

# Elements of a political economy of the postgrowth era

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## Abstract

Planetary boundaries are either being approached or already crossed, and there is no evidence for an absolute decoupling of GDP growth, resource use and greenhouse gas emissions. How economic and social systems may be reembedded into environmental limits in the absence of growth is a crucial issue within and beyond economics. This paper outlines some of the elements and analytical steps that may turn out useful for formulating a political economy of the postgrowth era. The point of departure of the paper is the ecological critique of neoclassic economics. Subsequently, it revisits Marx's Critique of Political Economy and its potential capability of unifying the monetary (or exchange value) with the matter and energy (or use value) aspects of production and consumption patterns. The following section considers the regulation approach that was originally tabled for the institutional analysis of different growth strategies within the historical development of capitalism. However, the notion of "institutional forms", in particular, may also give hints of how the social structures of an economy without growth may be understood. Using the analytical toolbox developed in the previous sections, the last section outlines some of the general features of a "global steady-state" economy highlighting the centrality of the provision of sustainable needs satisfiers and the role of one particular institutional form in the transition from a growth to a postgrowth economy: that of the state.

## Introduction

Thresholds for biophysical processes such as climate, biodiversity and the nitrogen cycle are being approached or crossed (Steffen et al., 2018). In relation to climate change, the Intergovernmental Panel on Climate Change (IPCC, 2014) highlights that concentrations of CO<sub>2</sub> and other greenhouse gases in the atmosphere have risen to levels that are unprecedented in at least the last 800,000 years, with the burning of fossil fuels being the main reason behind the 40% increase in CO<sub>2</sub> concentrations since the Industrial Revolution. By the end of the 21<sup>st</sup> century, the IPCC projects the global surface temperature increase to exceed 1.5°C relative to the period 1850–1900 in all but the lowest and most optimistic scenario considered. Exceeding this threshold, beyond which uncontrollable climate change with frequent droughts, floods and storms plus largely unpredictable climate feedback effects is expected, is increasingly likely. Other scenarios predict global temperatures to rise by as much as 4.8°C. The higher end of this range – and in particular the unprecedented speed of the temperature rise – is far outside the experience of human civilization and would expose at least 70% of the world's population to deadly heat stress (Ramanathan et al., 2017). Warming will continue beyond 2100.

More recently, the IPCC specified that we have just 12 years for global warming to be kept to a maximum of 1.5°C.<sup>1</sup> The mainstream policy response, which has been actively promoted by the Organisation of Economic Cooperation and Development, the World Bank, the United Nations Environment Programme as well as the European Union, is the promotion of "green

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<sup>1</sup> The *Guardian*, 8 October 2018; <https://www.theguardian.com/environment/2018/oct/08/global-warming-must-not-exceed-15c-warns-landmark-un-report>.

growth” (Dale et al., 2016) or “ecological modernisation”. The obvious advantage of the green-growth path is that it does not make any enemies. Not accidentally, there is broad socio-economic and political support for this policy course, ranging from green to liberal parties and from trade unions to employers’ organisations. The belief that climate change mitigation is compatible with a growth-oriented, largely uncoordinated and finance-driven capitalism is also reflected in the “market-oriented” mitigation policies adopted (Koch, 2014). Central to any evaluation of the feasibility of green-growth strategies is the distinction between “absolute” and “relative” decoupling of Gross Domestic Product (GDP) growth from carbon emissions and resource use. While resource impacts have declined relative to GDP in a range of rich countries, they have either not done so in absolute terms at all or not to the extent that climate scientists regard as necessary to avoid catastrophic climate change (Antal and Van Den Bergh, 2014). Not only have improvements in energy efficiency hitherto been offset by increases in the overall scale of economic activity, but the prospects of achieving this in the future to the required extent are very low indeed. In contrast, comparative research (Fritz and Koch, 2016; O’Neill et al., 2018) continues to indicate a strong link between the level of economic development measured in GDP per capita, on the one hand, and carbon emissions and ecological footprints of production and consumption, on the other.

Given the lack of evidence for absolute decoupling of GDP growth, material resource use and carbon emissions a range of approaches have been tabled, the common denominator of which is the questioning of what Daly and Farley (2011) call the “growth imperative”.<sup>2</sup> The point of departure of this literature is that the ecological crisis is a structural feature of global capitalism, while the common goal is the reembedding of production and consumption norms into planetary boundaries – through a decrease of matter and energy throughputs, particularly in the rich countries. Also, authors closer to the mainstream, such as Gordon (2012) or Streeck et al. (2016), now regard the issue how economic systems may function under these circumstances and in the absence of economic growth as a crucial research theme within economics and beyond. To continue and deepen the debate on an economics oriented towards sustainable provision of the goods and services necessary for the welfare of all human beings, now and in future, and within planetary boundaries, this paper outlines some of the elements and analytical steps that may turn out to be useful for formulating a political economy of the postgrowth era. My point of departure is the ecological critique of neoclassic economics. Subsequently, I will revisit Marx’s Critique of Political Economy and its potential capability of unifying the monetary (or exchange value) with the matter and energy (or use value) aspects of production and consumption patterns. The following section considers institutional variations of capitalism and the example of the regulation approach. This approach has originally been tabled for the institutional analysis of different growth strategies within capitalist development, but may nevertheless prove useful for an understanding of economics without growth. Using the analytical toolbox developed in the previous sections, the last section outlines some general features of a “global steady-state” economy highlighting the centrality of the provision of sustainable needs satisfiers and the role of one particular institutional form in the transition from a growth to a postgrowth economy: that of the state.

### **The ecological critique of neoclassical economics**

Modern economic theory often proposes a circular flow of exchange, a repetitive cycle linking

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<sup>2</sup> See for recent overviews Büchs and Koch (2017); Cosme et al. (2017); Pichler et al. (2017); Weiss and Cattaneo (2017); Kallis et al. (2018) and Barca et al. (2019).

money and commodities as well as households and companies. It is understood as being circular and reversible: a “return to capital” basically means that the original capital spent, augmented by a surplus, returns to its owner, and the process of capital valorisation starts over again on a greater scale. Yet the circular monetary value aspect of economics is coupled with a physical flow and throughput of matter and energy, which is ultimately linear (Daly, 1985). In the neoclassical perspective, especially, the production of goods and services is analysed from the standpoint of the growth of monetary value. The latter is seen as indefinite, while the roles played by energy and natural resources are often not mentioned. If the issue of resources is discussed at all, it is assumed that “substitution” processes will sort out the problem of depletion. Indeed, in the case of “perfect competition”, an essential requirement of neoclassical growth models, “the price system will see that ‘correct’ substitutions are made at the right times” (Miernyk, 1999, p. 75).

Ecological economists emphasise that the sidelining or removal of biophysical processes from reasoning in economics is a problematic trend. Rather than exclusively focusing on the movement of values, ecological economics deals with both the extraction of raw materials and their elimination in the form of waste as the “first and last phases of all economic activity” (Deléage, 1994, p. 40). Hence, if the overall scale of production increases, deposit sites will also grow. Since nature is unable to recycle all the new waste, the social cost of waste management increases as a result and becomes a socially contested issue (Corvellec, 2018). Building on the pioneering work of Nicholas Georgescu-Roegen (1971), ecological economics stresses that in production, transport, communication and consumption, processes of irreversible material and energy transformation take place (Spash, 2017). The overall increase in entropy resulting from production processes is greater than its local decrease arising from the production of a concrete good. The portion of free and unbound energy declines in comparison with that of bound and dissipated energy that can no longer be converted into work (in the physical sense). Ecological economists also emphasise that environmental sources and sinks of energy and raw materials are finite, that is, they can be used only once. Indeed, “if the entropic process were not irrevocable, i.e., if the energy of a piece of coal or of uranium could be used over and over again ad infinitum, scarcity would hardly exist in man’s life” (Georgescu-Roegen, 1971, p. 6). Though entropy as such is inevitable, since matter continues to dissipate and disperse into less ordered and less useful forms, the entropy rate is subject to historical specific economic and social conditions. Daly, for example, does not assume that entropy remains constant in a “steady-state economy”, but instead advocates the minimisation of the matter-energy throughput that such an economy would enable. The advantage of Daly’s economic and ecological model over neoclassical growth models is, therefore, not that it is characterised by “constant throughput”, but that it provides a “strategy for good stewardship, for maintaining our spaceship and permitting it to die of old age rather than the cancer of growthmania” (Daly, 1974, p. 16).

Both entropy rate and throughputs of matter and energy vary over time and with regard to the different historical forms of organising economies. Georgescu-Roegen identified different stages in human development with associated dominant technological paradigms, which he called “Promethean” technologies. Through the qualitative conversion of energy, these produce an irreversible change in the relationship between economic agents and nature and cause profound modifications in natural ecosystems and human societies. The three Promethean transitions are animal husbandry, fire, and heat engines, each marking an evolutionary step within human economic development. Georgescu-Roegen further observes that any Promethean technology requires a particular set of natural resources: fire requires wood, steam engines require coal etc. (see Beard and Lozada, 1999). Anthropogenic climate change did not

emerge during the era of hunting and gathering or in agricultural societies but instead began with the Industrial Revolution, which itself was accompanied by an unprecedented increase in the depletion and burning of fossil fuels, which accelerated the entropy process as well as the greenhouse effect. Neither could the Industrial Revolution have proceeded without concomitant political and socio-economic upheavals. Hence, Georgescu-Roegen made an important step beyond an exclusively natural scientific view on entropy, environmental degradation and climate change. By embedding these into historically diverse socio-economic circumstances, he criticises the most recent economic stage for its reckless consumption of fossil fuels. His famous dictum that “matter matters, too” serves as a powerful reminder that the depletion of resources is not only a physical and ecological, but also a political, social and ethical issue. Yet his analysis, though providing a historically comparative perspective, largely remains at the level of technological – that is, Promethean – innovations. As a result, Georgescu-Roegen and some of his followers lack the analytic tools to provide a theory on the specific socio-economic relations that would explain the current lack of moderation in fossil fuel depletion. Such historically specific configurations are always associated with economic categories, social relations (including power relations) and corresponding modes of consciousness within which the actors make sense of their economic interaction. I will next argue that Karl Marx, in his Critique of Political Economy, provided central elements for such an analysis for the capitalist mode of production.

### **Capitalism and nature in Marx’s Critique of Political Economy**

As far as the general work process is concerned Marx (1973, p. 320) does not deviate from Georgescu-Roegen and more recent ecological economists in that “all epochs of production have certain common traits, common characteristics”. No production is possible “without an instrument of production, even if this instrument is only the hand”. Throughout the centuries and even going back to “simple exchange or barter” (Marx, 1973, pp. 267-8), the purpose of this operation has always been the production of use values. Closely associated with production at this most abstract level is the general concept of labour and the work process, which is itself directly linked to nature: “a process by which man, through his own actions, mediates, regulates, and controls the metabolism between himself and nature” (Marx, 1990, pp. 283). For Marx, therefore, labour is the connecting link between nature and human beings, who, in order to survive, must interact with nature and transfer natural raw materials into use values. While Marx and Georgescu-Roegen could easily have agreed on the fact that this “metabolic” relation constitutes the universal condition upon which human life is sustained, the former departs from the latter by stressing that the notion of “production in general” is no more than “a rational abstraction in so far as it really brings out and fixes the common element and thus saves us repetition...” (Marx, 1973, p. 320). For Marx, real production processes and the associated relationship between economic agents and nature take place in specific social forms, and it is the particular features this relationship takes in the capitalist mode of production, during which the current ecological crisis emerged.

Far from disregarding natural laws, Marx made the pivot (*Springpunkt* in the German original) of his Critique of Political Economy the dual nature of commodities as constituting both exchange value and use value and of work as producing both abstract value and concrete products through the transformation of raw materials and energy. Understanding this “double character” provides insight not only into further economic categories, associated social relations and modes of consciousness but also into the corresponding tensions between the capitalist economy and the ecological system that, among other things, amplify the

greenhouse effect (Koch, 2012; 2018). Exchange value refers to the commodity's monetary value for the seller, while use value is concerned with the material and/or symbolical usefulness for the purchaser. However, under the imperative of valorisation, the concrete and material aspect of labour, which is reflected in use values of commodities, is subordinated to abstract labour and exchange value and, hence, somewhat sidelined. Use values, matter and energy are not of primary interest on capitalist markets but instead their form as values, that is, repositories of abstract, socially necessary labour. The societal handling of ecological goals – such as sustainable land-use practices, the preservation of species diversity, clean air and water as well as non-congested transport networks – have to respect the priority of valorisation.

A further tension between the monetary form of values and the principles of natural reproduction is that the former is completely divisible from monetary quota, while the natural world, of which the work process is composed, represents “highly interconnected and interdependent material, biological and thermodynamic systems of varying entropy levels” (Burkett, 2005, p. 144). Furthermore, monetary claims on wealth in the forms of bank accounts, stocks or bonds are highly mobile, and this often contradicts the locational fixedness and specificities of ecosystems. Finally, while money, valorisation and GDP growth are quantitatively unlimited and hence reversible, low-entropy matter and energy are not. The Earth's stock of fossil fuels, in particular, is confined, and the existing stock can only be burnt once. In other words, it is irreversible. There is a structural tension between the value and money form of societal wealth and its material and energy substance.

Profit production is possible due to the fact that a commodity is available for sale that has the use value of creating exchange value and which can be used longer than that which represents the cost of its own reproduction: labour power. In capitalism, producers – as wage-earners – are largely separated from their means of subsistence and production and have no alternative but to offer the only commodity at their disposal on “labour markets”. The other “factors of production” – land, raw materials, fuels, auxiliaries etc. – can be purchased on separate markets, and it is only through the intermediation of employers, who hold the necessary capital, that the former comes in contact with the latter. This implies that capitalism's reproduction requirements are distinct from the material and ecological preconditions for the reproduction of labour power and the other factors of production. For capitalist production, all that matters is that these factors and the ingredients of material production are separately available for purchase, and in forms that can be combined in the production process of capital. Given this precondition, capitalist reproduction tends to disrespect the imperatives of natural reproduction such as the preservation of the fossil fuel stocks due to its inherent tendency to expand the scale of production.

In the chapters of *Capital* on cooperation, the manufactory and “machinery and modern industry”, Marx (1990, Part IV) discusses the advancement of the division of labour and how the work process became independent from the subjective limitations of individual workers through the systematic application of natural forces and the natural sciences. The Industrial Revolution introduced tools and machinery that reduced the role of many individual workers to that of an “appendage”. When the work process had an industrial foundation, then the subjugation of nature under capital became more complete. Now nature was

“for the first time... purely an object for humankind, purely matter of utility; ceases to be recognized as a power to itself; and the theoretical discovery of its autonomous laws appears merely as a ruse so as to subjugate it under

human needs, whether as an object of consumption or as a means of production” (Marx, 1973, p. 409).

Marx also demonstrates that expanding scales of production normally coincide with greater amounts of throughput of raw materials and auxiliary substances, especially in the form of fossil fuels, and available energy. All other things being equal, an increase in productivity means that a given work force processes a larger quantity of raw materials and consumes more energy. Rising demand for raw materials and available energy normally leads to rising prices, for example, for crude oil, creating incentives for individual companies to recycle and to use a given quantity of materials or fuels in more efficient ways. Marx (2006, Chapter 5) described this as a long-term trend towards a greater “economy in the employment of constant capital”. Yet progress in the efficiency of raw and auxiliary materials does not fundamentally alter the link between the expansion of the scale of production and the increase in the material and energy throughput, a phenomenon that had already been observed by Jevons in the 1860s (Jevons, 1865). Greater efficiency in the use of a fossil energy source such as coal or oil leads to an *increase* in demand – not to a decrease. On the contrary, this increase becomes the precondition for further capital expansion and economic growth.

In summary, an analysis of the ecological crisis, and climate change in particular, that takes the double nature of the commodity and work as both value in motion and a concrete stock of invested time- and place-specific assets of matter and energy as point of departure is able to demonstrate that the capitalist mode of production is oriented towards unlimited and short-term valorisation, quantitative and geographic expansion, circularity and reversibility, while the principles that guide the ecological system involve stable and sustainable matter and energy transformations and throughputs as well as irreversibility (Koch, 2012). Capital’s “expansionism” tends to be accompanied by the degradation of the environmental conditions of production and especially reductions in their ability to act as sources and sinks for the permanently increasing flow and throughput of matter and energy (Clark and York, 2005). When these sources and sinks cease to function, their decelerating impact on the greenhouse effect is nullified, thus increasing the risk of positive feedback mechanisms within the climate system.

### **Beyond the “mode of production”: the regulation approach**

Capitalist development proceeds in not only socially, but also in ecologically contingent forms. Though it does not get rid of the use-value element and the corresponding matter and energy side of production altogether, it nevertheless tends to negate and dispel them as much as possible. However, it is sometimes forgotten that the structural tensions and contradictions between the capitalist growth economy and the ecological system discussed above are located at a relatively high level of abstraction: Marx’s capitalist mode of production, where abstraction is made from institutional regulation and individual actors are reduced to their roles as “character masks”, that is, to the roles they play in the production and circulation processes of capital. Yet the tensions inherent to the capitalist mode of production take on different forms in concrete social formations and historical periods of capitalist development, presenting themselves as continuous development or as rupture, depending on diverse types of institutional regulation (Becker and Raza, 2000; Paterson and Laberge, 2018). An institutional attempt to link analyses of production patterns to those of consumption has been proposed by the regulation approach, which – at least in the Parisian version – continues key insights from

Marx's Critique of Political Economy ("modes of production" and "social formations"), and complements them with "intermediary concepts" ("accumulation regime" and "mode of regulation"). These concepts express the largely non-variable conditions of agents involved in the relations of production and exchange, as well as the historical changes that these relations undergo during different phases of capitalist growth (Boyer and Saillard, 2002). While the abstract features of capitalism are seen as largely trans-historical, both crises in the accumulation process and phases of expanded production are addressed in the context of their institutional embedding. Hence, the focus on "regulation" allows for going beyond the "mode of production" and for analysing concrete periods of accumulation and growth, both in historical and comparative perspective (Brand and Wissen, 2015).

The regulatory settings required for continued and expanded capital accumulation are socially, culturally and politically constructed and contested within a myriad of societal struggles, in which the relations both within and between social classes play a prominent role. The notion of "intermediary concepts", in particular, highlights that the articulation of a given social formation in time and space corresponds to particular structural features and institutional forms. "Accumulation regimes" are associated with certain historical phases and development paths or growth strategies, which take the form of compatible commodity streams of production and consumption, reproduced over a long period of time. They differ historically, for example, as to whether intensive or extensive, export-oriented or import-oriented forms dominate, or vice versa. All accumulation regimes are associated with a specific industrial paradigm, a dominant principle of division of labour and a corresponding "mode of consumption". In contrast to neoclassical economics, the regulation approach does not view consumption as an isolated or behavioural phenomenon – the result of autonomous individual choices – but within its social genesis and context. Aglietta (1987, p. 154) conceptualises consumption as "an organized set of activities, which – while predominantly private – became subject to a general logic of the reconstitution of energies expended in social practices and the preservation of abilities and attitudes implied by the social relations". What and how much we buy and consume is of the greatest relevance for ecological issues such as the carbon cycle, since these decisions are normally bound to matter and energy transformations that more often than not necessitate the burning of fossil fuels. The regulation approach insists – contradicting the predominant notion of *homo economicus* in the neoclassical perspective – that purchase decisions or the "demand side" of economics are neither "formally rational" nor "autonomous", but instead are greatly influenced by structural factors such as income inequality and corporate sales strategies. This resonates with sociological and anthropological consumption research, which points out that purchases of things are not in the first place about the goods themselves but rather about the symbolic messages that purchase acts express and mediate (Bourdieu, 1982; see Boyer, 2008).

A "mode of regulation" comprises an ensemble of social networks as well as rules, norms, and conventions, which together facilitate the seamless reproduction of an accumulation regime. The term "mode of regulation" stresses the fact that capitalism does not reproduce itself only upon the basis of the immanent logic dealt with in Marx's *Capital*, but that its stabilisation also requires "institutional forms": these comprise the wage relation or "wage-labour nexus" (Bertrand, 2002); the enterprise form; the nature of money (Guttmann, 2002); the state (Jessop, 2002); and international regimes (Aglietta, 2002). Subsequent analyses have added another institutional form: that of "energy regimes" (Koch, 2012; Cahen-Fourot and Durand, 2016), which consider, among other things, the environmental impacts of historical growth strategies such as Fordism or finance-driven capitalism. Critical geographers have complemented these institutional forms with a notion of geographic scales, which determine the main spatial

boundaries within which structural coherence is sought (Brenner, 2004). Regulationists view the institutional forms that help stabilise capitalist development during particular growth periods as the hard-won products of social struggles and diverse and often contradictory interests. Regulation in its concrete forms is, hence, not simply the product of the strategies of the dominant classes, which themselves are divided by different competitive interests, but always reflect a degree of a compromise with dominated groups. Modes of regulation and patterns of governance vary considerably depending on the nature of such institutional compromises.

Among the institutional forms, the state plays a crucial role within the regulation of capitalist growth. Materialist state theory (Gramsci, 1999; Poulantzas, 1978; Bourdieu, 2015) constructs the state as a relatively autonomous political sphere, where social classes and groups represent their interests in indirect and mediated ways. As political parties and interest groups raise variable issues such as religion, age, and the environment, these interests and issues are sometimes in the focus of government action, only to be superseded by others at later points in time. As a corollary, state policies cannot be reduced to the strategic interests of single actors, but rather develop as a result of the heterogeneity and changing dynamic of social forces that influence state institutions. Once such a coalition of relatively powerful actors has been formed and managed to influence the general direction of state policies, however, it takes on the character of a relatively homogenous social force and appears to “act” as if it were a single actor: the more socially coherent the coalition of forces that influences the state, the lesser the contradictions across its policies. Hence, according to the mentioned state theorists – and provided the necessary bottom-up mobilisation (Buch-Hansen, 2018) – the existing state apparatus could be used to initiate a social and ecological transition beyond the growth imperative.

### **Features of a postgrowth economy within planetary limits**

Previous sections have demonstrated that any re-embedding of the economy into planetary boundaries is unlikely as long as the top priority of economic growth in policymaking is upheld. Yet it is far from obvious what a sustainable postgrowth economy could look like. Though outlining some of its general features is difficult and speculative, I would nevertheless argue that such somewhat utopian thinking is required to encourage debate and eventually social change (Levitas, 2013). Using recent empirical results from comparative studies into the links of GDP/capita, environmental sustainability, social inclusion and individual wellbeing as well the analytical tools introduced in previous sections – especially steady-state economy, use value/exchange value, rescaling and the state as an institutional form within socio-economic regulation – I sketch out some of the key features of what may be called a “global steady-state economy”.

Herman Daly’s “steady-state economy” (Daly, 1974) is the most cited case of an economic system that functions within ecological boundaries. It is a model of an economy that does not grow in the sense that it keeps the level of throughput (extraction of raw materials from nature and their return to nature as waste) as low as possible and ideally within the regenerative and assimilative capacities of the ecosystem. However, the original concept of a steady-state economy was not developed at the global level. Yet environmental threats such as climate change are global issues, because for the atmosphere it does not matter from which part of the globe greenhouse gases are emitted. Accordingly, the ecological footprint and the associated matter and energy throughput of the whole planet would need to shrink if the world’s mode of production and consumption were to respect ecological limits. However, due

to massive differences in economic development and unprecedented socio-economic global inequality (Piketty, 2014) such a re-embedding of the world's production and consumption patterns would imply different challenges for different regions and nations. Recent comparative research demonstrates that not only nations' social inclusion, wellbeing and democracy scores largely increase with GDP per capita but also their ecological footprints and carbon emissions. According to Fritz and Koch (2016), who divided 138 countries into five clusters of economic development measured as GDP/capita ("poor", "developing", "emerging", "rich" and "overdeveloped" countries), it is only the poorest group of countries that could currently be seen as environmentally sustainable.

Such a global comparison of national eco-social performances has repercussions for the internal structure of a global steady-state economy as countries at different levels of economic development would need to undertake different measures to achieve a maximum in wellbeing within ecological limits. The policy challenge for "poor" countries would be to enhance the quality of life and social inclusion while maintaining low ecological footprints and carbon emissions; "developing" and "emerging" countries face the double challenge of combining individual wellbeing with social welfare, while preserving relatively low amounts of matter and energy throughput as well as carbon emissions; "rich" and especially the "overdeveloped" countries would need to produce and consume differently so that lesser amounts of material resources and fossil energy are used and to make production and consumption processes more environmentally sustainable (Fritz and Koch, 2016, p. 48). Hence, the socio-ecological transitions required for setting up a global steady-state economy would involve issues of redistribution of wealth, labour, time and natural resources both within and between countries. It goes without saying that these issues are contested and that addressing them would involve questioning the material interests of the currently rich and powerful. Future growth-critical research would therefore be well advised to consider features of the global class structure more systematically (Leonardi, 2019).

In a situation where the production and consumption patterns of the vast majority of countries are beyond the Earth's carrying capacities, it is for the time being difficult to see how a re-embedding of the global economy into planetary boundaries could, in terms of welfare provision, mean much more than the satisfaction of basic human needs (Koch and Mont, 2016). The question how this can be done for all human beings and across generations should hence be prioritised not only in degrowth research (Koch et al., 2017; Büchs and Koch, 2019) but also in corresponding efforts within economics. Needs differ from wants and preferences in that they are non-negotiable and universalisable (Gough, 2017). They do not vary over time and across cultures but according to the ways in which a specific culture at a particular point in time attempts to satisfy them. In a corresponding transformational change strategy, critical thresholds for the universal provision of human needs or for a "minimally decent life" would constantly need to be (re-)defined in light of the advances of scientific and practical knowledge. Economic systems would be assessed according to their ability to produce a critical minimum of appropriate need satisfiers (Max-Neef, 1991; Guillén-Royo, 2016).

The centrality of human needs in degrowth research and that of the provision of sustainable needs satisfiers in economics presupposes probably the most significant shift from a growth to a postgrowth economy: that from monetary growth or exchange value orientation to an understanding and steering of the economy in biophysical or use-value terms. The second necessary shift relates to the fact that a re-embedding of global production and consumption patterns into planetary limits would imply different challenges for different regions and nations.

If already the “developing” countries assembled in Fritz and Koch’s second poorest cluster (Fritz and Koch, 2016) work and live, so to speak, beyond their ecological means, this has repercussions for the scales that socio-economic and environmental regulation target – from the national towards global but also local levels. In global governance networks, thresholds for matter and energy throughput would need to be determined in accordance with natural science expertise. These limits would at the same time delineate the leeway within which national and local economies may evolve. A new division of labour between the various regulatory levels is envisioned by Kothari (2018, p. 254) who proposes assigning “a minimal set of matters” to the global level, while the bulk of decision-making would “go to the most local level feasible”, where he assumes that diverse approaches to meeting collective goals are most “accepted and encouraged”.

The priority of use value and biophysical parameters as well as the new division of labour across scales would in all likelihood mean a lesser role and a stricter regulation of market forces than currently. Though the allocative efficiency of markets is generally accepted in most steady-state concepts, these would need to operate in much narrower limits given the primacy of global sustainability, needs satisfaction and intergenerational justice. Instead, a “steering state” would at various levels and scales be *primus inter pares* in a mixed economy and a governance network of public, collective, communal and private actors. New combinations of state and common ownership may be developed in relation to the governance of socio-natural resources such as energy and water. This downscaling of regulatory power from national welfare and environmental institutions to local levels is addressed by several contributors to steady-state economics, degrowth and social enterprises (Johanisova et al., 2013). These highlight the need to replace the current global production and trade systems with economies based on cooperative principles and oriented towards local production and consumption cycles. Some local and voluntary grassroots initiatives have proven quite efficient in environmental terms, even though they often face difficulties in sustaining themselves over time (Howell, 2012).

In relation to the national level of state regulation, Buch-Hansen (2014) argues that present institutional diversity is likely to affect degrowth trajectories as well as the concrete shaping of national steady-state economies and corresponding state apparatuses. Just as contemporary capitalist societies are diverse, so would steady-state economies take many different forms in different countries. This variety also relates to the capability of institutional reflexivity, of learning processes from “best-practice” countries. Comparative research into wellbeing, prosperity and environmental performance of existing countries relative to GDP/capita (Fritz and Koch, 2016) suggests that there are better than average performing countries in each part of the world (for example, Switzerland in Europe, Costa Rica and Uruguay in Latin America) that could be singled out for in-depth institutional analysis.

### **State eco-social policies in the rich countries**

Within any analysis of a transition of the global economy towards a steady state, special emphasis would need to be placed on the currently rich countries. These do not only have the bulk of historical responsibility for the ecological crisis, but also continue to consume an amount of environmental resources that cannot be generalised to the rest of the planet without further crossing planetary boundaries. For these countries especially economic growth as top policy priority would need to be deprioritised and replaced by biophysical parameters as well as by a general policy orientation on basic needs satisfaction. In a

corresponding transformation, public “eco-social policies” could start from the “double injustice” (Walker, 2012) according to which the poorest countries, and, within the rich countries, the poorest household groups, who are least responsible for environmental damages such as climate change are in the worst position to cope, and to afford mitigation and adaptation (Büchs et al., 2011). For example, ecological investment into retrofitting houses only has a chance of being perceived as legitimate if it is accompanied by social policies that, among other things, assist homeowners in paying for ecologically useful measures. Conversely, the recent protests of the so-called “yellow vests” in France indicate that the pursuit of ambitious climate policies with a simultaneous reduction in the tax burden of the rich has little chance of proving particularly popular with the electorate.

Policy initiatives that tackle social inequality and the environmental crisis at the same time could be informed and guided by need theories. Here, Ian Gough’s “dual strategy” may provide a collective and critical way of distinguishing needs from luxuries in a particular national or local setting (Gough, 2017, p. 169). Accordingly, citizens, experts and government representatives would work together in democratic forums to identify the goods and services necessary to satisfy a given need, and the level of this satisfaction within particular social and cultural contexts. One example would be “social tariffs” that could adjust energy tariffs in line with energy need. This would require energy companies to “operate a ‘rising block tariff’, with lower tariffs for initial units of electricity or gas consumed, and higher tariffs for successive units” (Gough, 2017, p. 140). Beyond the energy sector, public policy initiatives can stimulate a recomposition of consumption. En route to a global steady-state economy, Western consumption rates would need to decrease disproportionately so that citizens of other parts of the world and future inhabitants of the planet could enjoy an improvement in their material standard of living. Conspicuous consumption would then not be regarded as a symbol of distinction and legitimacy but as a “negative externality”. Consumers would be required to pay for the negative impacts this imposes upon others. Governments in the rich countries can encourage certain ways of consumption (for example, vegetarian diets, local holidays, use of public transport and cycling) and discourage others (for example, meat consumption, holidaying in distant locations, car and plane use). Such policy initiatives may be facilitated by a growing dissatisfaction of the public with the consumerist lifestyle. According to Soper (2016), citizens are increasingly disenchanted with consumer culture because of its negative side effects such as time scarcity, high levels of stress, traffic congestion, and due to the increasing displacement of other pleasures of life and well-being by shopping mall culture.

Both ecological economists and critical political economists regard a redistribution of wealth and income – both within and across countries and in an intergenerational perspective – as a crucial element of a wider ecological and social transition. In degrowth circles, especially, maximum limits on income and wealth are seen as critical to maintaining global warming within the 1.5°C range. After reaching the maximum income, people would be incentivised to devote their further energies to non-economic pursuits. However, there is a lack of concrete proposals as to how a maximum limit on income and wealth could be implemented (see Buch-Hansen and Koch, 2019 for an overview from a degrowth perspective). At the other end of the scale, structural inequality could be addressed through either minimum or basic income schemes, which could be co-financed from general revenues, an increasingly progressive income tax, eco-taxes and/or from depletion and emissions certificate auctions. Andersson (2009, p. 3), for example, assumes equivalence between basic income financed by green taxes and the distribution of equal and transferable rights to use scarce environmental resources and to emit a given quantity of greenhouse gases. A range of authors therefore postulate a new architecture of taxation to finance a postgrowth economy. If the tax base

were linked to the throughput of finite resources, external costs, which private enterprises currently enjoy as “free gifts” from nature, would be internalised and considered in their cost calculations. Further eco-social policy suggestions involve carbon rationing, alternative ways of housing (Nelson and Schneider, 2018) and local currencies (Hornborg, 2017). Overall, there is no lack of more or less developed policy suggestions to which activists may turn. The problem continues to be that these are fragmented and in need of being unified in a coherent strategy for the social and ecological transformation of the rich countries.

## **Conclusion**

Planetary boundaries are either approached or already crossed, and there is no evidence of an absolute decoupling of GDP growth, material resource use and carbon emissions in the near future. The IPCC is not the only one warning that significant and qualitative changes in the structures of the global economy would need to be initiated very soon to have a realistic chance of keeping global warming near 1.5°C by the end of the century. Economics as independent academic discipline can make an enormous contribution towards an understanding of this social and ecological transition. In this paper, I have addressed some of the themes that appear to be of special relevance in this regard.

I started from the critique of the neoclassical perspective launched by ecological economists. While the former tend to reduce economic action to monetary flows, the latter emphasise matter and energy transformations in the economic process without paying too much interest to the social relations and power asymmetries that are nevertheless inherent to capitalist economies. I suggested that a possible way of unifying standard and ecological economics is a re-discovery of Marx’s Critique of Political Economy, and here especially his point of departure: the double character of commodity and labour of embodying both use value and exchange value. In abstract form, this already covers many of the contradictions of an economy that is geared to monetary growth (exchange value moment), but cannot get rid of the accompanying transformations in matter and energy (use value moment), which accelerate climate change and related ecological threats. Hence, an economics in keeping with the times would address both the use value and exchange value moments of current production and consumption patterns without losing sight of the power relations inherent in the current global political economy. Overcoming these would allow the economy to be understood as biophysical and social process, and to reorientate economics towards the goal of providing adequate amounts of environmentally sustainable needs satisfiers for all people, now and in future.

A consideration and reinterpretation of institutional economics such as the regulation approach may help make this general reorientation of the economic process more concrete. This approach has distinguished several institutional forms for the regulation of “growth” strategies, which could be used as a point of departure for specific research projects into postgrowth economics: which would be the central features of the wage relation, the enterprise form, the form and function of money and of the international political regime of the postgrowth era? What would be an operational division of scale in a corresponding mode of regulation? In the present paper, I have mentioned the potentially crucial role of the state as an institutional form in a “great transition” that leading sustainability scientists regard as necessary to avoid the potentially catastrophic consequences of climate change and biodiversity loss (Rockstöm, 2015). Particularly Poulantzas’ concept of “condensation” of wider societal struggles within the state indicates that the political actions of the state are far

from independent from what goes on beyond it. If mobilisation by socio-ecological and growth-critical groups reached a critical momentum, the existing state apparatus could be used to initiate the required ecological and social transition.

In a postgrowth context, the state's policy priority of achieving economic growth would be replaced by the goal of reembedding production and consumption patterns into planetary limits. Public economic, social and environmental policies would be oriented at minimising the matter and energy throughput and the provision of a sufficient amount of sustainable need satisfiers. While state capacity to act in the environmental domain would increase significantly, if the growth proviso were replaced by a sustainability proviso, state power would be used to build transnational networks and to act as *primus inter pares* together with various private, semi-private and non-profit actors to ensure the respect of ecological limits in global production and consumption patterns.

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