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How neoclassical economics can pave the way for a circular economy

by [Johannes Buggle](#), [Jean-Pierre Danthine](#)

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Incentivizing better business and consumer behavior via tax and market-based instruments will preserve the planet, say Johannes Buggle and Jean-Pierre Danthine. Here's how companies can transform.

Until relatively recently, the capacity of the Earth and the atmosphere to regenerate did not make our linear economic system particularly problematic. The linear economy extracts natural resources, produces energy and goods that are disposed of after use as pollution or waste. This “take, make, waste” model has undoubtedly generated prosperity in many parts of the world, but has come with a tremendous cost for the planet.

Until the middle of the 20th century, the negative collateral of economic activities could be absorbed by the environment. However, with the explosion of the world's population and the growth of material well-being in the world, the perspective has radically changed and these negative collaterals have become catastrophic externalities. According to **a study published in *Science* in 2015**, humanity is currently operating outside planetary limits with disastrous consequences for the climate and the diversity of the biosphere.

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associated with our lifestyles, which requires the shift to a circular economic model. In its ideal form, a circular economy minimizes humanity's impact on the environment by shifting to renewable energy and resources, intensifying resource use and recycling. Such a form of economic organization is not a nice option to be implemented at the margins of our society but a necessary development that must encompass our entire economic system. According to estimates by the Ellen MacArthur Foundation (2019), the circular economy applied to five key areas (cement, aluminum, steel, plastics and food) could reduce CO₂ emissions by 40-45% until 2050. The Foundation, a key resource on circular economy, also stated that a circular model could generate cost savings of €600 billion a year and €1.8 trillion more in other economic benefits, accounting for a 7% increase in Europe's GDP by 2030.

However, the transition to a circular economy is far from easy. The major obstacle to circularity is that the playing field between the linear economy and the circular economy is not level. Currently, polluting and overexploiting resources are cheap and often free activities. This starting point makes it unattractive to take the necessary steps to restore the level playing field. As many environmental externalities are not priced, producers and consumers do not take into account the cost they impose on the environment and on current and future generations. They therefore have no incentive to "go circular". Neoclassical economics has long developed ways to correct environmental externalities by pricing them through taxation or market-based instruments. Waste taxation or price systems for emissions such as carbon are good examples.



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Getting all prices right would help move economies towards circularity, but this is proving very difficult in practice. Firstly, because of the sheer scale of the problem, secondly, because scale economies in activities aligned with the current linear economy model result in many activities at the heart of a circular economy being initially relatively expensive, thirdly, because calculating the environmental costs of our activities is complex, and fourthly, because the need to move our system in this way is difficult to explain and understand, in particular because of the temporary increase in the cost of some of our favorite activities that it generates. This last reason is likely to be one of the components of Swiss voters' refusal of the CO2 law in June 2021, which imposed, among other things, a tax on plane tickets from 30 to 120 Swiss Francs.

Correcting just a few prices will not be enough either. What is at stake is a jump to a new equilibrium, not a simple slide away from the linear economic model. This inherently requires substantial policy interventions: to align production and consumption patterns and engage the significant infrastructure investments that are necessary to achieve the economicity of a full circular model. What then? Law makers need to design policy mixes that focus on price correction but are open to other, sometimes more radical (bans) and often more costly measures that are more acceptable to the public. Government legislation, subsidies that stimulate innovation and help bridge the cost differences until scale economies in the new activities are achieved, and interventions that directly target business and consumer behavior should accompany direct economic incentives.

A substantial increase in environmental taxation offset by a large reduction in labor taxation could be a politically acceptable strategy; it would be very favorable economically and would support the transition, as many circular activities such as repair and recycling are labor intensive. Cheaper repairs would boost their usage and reduce the demand for new goods. A growing repair sector could have positive effects on employment. In 2017, Sweden, for example, lowered taxes on repair of consumer goods from 25% to 12%. Swedish citizens can also ask for a 50% deduction of labor costs associated with home repairs and maintenance. Another major barrier for repair is that consumer goods are not designed for being repaired in the first place. For example, unlike the popular mobile phones manufactured by Apple or Samsung, few mobile phones, such as the **Fairphone**, enable consumers to change parts that are heavily used, such as the display. Governments should therefore support the development of innovations in circular and eco-design, i.e., design that allows an easy separation and replacement of parts, through financial support and legislation.

There is evidence that policy combinations can be very effective in achieving circular economy goals. In South Korea, the recycling rate of food waste has increased from less than 10% to more than 90%, partly thanks to a ban on food waste in landfills since 2005. A couple of years later, Korea introduced special bags for food waste that were taxed (volume-based fee), which not only pays a large amount of the municipal costs of collecting and processing food waste

Another two encouraging on-going examples come from the European cities of Amsterdam and Prague. To identify areas in which they could make the most significant and tangible progress, both cities worked with a framework known as the City Circle Scan, provided by **Circle Economy**, a non-for-profit organization empowering businesses, cities and nations to put the circular economy in practice. The strategies put in place in the Czech and Dutch capitals include the installation of a network of Re-Use Points where citizens can drop unwanted yet still-functional furniture, sports equipment or appliances. Other decisions include improving separation rates of food waste from other wastes (Prague has set itself a goal of 70% by 2035, while it is now at 30%) in order to convert food waste into biogas or fertilizer.

Positive examples exist in the business sector, too. Renault Group, one of the largest car manufacturers in the world, has set an ambitious circular strategy, with the end goal of extending the life of its vehicles and components, as well as keeping materials in use, thereby reducing the use of virgin materials. Its main actions are to remanufacture vehicle components such as gear boxes and turbo compressors, increase the amount of recycled plastic in its vehicles and create a second life for electric batteries. In Latin America, the Coca Cola Company introduced Universal Bottle, a reusable plastic (PET) bottle which can be used across multiple soda brands. Once returned, it is washed, refilled and reused. In Brazil alone, this strategy avoided the production of 1.8 billion plastic bottles in 2019.

Much more work is needed to make our economies truly circular and compatible with environmental and climate protection, but the solutions are there. What is required now is strong will and political leadership.



Empty Coca Cola bottles

What does it mean for business?

A circular economy will require different business models and product design that focuses on services and alternative concepts of ownership (e.g., sharing). It will also significantly change sourcing and needs a shift from the use of raw materials to recycled materials in global supply chains. In the last decade, many startups and ventures have been created with circularity at the core of their business models and sustainability as their main USP. However, for century-old organizations with highly complex sourcing, supply chains and industrial processes, the shift to a circular model is obviously a much bumpier ride.

For businesses, adopting a circular strategy can offer important opportunities. First of all, in the medium run being circular saves costs because it allows firms to move away from resources

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shocks, such as volatility in prices of raw materials (PwC, 2019). In addition, businesses that adopt a circular economy as purpose into their strategy also appeal to eco-conscious consumers that demand sustainable products. According to a study by PricewaterhouseCoopers (PwC, 2019) businesses with purpose have increased their brand valuation significantly compared to competitors in recent years. Moreover, there is a great potential for new innovations in circular materials, products and business models.

As already suggested, a major challenge for companies is that the transition to a circular model can be expensive at first, even though existing evidence suggests that it is beneficial in the long term. Whether it be upfront investments in production lines, necessary changes in business models, or (in the transition phase) higher prices of recycled resources, the transition is often associated with some costs which are then offset by the above-mentioned advantages. For first movers, the transition to circular models should therefore be viewed as an investment that will pay off in the future but, at least in a transition phase, comes with a competitive disadvantage. To avoid holding businesses back from taking the leap forward, government incentives have a role to play: in pushing industries to move in a coordinated fashion rather than letting each player transition independently.

It is just a question of time when stricter government policies incentivizing circularity will be implemented. Businesses should be prepared. Those that will be able to adapt to these regulations will have an advantage, while those who will not reflect on their business models and adjust them accordingly, will stay behind. Moreover, from a collective perspective, adopting sustainable and circular practices will be the best way to avoid much stricter and often more constraining government regulations. Business organizations should reflect on whether they prefer to wait for the regulator to impose rules upon their industry, or whether self-regulation would not be a better option. If the business sector commits credibly to be a positive contributor towards solving the problems of society for the benefit of all stakeholders, and not only shareholders, less severe government interventions will be necessary.

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