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From *The Limits to Growth* to "Degrowth": Discourses of Critique of Growth in the Crises of the 1970s and 2008

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Die DFG-KollegforscherInnengruppe „Landnahme, Beschleunigung, Aktivierung. Dynamik und (De-) Stabilisierung moderner Wachstumsgesellschaften" – kurz: „Kolleg Postwachstumsgesellschaften" – setzt an der soziologischen Diagnose multipler gesellschaftlicher Umbruchs- und Krisenphänomene an, die in ihrer Gesamtheit das überkommene Wachstumsregime moderner Gesellschaften in Frage stellen. Die strukturellen Dynamisierungsimperative der kapitalistischen Moderne stehen heute selbst zur Disposition: Die Steigerungslogik fortwährender Landnahmen, Beschleunigungen und Aktivierungen bringt weltweit historisch neuartige Gefährdungen der ökonomischen, ökologischen und sozialen Reproduktion hervor. Einen Gegenstand in Veränderung – die moderne Wachstumsgesellschaft – vor Augen, zielt das Kolleg auf die Entwicklung von wissenschaftlichen Arbeitsweisen und auf eine Praxis des kritischen Dialogs, mittels derer der übliche Rahmen hochgradig individualisierter oder aber projektförmig beschränkter Forschung überschritten werden kann. Fellows aus dem In- und Ausland suchen gemeinsam mit der Jenaer Kollegsgruppe nach einem Verständnis gegenwärtiger Transformationsprozesse, um soziologische Expertise in jene gesellschaftliche Frage einzubringen, die nicht nur die europäische Öffentlichkeit in den nächsten Jahren bewegen wird: Lassen sich moderne Gesellschaften auch anders stabilisieren als über wirtschaftliches Wachstum?

Maria Markantonatou

From *The Limits to Growth* to "Degrowth": Discourses of Critique of Growth in the Crises of the 1970s and 2008

Abstract

The working paper examines two discourses of growth critique that arose during the crisis of the Keynesian growth model in the 1970s and during the current economic crisis respectively. It analyzes in particular how these discourses deal with questions of labor, population and society in the context of the crises. In order to do so, the paper looks at the debates surrounding the publication of *The Limits to Growth* (Meadows et al. 1974) as well as several publications of authors committed to a 'degrowth' perspective which gained strength during the ongoing crisis. The author argues that these debates downplay sociologically relevant questions of labor, population and society, as dealt with by both critiques of growth. The paper notes a recent revival of Malthusian arguments, discusses specific suggestions offered by the proponents of both discourses through Foucault's perspective of the biopolitical management of population and points to the affinities of these suggestions with the broader agenda of 'good governance'. The paper further discusses why these discourses of growth critique gain prominence in times of crisis and why they were more or less compatible with the transformations promoted during the different crises.

Zusammenfassung

Das Working Paper diskutiert zwei Diskurse der Wachstumskritik, die jeweils während der Krise des Keynesianischen Wachstumsmodells in den 1970ern und während der gegenwärtigen Wirtschaftskrise entstanden sind. Es analysiert, wie diese Diskurse im Kontext der Krise mit Fragen von Arbeit, Bevölkerung und Gesellschaft umgehen. Dafür betrachtet das Papier die Debatten, die sich um die Veröffentlichung von *The Limits to Growth* (Grenzen des Wachstums, Meadows et al. 1974) entwickelten sowie um verschiedene Veröffentlichungen von Autoren, die sich der ‚degrowth'-Perspektive verpflichtet fühlen, die in der gegenwärtigen Krise an Bedeutung gewonnen hat. Die Autorin argumentiert, dass diese Debatten die soziologisch relevanten Fragen von Arbeit, Bevölkerung und Gesellschaft, die in den Wachstumskritiken verhandelt werden, herunterspielen. Das Working Paper konstatiert eine neuerliche Wiederbelebung Malthusianischer Argumente, diskutiert spezifische Vorschläge der Befürworter beider Diskurse durch Foucaults Perspektive des biopolitischen Bevölkerungsmanagements und zeigt die Nähe dieser Vorschläge zur breiteren Agenda des ‚Good Governance'. Das Papier diskutiert weiterhin, warum diese Diskurse der Wachstumskritik in Krisenzeiten an Bedeutung gewinnen und warum sie mehr oder weniger kompatibel waren mit den Transformationen, die in diesen Krisen vorangetrieben wurden.

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Introduction

In this paper, two discourses of growth critique are compared by examining their dynamics in the historical conjuncture of two different crises overviewed in the first part, the crisis of the post-war Keynesian growth model in the 1970s and the one within the neoliberal-financial growth model from 2008 onwards. The first discourse is related to the landmark study *The Limits to Growth* (Meadows et al. 1974) and the second corresponds to the current, so called "degrowth" perspective. Debates triggered by these discourses have either stressed the ecological crisis (underestimating the dynamics of capitalist accumulation), or the dynamics of capitalist accumulation (underestimating the problem of ecological limitations). However, both lines of argumentation seem to downplay the sociologically relevant premises shared by these discourses of growth critique, especially as regards their views, proposals and strategies about labor, population, and society.

To treat this last issue, *The Limits to Growth* (hereafter, *Limits)* and other similar works in the 1970s are discussed with a focus on the sociological premises of their methodology, rather than the ecological assumptions they made or scenarios of collapse they foresaw. In particular, J. Forrester's "system dynamics" approach is examined in conjunction with its application by Meadows et al in *Limits*. Furthermore, a perspective of social equilibrium is shown to emerge from H. Daly's steady state economics. This is opposed, as subsequently discussed, by Georgescu-Roegen's entropy-based approach about a "declining state". A presentation is given, of his wider theoretical departure from the standard economics epistemology and the treatment of social processes and conflicts as variables of socio-ecological modeling. Then, certain critiques are summarized, concerning the pre-assumptions underlying the discourse triggered by *Limits* and, among others, its tendency to reify "social systems". The conclusions reached in *Limits,* about an "excess" of consumption and population are further compared with the ones about an "excess" of democracy, labor rights and political participation, in *The Crisis of Democracy: Report on the Governability of Democracies* (Huntington et al 1975) published a few years after *Limits*, to discuss the tendency, in the context of the 1970s crisis, of ecological growth critique to merge with other critiques to the Keynesian growth model from political and other viewpoints.

In the next sections, the "degrowth" discourse that resurged several decades later is discussed with respect to its origins and basic views, and is placed in the context of the 2008 crisis of the finance-driven growth model of neoliberal globalization that succeeded Keynesian growth of post-war industrialism. "Degrowth" advocates for a shrinking of the economy through a series of institutional interventions and suggestions for collective and individual action. To discuss some sociologically important premises entailed therein, Foucault's notion of biopolitics is employed, especially as elaborated by Rabinow/Rose (2006). This helps understand some degrowth proposals as modes of subjectification interested in the reduction of population and consumption. "Top-down" actions (by an array of international organizations) and proposals for "bottom-up" initiatives (by several social movements) for population degrowth, are overviewed. The Marxist critique of the Malthusian "population principle" and the concept of "relative surplus population" as juxtaposed to the one of "overpopulation", provide an additional dimension to the discussion about how labor and society are perceived by both critiques of growth in the context of the two crises. This part ends with an analysis of specific suggestions by degrowth proponents, as for

instance the tasks Latouche ascribes to labor and society (reduction of consumption, more labor flexibility, development of talents and spiritualism rather than formal labor, disentanglement from the welfare state) as opposed to the ones ascribed to entrepreneurs (environment-friendly innovations), Mylondo's basic income proposals etc.

In the final sections, the two growth critiques are seen in the context of "good governance", which promotes a series of activation and responsibilisation processes not only at the level of social policy or security, but also at the ecological one; and of the emerging technologies (computer technologies in the 1970s, green technologies nowadays) or prospective developments and trends (global governance in the 1970s, New Green Deal nowadays), from which these critiques drew to cope with the impasses of their contemporary crises. The analyses about the "surplus population" by O' Connor (1973) and about the "welfare population" by Harvey (1974) point to some possible reasons – related with the particular transformations of capitalism – why such discourses resurge in periods of capitalist crises. Further, it is discussed how the two growth critiques prioritized the "universal" ecological limits vis-a-vis the crucial social questions of each crisis, revived Malthusian perceptions on poverty and were more or less compatible with the transformations promoted in conditions of recession in the fields that were at stake in each crisis: the welfare state and a degree of labor regulation at the national level in the 1970s, or the challenges faced by working classes in view of international competitiveness norms and the remaining welfare rights after several decades of financial neoliberalization in today's crisis.

From the 1970s Crisis to the 2008 Crisis

With the end of World War II, states undertook a series of nationalizations of strategic enterprises and the partial supervision of the industrial sector, promoting, at the same time, a Keynesian-corporatist regulation of market economy and capitalist growth through policies that aimed at securing domestic demand and mass consumption (Van Creveld 1999: 356-368). Until the early 1970s, post-war industrialism in the countries of Atlantic Fordism was combined with welfare systems, achieving a state-regulated "class compromise" within nationally defined populations. In the 1970s, however, as growth rates started to decline, this "class compromise" of the post-war industrial era was gradually shaken, and governments faced the challenge of securing full employment together with pressure being exerted from unions in the framework of free collective bargaining. In an effort to devise new ways to handle the intensified conflict between capital and labor, governments implemented inflation-tolerant policies during the 1970s as a first method of drawing "future resources" as Streeck (2011: 12) describes them[1].

While the question whether wage demands were chasing inflation or causing it, could have different answers in different countries (Panitch/Gindin 2011: 7), capitalists in Europe and the US reacted to inflation and international trade stagnation in more or less similar ways, namely gradual disinvestment, which resulted in the rise of unemployment. The fall in profits and the increasing internationalization and

[1] Streeck (2011: 12) stresses that when growth started to decelerate in the 1970s, states began to rely upon "future resources" in the form of additional money, in order to satisfy present needs. In his analysis, the different methods of drawing "future resources" are key points for the periodization of the history of "democratic capitalism".

liberalization of transactions and capital flow after the abandonment of the Bretton Woods system, directed governments to policies of monetary stability and reduced deficits and to intense conflicts with trade unions that were struggling in the face of thousands of job losses and increasing insecurity. Further, monetarist solutions to the problem of declining growth were initiated in the wake of the Volcker shock that aimed at breaking the inflationary spiral and restoring corporate profitability (McNally 2011: 29).

But, taming inflation through monetarism was obviously not the only remedy for the 1970s crisis. Ruling classes had to find a way to cope with worker militancy which prevented the restoration of higher profits, in a time that the production based on technologies of the 1930s and 1940s had reached its limits and would no longer drive to a new rise in labor productivity and growth (Panitch/Gindin 2011: 7). Tiering wages, weakening unions and deregulating several levels and tasks of the welfare state, as well as an increase in direct foreign investment and an intensification of industrialization in places such as China, South Korea, India, Malaysia, Taiwan and Mexico assisted the reorganization of capital in the coming decades (McNally 2011: 46-60). At the same time, as disinvestment was leading in the late 1970s to a substantial growth of service employment, which was less unionized and less regionally concentrated than manufacturing industries, the overall power of unions was being reduced. The Keynesian cross-class compromise was gradually declining, as more and more enterprises started to prefer open, internationalized markets in lieu of the earlier protectionist framework, and new financial methods and activities allowed them to move from sectors affected by competition to more profitable ones (Pontusson/Raess 2012: 30).

From the side of the state, taming inflation in combination with liberalization caused a new problem to arise in the form of public indebtedness during the 1980s. Given the increasing shortfall in taxation revenues due to neoliberalization and the provision of several tax facilitations for capital, public debt devaluation gradually became not merely a fiscal tool, but a substitute for growth. In a sense, public debt replaced inflation in its role of bridging the gap between social demands and market needs – in fact, it seemed as "a convenient functional equivalent of inflation" (Streeck 2011: 14). As the dependence of governments on borrowing was increasing, creditors, in turn, started to demand more fiscal discipline (ibid.). States, in order to conform to creditors' criteria, implemented more intense austerity policies and welfare expenditure reductions.

But, despite welfare deregulation and spending cuts, growth levels could not return to their previous levels[2]. Therefore a new method of obtaining "future resources" (ibid.) was introduced in the 1990s and 2000s, namely credit liberalization, financialization and the promotion of private indebtedness. In the US and elsewhere this was combined with new reduced taxation on entrepreneurial profits and new opportunities for profit in finance. Securitization of almost every economic entity, activity or asset, elevating financial valuation into the key criterion for assessment of the value of firms, dependence of

[2] There was one more reason for this. The postwar "baby boom", the enlargement of working and lower middle classes and the improvement of their living standards thanks to industrial development and welfare services, were succeeded by a drop in birth rate in the US and in several EU countries. Insurance funds and state expenditure were burdened by an increase in life expectancy and a growing number of pensioners whose income depended on a shrinking number of working persons.

financial markets more on information and less on supply-demand logics, negligible supervision in derivatives trading, the intertwining of the Asian/Pacific and US budgets etc., were some of the characteristics of the financialization era (Castells 2011: 187-189).

In this frame, it would have been perhaps impossible for financialization to become a successful means for a new phase of growth and socio-economic reproduction, if it wasn't functional as an answer to both welfare deregulation and revenue shortfall since the 1990s onwards. Socio-economic reproduction was achieved by providing the poor with new "options" to improve their standards of living and increase their consuming power. This happened, for instance, through a liberalized policy at the field of real estate, subprime mortgages and schemes of self-funded pensions. Mortgage loans to buy houses and complex securitized financial products that flourished in the framework of credit liberalization constituted one more effort to bridge economic with societal needs and adjust the latter to an increasingly liberalized and internationalized capitalism, initiating a period of finance-based growth. Making citizens responsible for the funding of their social security (pensions, health insurance etc.), as well as allowing them to continue consuming through policies of credit and real estate liberalization to cope with shrinking welfare services was a kind of "financialization of the reproduction of the working class" (Saad-Filho 2011: 244) that constituted the social background of the 2008 crisis.

Since the outbreak of the crisis in the US, a historical "Great Bailout" (McNally 2011) has been set in motion, initially as a response to the collapse of some of the world's leading banks, such as Lehman Brothers, the Washington Mutual, and the Wachovia bank or of AIG, the world's largest insurance company, followed by the meltdown of a series of European banks. This meant that "governments in the world's largest economies anteed up something in the order of $20 trillion – an amount equivalent to one and a half times the US gross domestic product – via a massive intervention without historical precedent" (ibid.: 2). During the "Great Bailout", which actually constituted a way of "mutating" private debt into a public one (ibid.: 4), states have been undertaking bank rescues, guaranteeing deposits and financial investments, purchasing temporarily worthless financial assets, nationalizing key financial institutions, imposing emergency taxes to cope with crisis-driven decline in taxation, and socializing losses (Saad-Filho 2011: 245).

The direct result of the "Great Bailout" has been the new increase in public debt and new deficits in the US and several countries of Europe. Characteristically, general government debt of the Euro area rose from 4.7 trillion euros in 2000 (69% GDP) to more than 8.8 trillion euros in 2012 (93% GDP), i.e. it increased by 88% whereas the GDP grew only by 40%. At the same time, USA saw a rise in debt by 212% (from $5.46 to more than $17 trillion) whereas the country's GDP only increased by 57% (Annual Macroeconomic Database 2012). These bailouts did restore, to a certain extent, the damages in the field of financial economy, but, as Streeck notes (2011: 20), they were not convincing enough to disperse "suspicions" and "fears" of the financial markets that "in the process of rescuing them, national governments might have over-extended themselves". Thus, financial markets started to charge states widely varying interest rates and to exert, therefore, new pressure upon governments (ibid.). The markets went so far as to exclude the possibility of bankruptcy for various countries by forcing other states to "bailout" the endangered national economies through loans; in turn, to get the loans these

countries had to adopt unprecedentedly harsh austerity measures, otherwise a general increase in interest rates for public debt would take place (ibid.). The increasing interest rates for countries like Greece signaled their inability to keep relying on international markets. The austerity implemented has resulted in massive unemployment, a vicious circle of recession and revenue shortfalls, thus having the opposite effect than that wished for by its designers: not only did it fail to "calm" investors, as stated, but it also strengthened their "suspicions" that these countries could become insolvent, operating, to a certain extent, as a "self-fulfilling prophecy" and further aggravating the crisis[3].

Because of the continuous reductions in social spending, the vulnerable interest rates due to the markets' "fears", and the bailouts of banks or even national economies, private debt has been converted to a public one which citizens are today required to fund. Austerity, precarization, recession and insecurity has become an everyday reality for thousands of people in countries hit by the crisis, while those countries that have at the moment escaped recession, know this cannot last forever. Overall, the course from the Keynesian growth model and the welfare state, the inflation crisis of the 1970s, through politics of public indebtedness during the 1980s, to credit liberalization and financialization of the 1990s, (including various shocks and panics, such as the stock market shocks in 1987, 1990, 1998, the dot com stock market panic of 2000-2001) and finally to the crash of 2008, is showing that the modes of regulation of capitalist reproduction, that followed the 1970s crisis, did not manage to provide structural solutions to the problem of the ever since falling growth rates and achieved anything but permanent results.

The Critique of Growth in the Context of two Crises

In the framework of the transitions and crises of postwar capitalism, the ecological critique of *growth* in particular (and not necessarily of capitalism in general), is marked by two crucial moments or phases. Critiques of growth in both phases coincide with the two most severe crises of postwar capitalism, the crisis of the 1970s and the ongoing one that broke out in 2008. Since the 1970s, an ever deepening crisis of the Keynesian mode of capitalist regulation formed the particular socio-economic conjuncture of the critique of growth that became more influential with the publication of *Limits* (Meadows et al 1974). The patterns of global financial neoliberalism and credit liberalization as well as the crisis that erupted in 2008 in the USA and spread across the Eurozone constitute the historical background of the critique of growth in the framework of debates about "growth-skepticism", "post-growth societies", "no-growth", "degrowth" and so on.

In the first phase, the one of the 1970s, the critique of growth evolved in parallel with a number of other, heterogeneous critiques of the postwar Keynesian regulation mode and its institutional framework. For

[3] The crisis that spread in Greece, Ireland, Portugal, Spain, Italy, Cyprus etc. was not only a banking-financial crisis, but also one related to EMU's pre-existing structure, which escalated three more crises: first, the debt crisis in the European "periphery"; second, the domestic demand crisis due to recession in these countries; and third, the crisis due to the current account deficit. The declared goals of the austerity policies were to contain the first and the third of them, which, however, aggravated the second. This deadlock, where each of the three specific crises undermines the policies intended to contain the other two, accentuated and perpetuated the overall Eurozone crisis (Scharpf 2012).

instance, neo-Marxist or unionist critiques suggested that narratives of equality and prosperity served capital accumulation for those social classes that had the means to influence the articulation of power within the state, whereas lower social classes were treated as subjects of disciplination and surveillance through the welfare state, in favor of capitalist reproduction. From a conservative-liberal viewpoint, the Keynesian regulation was blamed for failing to respond to market needs and stimulate competition; the welfare state was, thus, bureaucratic and costly and it cultivated clientelism, rent-seeking and statism. From a feminist perspective, it was argued that the Keynesian regulation was based on the patriarchal structure of the family and reproduced it through the welfare state, and a series of sexist structures were pointed in public administration and social care institutions.

From an ecological perspective, the critique towards the postwar Keynesian growth model pointed to the over-industrialization that harmed the environment, caused atmospheric and water pollution, burdened the food chain and employed nuclear technology for both military purposes and power production for civilian use. For instance in the US, reactions by local communities against energy policies based on nuclear power were gradually increasing, and activists had, already since the 1960s and 1970s, succeeded in securing legal regulations regarding air and water quality, protection of living species and against industrial units that posed threats of environmental pollution (Kidd 1992: 7). The increasing influence of the ecological debate in the 1970s on mainstream economics gradually led to the incorporation of nature as one more variable of economic growth and "as another economic problem tractable with the usual apparatus of the discipline" (Levallois 2010: 2272). However, despite this increasing influence of ecology on both public opinion and mainstream economics, it was the report *Limits to Growth* (Meadows et al. 1974) and studies like Georgescu-Roegen's (1971, 1975, 2009) about the relevance of entropy and the second law of thermodynamics to the economy that contributed to the formation of some stronger reference points for the wider ecological paradigm.

Although ecology had gained ground in the political arena of several countries that started to implement environmental friendly policies at an increasing pace during the previous decades, it was with the outbreak of the 2008 financial crisis that the critique of growth resurged. In this second phase, the critique of growth started to become more systematic, as a response or alternative to proposals such as a "Green New Deal", "sustainable development" and "green growth". A basic premise of the "Green New Deal" concepts consists of states, even over-indebted ones, acting as investors and growth stimulators, for instance by subsidizing "dirty industries" so that they switch to green infrastructure, exercising anti-cyclical policies, diverting investments to the fields of energy, public infrastructure, environment protection etc. (for an overview Mahnkopf 2013). Similarly, "sustainable development" and "green growth" aspired to oppose what was perceived as a "short-term, static paradigm of environmental protection as a cost factor and an obstacle to international competitiveness" (German Advisory Council on the Environment 2012: 9) and incorporate the environmental protection as a variable in the system of capitalist competition as well as an opportunity for profits and further economic growth. In the framework of "ecological modernization", technological advancement for eco-efficiency was considered as a means to generate opportunities for green entrepreneurship, targeted investments and jobs for a "qualitative growth" (ibid.).

Perspectives of "prosperity without growth", "post-growth", and "degrowth" entail critiques of the "Green New Deal" as a form of economic stimulus, which are based on the argument (already formulated in the 1970s) that perpetual economic growth is impossible in a world defined as finite, and are opposed to the "regulatory optimism behind the notion of green growth" (ibid.). Although a version of "post-growth" welcomes growth as long as it does not violate the fundamental premise of sustainability, most post-growth theories argue that growth is structurally hostile to the environment, because environmental friendly investments may indeed be energy efficient, but, at the same time, they encourage further increases in production and consumption ("rebound effect") (Van der Bergh 2011). The win-win logic of sustainable growth is also disputed by the degrowth current, which proposes a shrinking economy as the only viable alternative. The degrowth current, which attempts to integrate in it the fields of economy, ecology and culture (Gheorghică 2012: 60), gained influence in the last decade and especially since the 2008 crisis[4].

In both critiques of growth, in the 1970s and nowadays, and in the way they reflected and responded to the crises of their eras, two trends with their own distinct underlying lines of reasoning can be discerned. They are observable already in the 1970s debate and can be seen as sketchily corresponding to the *Limits* perspective on the one hand and Georgescu-Roegen's one on the other. These two studies appeared almost at the same time and shared some common starting points like the interplay between growth and environment. However, their conclusions were much different. The trend and corresponding argumentation which emanates from *Limits* can be described as *technological/managerial*, as it imprinted the influence of an ever growing, since the late 1960s, dynamics of mathematical modeling and computational methodologies and the conviction that social processes can be treated as variables or interrelations of variables within an ecological-economic system, which is possible to control and bring to an equilibrium in the form of steady state, thus securing viability and sustainability of this system. The trend that can be traced back to the work of Georgescu-Roegen is related to the study of the impact of entropy on the economy through the second law of thermodynamics. This trend can be described as *relational/epistemological.* It points to the irreversible character of the economic process and the finiteness in space and time of the human species and of natural resources but at the same time takes into account the role of social relations in evolution. The emphasis is further on the idea that although natural resources can be protected to a degree by a series of measures, it is impossible for both growth *and* steady state to perpetuate *ad infinitum*, regardless of the employed measures. In both phases of growth critique, in the 1970s and today, the technological/managerial tendency seems to prevail[5]. In the next sections, the two discourses of growth critique are discussed in the framework of

[4] This new dynamics can be seen, for instance, in a series of international conferences, starting with the "Conference on Economic Degrowth for Ecological Sustainability and Social Equity" in Paris in 2008 (for an overview see Schneider/Kallis/Martinez-Alier 2010: 512), and including events of similar range like the Second International Conference in Barcelona in 2010, the Degrowth Congress, the ATTAC conference in Berlin in 2011 and the International Conference on Degrowth in the Americas in Montreal in 2012.

[5] The prevalence of the technological/managerial tendency is ideal-typical and does not mean that critiques of consumerism from a spiritualist or religious standpoint were absent in the 1960s and 1970s or in today's degrowth debate. A landmark text by Amar (1973), recently re-drawn to attention by the "decroissance" movement, is an indicative sample of such spiritualist-religious criticisms. Growth, Amar asserted, is based on conquest and rampant aggressiveness aimed at selling speed, power, information. The latter constitutes a form of aggressiveness since we are flooded by a dense nexus of various

the debate marked by the publication of *Limits* in the 1970s and the resurging degrowth discourses after the 2008 crisis.

The *Limits to Growth* and the Stationary State

The postwar development of computational technologies generated ever widening possibilities of mathematical modeling applied in more and more scientific fields, and, at the same time, provided opportunities not only to test the validity of particular theoretical assertions and conjectures, but also to formulate scenarios and predictions concerning the evolution of various kinds of "systems" (whether these were physical/chemical, mechanical or electronic, biological or even socio-economical). Such a background combined with a logic of identifying patterns and analogies to reveal general norms that were thought to govern the dynamics of the investigated "systems", allowed the emergence of a neo-positivist aspiration to *design* and *control* those systems. It, thus, paved the way to a future-orientated discussion about optimality and equilibrium (regardless of their specific definitions) in a steadily controlled economic and social life, even at a global level.

Already in the late 1960s, Jay Forrester, a computer engineer with a background in automatic control, had transferred his knowledge on feedback-based mechanical systems to the modeling of business and industrial dynamics and, further on, to the fields of urban growth and "urban dynamics" (Forrester 1999), by gradually introducing a methodology he termed "system dynamics" (Forrester 1973). In it, the temporal variations of the quantities that define a "system" (as for instance, population, GDP, environmentally harmful pollutants, and so on) were cast in the form of mathematical equations that described the influence of a change in a particular quantity on both its own evolution as well as the evolution of the other quantities[6]. Forrester applied the same method to study the interplay between world population and economic growth, taking into account the availability of arable land, environmental tolerances etc. to conduct his research on "world dynamics". He concluded that the humanity lived its "golden age" in terms of living standards but problems would arise due to the depletion of natural resources and the emergence of diseases and social conflicts. Industrialization of developing countries would severely burden the environment, and it would be an unwise option for them anyway. Remaining in their pre-industrial stage would secure their equilibrium with the environment and would render them less vulnerable to a world population collapse (Forrester 1973: 11-13).

The research team of Meadows et al. at the Massachusetts Institute Technology was asked by the "Club of Rome" to contribute to the promotion of its aims – including, among others, a "new approach that places the Atlantic Community in a global context", as one of the founders of the Club had mentioned

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information channels, without having the time to think and comprehend. "Eventually", Amar ascertained, "growth is increasing aggressiveness. Therefore, the moral problem is set." The West was cut off from its roots in ancient Greece (Wisdom), Judaism (Law), and Christianity (Faith), Amar claimed, and concluded that the thought of tomorrow will be "mystique".

[6] The influence of the effects on the causes (feedback) may amplify, leading to a constant increase, or attenuate, leading to stabilization, fluctuations or constant decay of the affected quantities. As an example, the pollution feedback causality, mentioned by Forrester (1973: 24-25) in "World Dynamics" entails both effects: an increase in pollution will limit the environment's ability to dissipate harmful wastes thus accelerating their accumulation (positive feedback). But this in turn, will increase mortality and prevent population growth (negative feedback).

(Peccei 1969: 272). The particular contribution by the MIT-research group was to apply and extend Forrester's system dynamics approach. Their conclusions were published in 1972 in the *Limits* report. The report was based on the assumption of an incompatibility between finite stocks of natural resources or ecological equilibrium on the one hand, and a continuous and accelerating economic growth, on the other. The aspects of this incompatibility were treated quantitatively on the basis of such indicators as population, consumption of resources, industrial capital and produced waste. The interplay of these aspects led, according to the report, to an ever faster "exponential" growth with time of population, resources consumption and emitted wastes. The prediction followed that if the same course continued unaltered, the available natural resources would be depleted and the environmental limits would be reached within a time span of the order of one century (Meadows et al. 1974: 126).

Furthermore, the mathematical model developed by the MIT team was employed to formulate alternative scenarios based on a combination of known data and assumptions compensating for the lack of knowledge in certain areas, for instance estimates about unknown fossil reserves or taking into account future, more energy efficient technologies. Because of the determined exponential growth, even the more optimistic scenarios would lead, according to the report, to "collapse", meaning rapid population decline and shrinking of the economy as soon as the assumed natural limits would be reached (ibid. 125-127, 132-142): "the basic behavior mode of the world system is exponential growth of population and capital, followed by collapse" (ibid. 142). Only in one exceptional case was it predicted that collapse could be avoided, and that was the "state of global equilibrium" (ibid. 171), also referred to as stationary state. In the final chapter of *Limits*, entitled *Commentary by the Club of Rome,* the role of overpopulation is stressed and the transition to a "state of equilibrium" is adopted:

> "Demographic pressure in the world has already attained such a high level, and is moreover so unequally distributed, that this alone must compel mankind to seek a state of equilibrium on our planet" (ibid.: 191).

The notion of an ultimate stationary state was not a new one. Its more prominent proponent, Herman Daly (1968, 1991) drew freely from earlier Kenneth Boulding's and Georgescu-Roegen's works to formulate his own economic theory of a stationary state and advocate for a global transition to it. Daly made extensive use of analogies between economy and biology[7], which he saw almost in a unified manner, as "sectors" of one and the same "total life process" or "total economy of nature" or "total economy of life" (Daly 1968: 394, 396, 399). The particular position of the economic process is "on the consuming side of the total ecological life process, the producing side of the latter consisting mainly of photosynthesis carried on by green plants, which draw their inputs from the physical environment", whereas its ultimate physical output is "totally degraded matter-energy" (ibid.: 396). Incorporation of the economic process in "the total life process" implies that entropy is "the common denominator of all forms of scarcity" (ibid.: 395-396).

[7] See for instance his analogy between the "basic within-skin life process of metabolism (anabolism and catabolism)" and the "outside-skin life process of economics (production and consumption)" and that between "'capital' as 'exosomatic organs'" and "'biological organs' as 'endosomatic capital'" (Daly 1968: 394-396).

However, introducing the notion of entropy does not necessarily imply, according to Daly, a course of the economy towards "total degradation". He uses the analogies between economy and thermodynamics and biology to lend the prestige of natural law to his view that a perpetually reproduced and smoothly functioning economy is possible, provided that it respects certain constraints regarding its interaction with nature. With his own words:

> "Erwin Schroedinger (...) has described life as a system in steady-state thermodynamic disequilibrium which maintains its constant distance from equilibrium (death) by feeding on low entropy from its environment – that is, by exchanging high-entropy outputs for low-entropy inputs. *The same statement would hold verbatim as a physical description of the economic process.*" (ibid. 396, emphasis Daly).

The analogy is so tight that economy becomes more or less a replica of the biological life process. In the same spirit, for Daly, an economy in "steady-state" disequilibrium is possible. He defines it as one of fixed size, constantly exchanging matter and energy with nature at low rates. In Daly's definition, the analogies between thermodynamics and economy are, once again, obvious:

> "Steady-state economy [is one] with constant stocks of people and artifacts, maintained at some desired, sufficient levels by low rates of maintenance 'throughput' that is, by the lowest feasible flows of matter and energy from the first stage of production (depletion of low-entropy materials from the environment) to the last stage of consumption (pollution of the environment with high-entropy wastes and exotic materials)" (Daly 1991: 17).

Although it remains unclear how and by whom the "desired, sufficient levels" of the steady state economy are set, equating the economic process to a simple system of inputs and outputs allows Daly to consider economic equilibrium in a renewed sense, as one not only feasible but also guaranteed within certain constraints by the laws of physics and, in particular, as equivalent to a biological steady state. Therefore, if *Limits* reinforced the validity of the concept of scarcity through a new, threatening dimension revealed by novel and advanced methodologies, Daly undertook the task to carve a niche within this revamped concept of scarcity, for an economy preserving the basic characteristics of the already existing one, that is, capitalism. Along these lines, he criticized standard economics not only for defining the economy as isolated from nature, but also for ignoring ecological scarcity (depletion, pollution, disruption of ecosystems) as well as the "existential scarcity: anomie, injustice, stress, alienation, apathy and crime" (Daly 1991: 3). Therefore, the aim was to formulate a "new political economy", the steady state economics that would respect the "impossibilities" to establish globally the living standards of developed countries, and would "not foolishly squander resources in vain efforts to overcome them" (ibid: 6). Due to the natural limits there was a maximum number of "person-years that can be lived in the 'developed' state" that could not be surpassed (ibid.).

The above reasoning drew from thermodynamics and biology, but also appealed to morality. Starting from the classical economic definition of satisfying unlimited ends with limited means, Daly noted that the economic means and ends were intermediate points in a scale which started from the biophysical base of "ultimate means" and extended to the "Ultimate End". The "ultimate means" were defined as

anything that could serve to an end but could not be created by humans. In a more or less symmetric description, the "ultimate End" was conceived as that "which is intrinsically good in and on itself and does not derive its value from being instrumental in achieving some other end" (ibid.: 19). According to Daly, the economic thought would have to be extended to take into account the physical part of the ends-means spectrum. This required the incorporation of the concept of "low entropy [which] is the common denominator of all useful things" (ibid.: 22) and provided a concept of "real cost" (ibid.: 25). With regard to the other end of the spectrum, namely the "Ultimate End", Daly provided a "minimum definition" thereof: "the survival and continuation of the evolving life process through which God has bestowed upon us the gift of conscious life". Human survival was, in turn, combined with an understanding of human as a "fallible creature, ultimately dependent on his Creator" (ibid.: 26). Daly finally argued that the ultimate end in every kind of philosophy or religion was survival whereas growth was simply a means that had to change (ibid).

In view of findings as those of *Limits* about consumption- and population-driven depletion of natural resources, and in an effort to formulate a kind of "improved" or "corrected" economics resting both on the laws of thermodynamics and on concepts from the realm of religion, Daly argued strategically against growth to better safeguard the concept of economic and social equilibrium within the system of capitalist relations.

The Entropy Perception and the Declining State

Soon after its publication, a series of criticisms to *Limits* appeared, for instance by economists that pointed to the neglected distinction between physical and economic scarcity (Levallois 2010: 2275). Despite such criticisms, *Limits* gained an increasing audience, also due to such events as the 1973-1974 oil crisis. These offered the authors publicity and an opportunity to emphasize the dependency of Western societies on oil: "the report triggered intense debates in the media because of the seeming inevitability of its pessimistic conclusions, which many thought were simply deriving from an assumption of fixed technology" (ibid.). At the same time, the defense of *Limits* by Georgescu-Roegen added to the report's scientific status, given that a convergence between *Limits* and Georgescu-Roegen's perspectives was far from self-evident[8]. But despite his defense of *Limits*, a divergent position toward the concept of steady state is seen not only in Georgescu-Roegen's epistemological and theoretical approach but also in the specific line of argumentation he deployed to defend *Limits* from their contemporary critiques.

Georgescu-Roegen (1975: 364-365) formulated a set of defensive arguments to address his fellow professionals who criticized *Limits*: economists argued against *Limits* for relying on mathematical models and simulation that they themselves employed widely; they made heavy use of aggregate models but now denounced the report for using an aggregative model; they endorsed the "acceleration

[8] Despite the fact that not all details about the relations between Georgescu-Roegen and the MIT team/Club of Rome are known, Levallois's opinion (2010: 2277) that Georgescu-Roegen distanced himself from the Club of Rome "altogether for [the Club] shying away from adopting a clear negative-growth slogan, their growing fascination for intricate computer-based models — and their appetite for public relation operations", seems plausible.

principle" regarding the economic outputs but they rejected it when pollution was included in the outputs; they used abstract models without explicit reference to costs. As a "final and most important point" of his argument, Georgescu-Roegen (ibid.: 365) referred to the "indisputable fact, that economists […] have always suffered from growthmania". As he put it, "the very theory of economic development is anchored solidly in exponential growth models. But when the authors of *The Limits* also used the assumption of exponential growth, the chorus of economists cried 'foul!'" (ibid.).

However, despite such highly critical tones, Georgescu-Roegen's support to *Limits* was only partial. He based his line of defense mainly on the fact that the report employed "arithmomorphic" methods that were *already* being widely used and accepted as legitimate tools by mainstream economists. But, he deliberately avoided focusing on the methodology of mathematical and simulation modeling that both *Limits* and mainstream economists liked to use. Furthermore, he saw a close similarity between *Limits* and their opponents, namely that they both believed that growth was, in the final analysis, controllable, whether such a conviction would lead to the economists' "growthmania" or to the *Limits* and others' idea of a "steady state". According to Georgescu-Roegen, the main mistake made by the MIT team, Daly and other steady-state proponents was not to be found in any of the points raised by mainstream economists. It was actually the very same mistake that Malthus himself had committed with his use of simple mathematical rules, which was basically the idea that "population may grow beyond any limit both in number and time *provided that it does not grow too rapidly"* (ibid. 366 emphasis Georgescu-Roegen).

These fundamental objections were inherent in Georgescu-Roegen's perspective. It is no coincidence that even in his defense of *Limits*, he characterized "relying on arithmomorphic models to predict the march of history" as a "fallacy" and the "spectacular revival of ecological salvation" as a "myth" leading to "various logical and factual snags" (ibid.: 365, 367). In his critique to Daly, he described the argument that "since exponential growth in a finite world leads to disasters of all kinds, ecological salvation lies in the stationary state" as "a simple, now widespread, but false syllogism" (ibid.: 367).

His approach was based on pointing to and exploring the impact of the second law of thermodynamics (about the tendency of entropy to increase) on the economic process, instead of a hitherto commonplace adoption of the mechanistic dogma in classical physics and, correspondingly, in standard and neoclassical economics (1971: 141). The perception (rooted in mechanics) of any phenomenal domain as consisting of locomotion alone, implied that "there is no irrevocable change in nature" (ibid.: 1). This view was also established in economics, which, according to Georgescu-Roegen (2009: 194), saw economy as detached from environment and free from entropic constraints.

The struggle to survive, according to Georgescu-Roegen (2009: 204), was a consequence of the efforts to adapt to the entropic law "but only in the case of the human species has the struggle taken also the form of a social conflict" because of an increasing labor division accompanying the development of "exosomatic instruments" (meaning, essentially, the means of production). This is one of the reasons why the conviction that a "steady state" (under whichever form of social distribution) is possible, was, according to Georgescu-Roegen, equally misguided as the one about the feasibility of unhindered

growth. In addition, even a steady state implies constant consumption of natural resources and no matter how far technology can go in using them effectively, eventually "the balancing system will collapse. At that time, the stationary state will enter a crisis, which will defeat its alleged purpose and nature" (Georgescu-Roegen 1975: 368). Furthermore, his reply to the idealization of a steady state as one in which people would dedicate more time in spiritual activities was that the Middle Age was also a kind of steady state and at the same time one of hard human labor in which leisure depended on the intensity of the need for resources, and that the theory of stationarity did not provide even in principle the optimum levels of population and capital (ibid.). Therefore, the appeals to protect the environment within a regime in which a steady state was assumed to be able to compensate the entropic impact were no more than particular cases of the conviction that the degree of growth was, in the final analysis, controllable. He thus thought that the unavoidable depletion of natural resources implied the impossibility not only of perpetual economic growth but actually of anything more optimistic than a constantly declining state, to the point of "annihilation" (ibid.: 367).

His perception of the entropic law did not prevent Georgescu-Roegen from suggesting a "bio-economic program". It included a series of measures, such as the prohibition of weapon manufacturing and redirection of the savings to the benefit of underdeveloped countries, organic farming, less wasting of energy, reduction of pointless consumption and the fashion that encouraged it, products to be designed without built-in obsolescence so that they could be repaired, and a shift in the mentality that forced people to devote themselves to production at an ever faster pace (ibid.: 377-378).

His suggestions have been influential in the 1970s critique of growth as well as in the degrowth current and proponents often referred to Georgescu-Roegen, mainly to reiterate the positions expressed in the "bio-economic program". But, because various of his provocative positions are set aside and his position about "annihilation" is abandoned altogether (Kerschner 2008: 127), it is also disregarded that rather than insisting on the realization of the particular bio-economic program, Georgescu-Roegen mostly emphasized "the fallacy that man can reverse the march of entropy", reflected in several "urgings" for environmental protection. That is the reason why in his own suggestion to prevent any "unnecessary deterioration of the environment", he goes on to admit that the term "unnecessary" is only of relative value:

> "A great deal of confusion about the environmental problem prevails […] simply because the sheer entropic nature of all happenings is ignored or misunderstood. […] And a prestigious institution such as the United Nations, in its Declaration on the Human Environment (Stockholm, 1972), repeatedly urged everyone 'to improve the environment'. Both urgings reflect the fallacy that man can reverse the march of entropy. The truth, however unpleasant, is that the most we can do is to prevent any unnecessary depletion of resources and any unnecessary deterioration of the environment, but without claiming that we know the precise meaning of 'unnecessary' in this context" (Georgescu-Roegen 1975: 363).

The fact that on the one hand Georgescu-Roegen proposes a bio-economic program to prevent the "unnecessary deterioration of the environment" but on the other hand admits to the imprecise meaning

of "unnecessary", is not a contradiction but probably a sign of his understanding of the complex role social and political processes play, as well as of the role social articulation of power plays in determining which resources would be "unnecessary" and who would decide that. His "bio-economic program" was indeed part of his multifarious critique of the idea of growth, but this was distanced from the characteristic faith many of his followers put in social modeling. His critique of the positivist-rationalistic approach in economic and social sciences shows that the complex pathways of history's dialectics invalidate the dominant mechanistic logic. Evolution, history and social relations cannot be subjected to prediction or be the product of mental labor by some specialists on the basis of abstractions, assumptions and models that more or less simplify reality:

> "Undoubtedly, the current growth must cease, nay, be reversed. But anyone who believes that he can draw a blueprint for the ecological salvation of the human species does not understand the nature of evolution, or even of history, which is that of a permanent struggle in continuously novel forms, not that of a predictable, controllable physico-chemical process […]" (Georgescu-Roegen 1975: 369).

The importance and primacy he attributes to the social process and social relations also emerges from his theoretical inquiries in particular subjects. For instance (Georgescu-Roegen 1971: 318-331):

- in his critique of Pareto's idea that "just as geometry ignores chemistry so can economics ignore by abstraction homo ethicus, homo religious, and all other hominess" (cited in Georgescu-Roegen 1971: 318);

- in his critique of the scope of standard economics studying how *given* means are applied to satisfy *given* ends, eventually achieving nothing more than reducing economics "to the mechanics of utility and self-interest", disregarding the dynamics of social change that may arise by demands for income increases;

- in the emphasis he placed on the position that "rational" subjects as defined by neoclassical economics actually do not exist outside the framework of "bourgeois reason";

- in his opposition to the tenacious idea that standard economic theory is valid in all institutional settings because of its supposedly universal principles;

- in his faith in the evolutionary nature of the economic, social and historical process that precludes a grasping of all its aspects by arithmomorphic schemes;

- in the idea borrowed by A. Einstein that some pre-scientific thought always precedes the scientific one, thus rendering the positivist efforts to find universalist and extra-social laws of the economy with the aid of computational methods of social modeling of only relative value.

The Sociological Premises of the "System Dynamics" Approach

Limits offered a wide scale social modeling involving various parameters and their interactions concerning social subjects defined as "population", their basic needs, their reproduction rate, the

resources they are provided with, and so on. However, in *Limits* no social or sociological assumptions were explicitly stated. Social systems were likened to natural systems, but this analogy was so indirect that early commentators of the MIT report like Galtung (1973) had to focus their attention on isolated words and implicitly made assumptions[9] in order to discern "a mechanistic view" and an "uncritical application of one particular approach in natural science to social matters" (1973: 109). Such assumptions were much more explicit in social engineering studies as the ones by Forrester, on whose methodology *Limits* relied.

Forrester (1973: 14) made a distinction between "mental models" and "computer models" that correspondingly implied a series of "intuitive" and "counter-intuitive" conclusions (1999: 109). "Computer models" with their counter-intuitive results were claimed to be more precise and explicit than "mental models" with their intuitive conclusions (1973: 15-16), which could not capture the interaction among the elements of complex systems and were therefore misleading. Likewise, Forrester (1999: 112) distinguished between "short-term" and "long-term" system responses. "Short-term" social and political expectations by various social strata could harm, according to Forrester, "long-term" goals and interests concerning the economic-ecological equilibrium of "systems" (a city, a nation or the world). Forrester (1973: 94) described these processes of satisfying short-term instead of long-term goals as "traps" which were "set by the character of complex systems". "Short-term" goals were related to "humanitarian impulses" prevailing over the "long-term" interests because of social pressures exerted by various social groups. These groups directed their demands to the state and required support programs, for instance, demands by "the poor" for job creation, training and so on, to the detriment of "long-term" goals such as the economic revival and development of a city. In his book *Urban Dynamics* he explained:

> "As the poor begin to dominate, their political power is felt. Their short-term interest increasingly dominates their own long-term welfare and that of the city. (…) If this political power is too great, the rising taxes and the accelerating decline can continue to the point where the urban area begins to collapse economically and all population classes decline" (Forrester 1999: 119).

His book *World dynamics* is written in a similar spirit. Forrester (1973: 122) believed that people would keep asking for fair treatment of their interests or that they would not tolerate violation of their personal freedoms, but they would conform to the objective economic-ecological pressures once these assumed a "tangible form". Therefore, if pressures increase, "humanitarian impulses" will finally decrease:

> "Many such humanitarian impulses seem to be making matters worse in the long run. Rising pressures are necessary to hasten the day when population is stabilized. Pressures can be increased by reducing food production, reducing health services, and reducing

[9] "If one wanted to predict exactly how high a thrown ball would rise or exactly where and when it would hit the ground, it would be necessary to make a detailed calculation based on precise information about the ball, the altitude, the wind, and the force of the initial throw. Similarly, if we wanted to predict the size of the earth's population in 1993 within a few percent, we would need a very much more complicated model than the one described here. We would also need information about the world system more precise and comprehensive than is currently available" (Meadows et al. 1974: 93). The above passage is commented by Galtung (1973: 109) as follows: "What is needed for exact prediction is the introduction of many more variables and the collection of more precise data. Social systems do not differ from natural systems: a bridge is built between the two through the word 'similarly'".

> industrialization. Such reductions seem to have only slight effect on quality of life in the long run" (1973: 124).

Forrester's approach is indicative, not only of the fact that a mathematical model is a means to transform particular input data to outputs, but also of the fact that the output reflects the input assumptions and can be used to reinforce them. In his case, assumptions about policies that were claimed to harm the economy (for instance, "humanitarian impulses" in favor of "the poor"), were reflected in his findings about "long-term" aims in favor of socio-economic equilibrium. That was the focus of Simmons's criticism forty years ago.

Simmons (1973: 193) started by observing a rise of the social and political influence of engineers, standard economists and scientists in the sense of an expanding belief that "engineering techniques" were a suitable method of analyzing social problems. Then, he focused on Forrester's perception of "systems". This perception treated social relations and political processes as closed, fixed variables to be scientifically modeled and considered as inherent to such a degree or so firmly entrenched in the system as if they had taken on "even a personality" as Simmons (1973: 198) described it. This approach of reified "systems" and their intrinsic characteristics allowed Forrester to "attribute to the characteristics of the systems themselves problems that are inherent in the political process" (Simmons 1973: 202). For instance, unwillingness of politicians to press for limitation of pollution, as noted by Forrester, was not attributed to the conflicts over values requiring political consensus, but to the very political system itself which fell into "traps", as he called them, which then again, were tautologically defined as inherent properties of the system (ibid.).

Forrester's endeavor constituted, as Simmons noted, an effort to reify social systems without realizing that what he called "traps" of the system emerged as a result of the articulation of power and were, thus, subjected to social filtration and change. The "anti-political overtones" in Forrester's account and "a belief that the world dynamics model is somehow above politics" (Simmons 1973: 204), illustrates an intensifying tendency in that era and especially after the crisis of the 1970s, towards managing social processes in terms of scientific/managerial criteria rather than political ones or ones of social relations of power. This shift of the emphasis from the socio-political to the scientific-technological field was the one Simmons observed by criticizing "system dynamics" of Forrester and others. The present was becoming a scientific and measurable variable in the study of the future. In order to promote a different future, *Limits* would reveal certain "myths" concerning the present without precisely clarifying which social groups and political subjects nourished that "myth":

> "One of the most commonly accepted myths in our present society is the promise that a continuation of our present patterns of growth will lead to human equality" (Meadows et al. 1974: 178).

But the idea of the stationary state that the MIT team proposed neither implied nor promised an egalitarian society. On the contrary, an implicit assumption was made that the most important question was not "human equality" but ecological equilibrium. If equality constituted a "myth" in growth societies, it would be the same in a prospective stationary state. The stationary state would not aim at changing

but at smoothly reproducing and preserving the existing system of relations. Therefore, the above mentioned passage by Meadows et al. was perhaps aiming at revealing the general "myth" of equality rather than the one of growth. "Human equality" appears to be redundant (a "myth") in both systems, in the one that takes growth for granted as well as in the one trying to constrain it. Consequently, instead of changing the system of social relations of the existing economy to satisfy utopian demands for "human equality", it would be preferable to eliminate such demands and the accompanying social conflicts altogether, and transform social relations so that they comply with the scientifically documented ecological and economic constraints. With the words of Simmons (1973: 207):

> "[The stable state] could also promise a society where there will be a clear diminution of the kind of conflict that offends certain people today. They would have to accept the fact that the supply of goods was limited and that, within the western system at least, some people might deserve more than others. […] [I]n a stable state, social and economic hierarchies would continue to exist. But differential rewards would be more easily justified within the context of an economic and social system where there was a finite limit to the rewards to be distributed and where the illusions of achieving ultimate equality through production would have vanished".

The "Excess of Consumption" and the "Excess of Democracy"

Simmons concluded his critique to Forrester and *Limits* wondering about the "intellectual mood" of the era that allowed social engineering to gain influence and boost a hitherto limited ecological awareness. He noticed: "It is as if society was on the verge of, perhaps even in the first phase of, some kind of vast social or cultural revolution whose exact nature has not yet been understood […]" (Simmons 1973: 203).

The "social or cultural revolution" Simmons sensed was not only about the rising salience of ecology. A few years after *Limits* another report, entitled *The Crisis of Democracy: Report on the Governability of Democracies* (Huntington/Crozier/Watanuki 1975), was written (and later published as a book) for the "Trilateral Commission", which was formed in 1973 and consisted by "private citizens of Western Europe, Japan and North America to foster closer cooperation among these three regions on common problems" (ibid: 1) under the presidency of Zbigniew Brzezinski. The report pointed to an increasing "ungovernability" of the democracies of that time and an "overload of decision making systems". In his chapter "Western Europe", Crozier (1975: 12) described the situation in the mid-1970s as follows:

> "European political systems are overloaded with participants and demands, and they have increasing difficulty mastering the very complexity which is the natural result of their economic growth and political development".

Modern open democracies, explained Crozier, were "threatened by entropia" not only due to the expansion of mass media and the diffusion of information, but mostly due to the excessive expectations and demands by various social groups and claims of interest by the working classes. These led to the "weakness" and "vulnerability of the state": "the more decisions the modern state has to handle, the

more helpless it becomes" (ibid.). The expectation that growth would diminish social tensions was of importance:

> "It was believed in the Fifties and early Sixties that the achievement of economic growth was the great problem for European nations. If only their GNP could grow for long enough, most of their troubles as divided and nonconsensual polities would disappear. […] However, certain facts had to be finally faced: namely the tremendous economic gains made during the past twenty years by all groups and especially by workers. But, the consequences of this were to be the opposite of what had been expected. Instead of appeasing tensions, material progress seems to have exacerbated them" (Crozier 1975: 22).

Thus, the problem was *not* growth itself but growth *in relation* to the rise of worker demands and the intensity of social conflicts. Excessive expectations were due to such factors as: "citizens [having] been more sophisticated politically and especially vulnerable to invidious comparisons from category to category"; the "radical working-class ideology" that consisted not only a "consequence of frustration" but finally "a weapon for action"; the process of collective bargaining that tended to become "bureaucratic and produce disaffection" as some workers did not participate in the bargaining procedures (ibid.). But, as the economic boom was ensued by a long period of stagnation, Crozier continued, it would be increasingly difficult for the state to satisfy social expectations. These remained strong because once people knew that things could change, they would ask for more (ibid.). As a result, the social change caused by postwar industrial growth had a profound impact on the traditional modes of social control and the governing capacities of the state: "In a society where social control had traditionally relied on fragmentation, stratification, and social barriers to communication, the disruptive effects of change which tends to disrupt these barriers […], makes it more and more difficult to govern" (ibid.).

Therefore, to the degree that industrial postwar growth and the corporatist institutional framework allowed for a rise of the living standards of the working classes and a certain social change, egalitarian demands could be articulated without leading to "ungovernability". From the moment that the social articulation of power inhibited growth and a viable form of capitalist reproduction, it had to change. To overcome the political crisis, it was suggested that various "traditional adjustments" had to change, for instance, "the persistence of old forms of patronage networks", the "symbiotic adjustments between opposed social and economic partners according to which conflicts and tensions are maintained at a workable level", as well as the "implicit bargaining arrangements between groups that cannot face each other squarely" (ibid.: 48). Overall, the report about "ungovernability" called the conservative political elites to handle the crisis and face the new challenges (see ibid.: 23-30):

- the youth who shifted from work-centered values to social disorder and disobedience;
- the lost ground of the Church, traditional institutions and educational authorities;
- the lost psychological and moral appeal of the Army as a symbol of patriotic values;
- the power of unionists that could not accept the "unfair share in society" and increased their demands;

- the increasing demands by immigrant workers who contributed to the initial phase of the industrial boom but then started to question their place and range of opportunities;

- the excessive political participation caused by the expansion of mass media;

- the excessive social expenditure wasted by politicians wishing to satisfy workers, etc.

- the "imposition of collective disciplines which [the above] disruptions make it impossible to generate" (ibid: 24).

Only one social level was falling outside the pessimistic frame of ungovernability, the one of firms and enterprises, for the following reason: "Indeed, if European enterprises look more healthy than European churches and schools, this is also because they rely more on the old model of social control" (ibid.: 30).

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The conclusions of the Club of Rome in the commentary in *Limits* and the ones of the *Report on Governability* to the Trilateral Commission do not constitute a-historic theoretical assumptions concerning ecology and politics in general, but are based on the historical experience of postwar industrial Keynesianism and even record its crisis, already looming since late 1960s. These reports denounce two kinds of "excesses": excess of usage of natural resources, consumption and population, in the case of *Limits*, and an excess of democracy, social demands and political participation in the case of the *Report on Governability*. The latter considered the political system as too permissive vis-a-vis the working classes and urged political elites to discipline society by reducing its expectations from the state and by weakening unions. *Limits* inaugurated a new "objectivity", which stood above state politics, at least in the way it had been understood during the postwar period, by proposing the reduction of mass consumption and the capitalist equilibrium as top priorities for the international system.

In the circumstances of the oil crises and of the deepening crisis of the Keynesian growth model during the 1970s, which led to a gradual, long process of neoliberalization, criticisms to *Limits* did not manage to form a strong counter-paradigm in ecological modeling. Later proponents of the methodology of *Limits*, from the fields of global modeling, simulation and the gaming approach described such criticisms even as "clearly unnecessary and inappropriate criticisms" (Chadwick 2000: 64). Likewise, the ungovernability theories gained influence. They were compatible with the "new political economy" and shared many assumptions with neoliberal perspectives on "rent-seeking" by Buchanan and others who interpreted demands by social groups vis-a-vis the state as mere struggles for "rents" to the detriment of free market competition and advocated for balanced state budgets and a legal framework ensuring fiscal discipline (Markantonatou 2013).

Although the subjects of the two reports differed, their conclusions pointed to similar directions. In the decades to follow, two different strands of criticism against the Keynesian growth model fitted together. On the one hand, a critique that treated the demands of social groups and the hitherto accepted norms of the state-society relation as reasons for social destabilization and the weakening of social control; on the other hand, the ecological critique to the same growth model that promoted the reduction of

domestic demand calling for respect of the ecological limits. Consequently, arguments that depicted the Keynesian growth model (that is, neither growth nor capitalism in general) as one that nourished social selfishness, excessive democracy and political participation, were gradually merged with the argument about the anti-ecological, consumerist and unsustainable character of that model[10].

The Critique of Growth by "Degrowth"

"[W]hat are we to make of the fact that earlier predictions of market saturation and an end to growth have not come true?", is a question posed by Streeck (2013: 16). Given "a widespread sense of impending doom" in the 1970s (ibid.), and also the rise in prices after the oil crises, the ecological interest triggered by *Limits* focused on the depletion of fossil recourses and called for wider use of renewable energy (German Advisory Council on Environment 2012: 3). But, when economic panics gradually gave place to new patterns of production and consumption by financial liberalization, those who believed that capitalism would once again find its way to further growth, were justified for some more decades:

> "[T]he war between cornucopians and prophets of doom, ended with a clear victory of the cornucopians with the 'perpetual growth paradigm' becoming the standard narrative in political, ideological and scientific terms behind policies for economic development adopted all over the world in the last three decades" (Sorman/Giampetro 2013: 81).

Given that – within a particular articulation of social and political forces – technological innovations play a crucial role in capitalist accumulation or in preventing the system from collapsing (Chirot 2011), the reason why the collapse of capitalism did not occur in the 1970s, despite both Marxist and conservative predictions, is related to technological innovation:

> "Once more, however, a new product revolution occurred, and instead of producing either major wars or depressions, the crises of the 1970s gave way to the rising boom stimulated by the electronics and computer revolutions of the 1980s and 1990s" (Chirot 2011: 130).

This technological advancement, "which rendered all known machines and consumer goods obsolete and triggered a huge and completely unforeseen surge in demand" (Streeck 2013: 17), was "followed by the revolutionizing of the financial markets, which sent the next wave of demand sloshing through the affluent societies of the West" (ibid.). In particular, these new technologies, based on mathematics, algorithms, computers and electronics, not only created a huge new market and new opportunities for profit, but also, as Calhoun noted (2011: 23), allowed increased reliance of the economy on finance, as can be seen from the expansion in hedge funds and derivatives trading. They were, hence, a major factor in renovating capitalism and constituted the technical basis of growth in the subsequent decades until the 2008 crisis.

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[10] For instance: "[Keynesian policies] will not be able to provide a suitable answer to the crises in the twenty-first century for the simple reason that Keynesian policies, acting as a multiplier of consumption and hence of growth, cannot but aggravate the current ecological crisis" (Bonaiuti 2008: 271).

In other words, *Limits,* which criticized the growth model of its era through an ecological argumentation, was already tracing the form of the next model of economic growth – not to mention that the *Limits* report itself would be technically impossible without the availability of computers and modeling tools that would soon assist a new cycle of capitalist accumulation. Thus, the fact that "after a long period of oblivion, in the third millennium, the issue of sustainability and carrying capacity is getting back into the public discourse" (Sorman/Giampetro 2013: 81), is not coincidental. The resurgence of these issues after the recent crisis signals the articulation of a new growth critique, this time of the financial-driven growth model. This critique, in turn, is closely related to the emergence of a series of new technologies and related changes and to the question of whether these can be, once again, assimilated by the market and transformed to productivity of capital:

> "The panic of 2008 coincides with the rise of a new age led by revolutionary changes in communications, biotechnology, health care, and probably the start of the development of new sources of electrical power. Those are areas where enormous technological and scientific progress has been made, and where many more are possible" (Chirot 2011: 130).

These novel technologies and developments in the fields of energy, communications etc., as new opportunities for a possible transformation of the economic model and as a response to the insecurity of financial capitalism, globalization and the 2008 crash formed a basis for new debate and critique by various views critical of growth, through invocations for green growth, sustainability and a "Green New Deal". In this frame, questions posed by the ecological discourse in the 1970s resurged.

For instance, the question of the Earth's "carrying capacity" was amply discussed at the conference "Economic Degrowth for Ecological Sustainability and Social Equity" that took place in Paris in 2008. But to the traditional focus of the particular debate about a "collective capacity to acquire and use physical sources", which is "to be measured financially or in other terms" (Schneider/Kallis/Martinez-Allier 2010: 512), the social question was added: "[The carrying capacity] had to be envisioned as a search for equity and sustainability considering environmental limits in today's highly unequal world".

"Unsustainable degrowth" (recession or depression) (ibid.: 512-513) is distinguished from "sustainable degrowth", which is defined as "an equitable downscaling of production and consumption that increases human wellbeing and enhances ecological conditions at the local and global level, in the short and long term". Special emphasis is placed on the promotion of certain technologies such as renewable energy sources and other technological innovations in industry and farming. Eventually, degrowth, which Schneider/Kallis/Martinez-Allier (ibid.: 513) define as a "social choice" rather than a "kind of religion", is "a multi-dimensional concept and a diversity of interpretations and proposals for practical implementations […].

As degrowth is not (yet?) a coherent theoretical current, there have been various attempts to systematically present its sources and influences as well as its particular variants and the terminology needed to distinguish them ("degrowth", "a-growth", "zero-growth", "post-growth"), perhaps with the aim of forming a relatively discrete theoretical current encompassing a space that ranges from ecological economics to sociology. The overviewed sources and theoretical influences may be grouped as follows:

Scientific/technological approaches, which place emphasis on aspects of natural limits such as the consumption of non-renewable resources, depletion of arable land, overpopulation, environmental pollution and investigation into the Earth's "carrying capacity". Such approaches reason along the lines of *Limits* and Daly's views to predict that the continuation of growth will inevitably lead to the violation of the aforementioned limits and, subsequently, collapse. *Ecological approaches* perceive the Earth as a closed finite system. These are concerned about living species and ecosystems, on the basis of biophysical, geological and other findings, and they denounce indifference vis-a-vis the biosphere, extinction of species, disruption of ecosystems, desertification etc. *Culturalist approaches* call for localization as a means to revitalize social bonds that the market mechanism and the representation of human as *homo economicus* are assumed to have disrupted. *Spiritualist approaches* which envision the harmonization of the human-nature relationship, criticize the role of technology as dehumanizing and detrimental to the developing countries where it is exported, and promote rural communitarianism, alternative-radical farming etc. (for an overview of different trends of sustainability and degrowth views see Kidd 1992, Flipo 2008, Muraca 2013).

The affinity with the ecological discourse of the 1970s is strong, as the content of degrowth theorizations is characterized by combinations and variants of the very same fundamental ideas, often specialized by sectors. In the last decade, and more intensively after the 2008 crisis, these heterogeneous influences of degrowth are channeled in the following directions and corresponding research goals: an ecological theory of the crisis based on the availability of oil; a critique of growth, consumerism and the strategy of commodification of unmonetized values; the elaboration of proposals about work-sharing, basic income, reduction of working hours, the "metabolic" analysis of energy consumption at national, regional and local level (and similar analyses including the calculation of how much materials, food calories or energy people would consume in a hypothetical degrowth society); comparative studies of ecological efficiency in various countries, the study of happiness indices; ideologies and life styles regarding consumption and how aspirations of material goals affect adaptability to consumption losses; the study of voluntary and "non-capitalist" local practices (the so-called "nowtopias" such as food consumer-producer cooperatives, urban food gardens, pirate programmers, forms of sharing such as squats, shared cars, tool-sharing etc.); the historical-anthropological study of practices in past societies aimed at avoiding over-development; the study of overpopulation and the assumed environmental benefits from population degrowth (for an overview of degrowth's research aims Kallis/Kerschner/Martinez-Alier 2012: 178).

Criticisms to degrowth from within the ecological debate focus on several aspects. Schwartzmann (2012: 119) criticizes degrowth for over-emphasizing on locality and failing to recognize the need for a perspective of global politics; for a vague and shallow perception instead of specifying in what branches of the economy growth is actually disputable; and for promising "a future of unimaginable misery for most of the world's people who now suffer from energy poverty" (ibid.: 121). Schwartzmann argues for a "highly efficient solar/agroecological economy", leading to a global steady state economy which he names "solar communism". He stands for a sustainable growth towards a steady state in alliance with

the global South and the networks of "environmental justice movements"[11]. Eventually, he concludes that the degrowth program should incorporate two specific goals: research about climate change and nuclear threat, and the political struggle against the military-industrial complex for an eco-socialist social transition (Schwartzmann 2013: 123-124).

Van den Bergh's (2011: 881-888) criticism focuses on three specific problems of the degrowth movement and its strategies: the neglect of the rebound effect that the desired new technologies generate; the inability of the movement to secure social and democratic political support; and its lack of economic efficiency. He points to the direction of "a-growth", that is, indifference vis-a-vis the GDP as neither necessary nor sufficient as a condition for sustainability. He believes that degrowth is a "blunt political tool" and should be replaced by suitable policies to protect the environment and probably but not necessarily, reduce growth. For him, degrowth is vaguely defined and lacks a concrete and original political perspective (Van den Bergh 2011: 884).

At the political field, the interest in new understandings of growth is reflected in recent reports of commissions like the "Report by the Commission on the Measurement of Economic Performance and Social Progress" (Stiglitz/Sen/Fitoussi 2009) ordered by the French Government, or the "Study Commission on Growth, Welfare and the Quality of Life" of the German Bundestag in 2010 for the examination of other indices beyond GDP, to measure well-being and life quality (for an overview of earlier or other efforts to develop new indices in various countries see Zimmer 2012: 2). These efforts show that a discourse which is skeptical of growth has a certain influence at the political level. But they are limited to the level of analysis and debating without, for instance, breaking with the policies of boosting national competitiveness in favor of GDP-growth. Overall, there is no known empirical case at the level of the nation-state, in which some set of degrowth policies was applied or where efforts towards degrowth acquired a coherent political representation[12]. Therefore, degrowth approaches are more or less limited to proposals concerning the future or the theoretical level, without many wide scale empirical representations. Likewise, a critical discussion of degrowth cannot focus on an economic-ecological, political and social pattern that does not allow a certain degree of ideal-typical analysis. But, it can focus on the sociological starting points or premises and the possible social consequences of such proposals.

An indicative example is related to the more or less explicit proposals for population degrowth. Such proposals are Malthusian in origin and permeate most discourses skeptical of growth not only in the 1970s, but also today. The concerns expressed by the Club of Rome in their commentary in *Limits* about overpopulation as a fundamental problem (Meadows 1974: 191) reformulate as a social objective

[11] As a counter-example of feasible sustainable growth, Schwartzmann (2012: 120) suggests the sector of energy conversion in buildings and transportation in urban areas which would reduce carbon dioxide emissions. On the basis of measurements about per capita energy consumption, he concludes that the industrialized countries must reduce their consumption whereas the South must increase it to reach satisfactory living standards, which he considers feasible provided that we shift to solar and wind energy technology.

[12] For this, lack of political will is often stressed. According to analyses as the one by Booth (2004: 234), although different practices for the conservation of natural resources are already applied in various countries at a communal/local level, even a modest lowering of growth, for instance 1 or 2% per year, as it has been suggested, "may require a fairly radical reshaping of economic institutions", which, Booth argues, is not the case today.

what Ehrlich and Holdren (1971) had expressed in the form of a "theorem"[13]. According to it, any particular numerical limiting value of sustainable population should be defined with reference to the corresponding consumption. Emphasis is, therefore, placed on the human impact on the environment and the need to reduce population, per capita consumption or both, rather than a mere numerical value for population. The works of Wackernagel (2002) and Rees who have introduced the concept of "ecological footprint" focus on the carrying capacity, arguing that it has already been exceeded since the 1980s. Based on that conclusion, Meadows et al (2005: 3) claimed the world follows a trajectory of "overshoot" that is predicted to lead to collapse. According to this kind of arguments, if per capita consumption is not to be reduced, it is implied that the reduction of world population is the only alternative.

Whereas the above views pose the question of population through the carrying capacity concept, works concluding to specific numeric population limits are not absent from the relevant literature. For instance, a study by the World Watch Institute (Brown et al 1998) used United Nations population projections and considered their "medium scenario"[14] to be unfeasible. The authors considered UN's "low" scenario about stabilization of world population at about 7.7 billion circa 2050 and a subsequent fall as most probable. The UN projections come from statistical processing of census data without resorting to system dynamics assumptions, as for instance in *Limits*. Despite recognizing this fact, the authors seem to interpret the "low" projection of the UN statistics as a predictive scenario of population collapse. As the UN sees most of the future increase in population taking place in developing and underdeveloped countries, the authors take famine and disease in those countries for granted[15].

The same numerical value is proposed as an optimal estimate for the sustainable population, by Van den Bergh/Rietveld (2004) who used a much different approach. The authors analyzed a heterogeneous set consisting of 69 different studies which computed the limits of world population with various methods. Publication dates of these methods spanned a wide range, namely from the year 1679 to 1999. The authors proposed the median value of 7.7 billion as the most appropriate value. However, they admitted that the studies analyzed cover a vast range of computed population limits (which renders the significance of the proposed "median" much debatable) and they note that these values reflected strongly the historical background of their era (which relativizes what constitutes a "reliable" estimate).

In the subsequent chapters, such viewpoints and proposals are discussed more analytically on the basis of their sociological premises. In particular, emphasis is placed on degrowth theorizations concerning a)

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[13] Ehrlich's (1971) "theorem", later popularized as the I=PAT formula, where I= environmental impact, P=population, A=affluence, T=technology, is widely invoked by the degrowth literature. It states that the Earth's growing population has a disproportionate negative environmental impact. In particular, per capita consumption grows with affluence and technological impact.

[14] United Nations estimates extrapolate current trends of national populations and formulate a medium, a low and a high scenario to account for statistical uncertainties. For instance, the latest estimates (United Nations 2011) predict a tendency of the world population to reach a plateau slightly above 10 billions, soon after the year 2100, according to the medium scenario. Alternative estimates predict either a value of 16 billion and rising in 2100, or a maximum of about 8 billion around 2050 followed by a downwards trend.

[15] "What is less clear is whether we will move to the lower trajectory because countries with rapid population growth quickly shift to smaller families or because they fail to do so and the resulting inability to manage threats from disease, spreading hunger, or social disintegration leads to rising death rates" (Brown et al 1998: 12).

the "excess" of population and b) the transformations of labor. For this kind of critical analysis regarding the interconnected questions of population and labor, certain theoretical elaborations of the Foucauldian concept of biopolitics and the Marxist critique of the Malthusian approach are used.

Foucault's Notion of the Biopolitics of Population

In Daly's concept of the "total economy of life" discussed in a previous section, economy and biology do not merely interact but actually share a common subject: "the ultimate subject matter of biology and economics is one, viz., the life process" (1968: 392). Population, being an integral part of the science of life, is perceived as a physical quantity with a value and a rate of change dependent on a balance of inputs and outputs (e.g. natality and mortality and the factors that affect them).These inputs and outputs could be adjusted to achieve desired levels of population. In the context of such views, an aspiration emerges, of scientifically managing lives and adjusting the indices relevant to population. If materialized, this aspiration would go hand in hand with the formation of a "true social science" as defined by the physicist and Nobel laureate Bridgman (cited in Georgescu-Roegen 1971: 347): "we will not have a true social science until eventually mankind has educated itself to be more rational". In this context, as Georgescu-Roegen (ibid.) was noting, rational behavior meant nothing more than being predictable: "[what Bridgman] said is that unless mankind educates itself so that the behavior of man shall be predictable in the same sense in which the behavior of matter is, there can be no true social science". The science that examines the rational and relatively predictable behavior (or seeks to construct such a behavior) in the context of an economy which is analogous to biology, Daly's "total economy of life" (1968: 403) or Bridgman's "true social science" (in Georgescu-Roegen 1971: 347), can be analyzed through the Foucauldian concept of biopolitical power.

Foucault's concept of biopolitics cannot be understood outside his view about the state and power. In the framework of systematically disputing anthropological universalities, Foucault opposed every holistic, essentialist, a-historic and economic-reductionist view of power. Since power, according to Foucault, was neither an exclusive attribute of the state nor linearly directed in a top-down manner, the emphasis was shifted away from *who* exercised power (in the sense of particular subjects), to *how* it was exercised[16]. Foucault did not pose the question of power (and its interrelation to knowledge) in terms of class hegemony, or in the frame of the philosophical-juridical rhetoric of the "social contract", or in a sociological analysis of the functions of power in social cohesion. Power had the form of "circulation"[17]. The "microphysical" analysis of the mechanisms of power and of the results it generated in every particular time, revealed that "these mechanisms of power have been – and continue to be – invested, colonized, utilized, involuted, transformed, displaced, extended etc., by ever more general mechanisms and by forms of global domination" (Foucault 1980: 99). Power was being socialized,

[16] When we discuss power, Foucault (1980: 97) writes, "[l]et us not ... ask why certain people want to dominate what they seek, what is their overall strategy. Let us ask, instead, how things work at the level of on-going subjugation, at the level of those continuous and uninterrupted processes which subject our bodies, govern our gestures, dictate our behaviors, etc."

[17] "Power must, I think, be analyzed as something that circulates, or rather as something that functions only when it is part of a chain. It is never localized here or there, it is never in the hands of some, and it is never appropriated in the way that wealth or a commodity can be appropriated. Power functions" (Foucault 1997: 46).

expanded or limited by operating *through* the state rather than being accumulated to it[18], and it "produced domains of objects and rituals of truth"[19]. In other words, the question for Foucault was not how subjects "consented" or were "oppressed" in the framework of the "contract" between state and society, but how particular patterns and methodologies of power constituted "subjects" as such[20].

This is the base of his approach of biopolitics. It entails the practices and rationalities with which individuals are constituted by an array of authorities and power mechanisms as subjects of control, as bodies and as population. In his study about madness, crime and the rehabilitative institutions, Foucault did not claim to examine phenomena that were mere "social constructions" and, under a deceptive "mask of power", did not exist as such. Nor did he follow a method of deducing concrete phenomena from "universals" (the state, the civil society etc.), as he did not consider these "universals" as necessary preconditions for concrete practices (Foucault 2008: 3). What he sought was **"**to suppose that universals do not exist" by posing the question, for instance, of madness in another way:

> "My question was not: Does madness exist? […] The method consisted in saying: Let's suppose that madness does not exist. If we suppose that it does not exist, then what can history make of these different events and practices which are apparently organized around something that is supposed to be madness?" (ibid.).

In other words, as Lemke (2000: 7) stresses, Foucault did not juxtapose politics and knowledge, but was interested in how governmentality articulated a "political knowledge". To do this, he did not investigate whether practices conform to rationalities, but he examined the kind of the rationalities used and the effects they produced. In this frame, governmentality was about a "political project that endeavors to create a social reality that already exists" (Lemke 2000: 13). Consequently, the perspective of governmentality regarding the question of the political management of ecological limits or growth limits *does not imply that such ecological limits do not exist*, nor that they are merely social constructions, or that they have no effects. Rather, it seeks to examine in which particular project and in what ways these truths or rationalities are inscribed and what historical conditions allowed them to come to the foreground. In this context, the "political project" Foucault illustrates, is the one of biopolitical power. It evolved in a long and complex process starting in the 18th century by interweaving, through a course of rationalization, the state and the institutions that regulated the life of the "population" with science:

> "The theme was to have been 'biopolitics', by which I mean the attempt, starting from the eighteenth century, to rationalize the problems posed to governmental practice by phenomena

[18] Due to his view about power, it has been claimed that Foucault underestimated the role of the state by emphasizing on the microphysics of power. Indicatively, Giddens (1995: 267) sides with such an opinion: "There is a surprising absence at the heart of Foucault's analysis: an account of the state […], that one suspects, is related to the very ubiquity of power as discipline. The state is what Foucault described as 'calculated technology of subjection' writ large, the disciplinary matrix that oversaw the others. If Foucault did believe this, it is to my mind at best a partial truth. We need not only a theory of the state, but a theory of states, and this point has implications both 'internally' and 'externally'".

[19] "We must cease once and for all to describe the effects of power in negative terms: it excludes, it represses, it censors, it abstracts, it masks, it conceals. In fact, power produces, it produces reality, it produces domains of objects and rituals of truth. The individual and the knowledge that may be gained of him belong to this production" (Foucault 1997:194).

[20] "We should try to discover how it is that subjects are gradually, progressively, really and materially constituted through a multiplicity of organisms, forces, energies, materials, desires, thoughts etc. We should try to grasp subjection in its material instance as constitution of subjects" (Foucault 1980: 97).

> characteristic of a set of living beings forming a population: health, hygiene, birthrate, life expectancy, race…We know the increasing importance of these problems since the nineteenth century, and the political and economic issues they have raised up to the present. (…) How can the phenomena of 'population', with its specific effects and problems, be taken into account in a system concerned about respect for legal subjects and individual free enterprise?" (Foucault 2008: 317).

This is also the line of argumentation followed by Lemke when he is referring to the discourse of "sustainable growth", not as a set of issues and problems that "do not exist", but as a redefinition of the relation between nature and society and the integration of that relation in a political project. Nature acquires a narrower economic meaning, becoming an "ecosystem" and the "environment of the capitalist system":

> "The discourse on 'sustainable development' might serve as an example to illustrate this point. One important aspect of the 'new world order' is the reconceptualization of external nature in terms of an 'ecosystem'. Nature, which once meant an independent space clearly demarcated from the social with an independent power to act and regulated by autonomous laws, is increasingly becoming the 'environment' of the capitalist system. The ecosystem conception is also a reinvention of the boundaries between nature and society. In view of today's 'global' perils, the main issue now is less the restrictive notion of the 'limits of growth' as it is a dynamic growth of limits" (Lemke 2000: 8).

Of course, this dynamics of "growth of limits" and of integrating nature and population in the project of liberal governmentality is not new. Foucault (2008: 13-14) placed at around the middle of the 18th century the emergence of a new intellectual tool for the "internal limitation of governmental reason", which objected no longer "to the abuse of sovereignty, but to excessive government". That intellectual tool or form of rationality was not Law and did not develop outside the *raison d' État,* like the 16th and 17th century juridical thought, but it was political economy, which developed in resonance with the 18th century state and was attached to the objective of enriching it: "Its objective was the simultaneous, correlative, and suitably adjusted growth of population on the one hand, and means of subsistence on the other" (ibid.: 14). Thus, the interest in the administration and control over population, health, birth rates etc., as, for instance, in the *Polizeiwissenschaft* in 18th century Germany (ibid.: 318), as well as the mercantilist logic of the competition state, not only did not disappear with the prevalence of political economy within liberalism – as a means to expand, improve or limit governmental strategies – but they were actually integrated in the *raison d' État* (ibid.: 14-15).

In this frame, a dynamic process of rationalization, expansion *and* limitation (in the direction of "less government") of political power was set in motion, not only through the institutions of the state's monopoly of violence and administrative mechanisms, but also through scientific rationalities and discourses, which brought to the fore the study of population, birth rates etc., with the aim to achieve the highest possible efficiency for government. Thus, political economy did not discover a "nature" or a set

of pre-existent "natural rights" that preceded government and which remained out of its reach, but a "naturalness" specific to government:

> "There is a nature specific to this governmental action itself and this is what political economy will study. The notion natural and of nature will thus be transformed with the appearance of political economy. For political economy, nature is not an original and reserved region on which the exercise of power should not impinge, on pain of being illegitimate. Nature is something that runs under, through, and in the exercise of governmentality. It is, if you like, its indispensable hypodermis. […] Thus, the *économistes* explain, the movement of population to where wages are highest, for example, is a law of nature; it is a law of nature that customs duty protecting the high price of the means of subsistence will inevitably entail something like dearth" (Foucault 2008: 16).

The concept of biopolitical power, as laid out by Foucault who did not analyze it extensively, may not provide full answers to questions concerning today's neoliberalism, like "how do the present technologies model individuals as active and free citizens, as members of self-managing communities and organizations, as autonomous actors who are in the position – or at least should be – to rationally calculate their own life risks" or "the relationship between the concept of the responsible and rational subject and that of human life as human capital" (Lemke 2011: 178). But, on the other hand, biopolitical power can serve to conceptualize that regulatory power, which, for instance, withdraws from welfarist functions through neoliberalization while expanding through internationalization and scientification, and aims at the political management of "bodies" and "populations":

> "Global liberal governance is substantially comprised of techniques that examine the detailed properties and dynamics of populations so that they can be better managed with respect to their many needs and life chances. In this great plural and complex enterprise, global liberal governance marks a considerable intensification and extension, via liberal forms of power, of what Michel Foucault called the 'great economy of power' whose principles of formation were sought from the eighteenth century onwards […]" (Dillon/Reid 2001: 41).

The practices of global liberal governance are exerted, first, by a number of national and international organizations, NGOs etc., which bring the study of population to focus, in the context of a political project encompassing such objectives as preventing depletion of resources, coping with the increase in birth rates of poor populations etc.; and, second, by a number of scientific authorities that formulate recommendations for action, which, in turn, reflect and produce processes of subjectification and responsibilisation aimed at the voluntary reduction of living standards as ways to adapt to the decline of a growth model. As the following sections discuss, the ecological discourses of growth critique (both in the 1970s and in the degrowth current) reflected to a great extent these practices of liberal governance.

Population as the Subject of International Management

Starting with the Foucauldian perspective, the concept of biopolitical power can be used, as Rabinow and Rose describe (2006: 197), "to embrace all the specific strategies and contestations over

problematizations of collective human vitality, morbidity and mortality; over the forms of knowledge, regimes of authority and practices of intervention that are desirable, legitimate and efficacious". Rabinow and Rose (2006: 197) further suggest that at least three elements should be included in an analysis of biopolitics: truth discourses about life spoken by an array of competent authorities; strategies for intervention upon populations territorialized as national or not, gender, ethnicity categories etc.; and modes of subjectification through which individuals exercise practices of the self. In the context of the discussion about the ecological discourses and the critiques of growth of the 1970s and today, two out of these three aspects will be particularly useful. They shed light on the ecological truth discourses through the approach of biopolitical power and, inversely, on the biopolitical power through the approach of the truth discourses. The first element that the study of biopolitics should include, according to Rabinow/Rose (2006: 197), consists of:

> "One or more truth discourses about the 'vital' character of living human beings, and an array of authorities considered competent to speak that truth. These truth discourses may not themselves be 'biological' in the contemporary sense of the discipline, for instance they may hybridize biological and demographic or even sociological styles of thought […]".

Indeed, in the critique of growth both in the 1970s and within degrowth, discourses are formed, drawing from biology, demographics and sociology. In the context of the predictions of collapse following a continuous exponential increase of such indicators as population and consumption, *Limits* did not propose specific measures against overpopulation. The commentary by the Club of Rome at the end of the report expressed concerns about overpopulation, but, except some scattered references, did not suggest concrete ways to cope with it.

Specific measures or what Rabinow and Rose (ibid.) described as "problematizations of collective human vitality, morbidity and mortality" were proposed soon after the publication of *Limits*, for instance, by Herman Daly in 1977. He proposed a method to reduce birth rates in accordance with the rules of the free market. That was the method of "transferable birth licenses" (1991: 56), based on an idea of the economist Kenneth Boulding: every woman would be allowed only a limited number of births through credits ("licenses") to give birth to children, corresponding to replacement fertility. Taking into account the rates of infant mortality, each woman would receive 2.1 licenses pertaining to 21 tenths of a child ("deci-childs"):

> "Possession of ten deci-child units confers the legal right to one birth. The licenses are freely transferable by sale or gift, so those who want more than two children, and can afford to buy extra licenses, or can acquire them by gift, are free to do so. The original distribution of licenses is on the basis of strict equality, but exchange is permitted, leading to a reallocation in conformity with differing preferences and abilities to pay. Thus, distributive equity is achieved in the original distribution, and allocative efficiency is achieved in the market distribution" (Daly 1991: 57).

The "birth licenses" would be assets in the possession of women who could afford to buy them and would be transferable to the beneficiaries in case of the owner's death. Daly claimed this measure would compensate for class inequalities that were reflected in the increased mortality rates among the

poor. Anticipating possible objections, he even argued that the plan would benefit the poor, as they would be given a chance to increase their per capita income by selling their "birth licenses". Offenders would be punished and the children brought to life without the necessary "license" would be adopted by other families receiving funding from the state for the corresponding credits that would have to be withdrawn from the market (ibid.: 57-58).

Boulding's and Daly's "birth license" proposal, a kind of social eugenics of the market, has never been applied. Nevertheless, the

> "dire warnings [of *Limits*] resonated with a raft of analogous concerns about the impact of population growth on economic wealth and the need for governments – especially those of less developed states – to introduce policies to curtail reproduction – especially among the poor – as a prerequisite to modernization" (Rabinow/Rose 2006: 209).

With the emphasis placed on overpopulation, various policies have been set in motion since the 1980s to limit procreation on the basis of voluntary assent and informed choice and serve aims of prevention of maternal deaths and perinatal mortality in the Third World, e.g. China's One Child Policy, the sterilization campaign in India, practices of so called "voluntary surgical contraception" in Mexico, or the use of the quinacrine pellet method in countries such as Bangladesh, Costa Rica, Indonesia, Philippines, Vietnam and many others (ibid.: 209-210).

In this way, population is transformed into a distinct subject of scientific research and political interest. An "array of authorities that speak the truth discourses", as Rabinow and Rose (2006: 197) describe them, reflect the growing political interest by governments, NGOs, and international organizations. This is shown, for instance, by the United Nations "Agenda 21" that in 1992 announced new "program areas" such as "developing and disseminating knowledge concerning the links between demographic trends and factors and sustainable development", taking for granted that "the growth of world population and production combined with unsustainable consumption patterns places increasingly severe stress on the life-supporting capacities of our planet"[21].

Seeking to contribute to sustainable growth, such agents undertake the task to promote policies of coping with overpopulation, launch informative campaigns, organize conferences and seminars about the consequences of "unsustainable population growth" and so on. For instance, "Population Connection: Education and Action for a Better World" is an organization that undertakes actions of this kind. Although it assumes that the number of humans "that Earth can hold" is not given, the organization poses the same question in inverse form. It asks "*How many people can't the Earth support?*" and, based on UNICEF and World Bank data, replies:

> "At present the Earth can't support the 9.2 million children who die every year, mostly from preventable or treatable diseases. The Earth can't support the nearly 900 million people who don't have access to safe drinking water. The Earth can't support the 2.5 billion people who don't

[21] United Nations, "Sustainable Development", Agenda 21, United Nations Conference on Environment & Development, Rio de Janeiro, Brazil, 3 to 14 June 1992, www.sustainabledevelopment.un.org/content/documents/Agenda21.pdf, accessed 27.02.2013.

> have access to basic sanitation. The Earth can't support its estimated 967 million malnourished people"[22].

"How many people the Earth can support is not a population question, but a social, economic, and political question", the passage continues. Nevertheless, an extra-economic, extra-social and extra-political answer is finally given, through the instrumentalization of the "Earth" which becomes a distinct subject, almost with its own will. The answer provided to the question the organization posed, "how many people *can't* the Earth support" is: the "Earth" cannot support the millions of poor, sick and undernourished of the world as well as their children. Similarly, poverty, malnutrition, disease and global inequalities are translated to issues of "world population", a vaguely defined category outside class and national asymmetries. Although, as Georgescu-Roegen repeatedly stressed, a whole, all the more so an ideal-typical one, relevant to social and economic disciplines, can never equal the mere sum of its parts[23], a global governance arithmetic is built on the cornerstone of population. This methodology is liberated from the social processes, the social explanations of phenomena, the social conflicts, and, most importantly, from the "excess" of poverty.

The "German Foundation for the World Population" is funded by international organizations like the European Commission and the United Nations, banks, institutions and companies. It maintains local partners and country offices that cooperate with government representatives "to raise awareness of the close relationship between population development, poverty, health and protection of the environment in developing countries"[24]. The Foundation places emphasis on the populations in Africa and Asia. With the motto "Empowering people for a healthy future!", the organization focuses (through sexual education and contraception campaigns) on "achieving universal access to sexual and reproductive health services and information, which is fundamental to improving health and effectively fighting poverty"[25]. Birth control practices consist of a combination of humanism, "valid information" and scientific management of life. In this context, the way of coping with poverty in those countries is summarized as follows: "Our aim is to prevent poverty before it occurs". The idea is that to reduce poverty, the dispossessed should use contraception and bring less children to life. This way, population that has now become a variable of the global economic and ecological equilibrium, can be maintained at a stable level.

This is not to say that the interest in population only concerns Third World countries. For instance, the "Sustainable Population Australia" aims at contributing "to public awareness of the limits of Australian population growth from ecological, social and economic viewpoints"[26], but also to restrictions on immigration. One objective is "to promote policies that will lead to the stabilization, and then to

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[22] Facts Everyone Should Know About Population and Population Connection, Frequently Asked Questions, http://www.populationconnection.org/site/PageServer?pagename=about_us, accessed 28.02.2013

[23] Georgescu-Roegen (1971: 328) referred critically to the fact that paradoxically such a view was particularly widespread in the social sciences: "Curiously, the opposition to this philosophy is far more spread among social scientists (and, of course, among philosophers of positivistic strain) than among natural scientists. Max Planck, for instance, overtly recognized that 'the whole is never equal simply to the sum of its various parts'".

[24] See: http://www.dsw-online.org/about/who-we-are/dsw-at-a-glance.html

[25] Ibid.

[26] See: http://www.population.org.au/about

reduction, of Australia's population by encouraging low fertility and low migration"[27]. The criteria serving this objective aspire to be scientific, technical and even politically correct, no more based on racial dimensions, as the aim is "to advocate low immigration rates while rejecting any selection based on race". Thus, the organization exerts political pressure for the restriction on immigration, for instance through articles that correlate the precarity of young Australians with the inflow of migrants[28]. It further sees its efforts as inscribed in a wider standard context, namely "to help promote policies that will lead to the stabilization and then reduction of global population".

Likewise the "Carrying Capacity Network" in the USA, for which H. Daly served as a board member, focuses on the reduction of immigration, at openly higher tones against what it describes as multiculturalism, multilingualism, political correctness and egalitarian demands in the context of "cultural Marxism" to the detriment of Christian culture[29]. Starting from the remark that the "carrying capacity" depends on the land area and population density, a line of attack is deployed against immigration and the policies that are considered detrimental to the American taxpayers, their jobs and the public services, but also their culture:

> "How many people from foreign cultures can anyone society absorb before its own culture breaks down? Already, Americans are losing touch with their own history, their own folksongs, and tales of their ancestors' valor and sacrifice what built our country and kept her safe. Mass Immigration facilitates a Destructive Multiculturalism"[30].

The concept of "carrying capacity", which, as the organization concedes, "is not fixed", becomes finally a tool used against certain populations (mainly those of poor countries). Even further, it becomes a vehicle for strategies of social exclusion, based on such criteria as the purity of national culture, the jobs that belong to the domestic population, and so on. "Carrying capacity" is openly defined as an attribute of the economic, national and social environment, rather than the natural one. Therefore, the question of how many people the *Earth* can or cannot carry, as asked by the previously mentioned organization "Population Connection", is posed by the "Carrying Capacity Network" through society: "How many people from foreign cultures can anyone *society* absorb before its own culture breaks down?".

Population as Subject of "Bottom-Up" Social Action

The second aspect that Rabinow and Rose (2006: 197) correlate with biopolitical power exercised on population, concerns

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[27] Ibid.

[28] For instance, "New immigration minister must heed Monash paper and cut immigration", 12.02.2013, http://www.population.org.au/articles/2013-02-12/mr-new-immigration-minister-must-heed-monash-paper-and-cut-immigration, accessed 28.03.2012

[29] "Cultural Marxism", which is held responsible for the degradation of the American culture, is reviewed by the military historian William S. Lind, in "Who stole our culture?". "Cultural Marxists of the Frankfurt School", is the answer to that question. See: http://www.carryingcapacity.org/alerts/alert0210.html

[30] See: http://www.carryingcapacity.org/alerts/alert0213.html

> "modes of subjectification, through which individuals are brought to work on themselves, under certain forms of authority, in relation to truth discourses, by means of practices of the self, in the name of their own life or health, that of their family or some other collectivity, or indeed in the name of the life or health of the population as a whole."

The examples of actions undertaken by international organizations mentioned in the previous section are characterized by a Malthusian spirit; so too, are appeals for "bottom-up" action with the same objectives. Proponents of degrowth like Kerschner (2010: 546) suggest that the main problem with Boulding and Daly's proposal of "tradable birth licenses" is that it constitutes a "top-down" approach to "such a delicate issue". Since Kerschner disagrees with the means but agrees with the objectives, he considers a "bottom-up" approach to be more effective, in particular along the lines of what he called a "neo-Malthusianist bottom-up women's freedom movement of 1900" (ibid.). Martinez-Allier and Masjuan (2004) are also opposed to Boulding's and Daly's proposal. In their quest for a model of social action, they retrieve from the historical past the example of "women's freedom international social movement" which believed "that population growth could be stopped among the poor classes by voluntary decisions":

> "Women were entitled to choose the number of children they wanted to have. This neo-Malthusian movement did not appeal to the State to impose restrictions on population growth. On the contrary, it was based on 'bottom up' activism based on women's freedom, the downward pressure of excessive population on wages, and the threat to the environment and subsistences. An excess of population was foreseen, and this led to anticipatory behavior" (Martinez-Alier/Masjuan 2004: 1).

In the context of such a model for the reduction of the population of the poor Martinez-Alier and Masjuan (2004: 22) call the feminist movement, which "supports women's right to safe birth control and abortion as part of comprehensive health care", not to see the ideas of neo-Malthusianism on population as "abhorrent" and not to "forget its own historical role in the demographic transitions". Elsewhere, Martinez-Alier and others propose the reduction of world population from the moment it peaks at 8 billion, and ask for a "population degrowth to a steady state [that] should be the outcome of bottom-up action and empowerment of women to control their productive rights" (Schneider/Kallis/Martinez-Alier 2010: 514).

The above pattern of action illustrated by Martinez-Alier and others, consisting of selected moments of the feminist movement as it had unfolded in the pre-World War I historical conjuncture, can be seen as a mode of subjectification in the sense of Rabinow and Rose. Modern feminism is called to act along the lines of population degrowth and evolve to a useful and responsible feminism, ready to mobilize for the needs determined by international organizations and institutions on the edge between science and politics.

But the views expressed by Martinez-Alier/Masjuan (2004) disregard the affinity of the particular instance of the feminist movement with the theory of eugenics. Therefore, feminism in that phase could not be easily characterized as "a successful international social movement" (ibid.). The authors review

Malthusianism in various countries, although Germany is not thoroughly analyzed. Despite the fact emphasized by Allen (2000: 477), that one can by no means assume a "facile connection of German feminism with Nazism or indeed with any other specifically German political tendency", as often done, what she describes as "their enthusiasm for eugenics" should be explained in the context of the internal problems of the feminist movement at the time (ibid.). These problems mark a period of declining radicalism of the first wave of political feminism that started in the mid-19th century (Epstein 2002) and can by no means be compared with the specific historical phases and articulated demands that established feminism as an "emancipatory movement" (Fraser 2011: 151). Likewise, whereas Martinez-Alier and Masjuan praise the contribution of Margaret Sanger to birth control and an environmentalism based on it, other aspects are ignored, like her racist overtones about "those who should never have been born", "do not fit the race" and so on, or the complex interconnections between feminism at the time, social inequality and eugenics (Richardson 2004: 251).

Despite its connotations, the proposal by Martinez-Alier and Masjuan is formulated in a very subtle way that even instills the ideas of participative social action to the aim of population degrowth. On the contrary, this was not the case with Malthusians in late 1960s and 1970s, who advocated openly and often in very high tones for the reduction and control of population. Paul Ehrlich's book with the eloquent title "*The Population Bomb",* but also Garrett Hardin's essay's "*The Tragedy of the Commons"* (1968) and the *"Lifeboat Ethics: The Case Against Helping the Poor"* (1974) were representative examples. To the standard Malthusian requirement for a halt to population growth, the view of the global dimension of the problem was added as well as the conviction that the welfare state allowed for an increase in population leading to long-term immiseration (see Hughes 2000: 42). Hardin (1968: 1246-7) even attacked the "Universal Declaration of Human Rights" drafted by the United Nations in 1967, for its recognition of the exclusive right of families to determine their size. His argument was that the welfare state allowed families, races or even social classes "to secure their own aggrandizement through overbreeding", and openly remarked: "If we love the truth we must openly deny the validity of the Universal Declaration of Human Rights" (ibid.).

Furthermore, Hardin (1968: 1244) noted an abuse of the "commons", perceived as finite resources accessible to all, which lead towards "ruin", because individuals were seeking to maximize their benefits while being exempt of the costs of their choices. In an argument quite reminiscent of Boulding's (1968) view about the "spaceship Earth"[31], Hardin stressed that this "spaceship Earth" should not be confused with "a lifeboat" where poor and rich countries alike, or nations breeding faster than others, are allowed to get on board. The ship should not be overloaded, insisted Hardin, which eventually led him to the following conclusion: "[W]ithout a true world government to control reproduction and the use of available resources, the sharing ethic of the spaceship is impossible" (Hardin 1974: 5).

[31] Boulding (1968: 281), president of the American Economic Association in 1968, referred to "Spaceship Earth", meaning a closed global system: "The closed economy of the future might similarly be called the 'spaceman' economy, in which the earth has become a single spaceship, without unlimited reservoirs of anything, either for extraction or for pollution, and in which, therefore, man must find his place in a cyclical ecological system which is capable of continuous reproduction of material form even though it cannot escape having inputs of energy".

Apparently in the 1970s, the heyday of the welfare state but also a period when a series of criticisms of it were becoming more systematic, demands for population control were directed towards the state and various international organizations that had started to gain an increasing influence. Today, such demands resurge, but to them, appeals are added for a rationalized, biopolitical "bottom-up" exercise of social control over population. As Hughes (2000: 40-48) notes, these ideas echo in many variants (adding the global or environmental dimensions, differing in the rates of population degrowth, the "top-down" or "bottom-up" approach etc.) the main Malthusian idea: since population tends to increase geometrically whereas subsistence means increase at no faster rates than an arithmetic progression, the rise in population leads to poverty, malnutrition, famine, disease and wars. If the poor, according to Malthus, possessed food and other means of subsistence, they would breed and reproduce themselves further, leading eventually to more poverty. Consequently, all efforts to cope with poverty will result in its increase (for a critical overview of the Malthusian arguments Gimenez 1973, Perelman 1972, Perelman 1987, Hughes 2000).

The core of the argument for population degrowth, whether through appeals for a world governance (Hardin), through computational predictions about increasing demographic pressures (Meadows et al.), through the market eugenics of "tradable birth licenses" (Boulding, Daly) or through calls to feminists for a participatory "bottom up" population degrowth (Martinez-Alier/Masjuan), remains unchanged over time: an objective "problem" exists, namely "excess" of humans on Earth, which transcends social relations or conflicts. The problem's solution is a priority as dictated by the laws of nature.

An Old Debate: "Overpopulation" as "Relative Surplus Population"

> *"The Malthusian terms 'overpopulation' and 'pressure of population on the means of subsistence' are inherently no more or less scientific than Marx's terms 'industrial reserve army' and 'relative surplus population', even though there is a predilection among unsophisticated analysts to regard the former phrases as adequately scientific and the latter as purely ideological" (Harvey 1974: 257).*

In their reply to the criticism by the Sussex team, published as the last chapter in "Models of Doom" (Cole et al. 1973), the authors of *Limits* (in Cole et al. 1973: 240) conclude, in an effort to defend their case for action in view of an imminent collapse, by quoting a passage by Malthus. In this, Malthus noted that overpopulation did not only concern a safely distant future but had *already* become a tangible threat in his days. Malthus's (1830) own words quoted by Meadows et al. are the following: "The pressure arising from the difficulty of procuring subsistence is not to be considered as a remote one which will be felt when the Earth refuses to produce any more, but as one which actually exists at present over the greatest part of the globe."

But what kind of threat is this that has remained constantly *urgent for two centuries*, from late 18th century when Malthus' work was first published, through 1973 when the above passage was reproduced by the authors of *Limits*, up to now when the degrowth program invokes it once again? Why does the issue of "overpopulation" resurge more or less intensively in certain phases of capitalism, particularly

those of crisis, in a fashion so reminiscent of the "science of population" described by Foucault? Galtung (1973: 105-106) fairly wondered how the Meadows team failed to notice that the grim scenarios of hunger, poisoned air and food, disease and misery were not a future threat, but actually the norm in the everyday life for millions of residents in slums and poor countries around the globe, and had, indeed, been the condition of existence of the poor in metropolitan areas since the beginnings of capitalism. In other words, if natural causes will bring about population degrowth in the 21st century, as *Limits* claimed, social causes have already rendered the "excess population" a constant characteristic of the historical capitalism *throughout the whole duration* of that stage.

The critique of Malthusianism is as old as Malthusianism itself. Marx (2000: 359, 447) saw the author of the *Essay on the Principle of Population* (1798) as one who expressed the fears and reactions of the ruling classes that felt threatened by the impact of the French Revolution, and sought to promote the workhouses and represent poverty and wealth as natural phenomena. For Marx, Malthus reified scarcity and overpopulation by representing capitalist relations as timeless and eternal laws of Nature[32].

The method introduced by Malthus was the one of logical empiricism, in which he made postulates about human needs and population in the context of certain conditions, deduced certain consequences, and then used the empiricist method to verify his deductions (Harvey 1974: 258). Some of his postulates were that "misery has to fall somewhere" and that the misery of lower classes results from natural laws "independent from all human regulation" (see Harvey 1974: 258-260). Since "overpopulation" of workers leads to an excess supply of labor and fall of wages, "poverty and unemployment are, therefore [for Malthus], only the result of the workers' natural propensity to reproduce beyond the available means of subsistence" (Gimenez 1973).

The Malthusian view differs radically from Marx's one about the "relative surplus population". Whereas Malthus gave his postulates the status of natural law through the empiricist method, Marx was not interested in "things" understood outside their socio-historical context, but in social relations and processes that changed these relations: "For example, 'resources' [in Marx] can be defined only in relationship to the mode of production which seeks to make use of them and which simultaneously 'produces' them through both the physical and mental activity of the users" (Harvey 1974: 265). The "relative surplus population" or "industrial reserve army" was a substantial dimension of capital accumulation, in a framework where not only nature was offered gratis to the capitalist, but also the possibility of a reserve of readily available and flexible work force with limited demands:

> "But if surplus laboring population is a necessary product of accumulation or of the development of wealth on a capitalist basis, this surplus population becomes, conversely, the lever of capitalistic accumulation, nay, a condition of existence of the capitalist mode of production. It forms a disposable industrial reserve army, that belongs to capital quite as absolutely as if the

[32] "But the conservative interests, which Malthus served, prevented him from seeing that an unlimited prolongation of the working-day, combined with an extraordinary development of machinery, and the exploitation of women and children, must inevitably have made a great portion of the working-class 'supernumerary' […]. It was, of course, far more convenient, and much more in conformity with the interests of the ruling classes, whom Malthus adored like a true priest, to explain this 'over-population' by the eternal laws of Nature, rather than by the historical laws of capitalist production" (Marx 1926: 580).

> latter had bred it at its own cost. Independently of the limits of the actual increase of population, it creates, for the changing needs of the self-expansion of capital, a mass of human material always ready for exploitation" (Marx 2000: 517).

Setting aside part of the workforce, adopting various means to increase productivity (i.e., technological improvements, foreign investments, etc.) and finding new sources of profit – the "relative surplus population" was their necessary and sufficient condition: "The whole form of the movement of modern industry depends, therefore, upon the constant transformation of a part of the laboring population into unemployed or half-employed hands" (ibid.: 518). The "relative surplus population" becomes alternately useful or useless through the weakening or strengthening of various production sectors, improvement of technological means and crises, and plays a crucial role in the regulation of wage levels. Thus, the "principle of population" is a flexible one, adaptable to the needs of capitalist accumulation. But even Malthus was able to see that the accumulation process could not continue undisturbed, if the poor were constantly excluded from the sphere of consumption and proposed a patch: since the poor by definition would not always be able to consume all they produced, the remaining option for capitalists was according to Malthus to sell part of the product to the aristocrats, so that production could go on, whereas workers, on the other hand, should reduce their population (Marx 2000: 447-448).

Just as the "relative surplus population" becomes "overpopulation" and the social limits become physical limits, so too is "scarcity" ambiguous. *Limits,* for instance, fails to distinguish between economic and physical scarcity (Mahnkopf 2013: 21). The neo-Malthusian analysis disregards the "scarcity of employment owing to the concentration of the means of production under the control of a small class of capitalists operating according to the logic of profit and competition" (Perelman 1987: 31). Marx's (1926: 696) ironic tone, when he writes about the logic of the "beau ideal of a capitalist" with "words addressed to those supernumeraries thrown on the streets by their own creation of additional capital", is justified: "We manufacturers do what we can for you, whilst we are increasing that capital on which you must subsist, and you must do the rest by accommodating your numbers to the means of subsistence" (ibid.).

Clearly, neither Marxists nor Malthusians could really predict the future or the end of the Earth or of the economy. But, the objectivist view of population and poverty in the Malthusian analysis is sociologically sterile as compared to the Marxist idea that limitations to development cannot be inferred by natural laws, nor are they placed outside the historical and social relations of power. On the contrary, they reflect exactly these social relations as well as the kind of ecological, scientific and technological developments that these relations allow to take place.

Marx's view, as expressed in the particular field of farming, was that problems concerning natural resources emerge not simply due to the Earth's over-exploitation *in abstracto,* but because a specific mode of a profit orientated production, avoids long-term projects of soil regeneration, soil conservation, forestry and so on (see Perelman 1987: 36-42, 47-48). In other words, Marx's idea is that projects which can preserve the natural resources are confronted by the very logic of capital. The main Malthusian idea is exactly the opposite: there are projects that can preserve the reproduction of capitalism but they are confronted with the problem of limited natural resources.

Degrowth's Perspective on Labor

The resurgence of growth critique after its first systematization in the 1970s brought to the foreground a variant of the debate that originated with Malthus and Marx. In the topic of overpopulation and of the preservation of ecological limits, labor occupies a central position in a series of proposals, practices and modes of subjectification, in which the economic, ecological and the spiritual/moral dimensions are woven together. Latouche's (2011: 65) perspective is indicative as he blends the idea of economic degrowth with culturalist arguments. By making frequent use of Castoriadis's terminology, he stresses the need to "decolonize" life styles from economy and consumption, liberate the "social imaginary" from the faith in the domination over nature and establish an "autonomous society". He reiterates proposals and suggestions already found in *Limits* and Georgescu-Roegen's as well as Daly's works in the 1970s (renewable energy sources, organic farming, "solar economy", giving up built-in obsolescence of commodities, recycling etc.) and emphasizes the need for "re-localization" and weakening of sectors like the ones of advertisement, mass tourism, transports, automobile industry etc. (Latouche 2011: 78-80).

Whereas steady state supporters in the 1970s avoided to express political views directly, Latouche (2011: 66-68) ascertains his program belongs to the political Left because it criticizes the consumerist society, drawing from socialist ideas. Growth, according to Latouche, is just another name for what Marx described as unlimited expansion of capital. On the other hand, he notes: "a critique of capitalism is not enough: we also need a critique of any growth society. And that is precisely what Marx fails to provide" (2009: 89). He faults Marx for providing a program of growth comparable to capitalism, which Latouche names "productivist socialism" (ibid.). Since Marxist analysis is seen as incapable of integrating ecological constraints, it ends up, according to Latouche (ibid. 90), "meaning a more or less violent revolution in the status of those who have a right to a share in the fruits of growth".

Growth, in Latouche's view, acquires a super-historical meaning encompassing both the concept of capitalist growth and the Marxian understanding of the development of productive forces, only to reject them altogether. The very institutions that frame capitalism, like money institutions, markets or even the wage labor system, are treated in an equally super-historical spirit, but this time, with the aim of their preservation rather than rejection. Since the problem is set in terms of practices rather than structures or institutions, and the latter are perceived to a great extent as more or less autonomous from capitalism, his suggestion about "*embedding them* in a different logic" (ibid.: 92, emphasis Latouche) comes as a logical consequence. Societal organization is seen mainly as a sum of several immutable economic elements and relative distinct social levels, some of which are to be rejected because they alienate social behavior and incarnate the "colonization by the economic imaginary".

At a practical level, embedding the institutions "in a different logic" would be possible, according to Latouche, through a taxation and price-setting policy based on the internalization of external diseconomies and the obligation of firms to pay for the health risks and harm inflicted upon society (due to use of nuclear energy, climate change, genetically modified food and so on). This would reduce the ecological footprint and save resources to the benefit of the poor, to improve public transport and invest in recycling technologies. Such a policy would eventually lead to degrowth, as it would render the "firms

that acted in accordance with the logic of capitalism […] no longer [...] profitable" so that "the system would come to a halt" (ibid.: 74).

But ultimately this is *not* a realistic option, Latouche argues. Actually, if any government implemented these reforms, which if "taken to their ultimate conclusion would bring about a real revolution" (ibid.), it would clash with the "global plutocratic oligarchy". The leaders who would apply them would suffer the fate of Salvador Allende who was killed for a "much less subversive" program (ibid.: 75-76). In other words, while Latouche starts to present his program with a radical tone, he then goes on to argue for the unrealistic and futile character of social change. As the "global plutocratic oligarchy" is considered as omnipotent, the perspective of resistance is rejected because it would lead to terror and chaos (ibid.: 91). What is needed therefore, is a "gentle transition and very gradual measures" for a "change in direction" (ibid.). To this purpose, traditional political means as, for instance, the creation of a political party, are excluded to avoid the trap of mere politicking[33].

Latouche's program (ibid.: 33-51) of "virtuous circles" is based on the "eight R's": re-evaluate, re-conceptualize, restructure, redistribute, re-localize, reduce, reuse and recycle. To *re-evaluate* means to acknowledge that such qualities as "public service and the transmission of knowledge" are "old 'bourgeois' values" that have lost their power (ibid.: 34). A turn must thus take place: altruism instead of egotism, cooperation instead of antagonism and leisure instead of work. To *re-conceptualize* equates, for Latouche, with a redefinition of the concepts of scarcity and abundance as opposed to the artificial scarcity of resources brought about by economy. In his discussion of what it means to *restructure* and on the issue of "a productive apparatus that has to be adapted to the paradigm shift" towards a degrowth society, Latouche (ibid.: 36) merely announces that "we will examine that at the appropriate moment". The lack of a clear answer may not be incidental but it is perhaps related to the admission that "we do not dwell on a specific critique of capitalism because […] there is no point in stating the obvious" (ibid.: 89).

To the question of how to *redistribute* from the North to the South and how to "pay off the ecological debt" owed to the South, the solution is given by the markets, for which, Latouche proposes more participation in "drawing rights", that "would encourage the exchange of quotas and permits to consume". Then Latouche explains that this is not "a way of commodifying nature a little more, but a way of introducing a certain suppleness into how its limitations are managed" (ibid.: 37). But, despite these remarks, it remains unclear what kind of redistribution will take place as a result of more market flexibility as suggested, all the more so, after several decades of neoliberalization and over-expanding markets. To *re-localize* means for Latouche (ibid. 38) to envision a production which, "contrary to ideas", must respect frontiers and rely merely on local supply and demand, whereas the movement of commodities and capital must be restricted to essentials.

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[33] To the extent that certain political options lie in the direction of "change of attitudes" that he describes, they would be acceptable. Given that "[e]ven though left-wing governments adopt right-wing policies and, because they do not dare to 'decolonize the imaginary', condemn themselves to social liberalism" (Latouche 2009: 93), the proponents of degrowth who pursue a convivial, peaceful and sustainable society, "can tell the difference between […] the values of sharing, solidarity, equality and fraternity [and] those of the freedom to do business (and to exploit)" or in other words "between Jospin and Chirac, Royal and Sarkozy, Schröder and Merkel, Prodi and Berlusconi, or even Blair and Thatcher" (ibid.: 94).

To *re-use/recycle* is one of the few Latouche's "R's" concerning capitalist firms rather than labor, but this is only intended to praise some environmental friendly initiatives by firms like the Swiss companies Rohner and Design Tex, the German chemical company BASF and others. Although these innovations "put both manufacturers and consumers on the 'virtuous' path", the problem, Latouche (ibid.: 41) explains, is one of political will because the state does not provide enough incentives for such innovations.

To *reduce* refers, once again, to the reduction of consumption. But this is not restricted only to such measures as reducing mass tourism and "kilometric consumerism". Latouche (ibid.: 38) mostly promotes the reduction of working hours, which in turn "must go hand in hand with the possibility of changing one's job as the economic situation changes or at different times in one's personal life". Wage-earners should be flexible enough to change employment and move to different sectors like, for instance, in agriculture, in the transport sector, in education or in sports schemes, but also to focus on their talents that extend far beyond the jobs and to liberate themselves from the "addiction to the job" and the "tragedy of productionism" in favor of leisure, the pleasure of freedom, spiritualism, mediation, the joy of being alive etc. (ibid.: 40-41). As a conclusion:

> "Although the unions are, for the moment and for understandable reasons, hostile to them, temp agencies, which are popular with both employers and workers – because of the variety of jobs they offer – represent a step in the right direction. We just have to see them in a different light." (ibid.: 40).

In a similar spirit as in Latouche's proposals, Mylondo (2008) argues that it is necessary to establish a basic income, which implies "generalizing optional work, part time work or temporary work and proportionally increasing the amount of time devoted to leisure and extra work activities". The point is to preserve the "incentive to work" and some suggested measures in this direction are laid out as follows:

> "1) Increasing wages in sectors that are short of labor would probably be a financial boost to work. 2) Decreasing economic activity due to dissociating income from work would immediately mean a proportional decrease in this income. This decrease would result in re-boosting the financial incentive to work according to a pendulum effect. 3) The main means regulating the likely decrease in economic activity lies in the amount chosen for the basic income." (Mylondo 2008: 174).

The suggestions by Mylondo raise the question whether the idea of "dissociating income from work" would lead, perhaps, to the creation of one more alternative "relative surplus population", unrecorded in official unemployment statistics, as it would consist of basic income beneficiaries. It is suggested that the reason why the basic income should be kept low is to avoid an increase in consumption. But, most likely, basic income would not only concern the unemployed persons. It would mainly function as a benchmark to keep wages of the employed at low levels. If production did decrease in the way Mylondo describes, the competition between the employed and the unemployed would get more intense and wages further compressed. This means that large numbers of unemployed would be readily available to

work and equally large numbers of employed would be threatened of losing their jobs and fall into the basic income category.

Similar ideas had already been conceived by Daly (1991: 53) as, for instance, his assumption that some minimum and maximum limits of income and a maximum limit on wealth would eliminate monopolistic practices. For capital, Daly claimed, this measure would mean a weaker incentive to accumulate excessive wealth. As for labor, such a plan would have an additional benefit: "the minimum income would enable the *outlawing of strikes*, which are rapidly becoming intolerably exploitative of the general public" (Daly 1991: 55-56, emphasis added).

The Responsible Social Subjects of Degrowth

In analyses like the above, there is a tendency to rename questions of social relations of power, social distribution and, most of all, of the economy-society tension, as if they fell into apolitical categories, e.g. natural laws, technicalities or anchoritic spiritual values. It could then be argued that from Latouche's "eight R's" list (which he expands, in a footnote, by various more "R's" like: radicalize, reconvert, redefine, reinvent, resize, remodel, rehabilitate, reduce speed, relax, render, repurchase, reimburse, renounce, re-think) there is another one missing: *rename*.

Just like in the *Limits* debate in the 1970s, what is renamed in degrowth's program is the reality of social processes and conflicts. These are reconceptualized as socially neutral and the emphasis is placed on reduced consumption and consciously chosen "simple" life-styles for the lower classes. Capitalists' main obligation is to search for environmental-friendly innovations, although even then, the state is faulted for not providing enough incentives to them (Latouche 2009: 41). On the other hand, workers are required to bear the burden of the transition to the degrowth era: they must voluntarily limit their demands for stable employment, perceive the expansion of labor flexibility as an opportunity to unfold their talents in their spare time or devote themselves to spiritualism, but at the same time be ready, if needed, either for training or for unskilled vacancies. Furthermore, within a sui generis form of responsibilisation, workers should be willing to exempt the state of the task to provide welfare services, which are considered as old-fashioned and detrimental to degrowth and autonomy, and should compromise on low wages[34].

These approaches are reminiscent of *Small is beautiful*, an essay that appeared in 1973, in which Schumacher (1989) argues against the "modern materialist way of life" (ibid.: 56). The author advocates for "Buddhist economics" which "sees the essence of civilization not in a multiplication of wants but in the purification of human character" (Schumacher 1989: 59). Disciplined labor is neither an economic cost as the employers see it, nor a necessary evil as the employees see it, but an irreplaceable "nourishing and enlivening factor" (ibid.: 59). Then, the author seems to sympathize with the

[34] Specifically the issue of wages has been critically discussed, even by proponents of degrowth. In a hypothetical society with less capital, less energy and fewer resources per hour of labor, decent salary for workers would be improbable. Since wage levels depend on the surplus generated in the context of the productive process, "[i]n an economy operating without the boosting effect of technology, fossil energy, abundant resources, favorable terms of trade (and debt making) it is very naive to expect that it will be possible to reduce the working hours without reducing the income of the workers" (Sorman/Giampietro 2013: 91).

unemployed, whom he sees as someone always willing and ready to work, not only because of a vital urge to secure an income, but also because of the need for enlivening disciplined work. In practical terms, "Buddhist economics" would aim at full but cheap employment, whereas female labor would be a sign of "serious economic failure", as "women do not need an 'outside' job" and letting the children alone to go to work would be "uneconomic in the eyes of a Buddhist economist" as much as employing a skilled person as a soldier (ibid.: 60).

Correspondingly, in the international arena, developing countries should not be interested in a Western type industrialization, leading to urbanization and unemployment, but in small scale production based on local raw materials and geared towards local consumption, with cheap labor positions, because the urgency lies in employment and simple production methods that require no special skills, rather than the level of wages. In a spirit quite similar to Schumacher's, current movements skeptical of growth are called to exert pressures on the state, so as to secure a legal framework in favor of individualistic life-styles and personal choices in the direction of post-consumerism, as for instance is the case for aims and demands aligned with the "Voluntary Simplicity" movement (Alexander 2013).

At first sight, degrowth proposals about labor appear as a relatively apolitical assemblage of ideas that seek to provide technical, neutral or "smart" solutions to social problems. However, several elements in degrowth align it with the already existing neoliberal perception of labor: the promotion of entrepreneurial-friendly strategies, like the "temp agencies", and the conviction that free market can improve the ecological problem if allowed more participation, if societies are exempt from the "problem" of labor and states from the "burden" of welfare provisions. Besides, approaches that argue that "flexible labor" helps in developing one's talents, personal skills and so on, have been confronted by studies showing that the majority of subjects under such conditions actually do not experience their precarity as an "art of survival" (see Dörre 2013: 391). The fact that precarization is expanding in low-paid, flexible jobs, in the services sector, in the non-profit sector and where unions are weak or absent (Dörre 2009: 63), shows that such plans for labor as the ones suggested by proponents of degrowth do not concern the future, as often claimed. On the contrary, they are already in place, even in Europe's strongest economy, Germany (and much more so after the Hartz IV reform) – not to mention countries under austerity programs like Greece[35].

In this frame, as Foster (2011: 4) notes, degrowth proposals are, in the final analysis, "keeping the underlying structure of capital accumulation and markets intact". That for instance Latouche's work, "which can be viewed as exemplary of the European degrowth project, is beset with contradictions, is resulting not from the concept of degrowth *per se,* but from his attempt to skirt the concept of capitalism" (ibid.). In such a context, the message sent by "the multitude of attempts to humanize capitalism, from eco-capitalism to Basic Income capitalism", is, as Zizek (2012: 16) notes, that "we should leave the

[35] In Greece, unemployment more than doubled within the first three years of austerity and reached 26.8 % in August 2012, while more than 57% of the population between 15-24 years old is unemployed (Eurostat 2013). At the same time, from 2010 to 2012 uninsured labor increased by 44%, reaching 36% of employees in 2012, while precarious labor is intensively spreading (Hellenic Republic, Ministry of Labor 2013).

capitalist beast to its own proper functioning, accepting that markets have their own demands that should be respected, that any direct disturbance of market mechanisms will lead to catastrophe […]".

If the views of degrowth proponents on labor, are combined with their views about "overpopulation", the problem is set in purely Malthusian terms: the poor that should not require a big share from the produced wealth, must either reduce their number or act *as if* their number had already been reduced (in Ehrlich's terminology, reduce their "impact"), by not appearing in unemployment statistics, withdrawing in peaceful communities, responsibly reducing their consumption, being activated in an anchoretic style in favor of the objectives of ecological capitalism and so on. Once placed in a Malthusian context, the problem has a Malthusian solution. It is not only nature that should be understood (especially by workers and the unemployed) "as something ultimately Sacred, something that should not be unveiled totally, that should and will forever remain a Mystery, a power we should trust, not dominate" (Zizek 2007: 8). Most importantly, it is the system of social relations of power that should, in a fantasy of social statics and equilibrium, remain a "mystery".

In that sense, Quilley's (2013: 19-22) concerns are not substantiated, when he sees degrowth with its *gemeinschaftlich*, neo-traditional character shaking what N. Elias described as the "civilizing process", a course towards capitalism, the division of labor, the taming of individual impulses and the internalization of the norms of the state monopoly of violence. On the contrary, degrowth plans reviewed so far show that such communal aspirations are not in conflict with the capitalist system. The emphasis is mostly placed on reduced consumption for the poor, but not, for instance, on a "de-accumulation" process (Foster 2011: 7), which would then be hampered by an omnipotent "global plutocratic oligarchy" (Latouche 2009: 76).

Thus, despite an often apt criticism of consumerist patterns and life-styles, degrowth's proselytizing tone, and its class-neutral analysis, reflect a number of modes of subjectification, promoted as "post-political", that is, as "a politics which claims to leave behind old ideological struggles and, instead, focus on expert management and administration", merged with "'biopolitics' [which] designates the regulation of the security and welfare of human lives as its primal goal" (Zizek 2007: 7). But, this "post-political" line of analysis, which also characterized growth critique in the 1970s, is actually highly political for a number of reasons, two of them being discussed in the next section.

Growth Critique and "Good Governance"

The first reason why the "post-political" approach in the discourses critical of growth of the 1970s and the current one, as examined so far, is actually *political*, is that they reflect, evolve in parallel with and conform to the transformations of the welfare state. To assume, as Keyder (2011: 160) does, that "the programs of the welfare state have not been dismantled in advanced capitalist societies" and that simply the welfare state "did not evolve or keep up with the increasing demands" (ibid.: 161) is an inadequate interpretation. The 1970s crisis was followed by the transformation of the welfare state according to the patterns of the "competition state" (Hirsch). Promotion of competitiveness, entrepreneurial values, managerialism and labor flexibility (not only at the level of the nation-state but, after the 1992 Maastricht

Treaty, at the level of European Union as well) instead of the policies of Keynesian welfarism of the previous period constituted some of the aspects of the "Schumpeterian workfare post-national regime" (Jessop 2002: 225).

These aspects were combined with a state-promoted shift of tasks to international organizations on the one hand and society on the other, for instance in the context of "good governance". The programs of "good governance" promoted by the IMF and the World Bank originated from the macroeconomic plans of the late 1970s for the "development" or "restructuring" of African and Latin American countries (Rhodes 1996: 653). Fiscal discipline, strengthening of the banking system, privatizations, competitiveness, labor flexibilization and a market-friendly restructuring of public administration were gradually adopted as criteria of reliability in order to provide loans to these countries. But, with increasing welfare deregulation and neoliberalization over the last decades, the principles of "good governance" ceased to concern exclusively countries under economic surveillance and gradually became indicators of sound governance in developed countries as well[36]. In such a context, "good governance" in the era of neoliberal globalization is not only promoted by international organizations for countries under economic surveillance, but also exerted more or less systematically elsewhere by "entrepreneurial governments"[37]. "Good governance" is reflected on various levels:

- At the *macroeconomic* level, it meant fiscal discipline, public spending cuts, privatizations, neoliberalization and a monetary economic policy that was becoming independent from that of the separate nation-states.

- At the level of *public administration*, it expressed the adoption of criteria of New Public Management, "sound management" of public services, measurability and evaluation of the produced output, outsourcing, emphasis on efficiency, performance management, introduction of "smart" practices from private economy and standardization (Friedrichsmeier 2000: 48).

- At the level of *labor*, it was combined with policies of responsibilization, as, for instance, conceptualizing labor as a means of self-development and personal strengthening, promoted together with a pattern for social subjects as "entrepreneurs of themselves" (Du Gay 2000: 66)

- At the level of *social policy* it was related with an understanding of "active subjects" as bearers not of social rights but of social obligations through a "neo-social" emphasis on prevention and the "construction of a socialized self", for instance, people taking care of their health to avoid diseases, saving privately to secure income in old age, or investing in life-long learning to prevent loss of productive capacities etc. (Lessenich 2011: 312).

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[36] For instance, Camdessus (1998), IMF's Managing Director in 1998, stressed the need for a new "architecture in a globalized world" and set the question of "good governance" as "equally essential for strong economies and properly functioning democracies" among other priorities as "[g]reater transparency and availability of economic information, adoption of standards and dissemination of best practices, a continuous strengthening of IMF surveillance, the orderly liberalization of capital movements, and better private sector involvement in crisis prevention and resolution".

[37] According to Osborne and Gaebler (1992: 19), "entrepreneurial governments promote competition between service providers. They empower citizens by pushing control out of the bureaucracy, into the community. They prevent problems before they emerge, rather than simply offering services afterward. They measure the performance of their agencies, focusing not on inputs but in outcomes. […] They put their energies into earning money, not just spending them. They decentralize authority, embracing participatory management. They prefer market mechanisms to bureaucratic mechanisms".

- At the field of *security* against deviance, which is no longer explained by social causes but mainly by the delinquents' rational choice, it promoted a logic of preventive self-protection by means of partnerships, communities, semi-autonomous organizations and private security markets (Markantonatou 2004).

- At the *ecological* level, it is, finally, related with a similar logic of prevention, individualization of risks and activation in the frame of sustainability; in concerns, for instance, for a "good planet"[38], or for a "good life" centered around the harmonious reproduction of capitalism, happiness, personal satisfaction and physical well-being (Schuler 2009).

The second reason why the post-political line of analysis is *political* lies in the tendency to de-historicize capitalism and present it as socially neutral. Capitalism is not discussed with regard to its specific forms as a system of social relations, but *in abstracto*, as an "economy" producing goods and services to be consumed. As Brand (2012: 10) notes, the critique of growth of the "economy" in general downplays its capitalist and "*authoritarian content*" (emphasis Brand). That is why Brand (2012: 11-13) suggests that growth critique should draw from Marxist and feminist critical theory. But, contrary to what Martinez-Alier and others propose, this feminist critique to be integrated with the growth critique cannot be of the kind of the Malthusian feminism. Rather, it should be one that focuses on the structural tendency in capitalism to exploit nature, on the distinction between formal labor and the reserve labor of precarious workers, women, immigrants and others. Similarly, a Marxist critique to be part of growth critique could not be limited to merely recognizing Marx's contribution to the critique of capitalist expansion in general, as for instance Latouche does. Rather, it should encompass the examination of the specific, at each time, articulations of class forces that allow for the uninterrupted commodification of nature, and the continuous tendency of capitalism to conquer hitherto non-commodified social spheres.

Thus, in the framework of its "post-political" analysis, what is at stake in degrowth is finding ways for capitalism (as a system of *social* relations of power) to be reproduced within a system of natural constraints to which degrowth draws attention. In this sense, Zizek's (2007: 8) criticism is justified: "although ecologists are all the time demanding that we change radically our way of life, underlying this demand is its opposite, a deep distrust of change […]".The priority lies, thus, in harmonizing behaviors with the "objective" natural constraints, while accepting an equally "objective" framework of power relations. Under circumstances of faltering or infeasible capitalist growth and during phases of transformations of its methods or of its profitable sectors, what has to be restored, maintained and preserved is capitalist stability. These phases are ones of crises, like in the 1970s and 2008. It is during such times that the critique of growth resurged actively.

Comparing Growth Critique in the 1970s and 2008 crisis

The two growth critiques discussed so far, the one of the 1970s and the one of the last decade that thrived especially after the 2008 crisis, have been examined with the implicit premise that there is no

[38] About the agenda of a "good planet", see for instance the PNB Paribas funded, "Good Planet" organization, http://www.goodplanet.info/eng/

ahistorical critique of growth in general. Critique is inscribed in a socio-historical framework, concerning each time a *specific* mode of *capitalist* growth and a *specific* mode of its institutional regulation. Both discourses of growth critique have a historical background marked by the two most severe economic crises of postwar capitalism and attempt to formulate several proposals to address the impasses of the growth model of their era by drawing from emerging options that could operate as prospective antidotes to the crises.

As discussed in the first sections, the MIT team made extensive use of the emerging computer technologies of the 1970s in order to derive its scenarios on the ecological limits – a sign of the increasing importance of these novel technologies. Not only did these technologies create a new market and opportunities for business and profit, but they also formed the basis for the post-1970 growth of the era of globalization, open markets, credit liberalization, and the emergence of various complex financial products. They influenced all fields, from the production process that saw a productivity growth due to the widespread application of computerization in the industry in the 1990s (Panitch/Gindin 2011: 7), to consumption and individual life styles, to the field of digital, precision and information warfare through the so called "Revolution in Military Affairs" (Tilford 1995).

The specific growth model that followed industrial Keynesianism and constituted degrowth's (and other relevant currents') socio-historical background is one of interweaving real economy with global finance. That was considered by critics of growth to be detrimental to small agricultural production and domestic economy. The 1970s ecological discourse was related to emerging technologies and so, too, is degrowth (for instance in the fields of energy, green innovations etc.). But, whether recent scientific and technological findings will form once again, like in the 1970s, the basis of a new cycle of capitalist accumulation remains an open question. The answer depends on whether these innovations will be able to form a fertile ground for capitalist investment and whether the dominant articulations of social and political forces will allow it.

However, it is clear that the electronic and computer innovations in the 1980s and onwards, accompanied by the "financialization of corporations and the financialization of workers as savers and consumers" (Panitch/Gildin 2011: 8) and the deregulation of the welfare state, led, as Chirot (2011: 130) describes, to growing income inequality. Similarly, to the extent that the new communication, energy and green technologies remain trapped in the realm of neoliberalism and their exploitation takes place in a regime of precarity and labor deregulation, it cannot be hoped that they will contribute to the mitigation of local or global inequalities, all the more so in an era of crisis. Besides, the crises did not occur outside those inequalities. Given that, as Panitch and Gindin (2011: 14) remind us, "global economy is both nationally asymmetric and class-structured", it is not incidental that the lower social classes, US's "most desperate underclass" (Schmidt 2008), wage earners and precarious workers in a number of countries, as well as the weakest European economies, were the ones to be harder hit by the model of global financial neoliberalism.

Whereas before the stagflation crisis of the 1970s consumption was encouraged through the Keynesian model of domestic demand and the rapid mechanization of production allowing the emergence of new

consumer goods (Hobsbawm 1994: 264), soon after the crisis wage cuts and the recession caused its reduction. Post-war growth rates, that had ranged from 6% in North America and Europe to about 10% of GDP in Japan and had started to decline already since the late 1960s, fell to about half their initial levels or even less in the next decades (The World Bank). When growth rates became somewhat stabilized – though without ever regaining the momentum of the "golden years" – and new financial products were invented, consumption (this time, in the areas of real estate, private loans etc.) was once again encouraged through credit liberalization. These methods not only allowed a certain degree of growth (for as long as it could last), but also partly replaced Keynesian welfare provisions. The latter were now either fully privatized or subjected to market competition with corresponding private services offered next to public ones in the areas of health, education and social care. In this sense, the roots of the 2008 crisis are traced back to the crisis of the 1970s. On the other hand, certain aspects that distinguish the two crises should not be underestimated. The recent one was not triggered by inflation but by a banking and mortgage crisis in the US (Mahnkopf 2013: 9); various tools to manage the crisis like currency devaluation and a certain employment protection in the 1970s (such as severances and restrictions on massive dismissals) became unavailable in 2008 (Pontusson/Raess 2012: 25); trade unions had already been weakened since the 1970s crisis (Streeck 2011); and the 2008 crisis had a much more profound effect on financial institutions than all the previous financial panics and crises since the 1970s (Schmidt 2008).

In the 1970s, national working classes and their unions pressing for a rise of living standards were held responsible for the "ungovernability" of society and for various "excesses", as discussed in previous sections. Neoliberal rhetorics after the 1970s invoked different kinds of "excesses" combined together, e.g. those of consumption vis-a-vis the limited natural resources with those of labor rights and social demands. In the context of the unfolding crisis from 2008 onwards, it was not only domestic working classes that had to bear the costs through the socialization of banks' losses, but also some new subjects "evaluated" by the markets: "profligate" countries (with their overloaded public sectors, debts and deficits) "living beyond their means", for which "working and disciplined" nations had to pay; countries with problematic banking sectors, like Spain, Ireland or Cyprus, which otherwise could not have existed outside the financial capitalist system that created them, and yet found themselves in the epicenter of the crisis when that model was shaken.

Although before the 1970s mass consumption was part of the industrial growth model from which the national monopoly sector benefited (O' Connor 1973: 14) and in the era of neoliberalism it was part of the financial growth model in favor of various national and international capital fractions, the crises were more severe for those who lacked the means to protect themselves. If the crisis of the 1970s led to serious defeats of the trade unions[39], after the "Great Bailout" in 2008, a struggle began in the US, in the form of a "war against indigenous lands, public services, unions, and communities of color" (McNally 2011: 2). The consequences for labor were equally dramatic for the Eurozone, not only hitting hard

[39] Such labor defeats include the firing of striking air traffic controllers', members of the PATCO union, in 1981 by the Reagan administration, Thatcher's attack on the National Union of Mineworkers in 1985, or the events in Bolivia when troops were used to crush the tin miners union in 1986 (see McNally 2011: 46).

Greece (Markantonatou 2013) and other economies of the South, but also endangering the remaining welfare state and the trade unions in Europe as a whole (Busch et al 2012).

The 2008 "Great Bailout" and the gradual mutation of private debt to public, led to a dramatic rise in public indebtedness, which had been widely invoked to justify serious welfare cuts and privatizations of public utilities and services over the last decades. Thus, although the 2008 crisis emerged as one of the banking system and finance sector, the socialization of private losses led to a fiscal crisis, even if this time there was no inflation to blame. This *new fiscal crisis of the state* brings back to light James O'Connor's analysis about the crisis of the state in the 1970s.

In the era of postwar prosperity until the late 1960s, when both monopoly capital[40] and union leaders feared that the "relative surplus population" would shake the fragile class compromise of that period, the welfare system was, as O'Connor (1973: 41) described, desired by all parts. Two developments challenged the attitude of the main corporatism's actors. First, the gradual decrease in profit rates for the monopoly capital due to inflation, and, second, the widening gap between public spending and revenues due to disinvestment and rising unemployment (O'Connor's "fiscal crisis of the state"). As a result, the new direction for labor was becoming visible:

"Certainly, the 'free' collective bargaining developed since the World War II in the monopoly sector will have to be changed substantially (perhaps dismantled entirely) to make the complex work" (O'Connor 1973: 222).

In the new circumstances, the competitive capital, which did not rely on welfare spending and social programs to reproduce itself, would reject such policies and consider unemployment and the surplus population as a "natural" concomitant of free markets, such as, for instance, an industrial bankruptcy; also monopoly sector's unionized workers, who were experiencing the weakening of their sector, opposed social programs such as training because they were concerned about the taxes they would pay and about the possibility that the surplus population would become more competitive (O' Connor 1973: 221-222). In those circumstances, monopoly capital and the state had "to attempt to solve the fiscal crisis and the problem of inflation, on the one hand, and the problem of insurgency and radical movements among the surplus population on the other" (ibid.: 223). The rest of the story is known.

In the current crisis from 2008 onwards, the developments are similar, one important difference being that the fields of conflict do not concern only the domestic level but the one of international institutions and organizations too. Though the world's ruling class "lost its swagger" and its "arrogance and ostentation were displaced by fear and trembling" at the beginning of the 2008 crisis (McNally 2011: 14), developments after the "Great Bailout" are reminiscent of O'Connor's description. Fractions of international capital, creditors, customers of rating agencies, investors and national elites, benefit to the detriment of their competitors and are further strengthened. As public debts go higher because of the bailouts, these actors press states to impose more austerity and cuts in public spending, in order to

[40] O'Connor (1973: 13-17) names "competitive sector" the small scale industries and markets that are local or regional in scope and "monopoly sector" the typically large scale industries that were national or international in scope, for example capital goods such as steel, aluminum, electrical equipment or consumer goods such as automobiles.

ensure that the debt will be paid off. In a vicious circle, where more austerity causes more recession, laborers are threatened to lose their jobs and their remaining welfare rights, expressing at the same time discomfort for having to pay taxes, like the weakened unionized workers of the 1970s O' Connor referred to. That is perhaps one reason for several new antagonisms to emerge during the crisis: European laborers/tax-payers, having to compete with a growing international "surplus population", would not see why they had "to pay" for "rescuing" such countries as Greece; within Greece, private sectors employees would feel uncomfortable for having to pay taxes to the benefit of "better-paid" public employees; and both public and private sector employees alike turned against other working class groups and immigrants.

This is the point where ecological discourses critical of growth are brought back into discussion. In both crises, the one of the 1970s and the current, when social pacification was urgent, these discourses placed the surplus population (as "overpopulation") and overconsumption in the epicenter of their ecological criticism as obstacles to overcome, so that the economy could be reproduced.

In his article *Population, Resources, and the Ideology of Science* (1974) David Harvey looked for the reasons why the ecological anti-growth discourse, the "system dynamics" approach of *Limits* and the issue of "overpopulation" gained influence in that particular period. For example, Harvey (1974: 275) was wondering: "Was it accidental that the environmentalist argument emerged so strongly in 1968 at the crest of campus disturbances? And what was the effect of replacing Marcuse by Ehrlich as campus hero?"

Confronting the revival of Malthusianism in the 1970s, Harvey (1974) reviewed Marx's critique of Malthus and argued that the political positions stemming from their methodologies, namely from logical empiricism (Malthus) and historical materialism (Marx), were not anti-ideological, but it was the Malthusians who promoted their findings as "factual", "ethically neutral and ideology free" (ibid: 256). Most importantly, Harvey connected the ecological Malthusian discourse with the crisis of the growth model of the 1970s:

> "There are deep structural problems to the capitalist growth process (epitomized by persistent 'stagflation' and international monetary uncertainties). Adjustments seem necessary. The welfare population in America is being transformed from a tool for the manipulation of effective demand (which was its economic role in the 1960s) into a tool for attacking wage rates (through the work-fare provision)-and Malthus' arguments are all being used to do it. Wage rates have been under attack, and policies for depressing real earnings are emerging in both America and in Europe to compensate for falling rates of profit and a slowdown in the rate of capital accumulation" (Harvey 1974: 275).

What was being described as the "welfare population" by Harvey and as "surplus population" by O' Connor was at the same time the subject and the vehicle to compress wages, deregulate welfare rights and discipline society, resulting in an accentuation of local, national, and global inequalities. Needless to say, similar phenomena are observed in the context of the current new fiscal crisis of the state. Given the pressure exerted on labor in today's crisis and "the much stronger structural role of unemployment"

(Zizek 2012: 8) in a frame in which "opportunity to be 'exploited' in a long-term job is experienced as a privilege" (ibid.), the revival of neo-Malthusian theories about overpopulation and overconsumption should not come as a surprise – all the more so since today's capitalism "is generating a massive relative surplus population, distributed in deeply unequal forms and sizes across the countries of the world […], already larger than the active army, and […] set to grow further in the medium-term future" (Neilson/Stubbs 2011: 451).

Since all versions of Malthusian analysis have a "class character" in common (Harvey 1974: 259), the issue of overconsumption concerns mainly the poor. But, as Magdoff (2013: 8) notes, it is about 10 percent of the world's population with the highest income (some 700 million people from developed *and* developing or underdeveloped countries), who consume far more than the rest of the planet, so that "when looked at from a global perspective, the poor become essentially irrelevant to the problem of resource use and pollution". In particular, "the poorest 40 percent of people on Earth are estimated to consume less than 5 percent of natural resources. The poorest 20 percent, about 1.4 billion people, use less than 2 percent of natural resources" (ibid.). However, not only is this reality set aside by the Malthusian analysis of growth but it is also inverted in the sense of holding the consumption of lower middle and working classes responsible for the depleted resources and proposing population degrowth of the poor, as for instance in sub-Saharan Africa, a region with extremely low per capita greenhouse emissions (ibid.).

Regarding the resurgence of "overpopulation" discourses in the 1970s, Harvey (1974) relied on historical examples[41] to make three assertions:

1) "Whenever a theory of overpopulation seizes hold in a society dominated by an elite, then the non-elite invariably experience some form of political, economic, and social repression" (ibid.: 273).

2) "If an existing social order, an elite group of some sort, is under threat and is fighting to preserve its dominant position in society, then the overpopulation and shortage of resources arguments can be used as powerful ideological levers to persuade people into acceptance of the status quo and of authoritarian measures to maintain it" (ibid.: 274).

3) "If we accept a theory of overpopulation and resource scarcity but insist upon keeping the capitalist mode of production intact, then the inevitable results are policies directed toward class or ethnic repression at home and policies of imperialism and neo-imperialism abroad" (ibid.).

Can these assertions that Harvey wrote at the heart of the 1970s crisis be placed in the context of the current crisis? The first and second one are related to the resurge of the Malthusian population theory with the dominance of an elite that attempts to preserve its position in periods of turbulence, by oppressing the non-elites. This can also be true for capitalism in general, but it gets more intense during crises. But the most dangerous possibility of those illustrated by Harvey is perhaps the third. To the

[41] Harvey's (1974: 273-275) examples included the influence of Matlhusianism in Britain after the Napoleonic Wars, the conservationist theories concerning the efficient use of natural resources and labor in USA in early 20th century, the concept of "Lebensraum" in Hitler's Germany, and the crudely apologetic theories of British colonialism in the mid-20th century under the pretext of assumption of responsibility for Africa's eroded earth by the Europeans.

extent that the demand of population degrowth is openly expressed by scientific currents, which, however, "*insist upon keeping the capitalist mode of production intact*" (ibid.) as is more or less the case with the *Limits*-discourse and that of degrowth, the political consequences may be particularly serious as the crisis is unfolding and deepening. For instance, demands for the reduction of immigration may be rationalized or acquire a "scientific" form in accordance with ecologic-economic arguments critical of growth, putting societies in dangerous paths.

Final Remarks

Amidst a galloping ecological crisis, the point is justly made (Mahnkopf 2012: 395) that an "ecologically motivated critique of a social model that is programmed on a never-ending growth and permanent productivity rise has appeared up to now as a foreign body within research designs in the sociology of labor". Likewise, the task of developing a "critique of political ecology to match Marx's critique of political economy and to match the dimensions of the crisis" is rightly described as a "truly urgent task" (Jessop 2013: 21). At the same time, the comparison herein of the two growth critiques in the context of the 1970s and 2008 crises showed that labor and society are important themes in ecological analysis, equally to, or sometimes even more than natural limits to growth. Thus, if labor remains a privileged topic in the field of ecology, it cannot be allowed a peripheral position in sociology, even if the latter is ecologically orientated.

The two discourses critical of growth did not merely aim at increasing ecological awareness nor did they concern future models of social organization created *ex nihilo* on an ecological basis. Rather, they drew from the issues at stake during each crisis and from some already existing forms or practices of labor management and emergent technologies. In the case of the 1970s, as discussed in previous sections, the *Limits*-discourse argued against growth, as materialized in the specific context of the Keynesian model of postwar industrial capitalism. It advocated for an international management of the ecological risks and the urgency for research on the social processes through mathematical modeling and the use of wide categories, often above social classes (e.g. "population", "world", "planet" etc.). The debate around *Limits* reflected nascent processes and developments, as well institutional and social transformations, which unfolded as a result of the decline of the old (Keynesian) growth model.

In the case of the 2008 crisis, the degrowth-discourse plays a similar role. The model that served as a way to overcome the crisis of the 1970s, namely that of market globalization, which blurred the limits between local and global spheres as well as those of real economy and the financial one, constitutes the historical background of the degrowth-critique. By promoting re-localization, a turn to small-scale agriculture, green innovations and at the same time further labor flexibilization, degrowth does not, obviously, attempt to address the current crisis by proposing a return to a financial-led growth, just like *Limits* did not address the 1970s crisis by proposing a return to an industrial-Keynesian growth. In both cases, however, their proposals have been compatible with labor deregulation, both in the 1970s and currently, as well as with the wage cuts and recession in both periods.

The "microelectronics revolution" contributed substantially to the resolution of the 1970s crisis, especially as it was "followed by the revolutionizing of the financial markets, which sent the next waves of demand sloshing through the affluent societies of the West" (Streeck 2013: 17). Whether the crisis that broke out in 2008 will be resolved in a similar way, will depend, among others, on whether the prevalent political conditions will allow the exploitation of technological opportunities in the sectors of energy, green innovation, etc. It remains therefore an open question.

The co-existence of heterogeneous or often contradictory proposals under the umbrella of degrowth (from green Keynesianism and green growth to communitarianism and population degrowth) crystallize perhaps the as yet unresolved conflicts of interests, taking place since the outbreak of the 2008 crisis, as well as the different competing agendas about how to overcome the current crisis, what will follow, what threatens the social order and what kind of social transformation is imminent. If what was at stake in the 1970s concerned labor rights integrated within the class compromise of the Keynesian period and the welfare state and, correspondingly, if the issue nowadays is the preservation of what has remained from welfare and the position of labor in society after many years of neoliberalization, the examination of the two discourses undertaken in the previous sections has shown that they argued for social models more or less detrimental to labor. Until the replacement of the Keynesian growth model by the financial-neoliberal, growth-critical discourses promoted a vision of social statics and argued for the pacification of social conflicts. Likewise, the current degrowth discourse promotes a similar vision of stability and appeasement of social conflicts, stressing the need to respect natural limits, a need that had been constantly described as urgent, not only in the 1970s or today, but ironically already since the era of Malthus.

Obviously, no one can seriously argue that natural limits and the ecological crisis are not important or that the history of alternating capitalist growth models will be repeated, one way or another, *ad infinitum*. But, to hope that the ecological crisis or the effects of permanent growth can be prevented within the current system of wealth distribution, which over the last decades has allowed unprecedented economic inequalities, is, as Streeck notes, "utterly unrealistic and downright naive", so that not many other options remain, than "growth again":

> "Many people today are increasingly receptive towards those who call for a slower lifestyle, zero growth or even minus growth, and who urge us to adopt a more modest way of life (…). But when we contemplate the incredible increase in the lack of restraint at the top end of society, and the utterly obscene growth in social inequality, such hopes must seem utterly unrealistic and downright naive. Why should a car worker agree to take a pay cut when the boss of the company has just pocketed an annual salary of 17 million euros? We have to have growth again, if only to prevent battles over distribution of wealth – which of course does not mean that we will still have growth when it is no longer possible to inject the capitalist economy indefinitely with artificial money" (Streeck 2013: 17).

To the extent that the very financial-neoliberal system that led to the current crisis remains unchanged and the state is invariably willing to satisfy markets at any cost, proposals of simpler life-styles, degrowth

programs in favor of natural resources and so on end up more or less irrelevant. As long as wage inequalities, social insecurity, and labor deregulation become wider and deeper in today's capitalism, a new, fragile, conflictual and temporary round of growth will appear to be the one-way route to social reproduction. If, however, policies to achieve growth become less and less effective or generate more problems than they solve, the issue at stake will be whether capitalist growth could be replaced in its function as a means of social reproduction – and by what. If, after a long succession of tested and failed growth models up to the 2008 crisis, and so many maneuvers trying to secure social reproduction only to generate new crises, labor is constantly degraded and inequalities get deeper, then hopes for a change in favor of society fade, whether in a growth regime of past type or in a possible non-growth model. This bears in mind the words of Hobsbawm (1994: 585):

> *"We do not know where we are going. We only know that history has brought us to this point and (…) why. However, one thing is plain. If humanity is to have a recognizable future, it cannot be by prolonging the past or the present. If we try to build the third millennium on that basis, we shall fail. And the price of failure, that is to say, the alternative to a changed society, is darkness."*

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