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Degrowth, steady state economics and the circular economy: three distinct yet increasingly converging alternative discourses to economic growth for achieving environmental sustainability and social equity

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ABSTRACT

Criticisms of the neoclassical economic framework and perpetual growth in GDP terms are not a new phenomenon, although recent years have seen increasing interest in alternative and ecological discourses including degrowth, steady state and circular economics. Although these may initially appear as distinctly different discourses, they are highly compatible and comparable, sharing similar, often nearly identical principles and policy proposals. A more collaborative, joined-up approach aimed at integrating alternative discourses is required in order to build a coherent, credible, well-supported alternative, as there is more uniting than dividing these critical voices, particularly in the face of mainstream political and economic debates that are shaped by neoclassical economics.

1. INTRODUCTION

Governed by neoclassical economics, the economies of modern-day Western democracies are designed to pursue economic growth as a means of increasing economic and social welfare, nationally as well as at the level of households and individuals. Short- and long-term threats posed by climate change, exacerbated by high levels of carbon-intense economic activity, as well as poverty and inequality in both developed and developing nations are increasingly bringing into question the fitness for purpose of economic growth in truly achieving social equity in an environmentally sustainable manner. Though still largely marginalized from mainstream political and economic debates, alternative discourses to growth, stemming predominately from the field of ecological economics, are becoming increasingly prominent. Two particularly notable such discourses are those of degrowth and the steady state economy (SSE). A third but less well-established discourse is that of the circular economy, one that, strictly speaking, does not fall into the realm of ecological economics, but can be adapted and integrated.

Though the conceptions of alternative discourses are not entirely new, both degrowth and steady state economics have seen rapid expansion in research interest as well as media and public attention over the last five to ten years. The fact that the first and second international conference on economic degrowth were held in 2008 and 2010 respectively, with a third and larger iteration to be held in September 2012, as well as the first conference on the steady state economy being held in 2010, the 2010 foundation of the Post Growth Institute as well as other organisations critical of economic growth, all serve as a testament to their increasing prominence. This paper aims to unpack the alternative discourses of the circular economy, degrowth and steady state economics, by analysing the theoretical underpinnings as well practical implications of each.

Throughout this analysis, the ways in which each discourse is envisaged to function both in theory and in practice are considered. However, it should be noted that it is uncertain what they would actually look like in practice. These alternative discourses have not necessarily been tried and tested, at least at large scale. While certain policies are proposed, they cannot necessarily be guaranteed to work to the letter. This is best demonstrated by neoclassical economics; theory is very different from practice. There is no guarantee that this wouldn't also hold true for ecological economics. Of course the articulation of policies is important, not least for purposes of encouraging debate and demonstrating that alternatives are possible, at least in theory.

Throughout this paper, the circular economy is understood as a system that is designed to be restorative and regenerative; restoration replaces the 'end-of-life' concept for products, energy systems are shifted towards renewable technologies, toxic chemicals that impair reuse are eliminated and waste is eliminated to the greatest extent possible through improved materials, products and systems design (Ellen MacArthur Foundation 2012). Degrowth is defined as a socially sustainable and equitable reduction (and stabilisation) in society's throughput, where throughput denotes the materials and energy a society extracts, processes, transports and distributes, to consume and return back to the environment as waste (Kallis 2011). A steady state economy is one that undergoes neither growth nor recession, resulting in a constant rate of throughput (Czech and Daly 2004). Much like the degrowth scenario, it too is environmentally sustainable and socially equitable.

The brief definitions for these alternative discourses may not seem conflicting or mutually exclusive. Indeed, degrowth, the steady state as well as the circular economy, albeit to a lesser extent, share certain principles and goals. As noted by Spash (1999), there is a certain level of consensus regarding the key features of any new paradigm, such as the recognition of ecological limits and ecosystem constraints, concerns for equitable, fair and effective economic systems as well as intergenerational justice. Although from an external perspective there may appear to be three distinct schools of thought, in actual fact the lines are blurred; the principles are shared, the visions overlap – in short the discourses are converging. Nonetheless, certain distinct differences do remain, but further collaboration for a more integrated message is required in order to achieve maximum possible credibility and influence public and political spheres.

The methodology employed is a literature review of mainly academic journal articles presenting and debating alternative discourses to economic growth. A text analysis of key publications and resources from relevant conferences is also carried out. Section two provides some brief, additional background information. Sections three, four and five successively discuss the circular economy, degrowth and steady state discourses. Each contains a subsection on the features and principles of the discourse as well as considerations and observations. Section three on the circular economy contains a subsection on potential benefits; specific policy proposals were not available or presented in the same manner as for the degrowth and steady state discourses, which both, as part of this analysis, contain a subsection on proposed policies. Due to certain restrictions including time and length, limitations were placed on the extent to which a detailed policy analysis for the steady state and degrowth discourses can be undertaken, not least due to the sheer volume of literature that exists for each. A brief round up of how the three narratives can be combined is provided in section six. Conclusions are drawn in section seven.

2. BACKGROUND

The most basic rationale behind degrowth, steady state and circular economy discourses is essentially the same, i.e. that human societies must operate within the ecological limits of the planet, and that this is something the dominant economic paradigm and industrial model fails to guarantee.

Although the circular economy approach does not oppose economic growth, degrowth and the steady state do, and for very similar reasons. Despite increasing levels of wealth in developed countries, subjective well-being stagnates after certain income levels (Jackson 2011). Despite increasing technological efficiency, negative environmental impacts, including rising carbon emissions and resource depletion, are not eliminated (ibid). Economic growth and the pursuit of an endlessly increasing Gross Domestic Product (GDP) is not addressing key social and environmental concerns, yet even in the wake of the ongoing financial crisis, return to growth is the paramount policy objective of nearly every developed nation. It is therefore argued that GDP should not be as prominent as it currently is; indicators of human and social welfare as well as reported levels of life satisfaction should instead take centre stage.

Fundamentally, it is argued that a new industrial model (in the case of the circular economy) and more broadly, a new macroeconomic model (in the case of degrowth and steady state economics) is required; one that will be ecologically sustainable and socially equitable.

3. THE CIRCULAR ECONOMY

3.1 Features and principles

The principles behind a circular economy are not novel; concepts of operating within finite natural resources by extending the product-life of goods to reduce resource depletion and therefore waste were put forward by Walter R. Stahel in his 1982 Mitchell Prize Winning Paper, *The Product-Life Factor*. The Ellen MacArthur Foundation, or EMF (2012) recently revived circularity concepts, investigating circular economy business models across the European Union in order to identify success stories, determine the factors that lead to success, obtain an insight into which sectors and products possess the greatest potential for circularity and investigate the wider potential economic effects of such an industrial model.

As described previously, a circular economy is based on changing the linear ‘take, make and dispose’ model through restoration and regeneration of industrial products, with the aim of preventing material leakage and disposal (EMF 2012). It is based on the key principle of designing-out waste, such that products are designed and optimised for multiple life cycles of disassembly and reuse, employing renewable energy systems to power the circular cycle, thus decreasing non-renewable resource depletion and building resilience against external shocks, such as oil shortages (ibid). The designing-out of waste is differentiated from current disposal and recycling methods, as large amounts of energy and labour are lost in such processes (ibid). The inherent nature of the circular industrial process will entail a rethinking of ownership, whereby products are not owned by individuals but rather leased by manufacturers who re-collect and re-process the raw materials at the end of each lifecycle (EMF 2011). Re-thinking of ownership is also an issue raised by the degrowth and SSE

discourses, though in a broader sense and from a different perspective, as briefly described in Table A1.1 (van Griethuysen 2010, Jackson 2011).

3.2 Benefits

The circular economy is increasingly moving from theory to practice, as case studies do exist where the concepts are being implemented for certain products and within certain business models (EMF 2012). Circularity presents the possibility of decoupling revenues from material input, leading to material savings and reduction of supply (EMF 2012), and can therefore be appealing for companies. As recollection of products is necessary, companies will have to increase the rate at which they recuperate components; currently few industries reach a collection rate of even 25% (ibid). After analysis of options for various types of resource intense products it was concluded that the circular economy could deliver a range of benefits, including (EMF 2012):

- Reduction of 50% in mobile phone remanufacturing costs
- Accessibility of high-end washing machines for most households, if leased instead of sold, also contributing to savings in resource use and reduced CO₂ emissions
- Potential savings of \$1.1 billion for the UK on landfill costs by keeping organic food waste out of landfills

The concept was found to be economically viable and scalable for a range of products, beyond those investigated by the study (EMF 2012). In addition to the benefits listed above, it is argued that economies, companies and consumers and users all stand to win from a circular economy, as illustrated in Table 1 (EMF 2012).

Table 1: Benefits from a circular economy for key stakeholders (EMF 2012)

How economies win	How companies win	How consumers and users win
Substantial net material savings	Reduced material bills and warranty risks	Reduced pre-mature obsolescence (due to build-to-last or reusable products, which can also reduce ownership costs)
Mitigation of volatility and supply risks	Improved customer interaction and loyalty	Increased choice and convenience
Potential employment benefits	Less product complexity and more manageable lifecycles	Potential for the accrual of secondary benefits, if products deliver more than their basic function
Reduced externalities		
Long-term economic resilience		

As mentioned, one of the benefits of the circular model is that some firms and companies are already adopting it, as it is promoted in the context of further economic growth. However, large-scale implementation requires buy-in from more or most of the major companies that

form economies and infrastructure in order to reach a fully circular economy (EMF 2012). The prospect of a full-scale circular economy is also gaining academic and political momentum; as a nation that is not rich in environmental or natural resources and therefore interested in material recovery as well as cost of energy China is a prime example of this (Pin and Huta0 2007).

3.3 *Considerations and observations*

Following the key concepts and potential benefits offered by a circular economy the EMF report concludes by outlining a basic vision for ‘mainstreaming the circular economy’, i.e. making it the rule, not the exception (EMF 2012, 12):

“The mainstreaming phase will involve organizing reverse-cycle markets, rethinking taxation, igniting innovation and entrepreneurship, stepping up education, and issuing a more suitable set of environmental guidelines and rules – especially with regards to properly accounting for externalities. [...] Such a transition offers new prospects to economies in search of sources of growth and employment. [...] Its inception will likely follow a ‘creative destruction’ patten and create winners and losers.”

Although not elaborated in detail, some of the key aspects that must be considered in moving ahead with a circular economy are therefore proposed, including taxation, innovation, education and so on. The second and third sentences however, namely explicit reference to economic growth and creative destruction, are of particular interest and relevance to the current analysis.

Focusing specifically on the industrial model, the discourse is not critical of the status quo regarding the prevailing economic policy of economic growth, explicitly suggesting compatibility with and operation within the neoclassical economic framework. Furthermore, Jackson (2011), from an SSE perspective, denounces the concept of ‘creative destruction’ as it accompanies economic growth. The circular economy is therefore, strictly speaking, not an ‘alternative discourse to economic growth’, but rather an ‘alternative growth’ discourse. Furthermore, it is far less developed than the concepts of degrowth and steady state economy (a simple Google search or search for academic literature is enough to validate this); further elaboration is therefore required. As such, ample consideration is not given to a number of key aspects including population, employment, international trade, the role of various institutions, the ways of ‘measuring progress’ and so on, all of which take greater prominence in the degrowth and SSE discourse (although, since envisaged to operate in the present economic framework, perhaps as detailed an analysis for a circular economy is not required, but would nonetheless prove useful). Although resource depletion and limits to natural resources are recognised, and the idea behind circularity is precisely one of limiting depletion and throughput as in a degrowth or steady state economy (Pin and Huta0 2007), the notion of scale is also not adequately dealt with. This can be a problem for example, under a scenario where population is growing and although the circular model limits resource consumption *at a given point in time*, the level of consumption may have to change due to changes in population.

The unprecedented levels of technological efficiency improvements and decreased intensity of economic activity required for growth to be sustainable are clearly laid out and deemed unattainable by Jackson (2011). A 130-fold reduction in carbon intensity (assuming economic growth continued as it did until 2007, with income equalizing around the world) would be required by 2050 to remain within safe CO₂ emissions limits (Jackson 2011, 123-133). The possibility of changing the ‘engine of growth’, as proposed by some, is analysed, examining the notion of ‘green growth’. It is concluded that green alternatives would still take a toll on natural resources, not least due to the rebound effect, whereby the positive impact of green goods and services is cancelled out by increases in production and consumption; such alternatives are therefore seen as “unrealistic and self-contradictory” (ibid). However, the circular economy does not constitute one of the alternative ‘engines of growth’ considered by Jackson. It should therefore be noted that the implications of a circular economy on resource depletion, throughput and efficiency improvements in a scenario akin to what Jackson (2011) proposes, are unclear. If implemented large-scale, a circular economy has the potential to fundamentally change the economic intensity. Further investigation into the exact implications and effects would provide interesting and useful research.

At first glance, circularity may appear at odds with the ecological economic discourses of degrowth or SSE, but this need not necessarily be the case. Notions of circularity, or decreased throughput combined with increased product durability and regeneration are conveyed through both the degrowth and SSE literature (Daly 2008, Second International Degrowth Conference 2010). Although the Ellen MacArthur Foundation’s circular discourse analysed here belongs to the neoclassical economic approach, its fundamental aspects and principles can and should be adapted and integrated into the ecological approaches.

4. DEGROWTH

4.1 Features and principles

Broadly speaking, sustainable degrowth entails “an equitable downscaling of production and consumption that increases human well-being and enhances ecological conditions at the local and global level, in the short and long term” (Schneider et al. 2010, 511). With the primary objective of achieving well-being, ecological sustainability and social equity, sustainable degrowth does not specifically aim to reduce GDP, though this will decline due to reduced large-scale, resource-intensive economic activities that currently constitute a big portion of GDP (Schneider et al. 2010).

Sustainable degrowth is differentiated from unplanned degrowth (or recession) within a growth economy, as degrowth is a voluntary, smoothly planned and equitable transition to a state of lower production and consumption (Kallis 2011, Schneider et al. 2010). The voluntary and democratic nature is paramount; it cannot be imposed externally as an imperative (Schneider et al. 2010). However, the chances of people being involuntarily forced into degrowth lifestyle changes are constantly increasing due to looming ecological limits including peak oil and gas, exacerbated by the financial crisis (Davey 2008). There is a narrow ‘sustainability window’ for a successful and smooth transition; policies promoting

low rates of economic growth and increased investment in renewable energy will expand it (D'Alessandro et al. 2010).

The degrowth community is diverse, consisting of scholars from various philosophical backgrounds and intellectual sources (Schneider et al. 2010). This is important in understanding that while there is not necessarily a single, dominant consensus view amongst degrowth proponents regarding necessary measures for a transition, there exists at least some level of agreement extending beyond principles, translating into policy suggestions, albeit often basic and not fully developed ones. This is evidenced by the documents and resources emerging from the first and second international degrowth conferences, some of which will be discussed in greater detail.

4.2 *Proposed policies*

A list of key policies put forward at the Second International Degrowth Conference (2010) is available in Table A1.1, Annex 1. The Table also contains a list of steady state policies arising from the SSE Conference (2010). Though extensive, Table A1.1 is not exhaustive; many other policy proposals exist in both the degrowth and SSE literature. However, in order to provide an overview as well as comparison of the types of policy interventions these discourses advance within the time and length restrictions, some main points arising from the conferences for each are discussed.

Employment. One of the key policies is the reduction of working hours and the working week in order to place greater emphasis on leisure and other activities. Providing more opportunities for part-time work will also enable work opportunities to be divided more equally amongst the labour force. Tax reform should focus on taxing resources as opposed to labour (Second International Degrowth Conference 2010).

Basic income. Providing all citizens with a basic income (BI) is regarded as a means to decreasing social inequity while contributing to the degrowth process (Mylondo 2008). The reason it contributes to degrowth is twofold. Firstly, granting all citizens a BI eliminates the need to work, and secondly, to be funded, it requires increasing taxes on other incomes, diminishing the profit generated from work, something regarded as a positive and welcome outcome within the degrowth context (ibid).

Waste reduction. Products should be designed to be more eco-friendly, with a cradle-to-cradle (as opposed to cradle-to-grave) lifecycle to encourage reuse and avoid resource depletion; goods should be treated and disposed as locally as possible in order to minimise waste production. The 'cradle-to-cradle' approach is essentially the industrial model proposed by the circular economy, thus a 'circular' approach is indeed consistent with and can be embedded into a degrowth economy.

Measuring progress. Progress towards sustainable degrowth should be measured. Though not explicitly referred to in the workshop outcomes of the conference, the Proceedings document from the First International Degrowth Conference contains a contribution on 'The indicators of tomorrow' (Du Crest 2008). Three structural indicators are proposed, as shown

in Table 2. The indicators are based on “the state of the planet at a given point in time, from the triptych of sustainable development” (ibid, 93), driven by relationships between:

- Social and economic
- Environmental and social
- Environmental and economic

Note here, it is not depending on the *state of* (but rather the *relationships between*) those three cornerstones (Du Crest 2008).

Table 2: Proposed indicators for measuring progress towards sustainable degrowth
(Source: Du Crest 2008, 94)

Relationships	Indicators	Dimesnion
Social/economic	Time spent on non-business activities/ time spent on remunerated work	Time
Social/environment	Area taken up in catering to human needs/areas set aside for other species	Space
Environment/economic	Ecological footprint: equivalent space used by man for his needs and to absorb his waste products	Space/time

With regards to governance and transition, degrowth scholars are often more critical of capitalism as a viable system for a degrowth or zero-growth economy, sometimes preferring socialist alternatives (Schrieftl et al. 2008). Steady state discourse is more welcoming of the possibility for a zero-growth economy to function within a capitalist society; Jackson (2011) emphasizes the fact that a steady state regime will be different to one of growth and whether or not it results in capitalism is not important. Lawn provides a detailed account and explanation suggesting not only that steady-state capitalism is feasible, but also that this would be the best means of reaching true sustainability (Lawn 2011).

4.3 Considerations and observations

As is evidenced from Table A1.1, degrowth and steady state discourses are becoming increasingly complementary to each other, something acknowledged and emphasized by both the degrowth as well as steady state schools of thought. As noted by Schneider et al. (2010, 512), “[In sustainable degrowth], the adjective ‘sustainable’ does not imply that degrowth should be sustained indefinitely (which would be absurd) but rather that the process of transition and the end-state should be sustainable in the sense of being environmentally and socially beneficial”. Kallis (2011) also suggests the reduction and eventual stabilisation of throughput, implying a steady state economy. The notion of a steady state following an initial period of degrowth is increasingly the vision of degrowth proponents. The final conference declaration from the First International Degrowth Conference specifically states, “Once right-sizing has been achieved through the process of degrowth, the aim should be to maintain a “steady state economy” with a relatively stable, mildly fluctuating level of consumption,” (First International Degrowth Conference 2008, 318) whereby right-sizing signifies remaining within the Earth’s ecological limits. The second iteration of the international degrowth conference went a step further in suggesting a closer collaboration between the

steady state and degrowth schools of thought, through uniting macroeconomic modeling (Second International Degrowth Conference 2010).

5. THE STEADY STATE ECONOMY

5.1 *Features and principles*

Notions of the steady state, originally appearing even before the industrial revolution (Smith 1776), have evolved over time and currently appear to be the most clearly, concretely and extensively developed alternative discourse to economic growth, both in terms of volume of academic literature (though increasingly rivaled by the degrowth discourse) and in terms of suggested policy proposals (Czech and Daly 2004, Victor 2007, O'Neill et al. 2010, Jackson 2011, 171-186). Herman Daly, one of the most prominent SSE proponents, has recently advocated a quasi steady state economy that is “neither static nor eternal – it is a system in dynamic equilibrium within its containing, sustaining and entropic biosphere” (Daly 2007, 117).

The underlying principles of SSE are, to a great extent, much the same to those of degrowth. It is not surprising then that the two discourses are increasingly converging, often even to the extent of offering identical transition policies. Nonetheless, areas of disagreement or disparity do exist both on the level of principles and that of policy, owing also to the fact that neither SSE or degrowth are a narrow, homogeneous community of scholars with an absolutely and clearly defined agenda. Overall however, progressively more sets the two discourses together rather than apart, and this is something that should be taken advantage of.

5.2 *Policy proposals*

Table A1.1 lists some of the policies outlined by steady state proponents. There is no policy included in the categories of pensions, infrastructure and housing. Policy considerations do in fact exist for these categories, at least the former two, within the SSE literature (Czech and Daly 2004, Jackson 2011, 171-186), however they did not form part of the recommendations of the Steady State Conference (O'Neill et al. 2010). For the purposes of this analysis and for reasons of clarity and comparability between the degrowth and steady state conference recommendations they are therefore not included.

It should be highlighted once again however that proposals for SSE appear to be more developed than for the circular economy and degrowth discourses. One of the most recent, accessible, extensive and seminal contributions to the field offers a wealth of recommendations, broadly under the three key headings of: establishing the ecological limits, fixing the economic model and changing the social logic (Jackson 2011). Jackson (2011) even goes as far as laying the foundations for the development of a new, ecological macroeconomic model, stressing that the need for its development is one of the biggest, if not *the* biggest priority in building credibility and steering such concepts from the fringes into mainstream political and economic debates.

Employment. As with the degrowth proposals, SSE recommends reduced working hours and a more equitable distribution of the available work. However, a further aspect (not articulated in the degrowth literature) is that government should act as ‘employer of last resort’ by

providing a Job Guarantee, an idea put forward by Mitchell and Muysken (2008). The Guarantee would provide minimum wage jobs to all unemployed people, primarily for the production of goods and services with public goods characteristics, thus enhancing the average skill level of the workforce (Mitchell and Muysken 2008, Lawn 2011).

Basic income. A citizen’s income as well as a maximum pay differential, whereby the highest paid employee in an organisation earns no more than a certain multiple of the lowest paid employee, are proposed.

Waste reduction. Caps for use of natural resources, based on available scientific evidence regarding the Earth’s carrying capacity, are proposed. Moreover, Daly (2008) suggests that goods should be produced to be more durable and longer-lived, proposing that a method of leasing products from firms to customers could achieve this. Once again the core principles of the circular economy are integral to and presented from a steady state perspective.

Measuring progress. A new set of indicators consisting of three headline indicators, as displayed in Table 3, are put forward. The potential headline indicator for environment, i.e. the ecological footprint, is also the chosen indicator for measuring the relationships between environmental and economic structures in Du Crest’s (2008) methodology shown in Table 2.

*Table 3: Proposed indicators for measuring progress towards in a steady state economy
(Source: O’Neill et al. 2010, 14)*

Indicator Group	Potential Headline Indicator	Description of Potential Headline Indicator
Environment	Ecological footprint	Biologically productive area necessary to generate the resources consumed by a nation, and absorb the wastes produced.
Economic system	Income inequality	Size of the gap between society’s richest and poorest citizens.
Human Well-being	Happy life years	Combination of life expectancy (an objective measure) and life satisfaction (a subjective measure).

5.3 Considerations and observations

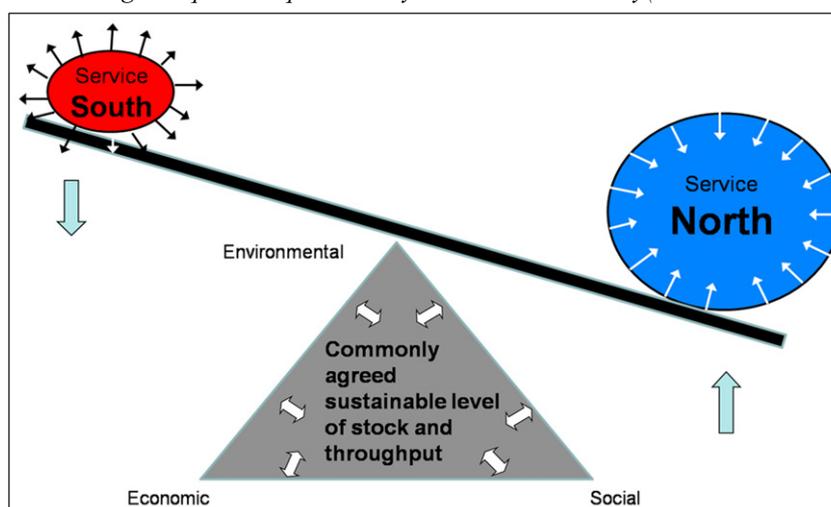
Once again the various common and overlapping policy goals make it evident that steady state and degrowth discourses are increasingly complementary. Degrowth is explicitly referred to in certain SSE literature. The report from the 2010 Steady State Economy Conference states, “the UK and other wealthy countries must stabilise, if not *degrow*, their economies in order to provide the ecological space needed for poorer nations to grow” (O’Neill et al. 2010). O’Neill et al. (2010) also claim that financial and other resources should be directed at developing countries to assist them in developing “in less materialistic ways.” On the other hand, Serge Latouche, a staunch degrowth proponent, advocates that degrowth must apply to developed and developing countries in order to avoid “rushing up the blind alley of growth economics” (Latouche 2004). Furthermore, Latouche (2004) suggests

that the aim for the Global South should not be development but rather disentanglement, whereby the obstacles that prevent a different pathway and method of development are removed. While undoubtedly different, the O'Neill et al. (2010) and Latouche (2004) approaches are not necessarily in complete contradiction with each other. While the latter denounces growth altogether and prioritises disentanglement over traditional, Western growth-based development, the former advocates a less materialistic development, i.e. non-traditional development. Once again there appears to be increasing scope for further dialogue and collaboration between the steady state and degrowth camps.

6. DEGROWTH, STEADY STATE OR CIRCULAR?

This analysis has proved that the three discourses of degrowth, SSE and the circular economy are not worlds apart. Though the most comprehensive vision of a circular economy is envisaged to work within a growing economy, both the circular and steady state schools of thought have embraced and integrated its basic principles. Incorporating the key aspects of both a steady state economy and degrowth, Kerschner (2010) clearly indicates that the latter is merely a transition to the former. “Economic degrowth in the [global] North provides a path for approximating the goal of a globally equitable steady state economy by allowing some more economic growth in the South” (Kerschner 2010, 549). This is illustrated schematically in Figure 1 below.

Figure 1: Balancing an equitable quasi steady-state world economy (Source: Kerschner 2010)



The triangle in Figure 1 is the stock-throughput and represents a quasi SSE with strong social, environmental and economic sustainability, but will most likely have to shrink over time (Kerschner 2010), if global throughput is to be limited. Kerschner (2010) suggests that defining the actual size of the triangle, even for a short period of time, is highly problematic if not entirely impossible, and therefore argues that the steady state is rather an “unattainable goal” which should nonetheless be strived towards in the long-term.

Bringing the three discourses together, one could suggest a degrowth transition into a steady state economy (or as close to it as possible), one that also integrates the notion of circularity in its model of production.

7. CONCLUSIONS

This paper provided an overview of three increasingly prominent discourses, each of which would fundamentally change the ways in which our economies work. The theoretical background as well as practical policy measures required to successfully transition were presented for the steady state, circular economy, and degrowth.

The current economic paradigm of continued growth – operating within the framework of neoclassical economics – is not proving ecologically sustainable or socially equitable. Alternative discourses are becoming increasingly prominent. Ranging from the circular economy, which is envisaged to operate within the neoclassical framework, to a proposed degrowth transition into a steady state, based on ecological macroeconomics, the case is being made. From an outsider's perspective these may appear to be three distinctly different discourses, however they are not mutually exclusive but rather highly compatible and complimentary to each other. Though Circularity may strictly not belong to ecological economics it is increasingly gaining the attention of governments and businesses, even being adopted by some firms for business planning purposes, something that both the SSE and degrowth have failed to succeed in to date. Though ideological and other differences are likely to persist given the diverse backgrounds of SSE, circular and degrowth proponents, a more collaborative, joined-up approach that is aimed at integrating these alternative discourses to as great an extent as possible will build a strong, credible and well-supported alternative. After all there is more that unites than separates these discourses – from principles to policy interventions – especially when compared to the rather ubiquitous neoclassical economic view of the world.

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ANNEX 1

Policies advocated for by the degrowth and steady state economy discourses, as presented at relevant conferences, are presented in Table A1.1 below.

Table A1.1: Policy proposals for degrowth and the steady state economy (Source: Second International Degrowth Conference 2010, O'Neill et al. 2010)

Policy	Degrowth Discourse	Steady State Discourse
Employment	Reduced working week and working hours, with more time for leisure and other activities. Encouraging work-sharing and part-time work, legislation that supports co-housing, tax reform with a focus on taxing resources, not labour.	<p>Instead of using technological progress to produce more goods and services (as we tend to do today) we should use it to increase leisure time by gradually shortening the paid working day, week, year, and career.</p> <ul style="list-style-type: none"> The gradual reduction of working time would help keep unemployment low by distributing available work more equally. <p>Government to act as ‘employer of last resort’ and guarantee jobs for all the unemployed (as it guarantees primary education and healthcare).</p>
Population	Full reproductive rights that take into account environmental and social consequences for humans and other species. Opposition to government drives and incentives in certain countries to increase population; the declining rate of population growth and peak population are welcome.	<p>In the UK, government should develop and adopt a non-coercive stabilisation policy:</p> <ul style="list-style-type: none"> Aim to balance immigration & emigration Aim to incentivize family sizes of two or fewer children <p>Globally, UK to support policies that provide education, access to birth control and equal rights for women everywhere.</p>
International trade & cooperation	Global trade must be democratized and focused on social and environmental sustainability: there should be a new, democratic trade organization that shifts away from “free trade” and growth as the fundamental basis.	<p>Democratisation of international organizations (UN, WB, WTO) to represent interests of the majority of the people on the planet.</p> <p>Technology transfer from wealthier to poorer nations.</p> <p>Goods and services to be produced locally, where practical</p> <p>Capital controls and minimum residency time for foreign</p>

		investment to prevent capital flight.
Changing consumer behaviour	Use a bottom up as well as top down approach to limit advertising. From community child protection against advertising, to banning advertising in public spaces.	Shift towards ‘mass behaviour of enoughness’ (sufficiency): <ul style="list-style-type: none"> • Recruiting influential individuals as agents of change. • Supporting organizations that challenge or contradict consumerism. • Promoting the benefits of non-materialistic lifestyles. • Creating infrastructure to encourage the emergence of new forms of corporate and civic entities. • Overcoming resistance from large corporations and the state.. • Tapping into some of the core human motivations such as collectivism (individualism, power, status, achievement are only some of the human motivations).
Tax reform	<i>See employment policy</i>	Ecological tax reform: cap-auction-trade systems for natural resource usage/depletion (note this is different to Pigouvian or simple pollution and resource depletion taxes!).
Monetary system	An alternative monetary system should be established. Governments need to allow the use of alternative (e.g. local) currencies. There should be an international research network for alternative monetary systems, to share information and best practices. Many questions still exist with regards to alternative currencies, e.g. what is their potential to transform the international monetary system? How is demand for them increased? Should the powers of private banking to create money be removed?	To prevent inflation, government taxation and expenditure should be linked to the system of money creation. Communities should be encouraged to create their own currencies to support local economic activity. The UK to promote and participate in a global negotiation to create a neutral international currency to replace the reserve currencies in use today.
Waste reduction	Minimisation of waste production by ensuring production, treatment and disposal of goods as locally as possible. Legal instruments to reduce waste should also be employed. Additionally, ensuring eco-design and cradle to cradle product lifecycles to encouraging reusing and avoid depletion of natural resources.	Caps for resource use, based on available scientific evidence regarding ecological limits <ul style="list-style-type: none"> • Caps should be top-down, starting from global level all the way down to local communities (but managing resources within caps should be done at local level) Will require a system to measure material throughput of the economy as well as the social and environmental consequences of that throughput.
Pensions	Transition to a secure pensions system via a progressive taxation system focused on income (100% taxation above	<i>N/A</i>

	maximum income) as well as green taxation for increased pension funding	
Ownership & private property	Restriction of private property, to halt the commodification of nature and returning to a democratic management of natural resources.	Transition to a new economic order would require us to re- envision fundamental economic concepts such as investment, productivity, and ownership.
Limiting inequality	A basic income for all is desirable.	Progressive taxation and generous social programmes: <ul style="list-style-type: none"> • Citizen's income (i.e. basic income) • Maximum pay differential (i.e. maximum wage)
Infrastructure	Certain infrastructures should be limited or abandoned altogether. Nuclear incinerators, high speed trains and large-scale dams should be abandoned. Highways, airports and long distance transportation infrastructure should be limited. Certain existing infrastructure should be transformed: smaller, more compact cities, converting car based infrastructure to walking and cycling infrastructure.	<i>N/A</i>
Business & production	Limit the size of company for maintaining the rationality of satisfaction of local needs. Change institutions to abolish the profit dividends and profits of distant shareholders that don't take part in the activity. The social economy would be driven by people directly engaged on the labour force of economic and social activities and not only as investors.	Firms should aim for the 'right-size profits'. <ul style="list-style-type: none"> • I.e. large enough to maintain financial viability without causing environmental damage. • Firms to be given information on a) total ecological impact and b) ecological allowance. Alternative forms of business – shift towards cooperatives, foundations and community interest companies (e.g. that have primary goals that are socially beneficial, with profit as a secondary motive). <ul style="list-style-type: none"> • Such organizational forms are not as preoccupied with growth as profit-maximising shareholder corporations. • Governments should encourage such businesses by making them easier to set up or switch to and by taking away excess profits from shareholder companies.
Housing	Occupy empty housing and encourage shared (communal) housing. Encourage architectural research into alternative housing such as collaborative design of reused/empty buildings into cohousing with residents, material reuse, etc... Impose a large tax on unoccupied housing as well as	<i>N/A</i>

	state purchases of houses that would be repossessed, to turn them into public cohousing.	
Local food production / agroecology	Focus on local food production. Agroecology should be prioritised over other forms of agriculture; policies currently financing industrial agriculture should stop in order to provide funding for agroecological alternatives. Urban and rural localized food farming must be encouraged.	<i>See international trade & cooperation policy</i>
Fostering democracy	Foster “deep democracy”. Create spaces for enhanced participation in politics and decision-making (e.g. citizen juries); de-commercialise and de-commodify politics.	Democratization of institutions where inequality originates, especially in the work place. Promote employee ownership, cooperatives, etc...
Engaging politicians, the public and the media	<p>Allow room for different pedagogies in order to promote creativity and diversity. Promote cooperation early on in the process of education development, e.g. by involving the community in the formation of curricula.</p> <p>Education oriented around self-determination:</p> <ul style="list-style-type: none"> • Raise political and critical awareness in order to evolve collectively and in harmony. <p>Reexamine the methods of evaluation and standard setting, and promote inter-generational knowledge sharing and informal education.</p>	<p>New forums should be identified (or created) to engage decision makers and opinion influencers in an active debate about the problems of growth and potential economic solutions.</p> <p>Need a more rigorous modeling and elaboration of how an SSE would work in practice, and how ecological limits can be reflected and respected in policy.</p> <p>Collaboration and agreement amongst leading business schools and economics departments to include compulsory coverage within degree courses, of the different views concerning sustainability and the limits to growth.</p> <p>Need a more public and accessible image and name that resonates with the general public</p>
Measuring progress	Progress towards sustainable degrowth should be measured. Environmental and social indicators, qualitative and quantitative aspects, as well as objective and subjective indicators should be used.	<p>New system of indicators that separates ends (goals) from means (methods of achieving those goals)</p> <ul style="list-style-type: none"> • The set of indicators should include 3 groups, each with a ‘headline’ indicator: Environment, Economic system, Human well-being