European Parliament

Decoupling economic growth from environmental harm

Summary

Current consumption levels are straining planetary boundaries: according to the WWF, the resources of 2.8 planets would be absorbed if EU levels applied globally. This reality informs the EU's drive for greater sustainability. **Ecological–economic decoupling** is a key component of the European Green Deal. The aim is to achieve economic growth while preserving a healthy environment; to combine a rising gross domestic product (GDP) with a shrinking material footprint and decreasing (or net-zero) carbon emissions.

Background

The EU is reducing carbon emissions, and the goal currently being discussed is a 50-55 % reduction by 2030 from the 1990 level. Globally, a wide emissions gap remains, according to the UN Environment Programme (UNEP); even if countries implement their present commitments under the Paris Agreement, global temperature may rise by 3.2 °C by the end of the century. Unprecedented cuts are needed to reach net-zero emissions by 2050.

Decoupling has several dimensions: it can be overall or partial; absolute or relative; permanent or temporary; global or local; fast or slow. Decoupling is **partial** if it succeeds only on a few key metrics. If it is **relative**, environmental pressures still rise, but at a lower speed than GDP. **Temporary** decoupling is not a reliable long-term solution. If decoupling is **localised**, it may simply shift the ecological burden to other regions. If it proceeds too **slowly**, the ecosystem degenerates.

Studies suggest that the EU's apparent decoupling from its material footprint in recent years is relative, and not absolute, when one accounts for relocalisation of production to other continents. It follows that a greater transformation is needed than currently acknowledged.

There are different approaches for measuring EU carbon emissions, according to the EEA. Production-based and consumption-based perspectives give different outcomes. International carbon leakage is an added complication; when production is moved to places with weaker regulation, it is more difficult to trace emissions embedded in the manufacturing of goods.

Efficiency and **sufficiency** are two distinct strategies for reconciling economy and ecology. **Efficiency** – doing more with less – is a path towards lower consumption of resources and of energy. **Sufficiency** involves living well with less. The two can complement each other.

Increased efficiency should promote decoupling. One possible obstacle is cheaper prices; by encouraging consumption, this can reduce or reverse the benefits – the **rebound effect**. Another is physical constraints on technological improvements; the structural shift from manufacturing to services promotes efficiency in principle, but can also simply mean relocation of manufacturing to other countries.

Sufficiency involves a post-growth mind-set: 'embrace growth without exacting it', as Kate Raworth put it. 'Doughnut economics' proposes a distributive and regenerative system through a network-based design of product life-cycles. It also emphasises the social dimension in the measurement of progress.

How do efficiency and sufficiency affect wellbeing? The relationship between consumption and wellbeing is complex. Yet, at a certain level of GDP growth, self-reported happiness (or life expectancy) tends to reach a saturation level. The countries reporting high scores on life-quality also have a globally unsustainable level of resource use. This is where sufficiency becomes important.

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Main trends

Carbon budgets – the amount of allowable emissions to reach a given global warming target – can be assigned to countries by cost-effectiveness, or by equity principles (based for example on cumulative emissions, per capita emissions, and GDP). By the first criterion, the EU target for 2030 would be a 71 % reduction from 1990. According to the Ecologic Institute, an equity-based target would need even higher reductions. Reductions on this scale will almost certainly require negative emissions technologies, capable of removing CO_2 from the atmosphere.

Several areas offer the possibility of significant reductions, if bottlenecks can be overcome. Storage technology is a bottleneck for many renewable energy sources, because its supply fluctuates. The limited supply of key metals for renewable energy is a bottleneck, in which recycling plays a crucial role. The circular economy offers the prospect of less resource use. Increased use of nuclear energy opens a difficult debate on radioactive waste storage, depletion of reserves, and high costs.

Carbon-capture and storage is of limited scale to date, and captures only a tiny fraction of global emissions. Natural solutions and effective reforestation could absorb up to 30 % of global emissions, but this estimate is very uncertain. Improvements in energy efficiency – assuming radical steps – could save up to 40 % of global emissions; behavioural changes could save 10-15 % or more.

The creation of Climate Clubs could encourage global cooperation. They are an alternative to cap-and-trade systems such as the EU Emissions Trading System, with carbon-pricing replacing quantities. Carbon budgets and pricing are relevant for the achievement of the UN Sustainable Development Goals. Energy poverty remains a barrier to a fairer society, and the effort to eradicate poverty by 2050 could absorb two thirds of the 2 °C global carbon budget.

Finally, a crucial trend is towards increased public appreciation of the climate emergency, as illustrated by youth-led climate protests. Better public understanding of the science involved makes it easier for public and private actors to embrace possible solutions.

Key uncertainties

There is great uncertainty around **tipping points**. Science finds it very difficult to estimate which ecosystems degrade gradually and which are liable to sudden collapse; the same is true of socio-economic systems. Feedbacks in the climate system – less ice, leading to methane release, leading to less reflection of heat, for example – could quickly lead to an ice-free Arctic.

The impact of climate-related disruption in one part of the world on other regions is hard to predict; although the globalised economy points to increased **interdependence**.

Attitudes and behavioural choices are significant. Will there continue to be an expectation that *everything* should be accessible to everyone, *at any time*? Or will greater regulation change the underlying dynamics?

Possible disruption

The 2020 **pandemic** has brought a decline in transport-related emissions in particular. With will and effort, the recovery could be a bounce forward rather than a bounce back – a transition to a more energy-efficient economy. An accelerated transition to teleworking, videoconferencing and online shopping, for example, would reduce the need to return to previous transport patterns.

Some authors foresee near-term **social collapse**; the Deep Adaptation Agenda proposes resilience, renunciation and restoration as key strategies in that kind of scenario.

A decisive **technological advance** towards cleaner energy and greater efficiency remains elusive. Such a breakthrough could deliver higher output with lower emissions. **Solar paint** and quantum thermodynamics are two of many areas of investigation. The implementation of a disruptive breakthrough would itself pose further challenges.

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