nowadays, history has thrown light on the irrationality of our laws in social life, the victory of cheap labour market over humanitarianism, of profit over reduction of misery. Thus, financial capital still expands throughout the globe under the mantle of a “scientifically neutral” orthodox theory. The domain of critical multidisciplinary vision has become restricted, whereas the scope for theoretical realization is much larger. Economic intellect has become much more demanding in the formal realm and much more modest in the realm of social reality. Economic criticism is no more a combative weapon to attack world injustice, but has become a receded trench behind big companies, bankers and lobbyists. Political economy is no longer an instrument of conquest but one of renouncement.

Thereby, even under the occurrence of crises the orthodox speech solidifies itself. And specifically, the idea that capital may grant long term artificially created wealth without

further damage to production, since in the long term all supply and demand would cancel themselves in harmony. It is through this reasoning which acquiesces to fictitious capital that we bring Gramsci's theory: his main idea was that the ruling class did not dominate by force, but by persuasion.²⁴ Persuasion was indirect: subordinate classes learned to view society through their ruler's eyes, due to an obscure schooling of reality and the foul setting of education in societal organization.

"Fictitious capital has become a nationless being, unruly, insatiable, thriving for infinite expansion with the promise of extraordinary profit."

Due to "pure idealism", an abstract and ideal world is created, reminiscent of a sphere of values autonomous to civilization. This beautiful speech serves well for monopolists and bankers to maintain their power. Science of equilibrium, in this manner, is based on pseudo-neutrality, as a consequence of which science can be utilized either for humanity or for the means of the powerful. We are not nullifying or underappreciating formal science, but are, rather, in the quest of freeing it from its masters that science itself has established.

The alternative line of thought alien to conventional economics, illustrated by Marx, Keynes, Luxemburg, Kalecki and others, helps economic debate regrow after the failure in predicting the great economic disturbance that sprang in 2008.^{25,26} This line of thought is crucial in revealing intellectual flaws in the model that has allowed the creation of recent crisis. The heterodox view is also important in narrating internal contradictions of the capitalist economy, suggesting a political agenda that may, under certain limits, contour serious problems in growth, distribution and instability within the economic system.

Without this critical view, it is not possible to establish a comprehensive theoretical overview of new paradigms in economic development. These should ally themselves not to capital flexibilisation and conventional economic narrative but, rather, to a multi-faceted study involving sustainable development. The former does not ignore all true questions about full employment, reduction of income inequality, sustainability of the world ecosystem, of economic social welfare and of true governance that support laws far beyond equality of rights, but has social precedents such as access to quality education and health.

The recent global financial and economic crisis has underscored the fact that despite significant increases in income and other "development" indicators in many parts of the world, in the last 50 years or so, the appropriate paths to development require serious rethinking. The rapid growth of the financial sector in the global economy has made economies fragile. Increases in inequality seem to make societies more unjust and unstable.

In short, Fictitious Capital is a specific kind of "asset" that is grown in the speculative financial market (amongst other origins) and promises to generate extraordinary profit, money that multiplies itself into more money, without any anchorage of production. As such, fictitious capital does not take part *a priori* in the "real world productive process" nor the circulation and realization of commodities; it enriches the pockets of the owners of such assets but does not constitute value which binds and holds together the axis of social relations. It

is also able to align itself to the government, bankers and to powerful businessmen to find a variety of paths to expand around the globe. When its size is significant, the law of value strikes back and capital devalues itself, carrying along firms in bankruptcy, unemployment, recession and so on. And surprisingly, the answer orthodox economics offers is more capital freedom – and its dubious ability to bring back equilibrium.

In spite of the emergence of excessive deregulation, a number of financial innovations, the euro-dollar market and globalization, fictitious capital has nevertheless spread throughout the globe and has become a nationless being, unruly, insatiable, and thriving for infinite expansion with the promise of extraordinary profit. This is thus aligned with free capital mobility, and the relative immobility of workers and natural resources, many times located in poor nations with low political strength and vulnerable to market exploitation. The result is great stress not only on workers' quality of life, but also on great vulnerability to which the environment is exposed.

The recent book by Thomas Piketty signals that inequality is rising, where the author also comments extensively on the harmful effects of capitalism.²⁷ Taking all this information into consideration, we may suggest some guidelines to formulate new development paradigms, such as a new outlook on taxation, a higher stimulus to productive investment, granting more importance to heterodox thinking, and controlling both the rise of the degree of monopoly and of the financial speculative market.

In times of crises, heterodox thinking is most important for avoiding the traps and pitfalls that a normative equilibrium-based theory can offer. Conventional economic thinking, hopeful for a long lost, harmonic restoration point, may trigger an even worse deepening of the crisis, and may launch environmental and labour agenda into oblivion. As for the constant modelization of capital dynamics without further regard to social and historical reality, we can only say that the margins of reality, once fixated through language, cancel each other. Through the same spirit of contradiction which fictitious capital theory offers, we bring another tale narrated by Italian-naturalized writer Italo Calvino.²⁸ In his book, the *Invisible Cities*, it is said that the tartar emperor Kublai Khan asked Marco Polo to visit a number of places in his empire and describe, as a model, how those cities were. Their discussion is very elusive of the same discussion we hope to have successfully placed in this paper. It is as follows:

“From now on, I'll describe the cities to you.” the Khan had said, “In your journeys you will see if they exist.”

But the places visited by Marco Polo were always different from those thought of by the emperor.

“And yet I have constructed in my mind a model city from which all possible cities can be deduced,” Kublai said. “It contains everything corresponding to the norm. Since the cities that exist diverge in varying degrees from the norm, I need only foresee the exceptions to the norm and calculate the most probable combinations.”

“I have also thought of a model city from which I deduce all the others,” Marco answered. “It is a city made only of exceptions, exclusions, incongruities, contradictions. If such a city is the most improbable, by reducing the number of elements, we increase the probability that the city really exists. So I have only to subtract exceptions from my model, and in whatever direction I proceed, I will arrive at one of the cities which, always as an exception, exist. But I cannot force my operation beyond a certain limit: I would achieve cities too probable to be real.”

“We need a value-based, trans-disciplinary science of society.”

We would like to emphasize that in order to deal with the deleterious destabilizing effects of poorly regulated (or unregulated) financial assets and fictitious capital, it is essential to recast the central focus of economic theory and economic programs. In this vein we need deep integration with other disciplines. After all, we live in an increasingly competitive environment (locally, nationally and globally). In other words, we need a value-based, trans-disciplinary science of society. A science anchored in a solid understanding of institutional configurations, visions and dynamics of society.

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Replacing the Concept of Externalities to Analyze Constraints on Global Economic Growth and Move Toward a New Economic Paradigm

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Abstract

The prevailing economic paradigm has fallen short as a guide to policy making in this era of global economic crises. Numerous efforts are underway to revise it or replace it with a science of society that integrates intellectual disciplines. This paper makes a contribution to those efforts by arguing that the economic concept of externalities is no longer viable and that replacing it with the concept of an inclusive world economy provides new explanatory potential. The concept of externalities divides the world hierarchically, with the internal dominant and the external subordinate. In this way it gives any group of people the scientific legitimacy to conquer, manage and use other peoples and the natural world (the external) instrumentally; by extension, it drives the creation of ever newer technologies to do so. The concept fit the economic growth experiences of the emerging capitalist nations in the centuries prior to the 20th fairly well. Now that we live in a world in which all peoples, all economic activities, and all of the earth are tied together into a global economy that is no longer the case. The concept of an inclusive world economy fits our contemporary experiences better, aligns well with an integrated science approach, and provides new insights into prospects for economic growth.

“At the dawn of a new year, the world is in the midst of several epic transitions. Economic growth patterns, the geopolitical landscape, the social contract that binds people together, and our planet’s ecosystem are all undergoing radical, simultaneous transformations, generating anxiety and, in many places, turmoil.”¹

Efforts to construct a new paradigm of understanding and action that makes sense of our world and empowers us to create a better one are being pursued in many quarters. This quest is widely seen as necessary because so much that has happened over the last quarter century has undone our sense of knowing what is going on. And having lost our sense of what is going on, we have lost our ability to effectively solve problems, especially those for which a collective will is required.

The financial crisis of 2008, the Great Recession, and the slow and fitful recovery have shattered our certainty about economic matters. Concerns about rising levels of economic inequality, the emerging resource limits, and record numbers of extreme weather events are

undermining our faith in a future that is more equitable and prosperous than the present. Globalized trade and financial relationships have increased exposure for everyone to many more sources of economic and political shocks.

The responsibility for our troubling circumstances falls heavily on the field of economics. Economists did not predict the financial crisis of 2008, did not warn that the recovery from the Great Recession would proceed very slowly and be incomplete, have largely dismissed concerns about climate change and resources limits, and almost universally hail globalization as an unmitigated advancement for the world's people.

The need for rethinking economics is clear. Some of the world's leading economists have affirmed this:

*“As a world economic crisis developed in 2008 and lasted longer than most economists predicted, it became increasingly clear that beliefs about macroeconomics and macroeconomic policy needed to be thoroughly examined ... we knew that we had entered a brave new world ...”*²

“Human activities, institutional processes, climate dynamics, & ecosystem dynamics are all deeply connected.”

The challenge for people working to construct a new paradigm is well defined. The failures of the prevailing economic paradigm mentioned above, and others, tell us what a replacement paradigm must do well. How to go about the work of constructing that new paradigm is less well defined. But, we do have some ideas with which we can begin.

The scope of the work cannot be limited to the field of economics. The effort must draw from many intellectual disciplines and the resulting paradigm must transcend disciplines because the challenges the world is facing transcend disciplines. We now know that human activities, institutional processes, climate dynamics, and ecosystem dynamics are all deeply connected. We also know that ideas about challenges and opportunities, and decisions about which public policies to develop and implement, are deeply connected to our value systems.

The need for this kind of approach was captured with a rhetorical question in the preface to the *World Social Science Report 2010*: “Does a more integrated world require a more integrated social science?” The report went on to examine institutional issues related to taking a more integrated approach in the social sciences.³ In an article devoted to explicating the effort to construct a new paradigm Garry Jacobs surveys the forces behind the need for a new paradigm and calls for “an integrated science of society based on common principles to replace the fragmented disciplines that prevail today.” Those common principles broaden the call for an integrated effort to make it a values driven effort. In particular, Jacobs calls for an effort in which the foremost guiding star is “the right of every human being to peace, security, welfare and well-being.”⁴

The Club of Rome has defined the interdisciplinary scope of the work in programmatic terms. Its description for the program, *A New Path for World Development*, lists five areas of work (environment and resources, globalization, world development, social transformation, and peace and security). These areas of inquiry bring together multiple disciplines. The program description adds that a systems integration effort is part of the program: “As work proceeds on the five clusters, a parallel effort will focus on developing a better conceptual and practical understanding of the world systems within which they are linked and embedded. This helps to understand the linkages between trends, issues and actions and to identify the drivers of global change.”*

Two suggestions for particular steps to take are offered in the June 2014 Newsletter of the World Academy of Art and Science. Alexander Likhotal defined the work ahead in this way: “We need to develop a new content-based vocabulary for the changing social context, for the new model of social life.” While not directly responding to this idea, Ivo Šlaus suggested a way to begin this work: “A new paradigm maintains and preserves all the valid aspects of the existing paradigm...” These statements suggest that we can begin with a critical examination of the premises, concepts, and causal statements that make up the prevailing economic paradigm, tossing out some, modifying others, and creating new concepts as appropriate.

This article takes the lead from these suggestions and examines a concept that is part of the foundation of the economics of capitalism. That concept is externalities. Economists use the concept of externalities at every level of economic organization, from the firm to an industry to national and regional economies. Here, our focus is on the use of the concept in relation to an economy.

The concept is worth examining because it can be linked to a prediction that is widely embraced in the field of economics: the prediction that the world economy, or at least the majority of nations, can be restored to a high rate of economic growth. Most of the world’s economists insist that for any nation, a high rate of growth is only a few sound policy decisions and a little time away. For the world economy it is only a matter of time until nations that adopt the right policies lead the world into an era of increasing prosperity.

We have to question this prediction for three reasons. First, it is one of the most important predictions that economists derive from their economic paradigm. It fuels a widely shared expectation that the world’s middle class people will become more prosperous and middle class material prosperity will spread to more of the world’s people. It also drives the policy discussions among the world’s leaders that give us the policies that will or will not solve the world’s vexing problems.

Second, a growing number of economists, environmentalists, physicists, and other experts argue that the potential for economic growth is becoming increasingly limited, perhaps impossible.^{5,6,7} Third, the slow and erratic recovery from the Great Recession to date is at least as consistent with a model of the world economy in which economic growth has become permanently constrained as it is with one in which a resurgence of economic growth is assured.

* *A New Path for World Development*, Program of the Club of Rome. <http://www.clubofrome.org/?p=697>

1. From Externalities to Limitless Growth

The concept of externalities facilitates optimism about economic growth because it lends scientific credibility to an abiding faith in technological mastery over the human made and natural forces that threaten a nation's welfare. In turn, this faith in technology leads most policy makers to dismiss critical discussions of the future of economic growth as misguided and embrace investment policies in technology that are intended to promote ever more economic growth.

Concepts are seldom either right or wrong. They facilitate or inhibit particular lines of reasoning and particular modes of action within the context of a paradigm. The economics concept of externalities is part of the prevailing paradigm of knowledge about the world. This is a paradigm that fragments and divides research and explanations – which is supposed to be a good thing because disciplinary and conceptual boundaries promote the development of specialized skills and knowledge. But disciplinary and conceptual boundaries don't just focus attention; they also inhibit the discovery and study of processes that transcend those boundaries and bias public policy development in certain directions.

The concept of externalities divides and orders the world in a way that intellectually and morally empowers groups of humans to use technologies to conquer, control, and exploit other peoples and the world of nature. It does this by setting up a hierarchy of relationships across geopolitical, ecological, and geophysical boundaries and by inhibiting development of understandings of processes that transcend those boundaries.

The very word “external” divides the world into the internal and external. In economics, this division connotes a hierarchy of initiative and power that is played out at the boundary that separates an economy (the internal) from everything else (the external). This hierarchical bifurcation is implicit in definitions of externality.

BusinessDictionary.Com defines an externality as “a loss or gain in the welfare of one party resulting from an activity of another party, without there being any compensation for the losing party.” About.com puts a slightly different, but relevant, spin on the concept: “An externality is an effect of a purchase or use decision by one set of parties on others who did not have a choice and whose interests were not taken into account.”*

As well as dividing the world into two components, these definitions define an asymmetrical relationship in which one party has greater power than the other. One party initiates an action; the other party is a seemingly passive victim (negative externalities) or beneficiary (positive externalities) of the action initiated by the first party.

In the Western mind, passivity is less worthy than activism. Thus, the concept of externalities also carries with it a hierarchy of worthiness. From within an economy (the internal world), the external world is seen as less worthy than the internal world, so it is legitimately subject to being conquered, controlled, manipulated, and consumed.

* See <http://www.businessdictionary.com/definition/externalities.html> and <http://economics.about.com/cs/economicsglossary/g/externality.htm>

2. A National Economy and its External Worlds

For economists and the rest of us, the primary economic unit is a nation. Everything economic is seen through the lens of boundaries that define a nation. The boundaries that come to mind immediately are territorial – the boundaries that divide the world’s people and territories into separate geopolitical entities and economies. But, a national economy is also defined in terms of geophysical and ecological boundaries. Certain things, notably the things of nature, are not part of the national economy even when they are found within the territorial boundaries of the nation.

3. The External Status of Other Economies

From the perspective of the people of an initiating nation, the boundaries of their nation are the boundaries of an economy. Other people and their economic activities and other territories are external. Because those people and their economic activities are external, economic relationships with them are “foreign” relations entered into for instrumental purposes – to supplement domestic demand, to provide supplemental and low cost labor, to gain access to the resources in their territories, and to use their territories as dumping grounds for waste.

The people of external territories are excluded from discussions within the initiating nation that lead to the pursuit of instrumental access through negotiations or invasion. From the perspective of the people in the initiating nation, it is up to external peoples to protect themselves and their economic activities. If they are unsuccessful at this, it is only evidence that the initiating people are superior and in the right to make use of the external peoples and their economic activities.

It should be noted that people who are not economically active and do not have a culturally legitimate reason for not being economically active are deemed to be external to the national economy. In status, they are also foreigners, even when they live in the same communities as those who are part of the national economy.

4. The External Status of Nature

Technically, humans are part of the natural world, but the people of a nation who are engaged in economic activities effectively define themselves as separate from nature. Nature is a separate and external form of existence.

The things of nature are not forms of wealth; the things of nature have no wealth value until people have done something with those things to give them market value (collected and delivered them; processed them into something else). Nature is also a dumping ground for waste and discarded wealth, even when the part of the natural world that is being used by a people for that purpose is within the national boundaries of the nation of those people. Waste never becomes part of the internal world (the economy) and wealth that is discarded is no longer considered to be wealth, so it is part of the external world.

External peoples are also seen as part of nature. They exist, but they have no wealth value until the people of the initiating nation do something with them – teach them, change their culture, and assimilate them into the nation as various forms of human capital.

5. Externalities and Technological Optimism

The inequalities of power and worthiness in the relationship between an economy and its external world facilitate a belief that the external can and should be used to solve problems encountered by the participants in an economy. In turn, this belief drives a continuing effort to create technologies for doing just that.

In the histories of the affluent capitalist nations, technologies to manipulate and process the external world have been used with considerable success. Extraction and transportation technologies have been used with great success to transform elements of the earth into material wealth. Weapons technologies and social control technologies have been used to gain access to elements of the earth in external lands and to control and use external peoples. This history of successes has imbued Western people with an almost unshakable technological optimism.

It is an easy intellectual move from technological optimism to optimism about economic growth. Whatever problem is holding up the restoration of a high rate of economic growth in the world economy can be fixed with technological advances. This optimism is nicely captured in the words of an academic professional and mother:

“When I was pregnant with my second daughter, I had a terrible, apocalyptic dream about a global water crisis. ... My second thought was Johns Hopkins will fix this. ... But I’m ever hopeful that science will find its way, that as my daughters grow up and have their own kids, they can worry about something else.”⁸

6. Conceptualizing an Alternative View

Seeing the world through the economics concept of externalities is not the only way to see it. Taking guidance from those who advocate an integrated approach to developing a new paradigm suited to the challenges of our times, we can also see the world as an integrated whole that must be studied and understood as a system. We can discard concepts that fragment the world and disconnect the pieces and turn to concepts that include and reconnect the fragments the prevailing paradigm has handed down to us.

The concept employed here is the concept of an inclusive world economy. This is a concept intended to shift analytic practice away from defining all problems and solutions in terms of geopolitical, geophysical, and ecological entities toward defining some problems in terms of processes that transcend those boundaries.

By adopting an inclusive point of view, we weaken lines of reasoning that depend on the concept of externalities, but we also strengthen other lines of reasoning. In particular, we

strengthen lines of reasoning that grow out of efforts to produce understandings of the world by integrating insights from multiple disciplines.

In the case at hand (examining prospects for continuing high rates of economic growth), adopting the concept of an inclusive world economy considerably undermines optimism about economic growth. Possibilities that are visible from the perspective of the limited world of the internal become less salient when they are considered alongside possibilities that become visible when the internal and external are united and system wide processes are given greater attention.

7. From a World Economy with Externalities to an Inclusive World Economy

The concept of externalities belongs to a bygone era. Without selecting a particular year or decade, we can say that the history of capitalism is divided into two periods. The first period (roughly the 16th through the 19th centuries) was a dynamic period in which capitalist nations and their emissaries and armies incorporated more and more of the world's peoples and territories and resources into the expanding system of nation-states and capitalist markets. That period roughly coincided with the activities widely referred to using the terms colonialism and imperialism. For convenience we can call that period the expansion period in the development of the world economy.

The concept of externalities belongs to that expansion period because significant numbers of the world's people and significant amounts of territory and resources had not been incorporated into nation-state jurisdictions; all aspects of life had not been organized around commodity markets, not even in the capitalist nations and not even by the dawn of the 20th century. Dividing the world into hierarchies of the internal and external was a strong fit with a world of capitalist and pre-capitalist societies, limited interactions across geopolitical and societal boundaries, political systems based on royal families and property rights, and limited understandings of the impact of human activities on the environment.

That world disappeared over the course of the 20th century. We are living in the second period of the history of capitalism and the concept of externalities does not fit the circumstances that now prevail. In this period there are no true externalities, no inputs from outside the system, and no outputs and outcomes that are transferred outside the system. There is a continuum from core to periphery in the system – core processes to peripheral processes, core nations to peripheral nations, core markets to peripheral markets, etc. In this world, the sources of inputs and the destinations of outputs and outcomes are politically defined as internal and external, but in reality they are only distributed unevenly among politically defined territories, populations, and ecosystems. No matter the distributional map for inputs, outputs and outcomes, they are internal to the world economy, not external to it. The earth and everything animate and inanimate that resides in, on, and above it constitutes the world economy. The current period can be called the inclusive world economy period.

Describing the contemporary world in this way is not new. In his book, *Something New Under the Sun*, J. R. McNeill writes an environmental history of the world economy that sets

off the 20th century as a new phenomenon because of the unprecedented scale of human activities and the unprecedented impact of those activities on the environment: "...for the most part the ecological peculiarity of the twentieth century is a matter of scale and intensity."⁹ In a similar vein, Herman Daly, an economist and advocate for a steady-state economy, notes that "The most important change in recent times has been the enormous growth of one subsystem of the Earth, namely the economy, relative to the total system, the ecosphere ... The closer the economy approaches the scale of the whole Earth the more it will have to conform to the physical behavior mode of the Earth."¹⁰

Describing the world in this way is also well aligned with calls for a new paradigm for understanding society that transcends disciplines. The concept of an inclusive world economy explicitly defines the world economy to consist not just of human activities and interactions among humans, but to also include non-human realms of activity and interactions between human institutions and those other realms of activity. Interactions among these various realms of activity and their consequences for human wellbeing cannot be fully understood without data and insights from the disciplines on all sides of those interactions.

8. Empirical and Interpretive Support for This View

Much can be said in favor of adopting the concept of an inclusive world economy. A growing body of empirical data shows that the peoples of the world are linked together in numerous ways. A popular expression of the "smallness" of the world is the idea of six degrees of separation between any one person and any other person on the planet.

9. Evidence of Global Integration

The high level of integration of the world's economic and geopolitical activities is demonstrated by numerous statistics. For instance:

- In 2010 the daily volume of currencies traded was 220 per cent higher than that in 2001, and 65 per cent of the transactions were cross-border — up from 54 per cent in 1998. Between 1990 and 2011 foreign direct investment increased more than six fold.¹¹
- The ratio of world exports of merchandise and commercial services to world GDP in current dollar terms was around 32 per cent in 2012, up from 22 percent in 1990 and close to its peak value of 33 per cent in 2008.¹²
- The movement of people across national boundaries is increasing. In 2013, 232 million people (3.2 per cent of the world's population) were international migrants; in 2000 the number was 175 million and in 1990 it was 154 million.¹³
- International travel is growing. From 2010 to 2013, outbound trips increased by 22 percent. In 2012 arrivals exceeded one billion.¹⁴
- New technologies are spreading across the world at an accelerating rate.*,¹⁵

* See Information Technology, Globalization 101, SUNY Levin Institute <http://www.globalization101.org/information-technology/>

- Since World War II the world has gained numerous international organizations – the International Monetary Fund, the World Bank, the Organization for Economic Cooperation and Development, the Group of Eight, European Union, the World Trade Organization, and others.
- The World Trade Organization reports that regional trade agreements (RTAs) have become increasingly prevalent since the early 1990s. As of June 2014, 379 RTAs were in force.*
- Membership in the United Nations has grown from 51 in 1945 to 193 in 2011.†
- Centralized control of the world economy has been increasing, as shown by a study of the ties among owners of international corporations that found that “transnational corporations form a giant bow-tie structure and that a large portion of control flows to a small tightly-knit core of financial institutions.”¹⁶

The International Monetary Fund (IMF) has produced a number of studies of economic spillovers from one country to another. From one such study: “The size and composition of spillovers across countries is one of the many issues that have resurfaced in the wake of the Great Recession. It is now apparent that events in some countries can have profound spillovers elsewhere which are not limited to their immediate neighbors but can ricochet around the globe.”¹⁷

Other IMF studies report evidence of shortcomings in policy effectiveness when sufficient transnational coordination is missing. This quote from the summary of a study illustrates this point: “In cross-border cases, misaligned incentives and lack of robust mechanisms for resolution and cross-border cooperation left some country authorities with little choice but to take unilateral actions, which contributed to the high fiscal costs of the crisis and resulted in disorderly resolution in some cases.”¹⁸

Increasingly, nature is being pulled from the external world into the world economy through activities that effectively assign monetary value to various aspects of nature. Examples of this process include investments in wildlife preserves, wilderness areas, endangered species protection, wet lands protection and reclamation, and many other forms of nature protection and management. Assigning a price to carbon dioxide to discourage emissions is equivalent to assigning a monetary value to climate stability. Markets in which nature futures are bought and sold are now as much a reality as markets for corn and hog futures.

10. Interpretive Support

In addition to the empirical data, interpretive support for an inclusive world economy is increasingly coming from economists and other experts. Michael Spence, Professor of Economics at NYU’s Stern School of Business and Nobel laureate economist, observes that national “policies (or policy shifts) are increasingly affecting other economies and the global

* See World Trade Organization http://www.wto.org/english/tratop_e/region_e/region_e.htm

† See <http://www.un.org/en/members/growth.shtml>

system, giving rise to what might be called “policy externalities” – that is, consequences that extend outside policymakers’ target environment.”¹⁹ Javier Solana, president of the ESADE Center for Global Economy and Geopolitics and Distinguished Fellow at the Brookings Institution, concludes that the nations of the world have become so interdependent that “one country’s policies, whether pertaining to work, the environment, public health, taxation, or myriad other issues, can have a direct impact on others.”²⁰ Moisés Naim, senior associate in the International Economics Program at the Carnegie Endowment for International Peace, warns that “politicians should do a much better job of explaining to their constituents’ that what happens beyond the borders of their country or city has implications for what happens inside their homes.”²¹

“The concept of economic growth captures only one component of the development of the inclusive world economy; measuring economic growth has only limited use as an indicator of changes in human wellbeing.”

Stefano Bartolini, Associate Professor of Economics, University of Siena, inadvertently makes the case for adopting the concept of an inclusive world economy with an argument that the “growth process generates extensive negative externalities which reduce the capacity of the social and natural environment to furnish free goods.” Put another way, externally sourced goods (free goods) are disappearing. As they disappear they must be replaced with produced (not free) goods. Since produced goods have an assigned value, they are counted as wealth.²²

11. Implications for Evaluating Prospects for Economic Growth

Discarding the concept of externalities and adopting the concept of an inclusive world economy gives us a different set of propositional statements on which to base an evaluation of prospects for economic growth in the current period. In general, this view elevates the importance of defining and observing global processes and discovering and measuring all of the outcomes associated with those processes. It leads us to describe and explain the activities and trends we observe in the world and the likely consequences with reference to system components, system processes, and system development outcomes.

Derivative propositions associated with economic growth include:

- The concept of economic growth captures only one component of the development of the inclusive world economy; measuring economic growth has only limited (and thus error prone) use as an indicator of changes in human wellbeing.
- The products and byproducts of global processes are distributed across the entire world economy through the network or relationships that make up the world economy; the products and byproducts of so-called national economies are only components of global products and byproducts.

- Problems and solutions associated with supply and demand, economic activities and growth, societal outcomes, and conditions in the world of nature are properly defined as aspects of the development of the inclusive world economy
- The global rate of economic growth in the current period is determined by world economy level processes; the global rate is not the sum of national rates; national rates are components of the global rate.
- The global rate of economic growth in the current period constrains national and local rates of growth; national policies affect the distribution of global economic growth much more than they affect the global rate of economic growth – to a great extent, one nation's gain in economic growth is another nation's loss.

This conceptualization transforms the options available to the world's institutions. Unilateral action is less efficacious. The information derived from defining processes as national and local becomes less informative for creating public policies for enhancing and protecting human welfare; public policies based on national and local measures of economic performance can even be counter-productive.

12. Technological Solutions in This View

Technological optimism is much more difficult to maintain with the concept of an inclusive world economy. Technological solutions in this view are responses to problems that are defined with an artificially limited scope; the consequence is that technological solutions are limited solutions and often illusionary solutions.

Particular institutions and organizations of people can use technologies to manipulate the distribution of harmful outcomes and developments to other institutions and organizations of peoples, but they cannot eject them from the inclusive world economy. Nor can they eject consequences of the actions of other institutions and organizations of people from the inclusive world economy. Everything done travels through the network of relationships among institutions, groups, and ecosystems that make up the inclusive world economy; everything done contributes to the historical development of the whole.

Within an inclusive world economy, nothing can be added or taken away through the use of technology. Technological fixes (including resource substitution) only change the symptomatic form of a problem so that it displays in another time and place in the world economy and/or in another form. They only create the illusion in a given place that certain effects of human activity have been safely contained in an external part of the world. They can push some consequences off into the seemingly external future, but, unfortunately, the future quickly becomes the present; its function as an illusory externality dissolves and yesterday's exiled consequences come back into our midst.

13. Prospects for Economic Growth in an Inclusive World Economy

The inclusive world economy view leads to a conclusion that prospects for economic growth are now much more constrained than during the expansion phase of world economy

development. The reason is that the key drivers of economic growth during the expansion phase are disappearing and barriers to economic growth that did not exist during the expansion phase or existed only in limited, manageable forms are now emerging. These new barriers are formidable and resistant to technological fixes.

Economic growth consists of more or less simultaneous increases on the supply and demand sides of the world economy. It takes place when owners of production facilities increase the volumes of goods and services they produce and introduce into the world's markets and businesses and consumers buy those additional goods and services. Increases on the supply and demand sides are usually out of sync, but over the long run both have to increase by close to the same amount.

In the normal course of things, investors and owners of businesses make responsive investments to meet demand that exceeds available supply or make anticipatory investments, betting that demand to match those investments will develop in the near future. On the other side, businesses and consumers increase demand by making additional purchases using current additions to income or by borrowing against anticipated future income growth.

The rate of economic growth is determined by drivers and barriers on the supply and demand sides of the world economy. Economic growth increases when the power of the drivers of economic growth exceeds the power of the barriers. When investors, business owners and consumers perceive that this is the case, they engage in activities that grow the world economy. When they perceive that the barriers outweigh the drivers, they pull back on those activities. In the worst case, existing investments are demobilized and business and consumer incomes are shifted from purchases to various forms of savings.

Perceptions get a lot of attention from economists and investment experts, but perceptions cannot go far afield for very long because objective factors always force corrections to misguided perceptions. Over the longer term, objective factors are the relevant drivers and barriers to economic growth.

14. Drivers and Barriers During the Expansion Period

During the expansion period of capitalism the incorporation into the world economy of lands, resources, and peoples outside the system was a major driver of economic growth. That dynamic process played a key role in generating new market demand. Waves of new consumer demand were created through a process of moving communities of people away from producing goods and services for themselves (no monetary value attached) to buying goods and services in the marketplace. In this process, economic enterprises did not so much expand the volume of goods and services being produced as take over existing home and community based production of goods and services and assign market values to them.

Most visibly, this was facilitated by bringing external peoples under the control of western nations through the imposition of colonial governments and later through the formation of dominant state-client state relationships. As is well documented, bribery, laws that enable

deception and exploitation, intimidation, violence, and war played large parts in this history. Over and over, indigenous peoples were set to work transferring the indigenous resources of their own lands to the agents of imperialist nations in exchange for wages. Cut off from indigenous communities and associated production practices, and with no time left over after performing wage labor to engage in production for themselves, those peoples could only use their wages to buy the things they needed from the same or other agents of the imperialist nations. Thus, the monies paid to indigenous peoples pressed into wage work returned to the imperialist nations as new consumer demand (alongside the new flows of indigenous resource wealth).

The external world of peoples and resources was enormous in the first centuries of the era of expansion. Using their technological advantages in transportation and warfare, the emerging capitalist nations rapidly incorporated indigenous peoples and resources, fueling high rates of economic growth. For example, the slave trade mobilized the labor of millions of Africans in the Americas.

One estimate is that 6.5 million immigrants survived crossing of the Atlantic to the Western Hemisphere between 1492 and 1776. Of those, only 1 million were Europeans; the remaining 5.5 million were enslaved Africans. On average, 80 percent of these enslaved Africans were put to work as field-workers.²³ By the end of the slavery era, almost 12 million Africans were brought to the New World.²⁴

Slaves did not become consumers because they were not paid in money. However, the products of their work were sold on capitalist markets by the slave owners. Rapid income growth turned slave owners and ancillary shop keepers and craftsmen into consumers of goods produced in Europe and North America and into suppliers of the raw materials and food items that fueled the growing industrial and commercial centers of Europe and the Americas.

Another example of the role of external peoples and resources in driving economic growth was the economic impact of the flow of gold and silver from the Americas to Europe. According to one source, "Imported gold and, more significantly, silver probably affected the European economy more than all other foreign goods ... the bullion bonanza ... increased the profits of merchants selling on a rising market, thus greatly stimulating north European capitalism."²⁵

In that era of expansion, insurmountable barriers to economic growth did not exist in practice or in theory. Input shortages, political upheavals, wars, and supply and demand imbalances did produce interruptions to economic growth, but the worst case was (and seemingly would always be) a temporary and localized slowdown in economic growth. Untapped stocks and deposits of resources and populations of potential workers and consumers were just an explorer, a bribe, a military campaign, or a technological advancement away. Restoring the balance between supply and demand was just a policy intervention away. Growing both the supply and demand sides of the world economy was assured.

15. Disappearing Economic Growth Drivers and Emerging Barriers

The efficacy of incorporating external peoples and resources to drive economic growth in the world economy began to diminish in the 20th century. By the end of the century, the Western capitalist world had virtually completed the work of bringing everything and everyone on the planet into the world economy. Today, almost every square inch of the earth's surface and every resource deposit above, below and on the earth are now under the control of a nation or an agreement among some set of nations; almost every person must answer to a national government; and almost every person participates in markets directly or indirectly to obtain a livelihood. The only frontiers (territories not yet fully incorporated) left are parts of the arctic regions, the bottoms of the open seas, and outer space.

The disappearance of a world of people and resources that is external to the world economy disabled the most powerful drivers for supply side and demand side growth. The burden of generating economic growth now falls almost completely onto governmental policy interventions that boost consumer incomes and facilitate technological innovations that expand access to resources and reduce resource use inefficiencies.

On the demand side of the world economy very few communities of people who live mainly by producing goods and services for themselves still exist, and those that do are very small. Today, new consumers are added almost exclusively through births.

This is an incremental process of consumer demand growth that is not keeping pace with the world's growing production capacity because most births are in lower income families with very little purchasing power. In most cases, each new addition to the world's population adds only a minimal level of consumer demand.

On the supply side, the growth of the nation-state system to encompass the entire earth has mobilized enormous resources for developing and implementing production technologies that displace human labor. For much of the expansion era, a large part of the energy used in producing goods and services came from humans, so increasing production required increasing the number of people at work. This was the supply side problem that slavery addressed. As slavery ended, wage workers provided more and more of the human energy used in production processes. Wage workers became consumers, so as production expanded consumption could expand as well.

Today, every national government and many subnational governments use tax money to subsidize and drive the development of new production technologies. Those efforts have increased the pace at which production technologies that displace human labor are being developed and implemented. These advances are rapidly destroying the role of supply side growth in driving demand side growth. They ramp up the production of goods and services much more than they ramp up consumer incomes.

Alongside the disabling of classic economic growth drivers, barriers to economic growth have emerged that are neither temporary nor localized; they are global in scope and epochal. And, they are formidable and becoming more resistant to policy interventions and less amenable to technological fixes with each passing year.

These barriers are the finiteness of the earth, entropic constraints, and insecure investment environments.

16. Finiteness of the Earth

The primary impact of the finiteness of the earth is on the supply side of economic growth. We have now reached a point in time when the list of resources essential to production that might become temporarily or permanently scarce, and thus much more expensive to exploit, is getting quite long. Among these resources are fossil fuels, fresh water, fish stocks, arable land, and water, land, and air masses that can safely absorb and disperse the byproducts and waste of global affluence.

We may succeed in developing alternatives to resources currently in use as they become more scarce, but transitions from currently used resources to alternatives cannot drive economic growth to the same extent that exploiting newly acquired, easily exploited resources can. One reason is that input substitution too often requires a wide-ranging overhaul of industries, technical skills, legal environments, and consumer behaviors. This absorbs much of the value of the substitute resource.

We are facing this reality now, with the efforts to replace fossil fuel vehicles with vehicles powered by electricity or hydrogen. Not only does this effort require oil and gas companies to write off the value of oil and gas fields and associated equipment, it requires training a new generation of automotive technicians, dismantling pipelines and storage tanks in a way that protects the environment, massive investments in whole new industries, and changes in the way people operate and maintain their cars, trucks and other vehicles.

17. Entropic Constraints

Every form of wealth degrades as time passes. Some forms, like perishable food, degrade quickly, others are more durable. The scientific term that captures the notion that the degradation of the world's wealth is unstoppable is entropy. A nice overview of this issue was written by John Scales Avery in 2012.²⁶

Entropy constrains economic growth through its impact on decisions about which goods and services to produce and on how we use the wealth we create. The items that make up a stock of wealth must be repaired or replaced at the rate at which they degrade. Otherwise, the stock of existing wealth diminishes. Thus, to maintain the public and private stocks of wealth at current levels, a portion of the economic activities that make up an economy must be devoted to repairing and replacing items of wealth that are being lost to degradation and destruction. For the world economy, repair and replacement costs have become a substantial and growing barrier to economic growth.

This barrier has emerged because the stock of global wealth has been growing for several hundred years and increased enormously in the last century. Most visible to us is the accumulation of manufactured wealth – hundreds of millions of automobiles, thousands of skyscrapers, hundreds of thousands of production and service facilities, endless miles of

roads and bridges, hundreds of millions of homes and household appliances, billions of personal items, etc.

This stock of wealth is enormous, so the volume of economic activities that must be devoted to offsetting degradation and destruction is very large. More importantly, that volume is growing rapidly because the global stock of wealth is aging and because much of that stock of wealth was not designed to endure the extreme weather events that are now upon us or to endure the destructiveness of riots and wars.

Human creations are not the only kind of wealth that we must devote our income to maintaining, and possibly not the most costly to us. With each passing year, we are learning that the earth's atmosphere, oceans, ecosystems, and species are increasingly a part of the stock of global wealth that must be maintained. Human activity has become such an enormous source of "damage" to these parts of the earth system that we must now count these things as wealth and invest income in maintaining them. Even the world's most formidable mountain (Everest) now has maintenance costs because it has become an economic asset that is used and damaged by human activity.

Maintaining this enormous stock of human made and natural wealth consumes a very large and growing share of the world's annual production of goods and services. The negative impact on economic growth is clear. The larger the proportion of total economic activity that must be devoted to maintaining current levels of wealth, the smaller the proportion that can be devoted to providing each new member of the global population with an average share of wealth.

On the supply side, investments in developing resource substitutes, exploring for new resource deposits, and constructing new production facilities are constrained. On the demand side, businesses and consumers are increasingly forced to devote more and more income to repairing and replacing the cars, computers, washing machines and other existing goods rather than to purchases that actually add to their wealth and wellbeing.

18. Investor Insecurity

The world economy's basket of acceptable production investment opportunities is shrinking. In the first place, the slowing rates of demand side and supply side growth discussed above are reducing investment opportunities. In addition, the remaining investment opportunities are becoming more and more risky. Also, rising inequalities of income and wealth are increasing the amounts of money and other liquid assets being held by investors that must be matched with suitable investment opportunities.

In recent decades, risk levels for production investments have been rising and investors have been moving their investment funds into non-production investment areas in the search for good returns and reasonable risk (government securities, real estate speculation, intangible assets, even cash).^{*} The cause of this shift is an accelerating breakdown of the

^{*} "Right now, for instance, regulators across the globe are warning about inflated prices for potentially risky assets ranging from U.S. junk bonds to the debt of economically shaky countries such as Spain and Greece to real estate in China and London." See Lisa Abramowicz, "Watching for Bubbles," *Bloomberg* <http://www.bloomberg.com/quicktake/watching-bubbles/>

effectiveness of the predictive tools and strategies used by investors to estimate levels of risk and return in the production investment arena. This breakdown can be traced to four key factors: a) global climate change, b) the intensification of competition among producers of goods and services that has come with globalization, c) the increasing rates of innovation on both the supply and demand sides of the world economy, d) the continuing failure of governments to create conditions for economic growth.

“Economic growth can and will continue to take place, but it will not follow the pattern established in the 20th century.”

19. Conclusion: A Slowing Rate of Economic Growth and Unprecedented Challenges to the Human Imagination

The concept of an inclusive world economy does not completely fit the world economy as it is today. The incorporation of everything and everyone into a single, all-inclusive economic system is not fully complete. This process is, however, sufficiently complete to warrant abandoning the concept of externalities and adopting the inclusive world economy concept as the better tool for analyzing the dynamics of change in the world today.

Remnants of the expansion phase of the development of the world economy are still with us, so the constraints on economic growth are not total. Economic growth can and will continue to take place, but it will not follow the pattern established in the 20th century. Over the long term, the world's economic growth rate will decline. It is even likely that the world economy will enter more and more prolonged periods of economic contraction, periods in which the production of wealth does not keep up with population growth and the degradation of existing wealth, periods when the global stock of real wealth actually declines.

No one wants this conclusion about the future of economic growth. It is very difficult for any of us to imagine a world in which peace prevails, in which efforts to move more and more people out of poverty can succeed, and in which life in the middle class can be truly satisfying without a high rate of economic growth. It is much easier to imagine that a world without sustained and substantial economic growth is a world that is doomed to a fate of rising poverty, inequality, and conflict.

We imagine this fate is the only possibility because we are informed by an economic paradigm in which economic growth is a necessity for human wellbeing. That paradigm constrains our vision. It does not allow us to imagine an acceptable world in which economic growth is slowing toward zero because it assures us that the link between economic growth and increasing human wellbeing is unbreakable. Yet, we have very likely entered such a period of history, so we must be able to imagine that humans can still thrive. We must develop imaginations that can invent the institutions for a world without economic growth. Trading in the concept of externalities for the concept of an inclusive world economy can help us do that.

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European Transition into a Socio-ecological Market Economy

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Abstract

The European Union has introduced the Europe 2020 Strategy and Horizon 2020, which contain several elements for a transition into a Socio-ecological Market Economy. But their implementations are mainly hampered by the unduly large financial sector and the political striving for high economic growth. A turn into low growth equilibrium needs a reduction of total capital inputs, which are composed of financial, man-made and natural capital. Whereas the reduction of financial capital needs a strong, but actually lacking political will, the reduction of man-made and natural capital depends on a real capital saving innovation system, which should partly be financed by a transfer of financial capital to the real productive sector. Beyond a strong reduction of financial capital and depending on existing ecological, social and economic problems, the innovation system should save man-made and natural capital accordingly. In all cases these innovations need higher qualification by means of a human-centered educational system. Higher educational investments, i.e. augmented "human capital," are decisive for a transition into a Socio-ecological Market Economy for two reasons: First, higher qualification will augment the wage-profit relation and second, capital saving innovations will reduce productive capital inputs without reducing the profit rate on the reduced real capital stock. Increasing "human capital" intensity will accelerate the transition into low growth equilibrium with a higher consumption-investment relation, which creates more domestic final demand and needs lower export surpluses. Starting from existing high productive and financial capital intensity, during the transition saving surpluses in Europe will decline only step by step; they should not be allocated in financial markets, but for a considerably more human-centered education and real investments in Europe and the Third World.

1. Economic Crisis and Socio-ecological Market Economy

The European economic crisis has suddenly interrupted a fairly good economic development, wiped out nearly all economic progresses made since the last decade and caused a setback of several advances towards a Socio-ecological Market Economy (SEME).¹ After the introduction of the Currency Union, Europe was firmly determined to establish a socially and ecologically sustainable economy and implemented – although the Lisbon Strategy was rather deceiving – a variety of corresponding measures, which made it the global forerunner in developing an SEME.² Following the crisis, the European Union introduced the Europe 2020 Strategy and its collateral programme Horizon 2020 for re-activating and strengthening

initiatives for longer term sustainability. In different respects Europe 2020 is regarded as a strategy to overcome simultaneously the economic crisis and accelerate Europe's transition into an SEME, which would also assure global economic competitiveness. By this, the European Union intends programmatically to create a "new economy", by which it can and should regain and enlarge its role as a global player.³ But the European approach to a transition refers only marginally to the importance of higher "human capital" and contains no coherent concepts for reducing the financial sector and a strategy for a turn into low-growth equilibrium, which are constitutive for an SEME.

In contrast, we will argue that European economic welfare can be assured by low economic growth, if prevailing high total capital intensity will be reduced in favour of considerably higher "human capital" investments, by which qualification and innovation can assure a smaller financial sector and a real capital saving productive system. It will be shown that the creation of high "human capital" and not ever augmenting financial and real capital accumulation can bring about economic, social and ecological sustainability. During the transition high saving surpluses should not be invested in the financial sector and not transferred as financial aids to economically less developed European countries, but for education and real productive investments in those countries and partly for real productive investments in emerging countries instead of further strengthening prevailing financial globalization.

2. Capital Intensity and Low Economic Growth

The European economic policy intends to augment economic growth by higher labour productivity derived from higher total capital intensity.⁴ It follows the classical idea that more capital equipment for a working place augments labour productivity by this economic welfare. It does only marginally consider that economic welfare can be increased by higher "human capital" investments and less financial and real capital investments. In a purely economic perspective, it neglects the profit squeezing effect of permanently augmenting capital intensity. The visible consequence of this profit squeeze in the real sector is the growth of financial investments, which in turn accelerates crowding-out of real productive investments. Low productive investments augment unemployment and public deficits, which can only be marginally reduced by export surpluses. The largely unproductive financial investments are a burden for the productive sector, because "financialisation" augments the money value of real capital. Consequently, the real sector reduces wages to compensate for the increasing cost of financial and real capital. Growing total capital intensity in Europe and the demanded returns on real and financial capital reduce wages and domestic final demand. A further reduction of wages would aggravate European economic development. The remedies are not lower wages, smaller public budgets and higher export surpluses, but the reduction of total cost for capital inputs.

From a macroeconomic perspective, total capital inputs are the sum of financial capital, man-made capital and natural capital and real productive capital is the sum of man-made and natural capital. Therefore, a reduction of financial capital would contribute to lower capital intensity and reducing man-made and natural capital would give room to higher wages and final demand without reducing the profit rate on the reduced stock of productive capital.

Consequently, a lower stock of productive capital would increase economic sustainability, which is mainly defined by a sufficient profit rate. It also augments social sustainability to the extent that lower real capital inputs increase employment. And finally, lower natural capital inputs increase ecological sustainability. Reducing total capital inputs instead of reducing wages augments simultaneously economic, social and ecological sustainability.

A European transition into an SEME is confronted with the growing dominance of the financial sector. European high saving surpluses are a consequence of the uneven income distribution. Together with up-stream savings they have created a speculative financial system with high interest rates, which increases the profit squeeze in the productive sector. On a first view, low real economic growth in Europe seems to be in favour of the above sketched sustainability, because it reduces the consumption of man-made and natural capital. But European economic growth is far from the equilibrium, visible in high unemployment and the increase of purely financial wealth. Saving surpluses and easy money from central banks accelerated financial wealth inflation with minor productive effects in the past. Total economic wealth in Europe consists mainly of high financial wealth and low consumption. Under these conditions, not the real, but the nominal value of the productive system increases and reduces wages and employment. As a result the European economy has a low “consumption productivity of total capital inputs” as well as a declining employment efficiency of the productive system. Evidently, the remedies are not less consumption and employment, but a smaller financial sector and a reduction of productive capital inputs. As productive capital inputs determine real economic growth, a reduction of man-made and natural capital paves the way to low growth equilibrium.

The transition into an SEME is bound to a step by step reduction of real investments and a higher consumption-investment relation. During a transition the volume of total output declines and the relative volume of consumption will increase if the consumption-investment relation increases more than the output-investment relation. In any case, the higher consumption-investment relation needs a change of income distribution towards wages, which depends on higher employment and/or higher wages per hour. If labour is remunerated according to its productivity and the latter does not primarily depend on the reduced capital intensity, but on higher qualification, wages will augment without a parallel increase in capital inputs. This implies that labour productivity will decline because the volume of output will be reduced by lower capital investments. And capital productivity can – depending on the output-investment relation – be increased by a politically targeted capital saving innovation system. Higher qualification augments the volume of work executed per hour and reduces labour productivity for a given volume of output. And capital saving innovation augments capital productivity for a given physical volume of output. This is in conformity with the result that a transition into an SEME is bound to a higher growth rate of capital productivity than labour productivity.⁵

The Europe 2020 Strategy has introduced the flagships Digital Agenda, Resource Efficient Europe and several microeconomic capital saving initiatives, but has not questioned the macroeconomic strategy to augment economic growth by higher capital intensity. By this, capital saving effects are overruled by striving for higher financial and real capital accu-

mulation and the role of “human capital” is down-sized to facilitate more real investments for higher economic growth. Moreover, the Europe 2020 Strategy has not strengthened the regional dimension beyond existing Structural and Cohesion Funds. Economic disparities between Member States have increased since the financial crisis and reducing disparities cannot be expected from high growth in the European region. The region needs not only more productive investments in economically less developed Member States, but above all higher qualification and innovation. Purely financial help packages can – as experiences in the last decade demonstrate – neither have significant employment effects, nor create a more homogeneous European economy.

3. Capital Accumulation, Innovation and Qualification

The key for a transition into an SEME is the augmentation of total capital productivity by means of higher “human capital” inputs. Although a vigorous reduction of financial capital is necessary for a transition we concentrate here on the reduction of productive capital. European economic policy has to refuse the prevailing striving for permanent high economic growth by higher labour productivity via higher real capital intensity. But one has to be clear that this would be a refutation of the classical concept on which traditional economic welfare is based. Historically, high economic welfare was gained by the growth of capital stock, which augmented employment, wages and consumption in the past. But we are at a turning point, because real investment opportunities in Europe have been shrinking, social problems have been increasing and ecological limits have started appearing. Certainly, the “end of the world is not at hand” (Solow), but already for a long time, ever-augmenting real capital accumulation has run into difficulties. After longer waves of increasing capital intensities it had to be reduced by “creative destructions” of new technologies and innovations which emerged as a precondition for new economic growth. It was mainly the economic profit squeeze, formerly without reference to ecology, which needed temporary reductions of financial and/or real capital.⁶ Approximately the same destructions were needed in short run business cycles, even during the Great Crash in the past and in the recent economic crisis. If we look further, high economic growth after great wars has its roots in disastrous destructions of economic resources. To prevent over-accumulation following crises, which is inherent in our “economic machine” (Keynes), economic growth has to be tamed. This is only possible through a capital saving technological progress, i.e. a transition into lower capital intensity.

The European growth policy does not consider the positive consequences of a capital saving technical progress. On the contrary, it follows neoclassical growth theories, which support capital augmenting accumulation.⁷ They neglect longer term diminishing returns, which results in a falling profit rate in every type of growth model.⁸ Then, all advantages of a large real capital stock cannot be earned by consumers. The lack of final demand can only temporarily be compensated by higher public demand and export surpluses. Finally, it is the decline of profitability of over-accumulated real capital, which needs capital saving innovations for a given level of output and increased labour inputs as compensation. In Keynesian growth models the supposed constancy of capital productivity (Harrod) can only be assured by higher labour inputs. Precisely these additional labour inputs prevent a decline of capital productivity and reduce the capital-labour relation. The same follows in neoclassical theories

where permanently augmenting capital intensity converges on a labour augmenting technical progress.⁹ Counterbalancing the decline of returns on capital cannot be derived from price substitution, but needs a politically targeted innovation system.

But innovation has become a wizzleword, becoming increasingly irrespective of its positive or negative societal consequences. For example, “financial innovations” have considerably contributed to the recent financial crisis and “planned obsolescence” is not to the advantage of consumers. To enhance the transition of the European economy into an SEME we have to target innovations towards higher capital productivity and not towards higher labour productivity. Increasing capital productivity cannot be accomplished by higher capital intensity, but only by higher labour intensity.¹⁰ As innovation always springs from human brains, more labour – both in terms of hours and qualification – is needed so that these innovations are labour augmenting. In an innovation-oriented economy labour plays generally an increasingly significant role.¹¹ If human resources are largely targeted to prevent a decline of capital productivity, real production becomes a new character and traditional capital investments lose importance, i.e. real capital intensity declines. This “scientification” of the productive system is in accordance with trends typical of dematerialization and the service economy at large and has distributional consequences.¹² If labour and capital are remunerated according to their contribution to total output, the wage-profit relation has to increase. During the transition into an SEME the wage quota and final demand increase and economic growth reduces without a decline in the profit rate on the reduced real capital stock. And “scientification” assures international competitiveness, because prices of traded commodities can be stabilized by lower capital costs instead of lower labour costs.

The most convenient way to augment real capital productivity is to slow down capital accumulation, which augments marginal and average capital productivity and at the same time reduces the rate of real macroeconomic growth. But whatever the strategy for low growth is, there is the question of total volume of work. Traditionally, it is measured in hours without reference to quality of work. In face of the enormous educational investments for decades, the executed volume of work has to be measured both in time and quality and rough estimations show that qualified work furnishes about double the volume of simple work.¹³ Looking at the formal economic sector, – without referring to growing informal and unpaid work – public and private qualification may have augmented the volume of work considerably and the relation between labour and capital may have risen. As higher qualification is mainly mirrored in salary schemes which seem to have risen, the volume of wages per hour has also risen, but much less than the nominal value of real capital equipment. The increase in nominal capital intensity is the result of growth of the financial sector. In physical terms, the relation between labour and real capital may have risen by qualification. Although employment in hours has grown less than total output, the increase in the volume of work may have surpassed the increase in physical productive capital inputs.

Europe 2020 and Horizon 2020 stress verbally the importance of higher qualification both for getting a job as well as for more R&D and innovation. In Horizon 2020 Excellent Science should augment global scientific competitiveness; Industrial Leadership, industrial competitiveness and Social Challenges should alleviate from burning societal problems, which

can be considered as market failures. All three mutually reinforcing priorities have some capital saving and labour augmenting effects. But estimations for the year 2030 show that the combined effects of the three priorities augment economic growth with low employment efficiency.¹⁴ Horizon 2020 intends still – although with little success – to augment economic growth and create little more employment. Therefore, Horizon 2020 in its present configuration contributes only marginally to the transition into an SEME.

4. A New Regime of Accumulation and Income Distribution

The European economic policy outlined in the Europe 2020 Strategy aims at a “new economy” by modifying reluctantly the content of economic growth, but it does not question growth itself. By discussing capital saving innovation and labour augmenting qualification we found that Horizon 2020 has some potential for turning into a low growth path. But even these moderate contributions are neutralized by the macroeconomic concept of Europe 2020, which intends definitely to augment economic growth by higher real capital inputs. The real capital intense supply has – under conditions of restricted public demand – to be absorbed by a large financial sector with high debts so that “financialisation” has to assure economic growth on the demand side. As the supply-demand relation has lost contact with real production, we have to abandon the neoclassical circular relation between capital and labour in favour of investigating primarily productive capital accumulation. This corresponds to post-Keynesian growth models, which refuse production functions, the most curious of which are Cobb-Douglas versions. Capital and labour have to be considered separately, with capital split up into man-made and natural capital, which comes close to Schumpeter’s view that only labour and nature are productive.¹⁵ Then, man-made capital is just an intermediary transformational instrument between nature and final consumption. Keynes, who did not directly refer to nature, went further and had sympathy for the labour value theory, which considers only labour as productive.¹⁶ In face of the strongly increasing importance of innovation and qualification which are intimately connected with human activities and their creativity, economic welfare increasingly depends on labour. Certainly, both man-made and natural capital play an important, however declining, role in an SEME, which is visible in a step by step reduction of real capital inputs. Consequently, education and “human capital” become the main driver for a socio-ecological transition.

Therefore, the transition into an SEME needs a new regime of capital accumulation, income distribution and economic growth. The new regime follows from “scientification” of real production. Already in the Lisbon Strategy, knowledge-based development had priority and is now partly reinforced by Europe 2020 and Horizon 2020. At the microeconomic level the European economic policy goes programmatically in the right direction. The reluctant steps towards an SEME are mainly neutralized by the macroeconomic policy for higher economic growth instead of structural changes, which ultimately concerns the composition of the capital stock and the resulting income distribution. In fact, prevailing distribution of productive and financial capital and the demanded rates of profits and money interest absorb too much of the total income. Labour is – enhanced by weak bargaining powers – not remunerated anymore according to its continuously increasing contribution to overall real production. To ensure a transition, income distribution has to be changed towards wages; a

higher consumption-investment relation and the new low growth equilibrium would reduce the volume, but not the rate of profits.

“Transition into an SEME needs a conscious societal evolution and full development of the human potentials for active learning and knowledge transfer.”

The new regime is bound to have higher investments in education, research and innovation, i.e. in “human capital”. European educational policies intend to increase spending in the public and private sectors, but actually in most countries such investments are reduced in favour of financial investments. Moreover, reflections of the traditional concepts of qualification are urgent and this may lead to a new paradigm of human-centered education.¹⁷ Transition into an SEME needs a conscious societal evolution and full development of the human potentials for active learning and knowledge transfer. It is not through primarily capital equipment, but through educational investment in people at all levels of the economy that societal welfare can be derived. Innovation in material and immaterial equipment produced by highly qualified workers is just a means for higher welfare and the final target should be human development. It is the enhancement of people themselves and their personalities – on which depends a peaceful human-centered development – which can bring about economic, social and ecological sustainability.

5. Real Capital Globalization instead of Financial Capital Globalization

The prevailing European economic crisis, which may continue for at least a decade, is a setback in its role as a global player, comparable to the setback of Japan since the 1990s.¹⁸ To play an important role in the coming multi-polar global economy, Europe’s chance is a transition into an SEME. Such a transition would reduce imports of natural resources and energy from the Third World and augment employment by higher qualification and innovation without the need for high economic growth. During the transition into a new regime of accumulation and distribution, saving surpluses, including up-stream savings, have to be transferred to economically less developed European countries for education, innovation and real investments and not as financial aids. Remaining saving surpluses should be transferred to the Third World for education, innovation and real investments and not as financial investments. Europe has to develop its own financial markets to join the coming multi-polar currency system and to globalize its productive activities.¹⁹ At the global level the European transition into an SEME is now hampered by a belief in welfare that augments free trade and free financial globalization. In contrast, a more harmonized global development can be expected from more equally distributed “human capital” and real production globalization. Already in times of mono-polar globalization real foreign investments represented the solid background. The dominant global role of Great Britain until the First World War was mainly based on its real investments in the Commonwealth from which it derived its financial strength.²⁰ The change of global leadership to the USA also went by large foreign real

investments and later by non-material investments, including the US microeconomic model in real production. Certainly, the global dominance of the Dollar stabilizes the global role of the US economy, which is underpinned by increasing outsourcings and vast international financial investments. In a multi-polar world, real production globalization becomes more important and trade can diminish accordingly.

“Europe’s mid-term chance to become an important global player does not lie in a competition with economies with high capital intensity and high economic growth, but in a vigorous transition into an SEME (Socio-ecological Market Economy).”

But Europe is proud to be the biggest trading block in the world and adheres still to the old idea that more trade is always advantageous for all and reduces global inequalities.²¹ In face of the global similarities of production technologies, it is the globalization of production which augments Europe’s role as a global player. During the European transition into an SEME, more sustainable technologies can be exported and less natural resources imported. By this, increasing disequilibria in international trade, which are an important source of conflicts, can be reduced.²² The chances for developing countries to implement their own socio-ecological development strategy would increase without being disturbed by prevailing financial globalization. Europe’s mid-term chance to become an important global player does not lie in a competition with economies with high capital intensity and high economic growth, but in a vigorous transition into an SEME.

6. Summary and Outlook

Summing up the basic arguments for a transition into an SEME we find that, historically, high total capital intensity has not assured economic, social and ecological sustainability. Further augmenting material capital intensity will have a squeezing effect on the real sector’s profit rate; it will not create high employment. It will finally augment environmental deterioration. In contrast, lower material capital intensity by way of less man-made and natural capital inputs will stabilize the profit rate, create more employment and reduce consumption of natural resources. A transition cannot rely on price substitution, but needs real capital saving innovations, which are bound to have higher “human capital” inputs furnished by an enlarged human-centered educational system. Higher qualification enables capital saving innovations and changes real production to a higher labour intensity. The main obstacle for a transition is the undue large financial sector, resulting from the uneven income distribution and the speculative behavior of financial markets. High and mainly unproductive financial capital is a burden on real production and canalizing it to the educational system would be in favour of capital saving innovations. The new regimes of accumulation and income distribution result step by step in a low growth path with higher employment and less man-made and natural capital without reducing the profit rate in the real sector. The core of a transition

strategy is more qualification and innovation by creating higher “human capital” instead of financial and productive capital.

Looking at the feasibility of such a strategy for socio-ecological transition, one has to take into account prevailing vested interests. The over-boarding influence of the financial sector creates more and more fictional money value and has little interest to reduce this burden on the real sector. As the latter has the possibility to compensate for this burden by lowering wages, there is an implicit agreement between both sectors. In face of high unemployment and worsened social conditions, labour has low influence to change capital accumulation and income distribution. But historical experiences show clearly that ever-augmenting capital accumulation produces a heavy crisis during which capital is devaluated and partly destroyed.²³ A recent comprehensive analysis of longer term accumulation dynamics forecasts that there would be an increasing and more unequal accumulation of financial and productive capital and that only heavy taxes can prevent large economic and social crisis.²⁴ Both treatments suspect, like many other investigations, that a far-reaching crisis might be the consequence of high total capital accumulation. Reducing economic growth by augmenting “human capital” will contribute to a socio-ecological transition and thereby to a human-centered economic development.

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New Paradigm in the Service Economy The Search of Economics for Scientific Credibility: In between Hard and Soft Sciences

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Abstract

After the very long cycle (about 10,000 years) of societal and economic development based on agriculture, followed by a short cycle in which the industrial revolution became the prime mover (for less than 3 centuries), the world has entered a phase marked by the growing and determining importance of service activities (both monetarized and non-monetarized) . This transition is a key to understanding many of the current ‘crises’ confronting humanity and to benefitting from and promoting emergence of a new era in human development. The right starting point is to redefine the notion of value on which the Wealth of Nations is now more and more based. This is not simply a technical issue concerning the growth of services over purely industrialization processes. It implies a fundamental change. In a modern service economy, the production of value starts long before the actual point of manufacturing with fundamental research, continues through numerous stages of technological and social process, and extends beyond the time of sale through a prolonged period of utilisation of products and systems – the true basis for measuring added value), and finally ends with waste disposal (a negative value). All this happens during a period of time largely based on uncertainty and management of all sort of risks (foreseeable and unforeseeable). From this perspective, all the pretensions of classical economics to generate and measure value based on the idea of static equilibrium appear more and more antiquated and inadequate. Prices and costs have to be estimated based on hypotheses including the future.

1. Introduction

The Economic Wealth that has to be developed in the future must, inevitably, take account of the context of the New Economy which is characterized by the predominance of services as factors of production. This, rather than the limits to the industrial revolution, is the key change in economics as the basis for building the wealth of nations. The Club of Rome achieved worldwide renown, sometimes stimulated by strong criticism, after the publication of its report on *Limits to Growth* in 1972. This was a very critical time since, after World War II the high rate of growth of the economies of most of the industrialized countries had, until then, been around 6% per year. From 1973 until the present this rate of growth has declined, on average, to about 2% and less per year. The “scandal” of the Club of Rome consisted in

the fact that doubts were expressed as to the possibility of a continued and, as one would say today, a “sustainable” growth.

This article summarizes another point of view: during these years there has been a fundamental change in the way in which wealth is produced. The industrial revolution, based essentially on investment in new machines, tools and products, had, in all sectors of the economy, given way to the emergence of service functions as the key factors of production. This issue therefore is essentially a view from the supply side of the economy. Through the Club of Rome a series of reports were proposed to support this analysis based on the experience of over two decades in the manufacturing sector as well as in the traditional service sector.¹

The difficulty, which persists today, is that classical and neo-economic analysis is still bound essentially to fundamentals linked to a reality in which the manufacturing system would be dominant. When services become the determinant in the production of the wealth of nations the very basic notion of economic value changes its connotations and the issue is, in the end, philosophical: value can no longer be defined as the result of an equilibrium system where disequilibria have to be considered a matter of imperfect information. In the service economy such information is bound to remain constantly imperfect because it involves the utilization of products and systems in time. An ever larger part of costs in the performance of such systems in time is linked to future events where even the duration of utilization is uncertain. The value system, therefore, is basically dependent on the uncertainties of reality.

The assumption is that the deterministic model, which is still dominant in the traditional macroeconomic analysis, has in fact given way to indeterministic systems. As a major consequence, the key economic issue today is that of understanding and managing risks, uncertainty and vulnerability as fundamental problems. Today, the main problem is to redefine value as the basic point of reference for the wealth and welfare of nations.

2. The Legacy of the Industrial Revolution

2.1 Producing Tools and Goods to Increase the Wealth of Nations

Of course economic analysis and even economic theories had existed long before Adam Smith. But it was Adam Smith who, in 1776, laid the foundations of economics as a specific discipline or science, as distinct from more general societal or historical analyses. So why Adam Smith? His impulse was by no means exclusively intellectual. It was prompted essentially by a new economic revolution brought about by the descendants of Adam and Eve in their struggle against scarcity. Indeed, during his lifetime Adam Smith experienced the birth of the Industrial Revolution – the big switch from an agricultural to an industrial economic system.² This transition is very well illustrated by his opposition to the views of Francois Quesnay, Madame Pompadour’s illustrious doctor, and a physiocrat (the French school famous for the saying “laissez faire – laissez aller”) of even greater celebrity status.

The dispute between Adam Smith and Francois Quesnay focused on the origin of the Wealth of Nations.³ Both had an explanation. For Quesnay, looking at the main source of wealth in France, it was obvious that the wealth of nations derived from a flourishing

agricultural system. Adam Smith, however, was more concerned with the new development of manufacturing activities he saw around him in Scotland. Since Adam Smith's times, the industrialization process has come to be seen as a crucial weapon in the fight against scarcity, as the road of progress leading, in a sense, back to the Garden of Eden. After all, Adam Smith was essentially a moralist, like many other great economists such as Thomas Malthus and Alfred Marshal would later be.

Concentration of production meant that production-consumption for own use began to diminish: specialization increased and with it the need for trade and the exchange of products. It was this phenomenon of the specialization of manufacturing activities and the growth of an independent structure (i.e. a market) to make them available, which provided the empirical background to Adam Smith's conclusion that the real wealth of nations can be built through the development of the manufacturing process, i.e. industrialization.

The key to industrialization was the increase in productivity, i.e. the ability to use scarce resources so as to produce more goods with fewer resources. Industrial technology had thus moved to centre-stage in the struggle to increase wealth and welfare, in a situation in which both human culture and environment proved capable of developing it and putting it to use in an efficient way.

It is important to note here that the technical leap at the beginning of the Industrial Revolution was not a qualitative, but a quantitative one. Technology has always existed in the form of tools since man first became active. One could equally apply the notion of technological performance to artifacts developed in the animal kingdom (a bird's nest, for instance).

Intrinsically there is no major difference between the technology of the prehistoric "engineers" who specialized in shaping stones in order to produce arrowheads or cutting tools, and the "engineers" of the first Industrial Revolution who developed tools, which by contemporary standards would be deemed extremely simple. In fact most of the inventions of the first industrial revolution have been designed in such a way that almost anyone of us, without specific university or scientific education, could probably reproduce the same design with the tools available in most hardware stores. The "steam engine" is in fact nothing more than a sophisticated system for controlling the increased pressure produced by a volume of water transformed by heat into steam in a given space. The common pressure-cooker, which many people now use in their kitchen, is based on the very same principle. The real problem is to produce the materials, recipients and related mechanisms, capable of resisting the pressure and controlling its release. Similarly, the notion of the flying weaver-shuttle is very simple: the problem was how to produce a fixed hammer capable of hitting the shuttle with enough force to send it to the other side of the loom.

Only much later, towards the end of the 19th century, did the manufacturing of tools and products start to depend on scientific knowledge, i.e. on the examination and understanding of problems and materials beyond the immediate perception of our senses. We know how to cut a piece of wood and we understand how boiling water transforms into a larger mass of steam. However, we need scientific research to discover that the same molecules found for instance in cotton fibres can be reproduced in a similar, although by no means identical,

way by using oil as the raw material. Scientific research and the exploitation of technology based on science thus started to gain ground at the beginning of the twentieth century and have come to be fully and professionally exploited only during and since World War Two.

Up to the middle of the 1920s there was no consistent investment in research laboratories in industry or elsewhere. The cost of production, till then, could be accounted only in terms of the cost of labour and capital. It is only since the 1930s that more and more money has been invested in research and development and this activity has achieved professional status. Nowadays, research and investment, frequently ten to twenty years in advance of actual production, can in some cases cost a company twenty five or even thirty per cent and more of its total sales income.

The period of the Industrial Revolution has witnessed tremendous evolution, punctuated by many discoveries and new technological adventures. The main discontinuity has been the changeover from the sustained period of development of traditional technology that had lasted throughout human history up to the end of the 19th century to a new period in which the main, although not exclusive, impulse has come from the coupling of technological applications with the advance of scientific knowledge. This new process or marriage reached its peak of full maturity after World War Two and has been responsible for twenty-five years of continuous high growth rates in most industrialized and industrializing countries. In terms of quantitative economic growth this has been a unique phenomenon in the entire history of mankind.

The legacy of the Industrial Revolution as a whole has been, then, one of a series of victories in the struggle to increase the wealth of nations giving priority to the production of new tools and products in an increasingly economic way, i.e. enhanced product output for diminished resource input.

2.2 The Monetization of the Economy Developing Capitalism

The second essential characteristic of the Industrial Revolution has been the monetarization of the economy. Money has, of course, always existed in some shape or form, either directly (gold or silver or copper coins), or indirectly (exchanging three goats for one horse implies the existence of an exchange-value component which is one of the typical connotations of money). However, until the beginning of the Industrial Revolution only a very minor part of all economic activities had entered the monetarized system.

In a pure agricultural society the vast bulk of production and consumption does not enter the exchange system where money has its origin. Trade in fact gives rise to money. Even if we take into account the glorious histories of the caravans, which times past travelled Europe and the rest of the world or the numerous towns of Renaissance Europe which flourished as international market places for certain parts of the year, its quantification will show that a very limited part of all the goods produced and consumed in those times was exchanged within a monetarized system.

It has been calculated that up to the 16th century, no more than 1% of the average life of a European was organized in a monetarized system (the time spent in selling his time for

money or using his time for trading).^{*} Today, the corresponding percentage would be at least over 16%.

It is also very revealing that, at a time when kings and aristocrats were the rulers they often possessed little money since money was not an indicator of real power. The fact that banking activities could often be developed by marginal groups which did not really belong to the upper classes, shows that, up to the beginning of the Industrial Revolution, money was still a secondary tool in societal organization, something that could be left to those who did not form an integral part of that organization.

In the past money has always been linked to limited (by modern standards) trading activities and, until the beginning of the Industrial Revolution, very little or no recognition was given to it as a means of stimulating production.

It is not because Pope Gregory XII in the 13th century was particularly conservative or exceptionally moral, that the notion of interest on money was condemned by the Catholic Church. It was because money lending for interest, not being linked to any productive function, was equated with usury, which was simply a way of making the poor poorer. Before the Industrial Revolution, having debts was always “bad”. Today, in most instances it is the very nerve of investment.

Here again we must recognize the importance of Adam Smith and the social weight of his moral convictions. In his book on the *Wealth of Nations* he completely reverses the “moral” attitudes of the past centuries. He clearly states that the God-loving person, one who avoids sin and endeavours to cultivate the most acceptable moral and social attitudes, is the person capable of saving. Savings, which were potentially a sin before the Industrial Revolution had, with the beginning of the new era, become a measure of moral worth especially in those countries which witnessed the first waves of the industrialization process.

Saving, hard and virtuous saving, is then the prime capitalist virtue: through his accumulated money the capitalist is able to buy the machines or tools which the new Industrial Revolution needs if it is to develop within a specific environment outside the farm or cottage.

Increased specialization depends on more trade; and trade increases require more money. Greater availability of money makes it possible to save more and therefore to create capital for investing in new production activities. This, then, is how the mechanism works, through a process which has monetarised the industrial world on today’s vast scale.

As we have seen, the development of new moral and cultural attitudes parallels the emergence of new production processes and technologies. There can be no question that Adam Smith succeeded in making a virtue out of saving. One hundred and fifty years later, with John Maynard Keynes, even dis-saving (creating debts) would, in his time (when the situation was clearly deflationary), come to be considered a virtue rather than a vice.

Only during the second half of the 19th century did banks, which up to 1800 were mainly involved in trading, start to contribute to the saving and investment functions of the Industrial

^{*} Evaluation made by Ivan Illich in a paper on Shadow Work, presented to a conference at the University of Kassel, September 1980.

Revolution. In Adam Smith's day, money used for investment amounted to no more than 5% of total sales in a given industrial activity. During the 19th century this percentage (as a function of increased concentration and productivity of the new technology) approximately doubled. Various savers (capitalists) joined together to share the ownership of a new industrial venture. Thus the "corporation" or sharing of ownership came into being. Corporations grew and started to spread their shares beyond the restricted circle of new enterprise initiators. Banks then entered the picture as a professionalized system for collecting savings from all sectors of the population and then began to function as intermediaries in channeling those savings towards productive activities.

It is important to distinguish between the forms that monetarization took before and after the Industrial Revolution. Before the Industrial Revolution, monetarization of the economy was a relatively marginal phenomenon. Its acceleration and development as an element essential to the functioning of the manufacturing process, however, are typical of the Industrial Revolution. Parallel to this, a shift of power occurred as society moved from the pre-industrial to the industrial state. In the latter case the very control and availability of money became an instrument of power, both social and political, whereas in pre-industrialized society power could be, and indeed was, exerted outside the direct control, and independently, of the few directly monetarized activities in social life.

In this sense, when we speak of capitalism, we are merely alluding to the sociological and economic aspects of this fundamental phenomenon: the monetarization of the economy as an essential part of the Industrial Revolution. The Industrial Revolution, therefore, cannot but be capitalist. The only important political question we need to resolve then is to what extent capitalism (the monetarization of economic activities) is compatible with, or even requires, a specific degree of political democracy. In any case even a Communist society, undergoing an Industrial Revolution is, in this sense, of necessity, capitalist to some extent.

This analysis of the process of monetarization born of the Industrial Revolution also suggests that there is an equilibrium somewhere between those activities which are more efficiently developed and managed through a monetarized system and those outside it.

Clearly, the process of improving and diffusing monetarization has still a long way to go at the planetary level. Nevertheless, we can today put forward some new questions: which type of productive activities (in a general sense) can be better stimulated through a monetarized system and which through a non-monetarized one? Which blend of monetarized and non-monetarized contributions would be most suitable for each of the main types of productive activity? How far should, and can, monetarized (and non-monetarized) systems go?

2.3 The Utopia of Certainty

The constantly renewed and increasingly efficient struggle against scarcity initiated by the Industrial Revolution can be traced to the search for a paradise lost, free of any anxiety about the need to fight for survival. As a general rule, the idea of progress is defined as utopia, where the normal uncertainty of real life will have been replaced by the dream of achieving some form of eternity through universal truth based on definitive certainties.

Before the European Renaissance this type of progress was essentially linked to a religious vision in which the churches played various intermediary roles between the ultimate certainty (the problem of death) and uncertainty (the reality of life).

“There appears to exist a constant pulse, a striving towards certainty which precludes any acceptance of uncertainty, probably caused by the persistence of ancestral fears.”

With the spread of Cartesianism, i.e. the development of scientific knowledge verified by experimental evidence, with the further development of positivism and benefiting from the evidence of the great advances in scientific discoveries of the last centuries, western civilization had lived a specific type of dream. It believed that by mastering reality “scientifically”, piece by piece, one would one day come very close to the universal truth.

Pascal once said: Science is like a ball in a universe of ignorance. The more we expand knowledge the greater the ignorance encountered by the ball’s expanding surface.

In fact we measure the advance of science by the growing number of questions we seek to answer. Science is more about man’s ability to frame questions than his capacity to provide guarantees about the veracity of the answers given.

In addition, so-called scientific observations and analyses always reach the point where, as they fail to apply under changing conditions, their limitations begin to be apparent. When philosophers, who are after all the fathers of physics, believed that the earth is flat, this theory was perfectly valid for a humanity moving on foot, at low speeds and over a limited part of the earth. The fact that the earth is round was of no particular use during the Roman Empire. The knowledge that the earth is almost round and that it is rotating in a certain way is clearly necessary for organizing air traffic. In the same way, to take the matter one step further, the knowledge that outer space is curved is of no immediate interest to local air traffic on earth, but is essential to space travel. From the standpoint of its application, no knowledge has to be a universal truth to be valid. It is its relevance and application in given space and time conditions, which make it valid and valuable.

At the political level, the Industrial Revolution introduced an assumption that every nation should have its independent state. It is too soon to judge, but overall this has probably been a useful historical step. On the other hand the definition of a nation in modern times is probably less clear-cut than it was when nations were simply tribes. In the modern world the notion of what constitutes a nation has become increasingly vague. The difficulty is that nationalism grows in particular in those who do not feel integrated among the people with whom they live and who, in trying to compensate, go too far. There appears to exist a constant pulse, a striving towards certainty which precludes any acceptance of uncertainty, probably caused by the persistence of ancestral fears. After all, in the course of the Industrial Revolution, political and ideological manifestations of the principle of certainty (frequently in the guise of nationalism and Communism) have provided justification for the unleashing

of some of the most barbaric trends in human history. The mass-production achievements of the Industrial Revolution, when pressed into the service of barbarian impulses, have become awful mechanisms. That this was possible at all was due to the habit of looking for certainty and universal truth, which can all too easily be used as instruments for singling out those who are “beyond the ideological pale”, who do not subscribe to the “truth”.

“Certainty and nihilism are twin brothers: both fail to accept reality, the possibility of change, of contradiction.”

Enthusiasm and idealism for achieving new goals are essential to man’s development provided it is always the “better” that is sought and allowance is made for changing the conditions which will permit “even better” or “better still” at some subsequent stage. The quest for the “best possible” which automatically rules out any change or alternative is no more than man’s desperate attempt to eliminate human anxiety by applying the principle of certainty beyond its limits of applicability in time and space. The search for certainty, very much a part of the mobilizing utopias of the Industrial Revolution, is also a source of nihilism. Certainty and nihilism are twin brothers: both fail to accept reality, the possibility of change, of contradiction, or of modification of even the most advanced scientific ideas, those of Einstein included. As the sun sets over traditional western-born ideologies which for two centuries have conditioned the world, the utopia of worldly certainty provides a platform from which to launch a final attempt to secularize religion and metaphysics.

Uncertainty provides the raw material for searching, for asking, for developing, for creating, for doing. When uncertainty reaches intolerable levels, of course, it must be reduced. But the most intolerable level of uncertainty in life is that of full definitive certainty, because this is the point of death and here the choice will depend on what each and every one of us believes as individuals.

3. The Limits of the Industrial Revolution

3.1 Production is not isolated from the Non-Monetarized World

Common sense people, and even economists, have always admitted and considered it a fact that a substantial part of productive activities in life and in society are performed within a non-monetarized context. Most of the great classical economists from Adam Smith to John Stuart Mill have devoted a considerable part of their writings to the notion of productive labour and of value broadly inclusive of non-monetarized activities.

In fact, however, the very notion of value upon which Adam Smith founded the first comprehensive synthesis of economic theory has, in practice, led to the exclusion of a non-monetarized contribution to the creation of wealth in industrial societies.

Given the priorities and functioning of the Industrial Revolution, given also the type of scientific and philosophical ideas dominant up to the beginning of last century, this attitude was ultimately both legitimate and theoretically justified.

First, there was the problem of managing what was a clear priority: It was obvious that the wealth of nations could be developed in an unprecedented way, thanks to the advance of industrialization. The main social mechanism for promoting this process, which meant specialization, increase in trade and investment, was the development of the monetarization of the economy. Money was clearly, and often still is, the tool in social engineering which can solve the complex logistic problems which accompany the development of industrialization.

Second, at a more theoretical level the notion of value proposed by Adam Smith was derived from a measurement system based on a market price born of the interplay between supply and demand. The price, the monetarized value of goods, is the clear, easily quantifiable yardstick by which economics has seemed able to measure its own performance in an unambiguous way. But this is not all. The reference price of a good, defined by its monetarized value, is a type of measurement which has had a great advantage over other parameters in social sciences. It is a quantified, apparently precise reference, which avoids the vaguer statements, indicators and performance evaluations used in other social sciences. In this way economics came very close to the dream of having at hand an instrument by which to measure value (price), which would bring this discipline much closer to natural sciences where phenomena are normally more clearly defined and frequently enjoy self-evident systems of measurement. In this sense the monetarized economic value derived from price could be considered the equivalent of measuring the speed of light, the weight of a body, the boiling point of water or the thermal inertia of a metal.

To summarize: convenience, practicality and reference to the scientific method of analysis, combined during the Industrial Revolution, focused attention on monetarized activities as the key tool for developing the wealth of nations.

Today, in the new service economy, the predominance accorded to monetarized activities has to be placed in a broader perspective. The mastering of monetarized phenomena and the smooth functioning of the monetarization process are a key condition in situations where increasing the quantity of tools and products and their utilization is the prime priority. Another phenomenon becomes fundamental: the crossing back and forth of products and services over the line separating scarce (priced) goods from free ones.

One has to also consider the fact that criticism of “money” during the Industrial Revolution very often derived from pre-industrial attitudes: from philosophies and cultures of an essentially conservative nature, even when presented in “progressive” terms, which always retained some abstract reference to the past. As a result many socialist thinkers, even the young Karl Marx, tried to envisage a society “without money”. Such visions, while purporting to address the future, were in reality the product of social inertia and nostalgia for a time when – prior to the Industrial Revolution – monetarization was limited to a small part of economic life, and when the accumulation of money was socially unproductive. However, it was a more mature Marx himself who, as one of the last classical economists, was to lay to rest the discussion on ‘use-value’ (including both monetarized and non-monetarized activities). In *The Capital* he reduced it to the idea that “use” simply refers to the destination of goods, and thus finally eliminated any residual interest in the actual non-monetarized activities of economic life.

Later, neo-classical economists did, from time to time, return to the notion of non-monetarized economic activities, but always explained them by analogy with the monetarized system (for example, the practice of attributing “ghost” prices to non-monetarized transactions).

The transition to the modern Service Economy represents in fact a basic shift in the notion of value: the importance of restoring to non-monetarized activities full economic value is at last beginning to be acknowledged. The notions of “human capital” and “sustainability” are cases in point.

“The transition to the modern Service Economy represents in fact a basic shift in the notion of value.”

“There is a price for every good that is scarce. If it has no price it cannot be scarce, but must be freely available”. This typical economic assertion applies to many situations: air is essentially free whereas a piece of bread costs money. But it completely obscures the process whereby a good might become free or, vice versa, become scarce. When resources, which were once free or available at very low cost, become an increasing cost component within the industrial production system, we realize that, after all, the monetarized economic system has had, and continues to have, an effect on the non-monetarized one, that, in the drive to reduce scarcity through increases in productivity in the monetarized system, scarcity is sometimes produced in the non-monetarized sector (and at best “internalized” only after the scarcity producing process has started). On the other hand, we may start to consider today that some technological advances (e.g. the use of the computer) as well as some modifications in social behaviour can result in the transformation of scarce products and services into free goods.

The limits to the Industrial Revolution – as an efficient system for increasing the overall wealth of nations – thus become apparent when the increase in scarcities in the non-monetarized world offsets or over-compensates the decrease in scarcities in the monetarized one. This also means that these two worlds are interdependent. Clearly, a system for accounting and monitoring increasing scarcities in the non-monetarized sector must, more than it is at present, be built into our overall accounting systems (using existing pollution tax schemes might be one way of achieving this).

This should also be the basis for integrating, in a wider vision, the goals of economics and the ambitions of the environmental movement in their quest to promote the wealth of nations.

Within this framework the very notion of sustainable development is based on the best use and preservation of resources, human and material, taking into due account the notions of utilization in time and the issue of uncertainty.

4. The “Service” Economy

4.1 *The Growth of Services in the Production of Wealth*

As our society becomes more complex, so do the regulations governing human interaction including product utilization and safety limits.

In pre-industrial society very few people could, or needed to read. In the service society however, most people will need to be “computer literate”. Mass education has been among the service functions which, throughout the Industrial Revolution, have undergone a period of rapid expansion, so that today it constitutes a large sector with great potential for improvement.

As vast as and, in some cases even larger than the education service in the modern economy are the health and national defence sectors.

In order to understand properly and evaluate the modern Service Economy, it is essential that one bears in mind that the growth of services is the result of the specific and successive evolution of the production process itself. The development of technology, which changed production processes in order to enhance efficiency, produced the great development of service functions at all phases of the transformation process.

All the services we have mentioned are essential in planning, accompanying and supporting production up to the point-of-sale as well as products during their period of utilization. The maturing Industrial Revolution however, has brought to light another important service to be added to the list: the management of waste.

Waste has always been the by-product of any type of human activity and production: by peeling a banana we produce waste; the same is true when we cut an arrow from a piece of wood. When the Industrial Revolution set in motion a vast trend towards the concentration of production and its specialization, waste inevitably also started to be concentrated and to accumulate. This is not necessarily a negative phenomenon. During the history of the Industrial Revolution waste had often been turned into usable by-products and even major new products such as, for instance, nitrogen fertilizers as by-products originating from the explosives industry or phosphorous as a base for detergents and fertilizers from waste produced by the iron and steel industry. At its most advanced stage, when the principle of product specialization had been stretched to its limits, the Industrial Revolution created a growing number of problems because of waste which could not be economically transformed into useful products.

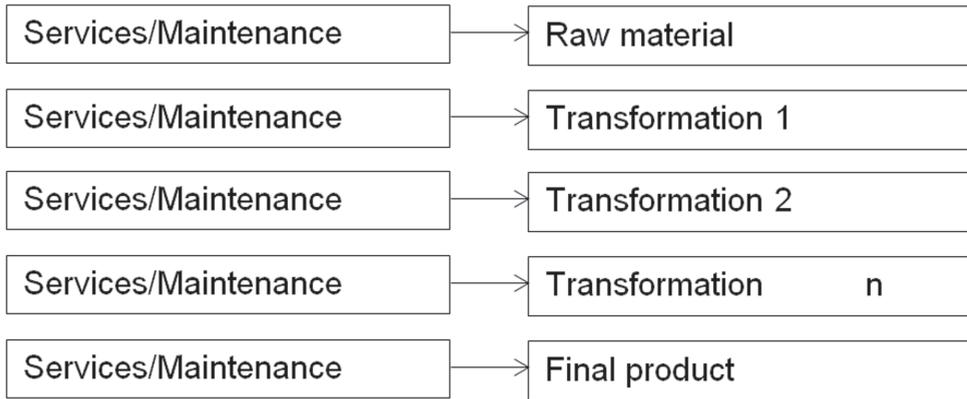
Concentration, specialization and increased levels of dangerous secondary effects are therefore the negative outcome of the use in various sectors of more sophisticated and advanced science-based technology. Parallel to the increase in industrial waste, the extension of conspicuous consumption to a constantly increasing number of people has also meant an enormous increase in the amount of waste produced by millions of consumers in both quantitative and qualitative terms.

Every product ends up as waste in the long run! Most materials, including our own bodies, become waste at the end of their production and utilization cycle and some of that waste can be transformed into new raw material. In some cases this transformation process occurs naturally (as with organic waste), in others, only after a lapse of time involving recycling intervention by man. The recycling of waste is in most cases limited, either by “economic entropy” (when the cost of full recycling would be prohibitive) or by physical (absolute) entropy (when full recycling proves impossible for physical reasons).

Waste prevention and recycling are therefore one of the key economic concerns of the Service Economy.

Figure 1 indicates that, in a situation typical of the Industrial Revolution, the production process was considered to be complete the moment a product or tool was available for sale on the market. In the Service Economy, the real issue in terms of economic value appears to be the maximization of the combined utilization of products and services during their lifetime, an operation which takes into account a series of costs prior to, during and after production.

Figure 1. Services and maintenance in the production sector[†]



On the one hand the traditional notion of economic value is linked to the existence and marketability of a product. On the other, the notion of economic value in the new Service Economy is extended to include the period of utilization and the costs incurred, including those for waste treatments. The notion of value in the Service Economy is in essence linked to the value of any product (or service) in terms of its performance or result over time. It is this utilization value during the utilization period which is the key issue: the effective performance (value) of an automobile as a mode of transport has to be accounted in terms of its period (and frequency) of utilization, and the effective benefit (value) of a drug has to be accounted in terms of the level of health achieved. Whereas, in the industrial economy, the key question was: “What is a product’s ‘monetarized’ value?” The Service Economy asks another question: “What is a product’s ‘utilization’ value? What function does it serve, how well and for how long?”

The development of the Service Economy in the future has to be thought of as a global process involving the whole economy following on from the Industrial Revolution, rather than simply the result of growth of the traditional tertiary sector.

In fact, service functions are integrated into all productive activities in the industrial as well as the agricultural sector. It is essential to note that modern technology has, in most cases, greatly reduced manufacturing costs and increased service costs. The distinction between the

[†] Source: Orio Giarini, *Dialogue on Wealth and Welfare, an Alternative View of World Capital Formation* (Oxford: Pergamon Press, 1980).

functions performed in a modern computerized office and a control centre in a production factory is often rapidly disappearing. This fact has led some authors, when describing the characteristics of the contemporary economy, to speak about a “super-industrial” economy or a “Third Industrial Revolution” instead of the “Service Economy”. These authors cite those sectors where the technology is most advanced and then point out that what is in fact happening is a process of industrialization of the traditional service sectors.⁴ This is clearly an important phenomenon but it overlooks the spectacular increase of service functions within the traditional productive sectors.

The development of telecommunications, of banking and financial services, of insurance, of maintenance and engineering, cannot be accounted for in terms of their being merely new kinds of “production”, extensions of what had already occurred in textiles, iron and steel and the chemical industry. Selling a product (i.e. a machine) once (i.e. at a given moment in time) is a different business from fulfilling a maintenance contract over an extended period of time, during which the seller remains contractually committed to the consumer for the utilization of the “product”. The relevant issue here is really one of understanding, of what the selling of products in a Service Economy actually involves. We switch from an “Industrial Revolution” mentality to a Service Economy mentality, when we add to the cost of producing products that of maintenance (washing and possibly repairing) during their lifetime, plus the cost of their disposal and replacement when we assess their value in terms of their actual utilization.

4.2 The Horizontal Integration of all Productive Activities: The End of the Theory or the Three Sectors of Economic Activity and the Limits to Engel’s Law

Traditional economic theory still distinguishes between three sectors: the primary or agricultural, the secondary or industrial, and the tertiary which includes all services, sometimes subdivided further to produce a quaternary sector.⁵ Such a theory focuses essentially on the industrialization process where predominantly agricultural societies are those which are not yet industrial, and where the tertiary sector is frequently no more than a “trash can” used to classify all those economic activities which simply cannot be called industrial.

In reality, for all three types of society – agricultural, industrial and service – the relevant issue is the choice of priority in stimulating the production of wealth and welfare. In an industrial society, agriculture does not disappear. Quite the contrary. Agricultural production becomes more and more efficient thanks to its industrialization. Industry does not develop as a completely separate productive activity from agriculture, but influences the traditional way agricultural products are produced and distributed. In the same way, the Service Economy is not an outgrowth completely detached from the industrial productive structure, but permeates that structure, making it predominantly dependent on the performance of service functions within (as well as outside) the production process. The real phenomenon therefore is not the decline and growth of three vertically separate processes or sectors, but their progressive horizontal inter-penetration. In other words, the new Service Economy does not correspond to the economy of the tertiary sector in the traditional sense, but is characterized by the fact that service functions are today predominant in all types of economic activity.

With every fundamental switch from one priority mode of wealth and welfare production to another, there is a modification in the perception of needs or demand. The very definition of what constitutes a basic need also changes.

In an agricultural society, the agricultural (pre-industrial) system of production was obviously perceived as addressing the problem of satisfying basic needs. After the onset of industrialization, and in line with the history of economic theory, which until then had coincided essentially with its development, primary needs were defined in terms of what basic needs the manufacturing system (integrating key agricultural production) could satisfy. Engel's law states that services are secondary in most cases because they only fulfil non-essential needs. In this approach the Industrial Revolution is supposed to be an efficient method of providing people with food, shelter and health. Only once these basic needs are satisfied can the consumption of "services" commence.

In reality, however, the true impetus towards the Service Economy has been precisely the fact that services are becoming indispensable in making available basic products and services which fulfil basic needs. Services no longer constitute a mere secondary sector, but are moving to the forefront of economic activity, where they have become indispensable production tools in meeting basic needs and the essential means whereby the wealth of nations may be made to increase.

The insurance industry is a typical example. Until a few decades ago everybody, including those in the insurance industry itself, accepted that insurance policies covering, for example, life risks or material damage, were a typical secondary product in the economic sense that they could only expand once basic needs had been satisfied by material production.

However, during the years following 1973, when the growth of GNP in the world dropped from an average of 6% to less than 3% per year, the overall sales of policies continued to grow at about 6% per year. If insurance consumption was of secondary importance the slowdown in other activities, and in particular in manufacturing would, according to Engel's law, have produced more than a proportional reduction in the sale of insurance. The explanation for this continuous growth of insurance activities, even in periods of declining growth, lies precisely in the nature of the modern production system which depends on insurance and other services as key tools to guarantee its proper functioning, based on the availability of products and services. At a very advanced technological level of production, where risks and vulnerabilities are highly concentrated and represent an essential managerial challenge, insurance has become – increasingly so in recent decades – a fundamental pre-condition for investment. Similarly, at a more general level, social security, health and life insurance have by now achieved the status of a primary good in most "industrialized countries".

4.3 From Product Value to System Value

Another key difference between the industrial economy and the Service Economy is that the former attributes value essentially to products which exist materially and which are exchanged, while value in the Service Economy is more closely related to performance and real utilization (over a given period) of the products (material or not) integrated in a system.

Whereas during the classical economic revolution the value of products could be identified essentially with the costs involved in producing them, the notion of value in the Service Economy is shifting towards evaluation of costs in terms of the results obtained in utilization.

The first approach considers the value of a washing machine per se, the second evaluates the actual performance of the washing machine, taking into account not only its cost of production but also all other kinds of costs (learning time for those using the machine, maintenance and repair costs etc.). The applicability of the two approaches is, in most cases, inherent in the technological complexity of the product: in the case of simple products and tools, the assessment of value can be limited to the tool or product per se. Nobody buying a hammer would think it necessary to take courses to learn how to use it. In the case of a computer, however, the cost of learning how to use it tends to exceed the purchase cost of the machine itself, especially where the former includes the cost of essential software.

Similarly, people buying goods such as dishes or even a bicycle might not consider signing a maintenance contract. With purchases of electronic typewriters, photocopiers, or even television sets, however, maintenance contracts – even for individual consumers – are more and more common. In the Service Economy it is not a tool that is being purchased, for people are buying functioning systems, not products. People buy performance.

System evaluation, i.e. the organization of tools and persons in a given environment to obtain desirable and economically valuable results, must also take account of various degrees of complexity as well as vulnerability in systems' functioning.

The notion of systems becomes essential then in the Service Economy. Systems produce positive results or economic value when they function properly. The notion of system operation (or functioning) has to be based on real time and the dynamics of real life. Whenever real time is taken into consideration the degree of uncertainty and probability, which conditions any human action, becomes a central issue.

The economics of the Industrial Revolution could, in contrast, rely on the fiction of a perfect equilibrium theory (outside real time), based on an assumption of certainty. During most of the economic history of the Industrial Revolution, risk and uncertainty have been the meat of historians and sociologists. The first systematic study to give timid though serious consideration to risk and uncertainty was that carried out by Frank Knight during the 1920s.⁶

Any system working to obtain some future result by definition operates in a situation of uncertainty, even if different situations are characterized by different degrees of risk, uncertainty or even indetermination. But risk and uncertainty are not a matter of choice: they are simply elements of the human condition.

Rationality therefore is not so much a problem of avoiding risks and eliminating uncertainty, but of controlling risks and of reducing uncertainty and indetermination to acceptable levels in given situations.

Furthermore, the very systemic nature of modern economic systems and the increasing technological developments requires an ever deeper economic understanding and control of

the increasing vulnerability and complexity of these systems. The Siberian railway accident of June 5, 1988, when a leak from an LNG pipeline led to an explosion that destroyed two trains, killing all passengers, can serve as an example of systemic risks.

Unfortunately, the notion of vulnerability is generally misunderstood. To say that vulnerability increases through increase in the quality and performance of modern technology might seem paradoxical. In fact, the higher level of performance of most technological advances relies on a reduction in the margins of error that a system can tolerate without breakdown. Accidents and management mistakes can still happen – even if less frequently – but their effects now have more costly systemic consequences. Opening the door of a car in motion does not necessarily lead to a catastrophe. In the case of a modern airplane, it will. This shows that the notions of system functioning and of vulnerability control become a key economic function within which the contributions of, for example, economists and engineers must be integrated. In a similar way, problems of social security and savings for the individual have to take vulnerability management into account. Thus the notion of risk and the management of vulnerability and uncertainty become key components of the Service Economy.

4.4 The Notion of Risk in the Industrial Revolution and in the Service Economy – Moral Hazards and Incentives

The first great economists did not study risk-taking in detail. It was rather taken for granted by the cultural environment of the time, even if Schumpeter made more explicit reference to the risk-taking entrepreneur. It was not until 1992 that the first comprehensive study of the subject was made, by Frank Knight in his *Risk, Uncertainty and Profit*.⁷ But even Knight tended to confine himself to a discussion of risk of the entrepreneurial type. The field of pure risk linked to the vulnerability of systems was still considered too secondary to be given priority among the managerial objectives of firms.

The activities of the service sector and of insurance in particular, have traditionally been regarded as secondary or marginal in the national economy, even if they have existed for centuries. Theories and even attitudes have not yet adjusted to the new facts in this field. Some types of non-entrepreneurial risk are nevertheless now seen as more important due to changes in social philosophy. This applies to risks covered by social security and workers' protection in industrialized countries. Indeed as early as the 1850s the government of Prussia had organized the first compulsory insurance scheme for miners. But at the time of the great depression in 1929 this type of risk management was still in its infancy.

The development of social security can be attributed mainly to changes in social philosophy, which in turn is conditioned by the changing levels and characteristics of the risks and vulnerability produced by the modern environment. Indeed, the growth of risk and vulnerability, interwoven into the functioning of the economic system, largely explains why we now experience a new risk dimension and a fundamental change in our expectations concerning the possibilities for traditional growth.

The connotation of risk in the Service Economy covers a much wider area than the notion of risk in the Industrial Revolution. With the latter the main risk area involved was the so-called entrepreneurial or commercial risk; while the Service Economy has to be extended to include so-called 'pure risk'.

An entrepreneurial risk is one where the people involved in an activity can influence its purpose and manner by deciding to produce, to sell or to finance etc.

Pure risk is beyond the control of those involved in an activity. It depends on the vulnerabilities of their environment or of the system within which they work, and it will materialize by accident, by chance. This notion of pure risk is exclusively related to the notion of the vulnerability of systems we have been discussing in the preceding paragraphs and is a hallmark of the Service Economy.

One of the great differences between neo-classical economics and the new Service Economy is that not only is "entrepreneurial" risk taken into account (as in the case of Frank Knight), but that the notion of economically relevant risk is extended to include the notion of pure risk. Globally the notion of risk, therefore, has two fundamentally different but complementary connotations.

Today, in any significant economic endeavour, equal strategic importance must be given to both types of risk (both being linked to the concept of systems vulnerability).

Many people when discussing risk management (meaning the management of pure risk) do not make a clear link with the global strategy of risk. Therefore, instead of showing clearly how the two risks are correlated, they tend to confuse or confound them.

The distinction between pure and entrepreneurial risk is also to be found in the notion of "moral hazard".⁸ This notion has long been familiar to insurers when they have had to face damages occasioned by those who have exposed themselves to risk for reason of profit. Take for instance the case of somebody who burns down his own home in order to collect the insurance (the cause of over 20% of fires!).

4.5 The New Entrepreneur in the Service Economy

Managers and entrepreneurs in the service economy must be able to take a broad view of risk, one which embraces both forms (the entrepreneurial and the pure) of the phenomenon. Even the most advanced management schools today are often lagging behind in this respect, whereas the reality of pure risk has long since begun to impose enormous burdens on managers.

Risks have to be understood at all levels and controlled as to their level of manageability. Vulnerabilities can, and must be diminished and checked. Only then can a strategic vision be developed and new challenges discovered.

Should their vision of the real world be partial or inadequate, both the entrepreneur and the public at large will be beset by the feeling of being overwhelmed by the risks and vulnerabilities of modern life. Yet that sense of powerlessness, of inadequacy, is rather the result of

our cultural inability to identify, adjust to and accept the realities of our contemporary world. Thus, it is very much a question of attitude. This inability to adjust leads to pessimism and fatalistic paralysis, like the sailor who, instead of using the winds to steer his boat, allows them to determine the direction in which his boat is pushed. It is crucial that we be able to identify these new winds blowing within the Service Economy, and that we recognize the challenges posed by the new risks, and by our increased concern for product quality and utilization value, for what they really are: opportunities for defining new directions, for stimulating renewed activity in our quest for real economic and social growth.

4.6 Tradability and Homogeneity of Services

Much of the literature on the Service Economy quotes two specific issues which reflect current difficulties in defining its characteristics. In most cases these difficulties stem from an underlying psychological attitude which views services or more precisely the Service Economy, as a kind of new “product” manufactured by a new type of “industry”.

Our difficulties in clearly stating the problem once again stem from the cultural or theoretical frame of reference used for analysis rather than from the problem itself. A particular point in case is the notion of tradability and homogeneity of services. It is often said that an analysis of the Service Economy is almost impossible because services refer to such disparate entities as haircuts, telecommunications or maintenance and health activities. But the same can be said of products; there is little homogeneity between a pullover, an airplane, orange juice and a watch. In fact all “industrial products” are homogeneous only insofar as they are viewed from the standpoint of the production system, i.e. the manufacturing methods of production developed and improved by the Industrial Revolution. If one looks at services with an “industrial” mentality one will inevitably discover that some of them can easily be assimilated to an industrial product while others cannot. However, the exercise is pointless since it tries to fit empirical evidence into an obsolete frame of reference.

The real difference between the industrial and Service Economies, upon which homogeneous theoretical references can be built, is economic value. During the Industrial Revolution economic value was linked to a product’s existence and to improvements in productivity that derived essentially from improvements in the manufacturing process. Economic value in the Service Economy, on the other hand, is derived from the functioning of a system, the productivity of which can only be measured in terms of improved and increased performance as related to the costs in the entire cycle from raw material to waste. The reference is not to the “product” but to its “utilization”, i.e. its proper and useful functioning process.

Increases in productivity in the Industrial Economy are measured by the costs of the inputs used for producing a tool or a product. In the Service Economy, measuring the same costs of inputs without reference to specific performance (not necessarily products) is very close to nonsense. The productivity of a health system is in “producing” healthy people. In both cases measurement of the result has to inevitably integrate qualitative “stock” parameters. This can be achieved fairly easily with common sense and a minimum of consensus. Measuring the performance of educational systems must inevitably be linked to an evaluation

of the quality of the trained student in relation to the purpose of his or her learning. No indicator of the salaries of the teachers or investment in school buildings will ever suffice to properly measure educational productivity.

Living and working in a Service Economy also means looking at industrial products from a service point of view, i.e. looking at the function of tools, at how well such tools are used in practice, and at the results achieved with them.

In economic terms the Industrial Economy is about the evaluation of production of wealth in terms of added exchange value, while the Service Economy is all about the measurement of utilization value. If, therefore, the notion of homogeneity, or its absence, is used in our analysis of both the Industrial and Service Economies, such notions reveal maladjustment of the conceptual framework. It might of course be quite legitimate to choose one or the other. But it all depends on how efficient one evaluation system or the other is and in which direction the empirical evidence is moving. When we look hard at services as functions and performing systems within the Service Economy we find great variety in the activities pursued (and this is as typical of the Service Economy as it was with a wide range of goods of the Industrial Economy), but not necessarily absence of homogeneity. In the Service Economy, a restaurant performs the function of providing food for clients, a function which is, of course, very different from that of teaching or entertaining. But whatever its nature, the function always aims at achieving certain results that in each case can be readily identified.

The same problem arises with tradability. Many service functions are tested or considered in a way which assumes they can be fitted into the analytical framework developed for analyzing trade in industrial products.

Since the Service Economy is about producing results where the customer or user happens to be, it is clear that the notion of trade when applied to this context must alter radically. We can no longer distinguish between trade in services and the movement of production factors or investment as was the case in “industrial” economic theory. In many cases trade in the Service Economy inevitably combines and confounds the two. For many companies, and especially for those in traditional “service sectors”, the equivalent of local or international trade in products is the organization of delivery systems where the customer is located.

While a traditional producer of a machine will export a “product” to any place in the world, the exporter of a service will have to rely much more upon an established office or point of distribution at the place of use. In both cases a transition from a classical industrial to a Service Economy occurs when, for example, the sport of a machine must be accompanied by so much software that what was formerly the simple “physical” transfer of a product now becomes an on-site investment operation in order to guarantee the proper functioning of a product at the place of its use.

The question of trade in services and their tradability is representative of a more general movement which has characterized the development of society and the economy over the last few centuries: from locally closed and largely autonomous production units with small markets to ever greater interpenetration in a world market. During the Industrial Revolution

the explosion in trade essentially concerned hardware (products). What we are now witnessing as the spread of service-performing systems is an entirely new chapter in the annals of trade, involving not only the movement of physical tools and products but also of the ways and means of their use and co-production.

At first sight then, inherent in this spread of the World Service Economy is a mechanism for more balanced world development, based more and more on increased trade and investment.

4.7 Material and Immaterial Values in the Service Economy

Numerous books and articles on the Service Economy (as well as on the “information” economy), have suggested that in the present economic system we are increasingly faced with so-called “immaterial” goods and values.

This notion of “immaterial” comes from the observation that during the classical Industrial Revolution the production process had mainly to do with material (hardware goods and tools). In our present service information society, however, goods are very often “immaterial” (software), as for instance an item of information or a computer programme (the support or transmission system remains “material”).

Whether merely implied or explicitly stated, contained within this approach is the claim that the Service Economy is less “materialistic”, more open to “immaterial” values: Similarly the word “quality” is used as an analogy for “immaterial” and is frequently related to the notion that a higher degree of education is an essential prerequisite of proper production. All these analyses in fact maintain a dichotomy between tools and their utilization. Today, the notion of “knowledge society” has become fashionable. It has been forgotten that the civilization process has always been based (since the Stone Age) on more “knowledge”. What is new, in fact, is the acceleration of this process.

At the risk of repetition it should be emphasized that in the Service Economy priority is given to functions, the primary concern being with result-producing systems. However it is equally obvious that these systems (even if they produce abstract artifacts like communications) are heavily dependent on material tools.

A function or a “system” is immaterial per se, just as a machine tool is “material” per se. Industrialization required a different level of investment in knowledge than traditional agriculture, but knowledge per se is nothing new. Even the man who invented the bow and arrow was an “intellectual”.

Once this becomes clear we are more likely to describe current higher and increasing levels of education not as something new, but simply as something more appropriate to present economic development.

The notion of “immaterial” values stems basically from the sense that values are produced, and go beyond what is normally measured by current (industrial) economics. If in some cases we can identify “deducted values” (the example of the economic system overestimating the

real increase in wealth), there are also many cases in which the results, in terms of the real wealth of modern technology, are underestimated.⁹

This takes us back to the problem of measuring the results against the costs (monetarized costs) of production, and of the absolute necessity of measuring value by some accepted indicators of personal and national wealth.

5. Value and Time in the Service Economy: The Notion of Utilization

5.1 The Product Cycle: from Raw Materials to Recycled Materials

The “life” of any product can be divided into five distinct phases: research, design and conception; production, involving a transformation of natural resources; distribution (transport and packaging, marketing and publicity); the useful life over a variable period of time (the utilization period); and the disposal of the discarded good (recycling or waste disposal). This whole process can be referred to as the Product-Life Factor.¹⁰

The fast replacement of goods has been a persistent trend in economic history, and has gained momentum in our fashion-based consumer society (the syndrome of bigger-better-faster new products), as economists have become preoccupied with production optimization, economy of scale and fast depreciation and replacement. The success of such industrial production has been measured in terms of flow at the Point-of-Sale (expressed for example in the GNP), while the notion of the use of a product over time, its utilization, has been largely neglected.

However, it is precisely this utilization period which is the main variable in wealth creation! Who determines the length of the utilization period?

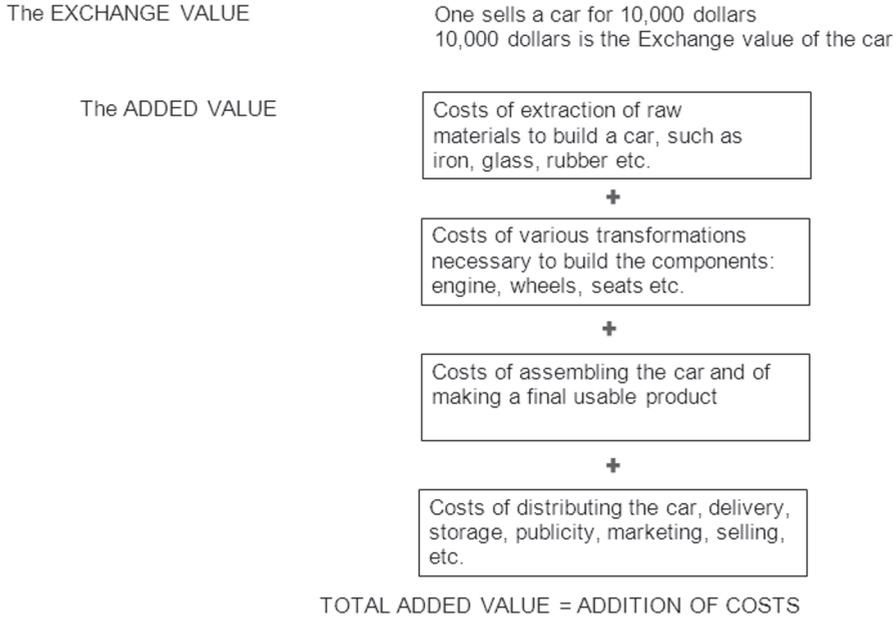
5.2 Accounting for Value in the Service Economy

Measuring Value in the Industrial Revolution: The Monetarized Flow

We have attempted to show that price is the yardstick, the reference criterion, around which we organize a measurement system capable of quantifying economic phenomena and results within the framework of the industrial process.

Price is given by exchange and the money obtained from each transaction is then used to remunerate all those who have contributed to the production of that which is transacted, i.e. goods or services. Labour is paid wages or salaries, and capital (representing an accumulation of labour in terms of tools made available for production, e.g. plant, machinery, systems, knowledge levels and managerial capacity) receives interest. Each contribution to the various steps in transforming raw materials into usable products or functions represents a “value added”. Adam Smith built his notion of value on this idea of “value added” and considered it equivalent to the “exchange value”. Figure 2 summarizes these notions. However the notion of value added has not simply remained historically a basis for economic theory. In recent decades it has become a reference for the fiscal system through the introduction of value added taxes.

**Figure 2: The classical economic concept of value in the industrial society:
The example of an automobile.‡**



It is essential to understand that the measurement of value added in economics refers to the measurement of a flow. Although reference is made to the “selling price” (which could give the impression that it is the measurement of a result), the reference to the cost of the production factors is conceptually linked to the measurement of what contributes to the production of wealth, and not to the measurement of wealth itself. This can best be explained as a bathtub with two taps.§

Over recent decades we have seen the emergence of a new type of problem linked to environmental and ecological constraints, which strongly suggests that the monetarized flow does not always lead to additional wealth, for the monetarized flow contains a non-negligible element of pollution which does not add to, but destroys wealth. The measurement of growth as expressed in the Gross National Product is precisely and exclusively the measurement of such a monetarized flow at the macro-economic-national level. It excludes the standard accounting practice used by all industrial companies and individuals: an accounting of the total assets or stock available and total liabilities incurred (the Balance Sheet), of which an analysis of the flow of activity performed during a given period of time (the Statement of Income and Expenses) is an integral part. At the microeconomic level it is a matter of

‡ Source: Giarini, Dialogue on Wealth and Welfare.

§ For a detailed description see Orio Giarini and Garry Jacobs, “The Evolution of Wealth & Human Security: The Paradox of Value and Uncertainty,” *Cadmus* 1, no.3(2011): 29-59.

common knowledge and, indeed, of common sense that the differential in the total value of assets (e.g. stock) does not necessarily coincide with the volume of activity performed over a given period of time. The accounting of assets is a process which reveals an accumulation from an activity over a longer period of time, rather than simply indicating whether the monetized flow over the same period has increased or decreased.

During the Classical Industrial Revolution it could be assumed that the amount of the monetized flow largely corresponded to increases in the stock of wealth. In the Service Economy this is no longer true. The real level of wealth (i.e. the stock) depends also on non-monetarised contributions and deducted values. In the past too, value added coincided largely with the real utilization value and as such became the primary indicator of growth in wealth. But the notion of utilization value itself refers to the assets (stock) and the way they are used, in contrast to the notion of added value which refers to the flow of monetarized production.

The measurement of such stock can of course only be approximate and will be partly subjective. This means that decisions about what has value then become partly a matter for political consensus, similar to the estimated "goodwill" in a company's Balance Sheet. The choice in future may well be between a system of flow measurement which is quantitatively precise but increasingly devoid of significance, and systems of asset measurement which might be less precise but will be more relevant to the real world. The quantification of non-monetarized wealth components can be achieved through adequate indicators. This is a crucial topic, as any method of asset accounting would also make possible a better definition of riches and poverty, and thus avoid the perpetuation of a higher level of wealth than officially recorded, for the non-monetarized contributions to the wealth of one country may be higher than those of another.

5.3 Old and New Shortcomings: Wealth and Riches, the Paradox of Relative Prices, Deducted Value, and Non-Accounted Value

Classical economists, and in particular Ricardo, were well aware of the methods for the accounting of economic wealth that they were devising were not really comprehensive of the real level of wealth of an individual or a country. A clear distinction was made between the notion of riches on the one hand and wealth on the other. There was even an implicit acceptance that there could be situations where an increase in wealth would not correspond to an increase in riches.

However, these considerations remain secondary because the main problem during the Industrial Revolution was to identify the most dynamic system for increasing the wealth of nations via the industrialization process, and to concentrate on its development. Discrepancies between wealth and riches could be considered of minor importance. The writings of classical economists and some of their later commentators were very much influenced by the fact that the first formulation of economic theory was a description of the industrialization process: the priority, which was quite adequate for this purpose, was to measure a flow of goods and the value added, whether supply or demand-based.

In the Service Economy, where the industrialization process per se is no longer identified as the prime mover in increasing the wealth of nations, the problem is quite different and the contradiction between wealth and riches much more important.

“The present accounting system is inadequate, even in the positive sense, for measuring many increases in real wealth.”

The divergence of the notion of riches from the notion of wealth corresponds to what can be called the development of deducted values in the modern economy. Increase in these deducted values stems from the increasing higher allocation of economic resources to activities which do not add to the real level of wealth (or of riches), but which are in fact absorbed by the rising costs of the functioning of the economic system.

Air and water pollution are obvious cases of diminishing real wealth (or of diminishing riches). If money is invested to depollute water or to develop alternative solutions such as bottled water, special reservoirs for drinking water, or swimming pools next to polluted seashores, we are once again confronted by “catch 22” situations where investments are necessary to compensate for riches lost through, for example, pollution: these investments are not net added value to our wealth!

The growing discrepancies between levels of wealth and riches (or the contradiction between economically accounted wealth and real wealth) clearly indicate the need to refer increasingly to stock, i.e. variations in real wealth, as a substitute for the measurement of productive flows (the bathtub example). Furthermore there is also a problem of matching real added values to deducted values. A new conceptual approach for measuring the real results will have to replace the simple analysis of the costs of an isolated activity.

The notion of deducted value implies the need to take into consideration the notion of negative value. In terms of economic analysis this is already a step in the right direction, given that in many cases the negative side of economic activities has simply remained unaccounted for. Diminishing increase in an economic situation has to be in fact distinguished from a net negative process. Measuring wealth through flows that do not fill a bathtub, or even worse, that are shut off, excludes the notion of negative flows. Only by looking at the stock can positive and negative variations be measured and a decision taken as to whether the flows produce values added or values deducted.

We should also bear in mind that the present accounting system is inadequate, even in the positive sense, for measuring many increases in real wealth. This phenomenon relates to certain paradoxes concerning the notion of relative prices.

Relative prices and the changes they undergo are one of the major indicators of whether a new technology or production system has really been effective in a given sector. When there is great progress in a new sector the cost of products not only diminishes per se, but their price, relative to other products on the market, also falls steeply. Thirty years ago, the price of a small calculator was the equivalent of 500 kilos of bread. It is now sometimes the

equivalent of less than 1 kilo of bread. This means that, in terms of bread, the relative prices of pocket calculators have fallen sharply.

At the level of the individual, the substitution of a rare and expensive product (as, for instance, calculating machines fifty years ago) for a cheap product greatly increases one's riches, but can diminish wealth. The fact that we can buy products today, such as pocket calculators which thirty or forty years ago we could not afford to buy for private use, is an indicator that, in real terms we are much richer today. But in terms of the monetarized wealth at our disposal, any person who could afford such a machine thirty or forty years ago was considered to be much richer than we are today, when we need little money to buy it.

At the macro-economic level, this phenomenon may be less contradictory. If, today, the price of pocket calculators is $1/10^{\text{th}}$ of what it was twenty years ago, and if, instead of selling ten calculators thirty years ago, it is possible to sell 1,000 today, we have increased the sales value ten fold in terms of money. But the real wealth of people has increased much more: some of the revenues generated through the expansion of the pocket calculator market can be used for buying those goods which have remained expensive, i.e. the relative price of which has remained high.

In measuring our real wealth, merely knowing if and by how much the world has grown richer is by no means sufficient. While in some ways we have become poorer over the last twenty years because we must pay more for previously free goods or services such as uncontaminated drinking water or swimming in non-polluted water, we have, in other ways, become richer by having pocket calculators and video cassettes available for the equivalent of a few hours, or even minutes of salaried work. And we can afford to see high quality operas and plays that in Moliere's day were reserved for Kings and Emperors.

Our attempts to measure the value added and to examine the mechanism of relative prices lead, therefore, in terms of evaluating increases in wealth, to conclusions that are much more complex than first expected. The easy way out is to measure the levels of real wealth available (its utilization value) with approximate indicators. The complication of "Industrial Revolution accounting" is nicely described by the paradox of hell and heaven, when applied to the notion of scarcity. Heaven, being probably blessed by an infinite stock of goods and services of all sorts (material and spiritual), knows nothing of scarcity. Economics and the economy therefore do not exist. There are no prices and there is no money since everything is readily available without any restriction or work. Heaven, then, must be something very different from earth, but it is also a place of zero GNP. Hell, as the opposite of heaven, is a place which consumes a lot of energy in maintaining its celebrated image and presumed activities. Therefore, it probably needs to develop a huge value added which nobody has ever tried to measure. GNP must be very high indeed!

On our earth, the maximum possible achievement in the fight against scarcity is to create abundance in as many sectors as possible. But human and economic development also entails identifying and coping with new scarcities. Scarcity is ultimately the hallmark of the system of disequilibrium within which human endeavour is destined to operate: it is the sine-qua-non of man's quest for fulfilment.

5.4 The Bathtub Systems: Measuring Results through Indicators

One of the major paradoxes in value accounting and in defining the development of wealth is that an increase in real wealth corresponds in some cases merely to an increase in the cost of pollution control (e.g. investment for waste control and environmental purposes which is clearly a deducted value type of cost), while on the other hand, many real increases in value are underrated. For instance GNP growth figures published by governments each year indicate that the economy has grown by so many percent. However, a large part of this growth is in fact absorbed by factors which do not necessarily add to our wealth, while other factors that represent net increases in our well-being are not, or only inadequately taken into account.

Furthermore, the transition to an economic system and theory which go beyond the traditional notion of economic (added) value requires acceptance of a certain degree of uncertainty where measurements are concerned. This uncertainty stems from the fact that the very question of what wealth should be entails defining certain goals and expectations. The definition of a level of wealth is a function of time and history in evolution and, as such, a relative construct.

Another source of uncertainty in the notion of real wealth and welfare relates to the fact that many riches are conditioned by climatic conditions. Countries with cold climates will always need to develop more sophisticated heating systems than those with milder ones. In the former, more monetarized activities have to be developed in order to provide artificial, man-made sources of heat that can be stockpiled for winter. In milder areas heating involves less provision and less expense. But which type of country is the poorer and which the richer: those that have to spend a lot of money on heating or those which have no heating at all?

We should never forget the paradox of hell and heaven: less scarcity leads quite naturally to less economic monetarized wealth. However, where constraints are stronger, the stimulus to avoid hell in order to survive is probably greater. Many potentially poorer people have in the past become more industrious and richer than those who inhabited a more blessed environment. In all parts of the world this is as true for individuals as it is for nations. But it is a historical process and can be reversed. Furthermore, not all advantages are necessarily species-specific, for where life is exuberant and easy it is so not only for the human species, but possibly for competing biological beings such as viruses too.

This whole domain is hard to define. Indicators of whatever kind, of the level of wealth, health, happiness, knowledge and the availability of material tools and means, are all concepts affected by uncertainty and change. The notion of value added happens to be much simpler apparently and has the additional attraction of having been proposed and used as an instrument of universal management, as a standard that can be applied everywhere.

Is it not the wisest way to always start by using the simplest system in science as in other activities including economics?

The problem is that the universal validity of the concept of value added resides essentially in its use as a measurement of an industrial production process. The establishment of a

sound statistical basis for the measurement of the stock of wealth and its variation by means of an appropriate range of indicators which may differ from one part of the world to the next (but which do not preclude a minimum level of homogeneity for purposes of comparison), are not necessarily more complicated than the measurement of value added. After all, there are already plenty of economic indicators in use which are periodically redefined, such as the consumer price indices that serve as a base for the determination of the level of inflation in many countries. These indices contain within themselves a number of well-weighted elements.

They are not, by definition, identical in all countries as they reflect the evolving structure of consumption. Why not define the real level of wealth or of riches in a similar way and allow the definition of wealth to vary much as the definition of the typical consumption pattern varies from one country to the next?

In the mature Service Economy this type of index might be politically more appealing, especially if it succeeds in closing the gap between measurements of GNP which do not reflect the reality of real wealth variations, and the perceptions of individuals, the “prosumers”, who already have practical experience of what it means to become richer in contemporary economic conditions.

There is a lot of work to be done to update “Economics”, and to better identify indicators and goals to define wealth and welfare policies.

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Notes

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- Anticipation in fiction, the arts, design and gaming,
- Modeling anticipation.

Invited Speakers: Arjun Appadurai, Jens Beckert, Julian Bleecher, Riel Miller, Martin Seligman, and Erik Olin Wright.

Program Committee: Roberto Poli (Chair), Flaviano Celaschi, Garry Jacobs, John Kineman, and Giuseppe Sciortino.

The Conference's Program Committee invites proposals for workshops to be held in conjunction with the main conference. Further information is available from <http://www.projectanticipation.org>, the website of the UNESCO Chair in Anticipatory Systems. Recognising the importance of Anticipation, special issues of the journals *Axiomathes*, *Cadmus*, *European Journal of Futures Research*, and *Futures* will be published from peer reviewed conference contributions.

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- Early registration: Before 1 September 2015
- Deadline for registration: 15 October 2015
- Conference: 5-7 November 2015

