

The impact of Covid-19 on carbon emissions, and possibilities with the EU stimulus packages



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The Covid-19 lockdowns led to a significant fall in carbon dioxide emissions across the globe in early April 2020. Estimates suggest a reduction in carbon dioxide emissions of around 5-7% over the previous year (Le Quéré et al., 2020). This 'low' level of carbon emissions did not happen for more than a decade, and was seen the last time in 2006.

In a recent contribution published in the journal *Environmental & Resource Economics* (Schumacher et al., 2020), we estimate the impact on emission reductions from demand shocks that originated in the EU (plus UK) in 2020. We estimate that these led to CO₂ emission reductions (and impacted other emissions such as SO_x, NO_x) of around 6% for the EU and about 1% globally (considering only changes in the EU+UK). These estimates result based on data and predictions of demand reductions using the Eurostat Spring Forecast and changes in private consumption patterns, as well as in changes to the use of transport during the lockdowns.

What is clear is that these drastic reductions in carbon emissions have not been achieved in decades even with technological improvements, confirming the current preponderance of the "affluence" and burgeoning consumption over the "technology" effect, as well as the relevance of the rebound effects (see e.g. Wiedmann et al., 2020).

What one needs to remember is that this impact is a reduction in the flow of carbon emissions. Climate change is, however, driven by the stock of carbon in the atmosphere. Forster et al. (2020) estimate that the direct impact on global warming of the Covid-19 lockdowns is rather negligible, with a cooling of around 0.01 ± 0.005 °C by 2030, compared to a baseline scenario that follows current national policies.

Those estimates and ours may be corroborated, or refined, if one takes into account the large existing uncertainties; the dependency on the assumptions made regarding the impact of the lockdown; the changes in effective emission intensities with respect to activity thresholds; and so on. Nevertheless, the main line of insights and results seems to be the same: That is, while the lockdowns across the EU led to significant reductions in emissions, temporary impacts such as these are not going to make a significant dent in the stock of carbon.

As the main objective of most countries is to return their economies to their pre-Covid growth paths, it is quite clear that the emissions reductions linked to the lockdowns have no prospect of continuing after the COVID-19 crisis. They simply do not reflect structural changes in economic systems. Similarly, one should not expect these short-term emission reductions to exert large impacts on global climate change in the medium-term, absent other extraordinary changes (see Linares, 2020).

In this context, it seems evident that these emissions reductions will only become permanent if there are long-lasting changes to consumption and production patterns that are continuing even after the Covid-19 crisis. A prerequisite for these long-lasting changes is that both consumers and producers feel that the modifications induced by the Covid-19 crisis (e.g. tele-working, tourism, consumption patterns, etc.) are sufficiently beneficial for them. Here it is also vital for governments to implement policies that provides both consumers and producers with information as to how they can continue the changes that proved beneficial to them.

However, the resulting reductions in carbon emissions are unlikely to lead to the significant game change that humankind requires to place the world on a path of warming that does not exceed 1.5°C. In addition, there is a significant need to remodel the energy sector, particularly changes towards replacing non-renewables with renewables and greening both cities and transportation. This needs a thorough planning for post COVID19 economic responses, something that the EU is currently undertaking via its green recovery plans. If the economic recovery is tilted towards green stimulus and reductions in fossil fuel investments, then this alone can potentially reduce future warming by 0.3 °C until 2050 (Forster et al., 2020).

The discussions around the New Green Deals have been around for at least the last decade (Barbier, 2010; Bauhardt, 2014; Patel and Goodman, 2020; UNEP, 2009). The Covid-19 crisis has given the New Green Deal a better platform as the huge stimuli packages can be tilted towards the green sectors (see e.g. Galvin and Healy 2020; Micale and Macquarie 2020; Salter 2020). It thus makes perfect sense to develop plans that are compatible with long-term decarbonization strategies (Linares, 2020).

The EU President Ursula von der Leyen stated that “[t]he stimulus packages after COVID-19 have to reflect our strategic interests and our priorities and these have not changed: the priorities are the de-carbonisation and digitization of the European Union”. These kinds of messages help key lobbies and stakeholders to manifest their priorities: they know that it is not enough to strengthen short-term employment and re-

start production, but also to develop their businesses more in line with a green development path. Whether this is going to turn out to be enough to curb global warming will depend on whether our society will be able to advance consumption and production models compatible with “sustainable” (in several dimensions) objectives, such as the Sustainable Development Goals.

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