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Green Transformations and a Steady-State Economy: Questioning the Sustainability of Growth

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In the wake of the 2008 financial crash, voices on the political left of the United States and Western Europe rallied behind calls for a "Green Transformation" of their economies. While this is an umbrella term for different models of transformation, each harbouring differing teleological intents and narratives of progress, they share a focus on addressing two unsustainable crises: that of unfettered finance capitalism, and the looming climate crisis. Proponents see these two crises as inextricably linked, with the ascent of finance capitalism fuelling climate change. Integral to a Green Transformation, is the abandonment of market fundamentalism in favour of a return of the *dirigiste* or interventionist state capable of reigning in the excesses of speculative finance capital and developing the infrastructure and innovation necessary to catalyze a Green Transformation. As British Economist and staunch proponent of a green economic transformation, Ann Pettifor (2019), writes: "We must escape from capitalism's globalized, carbon-belching financial system designed and engineered to issue trillions of dollars of unregulated credit to fund supposedly limitless consumption, and in turn fuel toxic emissions" (xi).

The arguments that I present in this paper are twofold. First, because market mechanisms in their current state, will not be enough to bring about the economic transformations necessary to address the threat of climate catastrophe, I argue that only a progressively-minded state can stimulate institutional, economic and technological change that will not otherwise happen. This evokes Italian Economist Mariana Lazzarato's work on *The Entrepreneurial State* (2015). Second, I problematize the "pro-growth" fixation of many Green Transformation strategies and attest to the necessary abandonment of perpetual growth in favour of a steady state economic model. I also argue that a paradigm shift is required, changing the metrics with which we evaluate development from those fixated on increased productivity to metrics evaluating quality of life. It is not simply enough to incorporate green innovations and technologies into our production systems, we must simultaneously abandon the unsustainable consumption model spurred by fixations on misleading measures like Gross Domestic Product (GDP) growth.

Following these integrated arguments, I delineate in the first part of the paper the innate characteristics of neoliberal capitalism that at the most, impede a Green Transformation and at the least, render the likelihood of a rapid green economic transformation unlikely, without significant involvement of the state. In the second part, I briefly elucidate the three main benefits of a Green Transformation: job creation, emissions reductions and energy security. Section three borrows from the work of Bina (2013), outlining the typology of differing Green Transformations: (1) national stimulus packages, 'almost business as usual' (BAU); (2) proposals to green the economy, 'greening'; and (3) proposals for socioeconomic transformation, 'all change'. I conclude by problematizing the BAU and 'greening' strategies while positing the necessary adoption of an 'all change' strategy for effective emissions reductions and sustainability. I will close with brief remarks on the necessity of a paradigm shift within the field of economics itself.

Problematizing 'Green' Capitalism

Leftist skepticism of the ability of market mechanisms to deliver the drastic and rapid transition to a carbon-neutral and environmentally sustainable system of production, can be traced to the origin of left critiques of capitalism itself. In *Das Kapital,* Marx characterizes capitalism as a system fetishizing the perpetual accumulation of profit. To illustrate this point, Marx describes the process of economic exchange in a pre-capitalist society as Commodity (C) converted into Money (M) which is in turn converted back into a Commodity (C). Under the capitalist system of production however, this process of exchange is inverted into the M-C-M' cycle. The M-C-M' cycle is the transformation of Money (M) into Commodities (C), and the change of commodities back again into Money (M') of altered value. In the precapitalist cycle, (M) was purely a means of exchange. In the capitalist cycle, it becomes the *raison d'être* for economic activity. In the words of Italian sociologist Maurizio Lazzarato (2013): "…in reality capitalism does not aim at producing wealth but *value*, value valorizing itself, profit producing more profit, infinitely" (p.57). When capital ceases to provide a return, as is the case in a recession, the economy ceases to function correctly, stagnates and the effects are widespread and devastating. Capital accumulation necessitates growth in perpetuity. It is this understanding that led Fred Magdoff and John Bellamy Foster (2010) to the conclusion that not only does the market not lend itself to a Green Transformation, it is a structural root of the current crisis (p.8-9). A productive system valourizing infinite profit creation and necessitating continual expansion is entirely unsustainable on a planet with finite resources.

Perhaps not a novel critique, but the unsustainable nature of capital accumulation nevertheless remains potent and should be duly considered when attempting to 'green' the current mode of production. But perhaps, the most important reason why market mechanisms cannot nurture a Green Transformation on the scale required, is because of uncorrected externalities. Market prices for non-renewable energy do not reflect their social

and environmental costs. For instance, the rising sea levels resulting from the widespread burning of fossil fuels will necessitate future large scale public investment into flood barriers, undoubtedly a costly endeavor. Further, long-term exposure to pollution can result in significant health problems, particularly respiratory complications. This already places huge strains on healthcare systems, draining significant public funds. Epstein et al, as cited by Byrne (2014) estimate that "the life-cycle social costs associated with coal use are between 10 and 28 cents/kWh. The low estimate of 10 cents/kWh corresponds to a cost of $700 billion annually" (p.1). The presence of this uncorrected externality means that non-renewable sources remain cost-competitive in global energy markets, diverting much needed investment away from renewable sources.

Investment in a Green Transformation is additionally muted by the present laissez-faire approach to finance capitalism. The ascent of neoliberalism in the 1970s and 80s brought with it the Washington Consensus which prescribed, among ten macroeconomic policies aimed at liberalization, the opening of capital accounts and rapid liberalization of domestic finance markets. In general, investors prefer purchasing short-term rather than long-term securities, as these pose less interest-rate risk. And so, without any present regulations incentivizing long-term investment, aside from a liquidity premium, finance capitalism has developed a propensity for short-term, speculative investment and profit creation (Chang, 2010, p.305). Further, development Economist Ha-Joon Chang (2010), has argued that because of the increased liquidity of financial assets, holders are too quick to move from one investment opportunity to another in search of short-term returns, rendering it difficult for firms to acquire what Chang terms 'patient capital' necessary for long-term growth. A Green Transformation unsurprisingly requires large-scale investment into green technology and infrastructure projects, which take time to develop, and may not show returns for a few initial years. As a result, a Green Transformation requires patient, long-term investments in order to attain fruition, which finance markets, in their current state are unable and unwilling to provide. This is not to say that there have not been increased investments in renewable technology and infrastructure over the past decade, as this has certainly been the case. This current level however remains wholly insufficient to achieving the type of rapid and extensive transformation envisioned by proponents of a Green Transformation.

To sum up thus far, market mechanisms, especially as they exist today, are incapable of bringing about the necessary economic change a Green Transformation entails. Our current system of production, one that fetishizes profit creation in perpetuity and consumption for the sake of consumption, is entirely unsustainable on a planet with finite resources. Further, markets fail to factor in the social and environmental costs associated with the utilization of non-renewable energy, thereby rendering them cost-competitive relative to renewable alternatives. Lastly, neoliberal finance capitalism has a propensity to prioritize or

incentivize short-term investment at the expense of the long-term investment required for a Green Transformation. One could ask whether these innate characteristics could be remedied, and an effective Green Transformation fostered, by a progressively-minded, *dirigiste* state?

Can the Entrepreneurial State Save Us?

Italian Economist Mariana Mazzucato, argues in *The Entrepreneurial State* (2013) that economic success is a result, not of adherence to market fundamentalism, but of state funding for research and development to provide new manufacturing techniques and advanced technologies (Żuk, 2016, p.344). From iPhones to the Google search engine, public organizations have played a critical role as 'investors of first resort' in the history of technological change and advance. The backing of a large tax-base has allowed the public sector to serve as the primary risk-taker when it comes to uncertain long-term investing in innovation, with the private sector piggy-backing on the eventual fruits of this investment. Polish Sociologist, Piotr Żuk writes: "the private financial sector, which is focused mainly on short-term projects, tends to rely on the state to sponsor the stages of innovation development that carry the greatest risk" (ibid, p.345). An example is the private Apple corporation, who profited immensely by the incorporation of the government created technologies of GPS navigation, touch screen technology, and voice recognition into the modern smartphone.

The Entrepreneurial State is a seminal publication, that aptly "[debunks] the neoliberal myths of self-sustaining private business" (Żuk, p. 346). Without this initial public expenditure, the risk-averse private sector would be unlikely to innovate on its own, thereby dimming long-term growth prospects. Mazzucato's work is pertinent to my analysis of state role in an efficacious Green Transformation. In fact, Chapter 6 of *The Entrepreneurial State*, deals directly with the "Green Technology" sector. Mazzucato points out that the profits accrued by companies producing clean technologies are the product of earlier investments by the public sector, or the use of available technologies (ibid). Further, markets cannot be trusted to bring about the necessary 'green' economic transition as "markets do not reward sustainable development, nor do they punish for pollution, waste and the plunder of natural resources" (ibid).

This understanding of the entrepreneurial state can allow us to draw the following two conclusions. Firstly, building on my previous analysis, Mazzuccato argues that market mechanisms cannot nurture a Green Transformation. Second, the Entrepreneurial State has already born most of the responsibility for innovation in new renewable energy technologies, demonstrating that the public, unlike the private sector, will not shy away from the large-scale investment necessary for a Green Transformation. In paraphrasing Mazzucato's thesis, Goldstein and Tyfield (2018) write "…it is quintessentially the state, and only the state, that has taken and can continue to take on the large, shot-in the-dark risks of constructing entirely new systems and radical innovations that promise significant public benefit" (p.81).

The urgency of the impending climate crisis has been laid bare repeatedly by climate scientists. The Intergovernmental Panel on Climate Change (IPCC) 2018 Climate Report has instructed us that to limit global warming to 1.5ºC would require "rapid, far-reaching and unprecedented changes in all aspects of society". To heed their call, an effective Green Transformation requires an emboldened *dirigiste* state.

State *dirigisme* can bring about a rapid Green Transformation in three ways: (1) through an influx of patient investment; (2) the implementation of a green industrial policy; and (3) regulatory overhaul. First, extensive public expenditure into renewable energy innovation will help procure the technology and infrastructure necessary for a Green Transformation. This will further catalyze an influx of private capital and lower the cost of production thereby rendering renewable energy more cost-competitive. The United Nations Environmental Programme (UNEP) (2009) for example, has estimated that US$100 Billion of additional investment per year over 15 years in renewable energy technologies should be sufficient to nurture production and drop the price of renewable energy to a point where 'private investment crowds in' and state support is no longer necessary (p.11). Second, A 'green' industrial policy can serve to compliment increased state investment in renewable energy technologies. Replacing the subsidization of non-renewable energy with subsidies and loan-guarantees to 'green' industries, would further stimulate industry expansion, incentivize private investment and nurture cost-competitiveness.

Last, the implementation of proper regulatory measures can serve to correct market mechanisms that inhibit a Green Transformation. To address the neglected externalities of non-renewable energy consumption, the state can implement a progressive carbon-taxation system. This will hold the largest polluting firms more accountable, while ensuring that environmental degradation is factored into the cost of non-renewable energy, thereby reducing its cost-competitiveness in energy markets. A Tobin tax on short-term capital gains in conjunction with capital controls on outflowing investment, could potentially curb the propensity of capital to pursue short-term and/or speculative investment.

The benefits of a Green Transformation catalyzed by an entrepreneurial state are myriad. Of particular importance however, are those three outlined by John Byrne (2014), Professor of Energy and Climate Policy at the University of Delaware: (1) Job Creation; (2) Emissions reduction; and (3) Energy security. Byrne demonstrates that a green economic transition will reinvigorate domestic manufacturing, creating millions of high-skilled, high-paying jobs in green industries (2014, p. 2). Fossil fuel-based services are capital intensive industries, therefore only create four permanent jobs for every $1 million USD of investment (ibid). The manufacturing of Photovoltaics (PV), and other renewable energy installations are labour-intensive necessitating the recruitment of significant human resources. Unsurprisingly, for every $1 million USD of investment into renewable energy installations and green energy technologies,

between 12 and 15 permanent jobs are created (ibid).

The ability of a Green Transition to foster energy security is less well known but potentially an appealing argument to policy makers. Byrne argues that because a green transition will increase demand for domestic energy sources, such as solar irradiation, relative to imports, it can have the effect of "reduc[ing] the length of the supply chain and can lower the risk of political dependence, security conflicts, and environmental harm" (ibid, p.4). "For this reason," he concludes, "a green energy economy can empower a politics controlled by domestic goals rather than international conflicts" (ibid).

Thus, a *dirigiste*, and entrepreneurial state can correct market mechanisms, and bring about a Green Transformation expeditiously with the added benefit of increased energy security, and high levels of employment. It is for these reasons that almost all Green Transformation proponents envision a more substantial role for the state than currently exists under neoliberalism. Yet, while their remains commonality amongst approaches to a Green Transformation, there remains significant divergence particularly with respect to their teleological intents and narratives of progress.

Typology of Green Transformations

In "The Green Economy and Sustainable Development: An Uneasy Balance?", Olivia Bina provides a meta-analysis of the plethora of Green Transformation stimulus packages proposed in the aftermath of the 2008 financial crash. These proposed policy packages, strive to not only address the looming climate crisis, but also the problem of unfettered neoliberal finance markets. Goldstein and Tyfield (2018) dub these transitional plans as a sort of 'Green Keynesianism', because they seek to replace the unsavoury neoliberal flavour of capitalism, with an interventionist state bent on full-employment emblematic of the Keynesian period. Drawing upon this foundation, Bina creates a typology of Green Keynesianism, separating each program into three distinct categories: (1) national stimulus packages, 'almost business as usual' (BAU); (2) proposals to 'green' the economy, 'greening'; and (3) proposals for socio-economic transformation, or 'all change' (2013, p.1028).

The failure of quantitative easing to encourage bank lending in 2008 provided room for the re-emergence of the Keynesian fiscal macroeconomic toolbox. Across the OECD, states implemented extensive deficit stimulus plans aimed at spurring aggregate demand. These are what Bina refers to as BAU programmes. While they included certain 'green stimulus measures', such as a commitment from the US federal government to invest $512b in green projects, the primary motivation of these plans was economic recovery (Bina, 2013, p. 1028). Investment in green projects was viewed primarily as a measure to lower unemployment rather than an end in itself (ibid). The 'socioeconomic paradigm' of BAU programs remains economic growth, but seeks a Keynesian rather than a neoliberal framework with which to attain it (ibid). As Bina describes, "The conception of

progress is that of economic progress that will lead to a trickle-down benefitting all of society" (Bina, 2013, p. 1029).

The 'greening' approach seeks a more comprehensive transition to a Green Economy, involving the attaining of resource-efficient, low carbon growth (ibid). Bina cites the UNEP (2009) *Global Green New Deal* as emblematic of this approach (ibid). An apt, and more recent example would be J. Asafu-Adjaye et al. (2015) "An Ecomodernist Manifesto". According to Bina, this approach has its roots in the 'technoscientific program', as it sees technological advancement as the means through which perpetual economic growth can be balanced with environmental protection. Bina sees this approach as representative of a partial theoretical transition away from neoclassical economics to what she describes as more "Polanyian-inspired propositions…, as a step towards (or return to) a stronger link between the economic and political spheres, beyond the rediscovered role of the state, in an attempt to reembed economies in society and culture" (ibid, p. 1029). The evocation of Polanyi's notion of disembedded and embedded economies is astute. Capitalist society extols the virtues of productivity growth for the sake of productivity growth, as economic action is increasingly disembodied from society and the environment.

Within the third, 'all change' approach, Bina identifies three aims: "prosperity beyond growth, a steady-state economy where negative externalities are reduced and eventually eliminated, and the building of autonomous and thrifty convivial societies emphasizing well-being" (ibid, p.1030-32). What is unique about this approach relative to the others, is the abandonment of the dominant growth paradigm in favour of a steady-state or no-growth economy, in which the stock of physical capital is held constant. Again, borrowing from Polanyi, the 'all change' approach seeks a cessation of the subordination of society and the environment to the needs of the economy (ibid, 1032). Instead, 'progress' is defined as advancement in terms of human well-being and happiness (ibid).

Bina's typology proves useful to my analysis here primarily for the reason that it forces any Green Transformation program to acknowledge its stance relative to the dominant growth paradigm. While I maintain that a substantial increase in the role of the state is essential to an efficacious Green Transformation, I remain skeptical about the utilization of Keynesian principles to perpetuate the growth paradigm. This is not to problematize Keynesian macroeconomic principles, which have historically proven quite successful in economic recoveries while ushering in *Les Trentes Glorieuse*. It is this success however, that renders Keynesianism incompatible with sustainability.

"Green Keynesianism" blames the ecological crisis on unfettered financial capitalism, seeking instead a Keynesian reinvigoration of industrial capitalism, or the 'real' economy. Yet it is this very flavour of capitalist production that fostered the unhealthy and unsustainable consumption patterns prevalent among the global north

today. The macroeconomic tinkering of the Keynesian era proved adept at attaining average growth rates of 5% for OECD countries from 1945 until the oil shock in 1973. Seeking a return to this level of economic growth implies entirely unsustainable levels of consumption, regardless of the extent to which renewables are incorporated in production. Vilifying the excesses of 'footloose finance' to borrow the phrase from Jessop (2012) is certainly warranted (p.21). Pining for a return to the golden era of industrial capitalism however, overlooks the historic role of the latter in contributing to global CO2 emissions. The words of Goldstein and Tyfield (2018) prove prescient in this regard:

…what we see happening with the invocation of Green Keynesianism is a split history. On the one hand, the twentieth-century Keynesian miracle is seen as a product of state intervention—whether through warfare or welfare—and Green Keynesians want to see a return to this sort of central authority to steer the economy. But on the other hand, there is an inseparable history of accelerating climate change over this same period, marked by many of the specific socio-technical assemblages (automobiles, airplanes, suburbia, disposability, etc.) that were being engrained into modern industrial life by this very same regime (Huber, 2013; Urry, 2014). To a large extent, this Keynesian miracle put in place the socio-technical conditions for an utterly toxic and unsustainable way of life—an infrastructure of waste-making at a planetary scale (Schnaiberg and Gould, 1994)" (p.87).

Towards a paradigm of sustainability

To help move past this growth paradigm we turn to British Political Economist Bob Jessop who stipulates that "a serious [Green Transition] requires: quantitative restraints on growth; a transformation in the quality of growth; and geographic, social and intergenerational redistribution of growth" (2012, p.22-23). With this in mind, I argue that a transition towards a steady-state or circular economy is necessary for the attainment of a truly sustainable society. An emboldened Keynesian or *dirigiste* state is necessary to transition our economy to a more sustainable model, but effective, only if we simultaneously abandon the growth imperative. A sustainable future is best secured through a mixed-economic model. The state should undertake the investment in 'green' technology and infrastructure, building mass transit, retrofitting buildings etc., while the market remains responsible for the transaction of goods and services within a steady-state framework (Pettifor, 2019, p. 99). As Byrne's analysis demonstrated, the steady-state economy will be further characterized by high-employment.

Moving forward, there is need for a profound and transformative shift in the ways in which we measure development, particularly in the field of economics, in order to account for environmental constraints. With the effects of climate change already beginning to threaten our continued existence on this planet, we cannot, in good conscious, continue to subordinate society to the stated aim of productivity and consumption growth in perpetuity. This is not to demand that

society stagnate, but rather to see 'progress' measured instead by well-being, quality life or human happiness metrics. While physical capital will be held constant in a sustainable future, Pettifor tells us "What will not be held constant is culture, care, love, inheritance, knowledge, goodness, ethical codes, empathy, intelligence, judgement and so forth – embodied in human beings" (2019, p.95). Economist Kate Raworth (2017), demonstrates that our economy can function to attain various quality of life goals, such as food and water, healthcare and housing, gender equality and political voice – the 12 social priorities set out in the United Nations Sustainable Development Goals, without compromising Earth's critical life-supporting systems, or its planetary boundaries (p. 217).

Society is entirely capable of development in the realms of health, education and the environment, without the need to see growth in our production of goods. This is the very argument proffered by Nobel Prize award winning Economists Joseph Stiglitz, Amartya Sen and Jean Paul Fitoussi (2010) in their report *Mismeasuring Our Lives: Why GDP Doesn't Add Up*. They argue that GDP is a deficient measurement of well-being, positing more sustainable replacement metrics in its stead: measures of economic welfare, measures of savings and wealth, and 'green GDP'. Their work was so influential that the Organization for Economic Cooperation and Development (OECD) developed its own alternative to GDP: The *Better Life Index,* which traces advances in material living and quality of life through the combination of 11 different indicators: housing, income, jobs, community, education, environment, civic engagement, health, life satisfaction, safety and work-life balance. Policy makers would do best to incorporate alternative metrics to GDP when evaluating policy proposals. Likewise, economists should no longer seek to manufacture efficiency in terms purely of productivity growth, but rather gear their research towards sustainable ameliorations in human quality of life.

Concluding Remarks

This paper has demonstrated that market mechanisms on their own are insufficient to fostering the type of economic Green Transformation necessary for a drastic reduction in GHG emissions. Only a *dirigiste* state can eliminate negative externalities, and bring about the immediate large-scale investment in green technology and infrastructure a sustainable future necessitates. Any Green Transformation that does not abandon the fixation on productivity growth in perpetuity will fail to foster a truly sustainable future. It is imperative that we move our economy to a steady-state framework in which the quantity of physical capital is held constant.

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