Degrowth R&D Research

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Conference proceedings

Implementing Degrowth: An evolutionary economic perspective

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Abstract

Reorienting the current unsustainable and inequitable path and implementing the necessary degrowth process in an ecologically sustainable and socially equitable manner requires a shift from the property-based hierarchy of social norms, where social and ecological considerations are subordinated to the capitalist economic rationality towards an eco-social rationale, where economic activities are subordinated to social and ecological considerations and imperatives. Such an eco-social rationale could subordinate property capitalist expansion through the following, interrelated ways : scoping the domain of property; regulating capitalisation practices, orienting investments, allocating returns and distributing created wealth, confining property's capitalist expansion. However, such a radical shift will inevitably face a systemic opposition from the capitalist/industrial expansion.

Keywords

degrowth; evolutionary economics; property; capitalist expansion; eco-social rationale

1 Introduction

This contribution rests on the postulate that any social goal requires firm theoretical foundations to be successfully implemented. The challenge of consciously conceptualising, developing and implementing the institutional, organisational and technological means of mastering the Degrowth phase in a manner as sustainable, equitable and responsible as possible, is no exception to this rule. When facing the Degrowth challenge neoclassical economics is of limited help, if any. Anchored in a mechanistic, a-temporal epistemology, neoclassical economics proves unable to apprehend the complex and multidimensional nature of Human-Nature interactions. Consequently, it ignores the eco-social collapse human societies have entered, eludes its irreversibility by invoking substitution principles and technological salute, and shows inability to propose any course of collective action that would diverge from the capitalist rationality, as illustrated by the impasse in which the international climate governance has locked itself.

What is therefore needed is, as advocated by institutional economist William K. Kapp (1976:97), "a new approach which makes it possible to deal with the dynamic interrelations between economic systems and the whole network of physical and social systems and, indeed, the entire composite system of structural relationships." A promising way of building such an alternative approach rests on the integration of the critical institutional economics inspired by Thorstein Veblen's work and the ecological economics developed on Georgescu-Roegen's pioneer contributions into an evolutionary economic paradigm.

An evolutionary paradigm proposes an integrated but differentiated approach to evolutionary processes resting on both a conceptualisation of the common principles they might share and an adequate apprehension of the specific characteristics they present when they are realised at different, irreducible ontological levels. Anchored in an evolutionary epistemology, an evolutionary economic approach can properly articulate the diversity of geophysical, eco-biological and sociocultural temporalities of development processes as well as the complex interactions between them. It thus appears to be an appropriate approach do deal with the Degrowth challenge.

2 An evolutionary representation of Human – Nature relations

Evolutionary economics departs from the prevailing economic viewpoint (according to which the economic system is adequately represented as an autonomous system – the market, both self-organised and self-regulated by the pricing system), and emphasises the *open nature* of the economic system (Kapp, 1976). This concept states that economic activities (production, transformation, distribution and consumption of goods and services) occur in a natural and cultural context with which they permanently interfere[1]. Though economic activities do indeed stem from a particular logic that must be analysed as such, they also depend on and affect ecological and social processes. The modes of these processes (scales of time and space, functional, renewal and evolutionary modes) are essentially different from those regulating the economic sphere. This is why, continuing on from Kapp (1950), evolutionary economics insists on the heterogeneity of ecological, socio-cultural and economic activities and objects to the reduction of human and natural dimensions to the sole monetary logic of market economics.

To account for social reality, the institutional economic theory uses social and environmental indicators chosen as a function of the question being dealt with instead of resorting to flows of quantities measured in prices and expressed in monetary terms (Steppacher 1983). Similarly, to apprehend the evolution of the natural environment and the repercussions of economic processes on the natural environment,

[1] A good example of the recognition of the economic system's openness is given by Kapp's description of the productive sector of the economy : "*production derives material inputs from the physical and decisive impulses from the social system which, in turn, may be disrupted and disorganized by the emission of residual wastes up to a point where social reproduction itself may be threatened.*" (Kapp 1976:98).

ecological economics refers to heterogeneous ecological indicators and resorts to energy/matter balances evaluated in physical terms, relegating monetary indicators to the second level.

In the context of the fundamental dialogue which links human societies and their natural environments, two elements emerge from the cultural sphere to play specific roles. *Technology* determines the qualitative and quantitative characteristics of human-nature interactions (type and quantity of resources used and/or produced, as well as the wastes created) where as *institutions* not only determine the kinds of relations that are allowed regarding nature (exploitation, preservation, etc.) but also exercise a decisive influence on the evolution of technology and on the development of knowledge. The joint influence of technology and institutions on the exploitation of resources appears paramount in the perspective of evolutionary economics. As Steppacher (1983:49) points out, "the method and extent of resource exploitation depend upon available technologies, on institutions regulating access to resources as well as on decision-making systems whose rationale influences the way resources are exploited. In turn, the way resources are used is conditioned by culturally determined thought patterns and behaviours (...)."

Therefore, within an evolutionary representation of economic processes, any attempt to reorienting the physical dimension of economic activities, which does not substantially address its institutional anchorage, seems doomed to fail. Therefore, if reducing the economic throughput, avoiding resources depletion or lowering the environmental degradation requires alternative techniques, practices and behaviours, such a change will ultimately depend on changes in the orientation criteria, which can only be detected in the institutional foundations of the system.

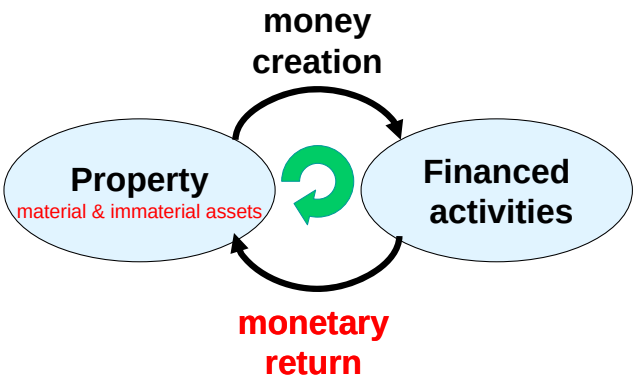
3 An evolutionary appraisal of the capitalist expansion

In a previous contribution (Griethuysen 2010), we presented a theoretical description of the capitalist mode of development as a cumulative sequence of appropriation and concentration of assets through capitalisation and finance, with increasing inequities and widening ecological degradation as consequences of the subordination of eco-social considerations to capitalist imperatives. At the heart of this dynamics lies the institution of property, "the core institution of capitalism" (Steppacher 2008:323), and the circular and cumulative nature of the expansion of property through capitalisation processes.

In a capitalisation process, a proprietor becomes a creditor by issuing a currency that is used to finance new activities[2]. Creditors are in the position of financing new activities as long as such activities yield back a competitive monetary return. Such a monetary return increases the value of the existing property, and this increased value of the engaged property makes it possible for further capitalisation, through new credit relations or other capitalisation process. As pointed out by Veblen (1904:105-106): "any increase of the aggregate money values (…) will afford a basis for an extension of loans (…). The extension of loans on collateral (…) has therefore in the nature of things a cumulative character." Moreover the earning-capacity of engaging property in a capitalisation process comes in addition to the income-stream that can be earned from the concrete, material exploitation of the property. Such a dual actualisation allows for the cumulative enrichment of proprietors since a higher material yield usually implies a higher earning-capacity through capitalisation which can itself be invested in increasing material productivity, and so on. The circular and cumulative nature of the capitalist expansion is further illustrated by **Fig. 1**, which illustrates how the value of property increases through the financing of new activities.

[2] Heinsohn and Steiger (1996, 2000) insist that only a genuine or creditor's money, i.e. "a currency issued according to sound principles of banking, that is, not only against interest but also against good securities and with sufficient capital of the issuing bank" (Steiger 2006:188), can result in a strong and stable currency.

Fig. 1 The circular and cumulative nature of the property's capitalist expansion



In this circular and cumulative process of property expansion, no internal criterion acts as a limiting factor. On the contrary, as the actualisation of property specific potential requires a capitalisation process, the functioning of a property-based economy seems condemned to expand and to capture into its rationale of exclusivity, accumulation and exploitation, any valuable resource that might ease this expansion. Any limit can thus only come from outside the realm of the property-based economy. It must emanate from the institutional conditions that define the legal frontiers of the economic system.

4 An evolutionary perspective of collective action

Evolutionary economics, while clearly distancing itself from any attempt to prove that markets are a superior form of societal organization, points out that all societal organisations are based, not only on the market, but also on political decision-making systems (hierarchies, polyarchies and negotiation systems)[3], as well as autonomous systems (family dynamics, community structures and the so-called informal sector). This extended vision seems more able to account for the real functioning of economic systems where price systems, political systems and autonomous systems are in permanent interaction (Steppacher 1983). More fundamentally, it reminds us that the interrelationship of these different decision-making systems is at the organisational heart of every society.

This change of perspective is complemented in the forms of social action that are advocated. Thus, institutional economists do not favour political economy measures consistent with the market's internal logic, not because they are worthless, but rather because they are limited in their ability to give appropriate answers to environmental and social issues. Steppacher (1983 :7) underlines this point : "institutional economists maintain that from the point of view of political economics, conventional measures based upon neo-classical and Keynesian theory are far from being able to solve contemporary existential issues (...). Poverty and under-development, waste of resources and environmental degradation, international structures of dependence : these are all problems that require radical institutional reform in the direction of greater equality, of a technological change focused on existing problems rather than on market criteria, of new ways of life and of consumption including inter-temporal use of goods and resources, a reduction in the sphere of influence of market mechanisms and, finally, a fundamental democratisation of decision-making systems that would strengthen autonomous systems".

Starting with a world vision and representation of the economic system that differ from that of conventional economics, evolutionary economics makes alternative policy recommendations, where the main focus is on institutional reform (with market instruments relegated to roles of support). Such an approach is advocated, with a focus on the institutional changes favouring the lowering of capitalist economic practices to ecological sustainability and social equity.

[3] See R. Dahl and C. Lindblom (1953), Politics, Economics and Welfare, Planning and Politico-Economic Systems Resolved into Basic Social Processes (New York, Harper & Brothers). Quoted by Steppacher (1983:32,n25).

5 A change in the economic rationale

By deciding which activities to finance, the creditor gives the primary impulse towards the capitalisation process and the expansion of the capitalist economic system. Therefore, economic rationality in a property-based economy is primarily defined from the point of view of the property of the creditor. This general orientation towards the monetary value of property, which imposes the solvency of economic agents, the monetisation of economic activities and the profitability of economic activities, constitutes the specific rationality of a capitalist, property-based economy (Steppacher 2008).

In this capitalist rationale, considerations of an ecological and social nature are relegated to the background. Not that they are in themselves incompatible with a property regime's rationale, but they can only be considered by economic agents insofar as they are compatible with the property specific requirements. Restraining competitors by institutionalising ecological and/or social regulations, establishing voluntary labels to increase sales' income, establishing new property titles granting exclusivity over "free" resources (as illustrated in the climate change international regime by the creation of a carbon market resting on exclusive rights to emit) are among the situations where eco-social considerations comply with the property's specific requirements.

In arguing that economic activities must be subordinated to ecological sustainability and social equity, the Degrowth project proposes a very different hierarchy of social norms. Such a hierarchy is usually founded in what Heinsohn and Steiger called the possession regime[4]. In a possession regime, economic activities are not separate from social activities and their cultural, symbolic or religious dimensions. Consequently, economic decisions (such as the selection of the resources to be produced and/or consumed, the methods of exploitation, the development of technology, the transmission of know-how) are taken inside an enlarged socio-economic rationale, including social considerations (identifying the expected advantages and inconveniences for one group or another), cultural considerations (repercussions on the existing institutional framework, compatibility with social values and collective rules of behaviour, etc.) and ecological considerations (impact of different management options on the natural environment, repercussions on the environmental supply of resources, etc.).

This mode of operation and of social evaluation, where economic choices are subordinated to ecological and social objectives, characterises what Steppacher (1996) has called the eco-social rationale. By lowering economic choices to ecological and social considerations, the eco-social rationale of possession regimes does not guarantee that the principles of social fairness and ecological sustainability will be respected[5]. Yet the eco-social rationale is compatible with social fairness and ecological sustainability, insofar as these principles are embodied in the habits of thought, the cultural values and the collective rules of the society[6].

[4] Possession is an economic notion proposed by Heinsohn and Steiger (1996, 2000) to generically account for the set of institutional regimes developed by human societies in relation to the material disposition of natural resources, without recourse to formal property titles. These include rights, obligations and duties relating to resource access, use and material management, as well as to the arrangements regulating the distribution of the material outcome of their exploitation – all elements that fall under the concept of possession. The modes of these institutional arrangements are extremely diversified and vary according to the historical, ecological and cultural contexts in which they are developed.

[5] As with all modes of societal organization, the eco-social rationale reflects the existing balance of power and cannot avoid the fact that social imbalances will affect the economic choices that are made. Many examples of feudal societies, in which economic choices are made in the interest of a social minority, have shown that an eco-social rationale accommodates social inequalities and environmental degradation.

[6] Such cases are most often found in common possession regimes, where power imbalances are relatively limited and where the interdependence that characterizes not only the relations among members of society but also those between the society and the natural environment, is anchored in the institutional framework (Bromley 1991; Ecologist 1992).

6 How to subordinate property expansion to eco-social considerations?

In theory, two approaches could be thought of: the first one rests on the abolishment of the institution of property as such, the second on the subordination of the property expansion to environmental and social considerations. Abolishing property is not only unfeasible in a context of worldwide property expansion, it also leads to neglecting the remarkable potential property of stabilising the economic context, mobilising economic potential and inducing economic growth processes. Such a policy would thus lead to potentially disastrous social consequences in context of population growth and demographic pressures where economic growth is requisite, as Georgescu-Roegen (1960) demonstrated. Such a view is shared, although in a much undifferentiated perspective, by Hernando de Soto (Soto 2000) who insisted on the need to establish property titles in favour of poor and excluded people (Soto 2000).

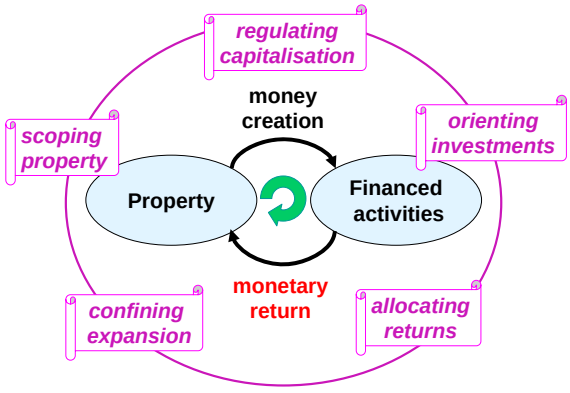
To subordinate property expansion to an eco-social rationale does limit the economic potential of producing monetary return as well as the cumulative enrichment of proprietors. By limiting the realm of economic actualisations to the ones that favour ecological and social imperatives, such an approach redefines the institution of property as an economic tool to be managed for the common good. The socio-economic sphere is not subordinated to the capitalist rationality of property expansion, but to ecological and social considerations. But how could such an inversion in the hierarchy of social norms be accomplished?

While a general reorientation of the economic system is needed, we focus here on the institutional modalities that could be developed in order to put a brake on the core dynamics of property expansion, the capitalisation process. In such a perspective, an eco-social rationale could subordinate property capitalist expansion through the following, interrelated ways [7]:

1. Scoping the domain of property
2. Regulating capitalisation practices
3. Orienting investments
4. Allocating returns and distributing created wealth
5. Confining property's capitalist expansion

Based on the circular and cumulative nature of the capitalist expansion, those approaches can be articulated into an integrated strategy, as illustrated by **Fig. 2**.

Fig. 2 **The circular and cumulative nature of the property's capitalist expansion**



[7] While a general reorientation of the economic system is needed, we focus here on the institutional modalities that could be developed in order to put a brake on the core dynamics of property expansion, the capitalisation process.

7 Scoping property

As the expansion of property through capitalisation processes rests on the exclusive and enduring rights provided by property titles to their holders, delineating the scope and the temporality of the exclusive sphere of property is the most basic way of subordinating property expansion to eco-social considerations. While conventional economics, considering property rights as a prerequisite to economic development, favour market-based instrument or monetary/fiscal incentives, evolutionary economics focus on the need to reinforce economic agents' eco-social responsibility through the implementation of environmental and social legislation[8]. As the reciprocal nature of institutions insures that "restraint for one is liberation for another" (Bromley 1989:38), eco-social legislations, in displacing the frontier of the legal responsibilities of proprietors towards environmental and social goals, reduce simultaneously the scope of exclusiveness provided by property titles. Thus, while ensuring, at least in principle, that environmental and social goals are reached, legislation also restraints the potential for concrete use of property and consequently, it's potential for capitalisation.

Setting time limits to the exclusive rights to resources is another way of reducing the capitalisation value of property. Institutional arrangements such as state concessions to economic organisations (corporations, communities, NGO) correspond to such modality. In such cases, where the state as the resource proprietor concedes possession rights to socioeconomic organisations, the most enduring the rights, the higher the security on future returns and, consequently, the higher the capitalisation potential and value. However, as the resource itself cannot be alienated, the capitalisation value is much lower than in credit contracts where the property engaged as collateral can be seized in case of insolvability. In that sense, state concessions rest on an economic rationale that is similar to the principle of inalienability (or exoinalienability) of resources that characterises most of the possession-based, so-called traditional societies.

Distinguishing between possession and property regimes opens further the domain of possible institutional arrangement towards resources. Thus, not only different type of property regimes (such a as state, collective or private property), but the whole range of non property, possession-based institutional arrangements can be can be thought of and implemented. This is especially important to mention since the absence of legal property titles is often associated with the absence of institutional arrangements, as illustrated by Garett Hardin's (1968) confusion between common regimes and open access regimes[9]. However, while Hardin's confusion, although recognised by its author (Ecologist 1992) is still too often neglected by conventional economists, neglecting the difference between property and possession is even more common and more fundamental a mistake. In fact, even the literature specialised on "property regimes" usually ignores such a distinction. This results in a systematic confusion in this literature between property and possession regimes (Steiger 2006).

As mentioned, distinguishing between possession and property opens the way to alternative policy options based on alternatives to property-based modalities. Thus, not only collective or state property can be proposed as alternative to private property, but also institutional arrangements resting on the rationale of possession. Among the possession-based institutional modalities that can be analytically distinguished (such as state, common or individual possession), the common possession regime is worth mentioning. Generally presented as a "common property" regime in the literature on "property regimes",

[8] Economically powerful agents are most often in the position of evading monetary instruments. Therefore, only an in-depth institutional reform of the capitalist system could, by redefining the frontier of corporations' legal responsibility, lead them to actively participate to implementing a mode of development that is both ecologically sustainable and socially equitable.

[9] Hardin's (1968) confusion between common regimes and open access has been the subject of many commentaries, starting with the warning by Ciriacy-Wantrup & Bishop (1975), according to which, "economists are not free to use the concept "common property resources" or "commons" under conditions where no institutional arrangements exist. Common property is not "everybody's property" (...). To describe unowned resource (res nullius) as common property (res communes), as many economists have done for years (...) is a selfcontradiction" (Ciriacy-Wantrup & Bishop, 1975:714, original italics).

the "common possession" regime refers to social contexts in which the rights and obligations regulating the material disposition of natural resources arise from an authority that is jointly assumed by the members of the society –with the society's organization relying on relationships of reciprocity, interdependence and mutual coercion (Bromley 1991).

When elaborating alternative to property-based regimes, institutional arrangements that combine the property institution and the possession-based rationale should be considered. As an example, the establishment of property titles to a community that will commonly owns and manages the resources is worth citing. In such a case, the community's rights are protected vis-à-vis the rest of the world by the property titles while the internal economic rationale can rest on a possession-based eco-social one, In such a case, de jure property titles are used as means to secure the possession aspect of ownership, i.e. the material use and control of the resource as defined by the common, possession-based, rationale (which may rely on principles such as exoinalienability, where alienating possession rights or resources to non community members is forbidden).

The combination of the capitalist economic rationality and the possession-based rationale can also be mobilised in different kind of partnerships, such as state-communities or corporate-communities partnership. As indicated by Hoffmann (2005), such partnerships allow for combining the possession economic rationale with the property one. By valuing the non monetary contributions of insolvent community members, such partnerships jointly meet the capitalist constraints of solvability -by reducing the overall monetary costs-, and the social goals of reducing exclusion -by economically satisfying insolvent needs and enhancing social participation.

8 Regulating capitalisation

The financial crisis has demonstrated where the competition towards higher monetary returns can lead. Not only banking practices have forgot about the principles of sound banking, i.e., issuing money "… not only against interest but also against good securities and with sufficient capital of the issuing bank." (Steiger 2006:188), but, in their quest for ever higher monetary returns, they have gone as far as to create financial products and practices totally dissociated from the domain of real, concrete economic activities. Among such financial innovations, derivatives (financial products that are derived from other financial assets), securitizations (finance processes that distribute risk by aggregating debt instrument in a pool, then issuing new securities backed by the pool) and leveraging (using debt to supplement and multiply original investment) are worth citing.

Setting the frontiers of property capitalist expansion by regulating capitalisation practices, distinguishing first order capitalisation processes, such as credit relations or stock-option creation, and second order capitalisation processes and practices, such as derivatives creation, securitisation and leveraging, is an essential policy element of a Degrowth integrated strategy[10]. First order capitalisation process can, and indeed should, be regulated through a strict legislation. Banking activities, in particular, should be regulated in accordance with what we call the three pillars of sound banking: (1) the debtor's solvency, which fixes limits to the amount to be lent, (2) the debtor's security burdened as collateral, which should compensate the creditor in case of insolvency, and (3) the creditor's own reserve encumbered in the money creation to be mobilised in case of insufficiently valuable collateral[11].

[10] By first order capitalisation, we refer here to every capitalisation process that rests on an objective, social value created by the legal institutional framework. Credit relation based on the engagement of formal property titles, stock-option created by a corporate on behalf on increasing capitalisation value resting on future return are integrative parts of such processes. The second order capitalisation dissociates from this institutionally based security and developed further in a abstract and speculative financing environment.

[11] Important reforms on banking practices are being elaborated under the hospice of the Bank for International Settlements under the so-called Basel II Framework (see the BIS' website: http://www.bis.org). However, questions remain open about the possibility

A very strict regulation of the second order capitalisation processes should be implemented, for various reasons. Firstly, while not anchored in a concrete and secure institutional arrangement, second order capitalisation process has contributed to far the greatest part of the monetary wealth created through capitalisation process in the last decades and the resulting exploitation of human and natural resources carried out to generate artificially high monetary returns. Secondly, with most of the money created being of a speculative nature, second order capitalisation practices have created an unstable financial environment and imposed very high losses for numerous economic agents, individuals, households, enterprises and even countries (such as Greece), all locked in the dangerous path of unregulated world finance. In fact, question remains open whether second capitalisation process should be regulated as strictly as possible, or simply banned.

Of course, other strategic elements, such as the origin of money to be invested, the role of tax havens and off shore financial centres and the resulting need for a world level action, would have to be incorporated into a articulated strategy aiming at delineating frontiers of capitalisation that are ultimately compatible with the common goals of ecological sustainability and social equity.

9 Orienting investments

Monetary dimension, whatever the currency standard is, allows for assessing the intangible value of property, actual and future, as uncertain it may be. That is the reason why in a pure property-based, capitalist rationality, every investment is decided upon the monetary return it can lead to[12]. This has become common practice in modern finance, where investment decisions are based upon monetary criteria only[13]. Together with the expansion of the property-based economy, monetary evaluation criteria have spread and become the criteria in reference to which choices are made in ever more social contexts.

In an eco-social rationale, investment is to be decided upon a number on different aspects of social life, including cultural and environmental considerations. Every alternative are balanced and centred on society's cultural pillars, which usually leads to a combination of alternative investment to be made in order to reach a combination of social objectives. Therefore, when centred on the social objective of ecological sustainability and social equity, evaluation criteria have to switch from property-based, monetary evaluation criteria, to social and ecological ones.

Among the criteria of particular relevance for a Degrowth policy, we may cite here the importance of managing the natural resource in a manner that takes into account the ecological and economic differences between biotic and mineral resources, as only the former can be used at a sustainable rate and only the latter can supply a process of economic growth[14]. Therefore, while biotic resources should be exploited at a rate that does not exceed the one at which the resource is renewed (UICN/PNUE/WWF, 1991), the mineral resources, and fossil fuels in particular, should be managed in a manner such that the flows extracted from the stocks do not exceed the assimilative capacity of the natural environment (ecological imperative) and that a fair amount of resources is kept available for future generations (equity

to banks and financial agents to circumvent the safeguards implemented under such a framework.

[12] ''All economic decisions and evaluations are hierarchically differentiated, integrated, balanced and centred according to the impact they are likely to have with regard to the security, quantity, quality and value of property.'' (Steppacher 2008: 336)

[13] In a context of permanent competition towards higher returns, an investment will be made if and only if it leads to an increase in the existing property value that is higher than any other alternative.

[14] On this point, see Steppacher and Griethuysen (2006).

imperative).

The spatial organisation of economic activities is also of crucial importance, as only concrete economic activities anchored in the local scale can indeed be sustainable in the long run. Different sectors of production are concerned, such as the food sector, in which investments should be directed towards local, organic agriculture and breeding, and industrial sectors, which should be elaborated with the aim at reducing the energy-matter throughput of economic activities and the closing of materials and energy cycles, as advocated by industrial ecologists (Ayres and Ayres 1996). The need to promote technological diversity through specific investments, such as organic agriculture or small scale solar equipment, is worth raising as the actual path of world development reveals its inability to get out of its dependence upon a world level industrial infrastructure and the non renewable energy that fuels it.

When elaborating criteria for adequate investment, a minimal differentiation between investing actors should be made: the public sector, the private agents and the collective or institutional investors, such as the pension funds should thus be distinguished. Defining criteria for responsible collective investments is a matter of public significance that can be part of a reorientation of public policies towards environmental sustainability and social fairness. This requires an important political shifting from today's' conventional evaluation criteria, which implies an important enlargement of public opinion consciousness towards the limits to growth and the Degrowth imperative. Such a shift will take time to occur, not only because of the systemic inertia associated with the institutional and technological path dependence in which the property expansion has led our societies, but also because of the numerous trade-off between social objectives that will inevitably arise, notably between ecological and social objectives.

Imposing similar criteria to private investments will requires a radical change in the power balance of economic agents which, in the actual context of property expansion, have no choice but to favour institutional changes that are compatible with the imperatives imposed by this context[15]. The difficulty of implementing economic investment that are compatible with the precautionary principle can be cited here as an illustration. Implementing alternative criteria in the domain of institutional investment may, in comparison, be simpler. With the advent and reinforcement of contemporaneous crises, such as the climate and the financial ones, the raising public consciousness results in higher demands to investors, both institutional and commercial, for more responsible investments, not only in terms of financial security, but also in terms of ecological impacts and socioeconomic conditions.

Finally, it must be recalled that the common characteristics that all these approaches share is the need to depart from the monetary criteria of the property economy and rely instead on an appropriate combination of eco-biophysical and sociocultural criteria[16].

10 Allocating returns and distributing created wealth

Defining the modalities of an equitable distribution of wealth, which would be created by both self-organised capitalisation processes and collectively oriented investments, is an essential policy instrument towards social equity. In addition, because of the specific temporalities affected by current economic activities, it is essential that these modalities address the equity issue at both the intra- and intergenerational level.

This is essential since irreversible impacts on the natural and cultural environment are continuously induced by the actual development path. While attaining social justice within actual generations has

[15] On the double bind of the economic private agents, see Griethuysen (2010).

[16] This, of course, raises the importance of elaborating different kind of indicators and evaluation procedure that are adapted to the complexity of the issue, which can just be mentioned here.

proved to be historical exceptions, taking future generation into account in a fair distribution of resources and other potential means of development can be expected to be a long term objective, as this would require a cultural maturity which is a far cry from the actual consumerist propensity actively promoted by the business competitors.

Allocating part of the created wealth to specific activities, funds or populations, trough various policies is therefore an central part of an integrated Degrowth strategy. In case of monetary returns on property capitalisation, fiscal and other monetary instruments can be mobilised. Should the created wealth circumvent the monetary dimension and displace on non monetary assets, ad hoc procedures and policies should be elaborated for assuring a fair redistribution of such wealth. However, it must also be recalled that redistribution policies do not concern the allocation of monetary return or created wealth only, but the initial distribution of rights, obligations and duties towards resources as well. This way of reducing property expansion is therefore closely linked with the necessary scoping of the property sphere.

11 Confining property's capitalist expansion

Faced with the economic rationality of a property-based economy that applies specific economic requirements to environmental and social considerations (solvency, profitability, time pressure), the degrowth project requires a hierarchy of values guided by an eco-social rationale. In order to be able to maintain a viable natural environment, humankind should be able to develop a model of social organization compatible with the imperatives of environmental sustainability and social equity. In practical terms, the implementation of this eco-social rationale requires the setting up of an appropriate institutional framework driven by a set of environmental and social standards involving a redefinition of the social relationships, responsibilities, rights and obligations of the various members in the social structure. This path was already suggested in the 1970s by proponents of eco-development who insisted on the need to *submit economic activities to ecological and social objectives.* Prescribing maximum environmental thresholds and minimum social standards would define, in effect, an eco-social framework for economic activities. Within such a "development pathway", human activities could recover a harmonious relationship with their natural environment.

Confining the property capitalist expansion path within ecological and social limits, much in the same vein as William Kapp's 1965 proposition to define ecological maxima and existential minima as the dynamic frontiers of a world development corridor (Kapp 1965), implies a multistep institutional procedure: (1) elaborating a set of indicators and evaluation procedures designed to adequately apprehend the complex, multidimensional nature of socioeconomic activities; (2) collectively defining the ecological and social standard to be set as social normative goals, (3) choosing among alternative policy options the combinations that present the best chances of achieving the goals, (4) implementing evaluation procedures to evaluate the transition process, notably through an eco-social multilevel monitoring, (5) correct any deviance in the process by mobilising tools and instruments specifically designed to redirect the process, which might include a redefinition of the initial objective. Finally, such an overall procedure should be conceived in a evolutionary perspective, as the social goals to be defined, the tools and procedure to be implemented and the whole process itself should be permanently revaluated in the light of new knowledge.

12 Concluding remarks

Reorienting the current unsustainable and inequitable path and implementing the necessary degrowth process in an ecologically sustainable and socially equitable manner requires a shift from the property-based hierarchy of social norms, where social and ecological considerations are subordinated to the capitalist economic rationality towards an eco-social rationale, where economic activities are subordinated to social and ecological considerations and imperatives. While a general reorientation of the economic system is needed, we have focussed our analysis on the policies that could subordinate property capitalist expansion to eco-social considerations.

Alternative institutional arrangements to the private property regime (such as collective property and common possession regimes) should be elaborated and implemented, with their possible articulation in a global, multilevel regime. Based on political and organisational principles such as self-reliance and subsidiarity, such a regime could regulate the possession aspect -use and control rights- of common resources in a way that would aim at ecological sustainability, social equity and responsibility towards future generations. In such an organisation, new kinds of partnerships, such as state-communities partnerships (in addition to the so-called public-private partnerships) should also be positively discriminated in an effort to anchor the multilevel institutional arrangements into the local scale.

Setting the frontiers of property capitalist expansion by regulating capitalisation practices, distinguishing first order capitalisation processes, such as credit relations or stock-option creation, and second order capitalisation processes and practices, such as derivatives creation, securitisation and leveraging, is another element of a Degrowth strategy.

Elaborating criteria for responsible private and collective investments, with the aim of anchoring concrete economic activities into the local scale, using the biotic resources sustainably and managing the mineral resources responsibly, while promoting a technological diversity allowing to lower the risk of future locked-in situations, is another essential step of an integrative Degrowth policy. Finally, allocating the returns of the wealth in accordance to social and ecological considerations will, if adequately distributed, positively affect the environmental and social domain, while limiting the cumulative process of exclusive accumulation and social exclusion.

All the policy options proposed above share the common goal of setting the governance modalities adapted to eco-social objectives. Similarly, they all require fundamental institutional changes, as they all imply a fundamental transition from a world development path that is subordinated to the logic of property expansion, wealth accumulation, social exclusion and environmental degradation towards the elaboration of an alternative path that would subordinate economic activities to ecological and social considerations. In this case, which would require tremendous institutional changes, the potentials of property would not be eliminated, but limited to social options that aim at the common good.

Yet, such a radical change will inevitably face a systematic opposition by the current socioeconomic system as a whole, as every option that shows incompatibility with the property requirements is discriminated against in the ongoing process of property expansion at the world level (Griethuysen 2010). In particular, institutional strategies developed by powerful economic agents to counteract institutional changes that do not favour are foreseeable. Therefore, the most essential struggle the Degrowth challenge must get ready for is an institutional one. Institutional favourable evolution, both at the formal level of collective rules and entitlements, and as the more fundamental level of social values and habit of thought are therefore at the very heart of the Degrowth challenge to establish a sustainable and equitable mode of development. And such a struggle will not be won unless a fundamental evolution towards social maturity, both at the individual and the collective levels occurs. In such a required cultural process, evolutionary economics can be helpful in many ways: in giving an adequate economic account of the manner in which human activity, driven by capitalist economic rationality and powered by hydrocarbon-based industrial

technology, has gone beyond the resilience thresholds of the Biosphere; in identifying the urgency of decreasing the depletion of natural resources and lowering the anthropic disruption of the Biosphere by drastically reducing the economic process' throughput; in explaining the institutional and technological locked-in situation into which the western path of economic development, both capitalist and industrial, has led our societies; in increasing the chances of success of the required reorientation by analysing the complex encompassing web of forces that act as inertial factors impeding that reorientation; and finally, in making people aware of such a web and develop consciousness' awareness through sound theoretical explanations.

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