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Perspective

Are the circular economy and economic growth compatible? A case for post-growth circularity

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The circular economy is often heralded as a panacea that will allow green growth (i.e., decoupling economic growth from the ecological impacts associated with economic activities). While the circular economy is a popular topic on many countries' political agendas, an expanding body of empirical evidence shows that, thus far, increases in the global gross domestic product (GDP) have been tightly coupled with an increase in the size of the material footprint and associated ecological impacts of the economy (Hickel and Kallis, 2019). Global absolute decoupling of GDP growth and resource consumption (i.e., a decline in the global material footprint in absolute terms while the global GDP continues to increase), a necessary condition for green growth, is still far from a reality (see Fig. 1).

Is a genuinely circular economy compatible with economic growth? There are, I argue, two main possible paths: persisting in attempting to reconcile the circular economy with economic growth or adopting a post-growth approach to the circular economy. This perspective analyzes these two paths and argues that only the latter is likely to be a viable option.

Regarding the first path, the current lack of absolute decoupling does not, in principle, preclude it from occurring in the future, for example due to technological breakthroughs or the large-scale uptake of circular strategies (Hickel and Kallis, 2019). Hence, in theory, attempting to reconcile a circular economy with economic growth seems worthwhile.¹ To determine whether such an effort could be successful, it is worth considering the circular economy in terms of the various circular

business model strategies proposed by Geissdoerfer et al. (2018): narrowing, slowing, closing, dematerializing and intensifying material loops. Narrowing loops, or resource efficiency, involves using fewer resources in the production of goods and services. Closing loops focuses on recycling materials. Slowing loops involves extending the use phase of products, for example through long-lasting designs and maintenance operations. Dematerializing loops focuses on providing service and software solutions as substitutes for physical products (e.g. product-as-a-service), while intensifying loops involves sharing products among multiple consumers (e.g. car-sharing).

Most of these strategies cost money and therefore negatively impact businesses' profit margins. Closing loops, for example, requires companies to bear the cost of recycling materials, while slowing loops requires them to offer repair and maintenance services. The same holds true for dematerializing and intensifying loops: making ultra-durable products to be rented, leased or shared among multiple consumers reduces turnover, as significantly fewer products must be sold to address consumer needs. Thus, these strategies directly run against a political economy that is premised on perpetual economic growth and pressures companies to squeeze costs and maximize shareholders' profits. In fact, in a growth-based economy, companies applying circular business model strategies are quickly outpriced and driven out of the market by cheaper, non-circular competitors.

The use of the narrowing loops strategy, however, represents an exception, as it seems to go hand in hand with profitability; in fact, many

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E-mail address: t.j.f.bauwens@uu.nl.¹ Some authors, however, have argued that the second law of thermodynamics and the inevitability of entropy impose insurmountable physical limits on decoupling and circularity (Ward et al., 2016).<https://doi.org/10.1016/j.resconrec.2021.105852>

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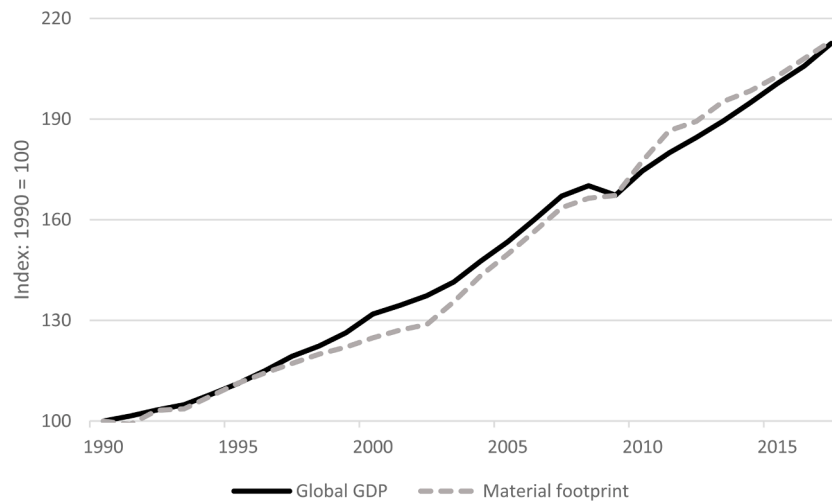


Fig. 1. Global evolution of GDP and material footprint. Source: United Nations Environment Programme, World Bank.

companies today use resource efficiency improvements to reduce their costs. However, these improvements do not seem to translate into an overall material decline, as, in a growth-based economy, they often lead to a so-called rebound effect (i.e., the partial or complete offset of environmental gains related to efficiency improvements by an increase in the number of products manufactured and consumed; [Hickel and Kallis, 2019](#)).

One may respond that this negative impact on firms' profitability and growth can be mitigated by the business opportunities offered by circular business models. For example, the decline in revenue related to product sales can be absorbed by adopting a product-as-a-service business model (i.e., by selling the functionality of goods rather than their ownership; [Geissdoerfer et al., 2018](#)). Similarly, the additional costs incurred by companies for providing repair and maintenance services and long-lasting products and ensuring that materials are recycled can be covered by premium pricing.

While these claims are true to some extent, these models have limitations of their own. Premium pricing is restricted to high-end customers who have the economic means to afford expensive and high-quality products, which limits the growth potential of this model in niche markets. It also poses a problem concerning the accessibility of products ([Khmara and Kronenberg, 2018](#)). Similar arguments hold for product-as-a-service business models, as the fees for leasing or renting products should cover the costs of ownership of the physical products borne by the companies (costs related to long-lasting design, maintenance operations, end-of-life solutions, etc.).

To level the playing field, governments could foster a circular economy by implementing policies such as requiring full producer responsibility and accurate pricing of environmental externalities ([Smeets et al., 2021](#)). As a result, companies that implement circular business model strategies would have a temporary competitive advantage and grow at the expense of companies that do not. However, this policy context would be incompatible with an ever-growing economy precisely because these strategies are costly and would eventually stifle companies' profits ([Smeets et al., 2021](#)). Furthermore, this issue would become worse over time. For example, with regard to recycling, materials degrade each time they are recycled due to entropy, which results in ever-rising energy inputs and thus ever-rising costs to maintain their quality ([Allwood, 2014](#)).

Thus, a circular economy will likely remain a mere pipe dream as long as the growth imperative drives the economy. None of this, however, is to say that the concept of a circular economy should be abandoned. To the contrary, from an environmental standpoint, it is crucial to pursue and promote circular business model strategies. However, attempting to create a circular economy while maintaining perpetual

growth is likely to pose an insurmountable challenge; instead, a post-growth approach to circular economy may be required.

Regarding this second path, I define a post-growth era as one in which macroeconomic goals are reoriented towards equitable down-scaling of production and consumption and wellbeing enhancement (see also [Schneider et al., 2010](#)). This is not to say that business organizations would have no role whatsoever to play in a post-growth economy and society, as some business organizations would even have to selectively experience certain forms of growth. However, a post-growth economy and society would entail a deep reconsideration of the very meaning of doing business, which would have to be recentred around the values of cooperation, care, sharing, community and solidarity instead of profit making for capital accumulation.

Post-growth businesses should embrace the principles of durability, efficiency and frugality that are at the heart of the circular economy ([Khmara and Kronenberg, 2018](#)). However, they should also go beyond these by actively striving to maximize the wellbeing of both humans and non-human life ([Nesterova, 2020](#)) through not only job creation but also community building and empowerment, and consideration for non-human life and its wellbeing. This can, for example, be done by adopting community or cooperative ownership characterized by democratic participation in decision-making and fair redistribution of economic surplus ([Bauwens et al., 2016](#)). Keeping business operations small-scale and localized to primarily serve local communities' needs ([Bauwens et al., 2020](#)), shortening working hours and cutting advertising are other ways to achieve these wellbeing outcomes.

These measures at the company level should be encouraged at the macroeconomic level by appropriate policies, which include, but are not restricted to, abandoning the blind pursuit of GDP expansion and redefining the measurement of macroeconomic performance based on indicators of social wellbeing and strong environmental sustainability, banning planned obsolescence and making producers fully responsible for the end-of-life of the products they launch. In summary, a post-growth approach to circularity should be about abolishing the political economy of the growth imperative and putting material loops at the service of the wellbeing of both humans and non-humans.

Declaration of competing interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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