

Maximising the benefits:

Economic, employment
and emissions impacts of
a Green Recovery Plan
in Germany

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Authors

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Introduction

In its January 2020 World Economic Outlook report,¹ the IMF projected the global economy to grow by 3.3 per cent in 2020. By April, the rapid spread of Covid-19 had resulted in this projection being revised downwards, to -3 per cent. Towards the end of June, the figure was down to -4.9 per cent, and the IMF was describing the situation as “a crisis like no other”, with uncertain recovery.²

These figures highlight the unexpected and unprecedented severity of the impact of Covid-19 on economies and labour markets, in addition to health and wellbeing. While some countries are emerging out of the pandemic with few casualties, the detrimental effect on economic growth and employment has been largely unavoidable, and the scale and nature of the impacts has meant that no sector has been left unaffected.

Measures to stop the spread of the virus – such as the closure of schools, factories and services – have forced businesses across all sectors of the economy to close down or downsize, leaving hundreds of thousands of people without work, and many others in precarious employment situations.³ The negative effects were initially heavily concentrated in sectors that serve consumers, especially ‘social’ sectors such as hospitality, but they have since spread wider as a result of declining investment. Around the world, millions of people have come to rely on government support mechanisms.

As we enter the last quarter of 2020, the focus has shifted from assessing and estimating the full extent of the damage to developing plans to support the economic recovery. The desired nature, structure and priorities of these plans are subject to debate at national, European and global levels. Widespread calls – whether by business and economists or from the public – for ‘Building back better’ and ‘Building back greener’ express the increasing awareness among the general public of the inequalities that the pandemic has highlighted,^{4,5} as well as a growing concern over the full extent of damage that natural degradation can inflict.

At the same time, millions of workers are simply worried about losing their jobs and feeding their families when emergency support schemes are wound down. Getting things ‘right’ in the economic recovery planning and policy implementation is important, as the impacts of the recovery spending will shape the scale of our economy, its competitiveness, sustainability and its effectiveness in providing inclusive prosperity in the years to come. The impacts will likely last well beyond the current short-term timeframe that policymakers are currently focusing on.

The pressure is mounting on policymakers to implement socially and environmentally responsible recovery packages that avoid repeating the mistakes made in the aftermath of the 2008 financial crisis. This is a pressure that many politicians and policymakers understand and support. In Europe, national governments and the EU administration are increasingly recognising the need to ensure that decisions taken now will support both on the economic recovery and progress towards a prosperous and climate neutral economy by 2050, with strong backing also for raising intermediate emissions reduction targets to better support this long-term target. As we have previously set out in *The Green Deal and Europe’s recovery: Building a prosperous, resilient and climate neutral EU through business and political action*,⁶ the European Green Deal provides a template for how Europe’s economic recovery can be achieved and green investments can create

jobs and kick-start economic activity in the short term, while leading to a more productive, resilient and climate-friendly European economy.

In this report, we draw on Cambridge Econometrics' E3ME modelling^{i,ii} results to analyse the potential benefits of a Green Recovery Plan. The modelling assesses the economic, employment and environmental impacts of three different scenarios, including two recovery plans that could both boost GDP and protect jobs:

- A **Covid-19 baseline scenario**, which shows the impacts of Covid-19, and how these impacts are likely to play out in 2020–30 if no recovery plans are put in place. This scenario was developed by Cambridge Econometrics in mid-2020, but has since been updated to take in more recent information, with the macro-level outcomes for each country remaining similar to those predicted by the IMF.
- A **VAT recovery scenario**, which follows a 'return to normal' approach by reducing VAT rates by 5 percentage points to encourage households to resume spending.
- A **Green Recovery Plan**, which aims to boost economic activity while simultaneously reducing CO₂ emissions.

The modelling results show the impacts of these three scenarios in graphical format compared to a no-Covid baseline, illustrating the impact of each recovery scenario in relation to what the situation would have been if Covid-19 had not happened (no-Covid baseline).

The Green Recovery Plan consists of the following policies, which are all implemented for a two-year period (2021–23) and the cost of which is covered by the governments. These measures are combined with a lower VAT reduction rate so they come out at the same cost to government as a VAT reduction alone. The policies in the Green Recovery package are described below, with more detailed information available from the full report [Assessment of Green Recovery Plans after Covid-19](#) and our assessment of different markets in Europe [here](#).

- **Energy efficiency** in buildings is improved to reduce energy consumption in this sector by 8 per cent, primarily through the implementation of energy efficiency measures in 2021–23. This is ambitious but achievable, and would put the EU, for example, on a path that would be consistent with achieving the current 2030 target for building energy efficiency.
- Boosting the uptake of **renewable energy** technologies by offering a capital subsidy of 50 per cent on new wind and solar equipment to incentivise investment during the immediate recovery period.
- Accelerated **electricity grid improvements** through additional government investment.
- Subsidy to cover 20 per cent of the cost of new **electric vehicles** (EVs) for households that scrap their old internal combustion engine vehicles.

ⁱ For a more detailed overview of E3ME, see Mercure et al. (2018) or the E3ME model manual.

Mercure, J-F., Pollitt, H., Edwards, N. P., Holden, P. B., Chewpreecha, U., Salas, P., et al. (2018). Environmental impact assessment for climate change policy with the simulation-based integrated assessment model E3ME-FTT-GENIE. *Energy Strategy Reviews*, 20, 195–208. doi: <https://doi.org/10.1016/j.esr.2018.03.003>

ⁱⁱ Cambridge Econometrics. (2020). *What is E3ME? Our Global Macro-econometric Model*. Retrieved from: <https://www.e3me.com/what/e3me/>

- A **tree-planting** initiative to plant 10 billion trees worldwide over 2021–23, allocated to countries based on a combination of land mass and the size of the current forestry sector.

The Green Recovery Plan is a stylised version of what a financially, economically and politically feasible recovery package with a green focus might look like, rather than a true reflection of an existing or proposed recovery spending plan. It includes a selection of policy measures that have been either already implemented or proposed in various countries, and that could realistically be implemented.

The results presented in this report provide much needed evidence of the multiple benefits of green recovery spending. They clearly show that spending on sectors that support decarbonisation and the transition to a climate neutral economy can have additional benefits, including positive impacts on economic growth and employment. Moreover, they illustrate how these policies work to generate mutually reinforcing positive outcomes, and how the impacts of specific types of green recovery spending may vary between countries depending on contextual factors.

The policy package is a hypothetical construct but the modelling results can help governments to make informed decisions regarding the nature and structure of recovery spending by demonstrating the multiple benefits that can be derived from a mixture of several different green policy measures. By showing the contribution that each green policy measure can have on GDP, employment and CO₂ emissions in various types of national contexts, the results will also allow policymakers to identify specific green recovery spending options that might be most appropriate in their specific national context or build on extending existing programmes.

Impacts of the Green Recovery Plan for Germany

Germany was one of the first countries to unveil its Covid-19 economic recovery plans in early June 2020 – and the plan it put forward was both ambitious and unambiguously green. In addition to more conventional measures – such as loans for small businesses, increased investment in research and development (R&D) and digital infrastructure, and a VAT rate reduction from 19 to 16 per cent – ‘at least’ €40 billion of the €130 billion stimulus package for 2020–21 will be allocated to climate-related spending. These green plans include measures to boost EV sales, building energy efficiency upgrades, a green public transport programme and funding for improved forest management and hydrogen infrastructure.⁷ In fact, the German recovery package contains many of the elements that are also included in the Green Recovery Plan used for the modelling in this report, although some important differences remain.

German Chancellor Angela Merkel has also so far refused to extend the car scrappage scheme to new petrol and diesel vehicles. Instead, the government moved to double the subsidy for EVs to €6,000.¹⁰ Given that funds were also allocated specifically to support green auto innovations, EV charging infrastructure, and to cut electricity prices for consumers, the recovery stimulus package seems to be sending a message to consumers and the car industry alike that the future of Germany is electric. As the modelling in this report shows, the economic and employment benefits of recovery spending to boost EV uptake in Germany could be considerable and long-lasting while simultaneously reducing emissions. Combined with measures to increase energy efficiency and the use of renewables, the scheme could reduce CO₂ emissions by 14 per cent compared to a no-Covid baseline.

The positive impacts on future competitiveness and emissions reductions that could be achieved with decarbonisation of the electricity supply would also provide additional benefits that are not included in the analysis here.

However, there is no certainty over the direction that longer-term recovery plans may take and the extent to which they continue to prioritise environmental and climate objectives. Chancellor Merkel has announced that she will not be seeking another term as chancellor at next year’s election, fuelling speculation over her successor and the future composition of the German government.^{8,9} Some possible outcomes, such as a coalition of the currently ruling Christian Democrats and resurgent Greens,¹² could have a significant impact on future German policy.^{10,11}

Socio-economic impacts

Figure 1 and Figure 2 show the impacts of the Green Recovery Plan, VAT recovery scenario and Covid-19 baseline scenario on GDP and employment. Although Germany has handled the Covid-19 crisis relatively well, its economy has been weakened by a global fall in demand for the high-value machinery that it exports. Without support, the German economy is not expected to rebound quickly.

Both the VAT recovery scenario and Green Recovery Plan have an immediate effect on stimulating the economy and preventing further job losses. Although the relatively smaller size of the services

sector in Germany (as opposed to countries such as Spain and the UK) has helped to limit the negative impact of Covid-19 on employment, the model results suggest that some further longer-term support could be required to avoid job losses after the short-term measures included in this modelling exercise are phased out.

The results from the Green Recovery Plan are consistently better than those from the VAT recovery scenario, both in terms of GDP and employment. Although the impact of both recovery spending scenarios is short-lived, the outcomes are consistently more favourable for the Green Recovery Plan than the VAT recovery scenario, and this gap widens further towards the late 2020s.

Figure 1: GDP impacts in Germany (% difference from no-Covid baseline)

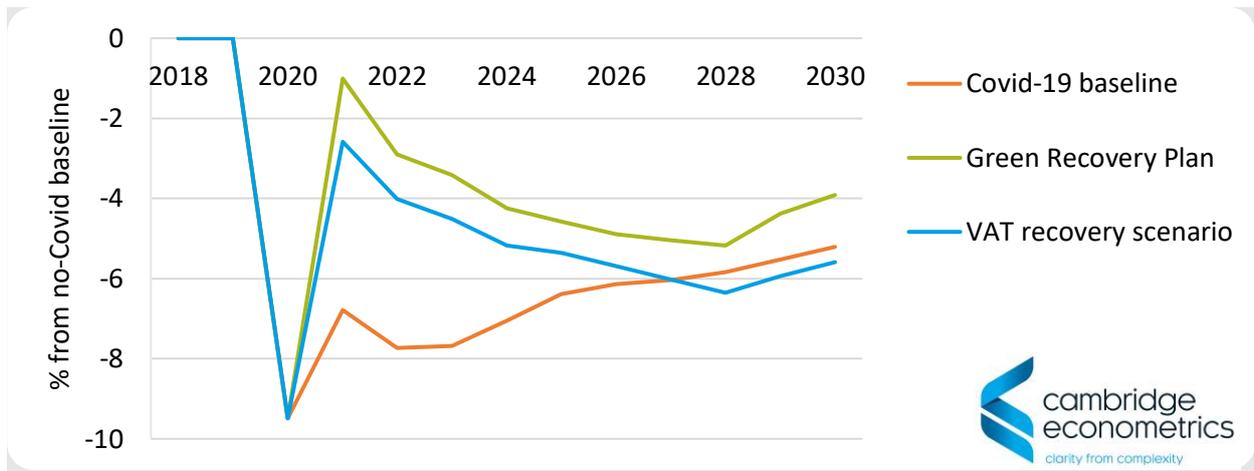
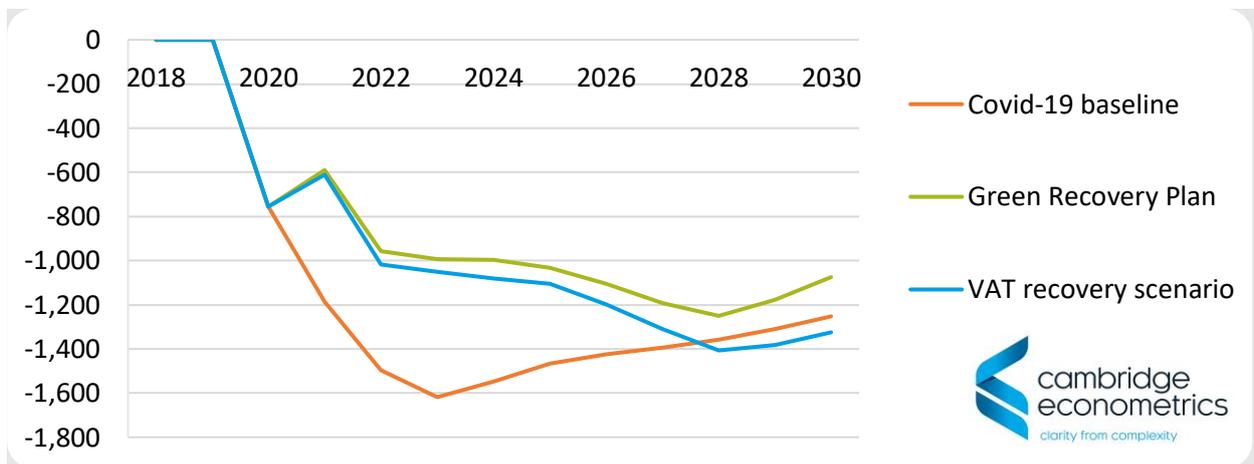


Figure 2: Employment impacts in Germany (thousands, compared to a no-Covid baseline)



Sectoral impacts

Table 1 shows the impacts of the different recovery options on each sector in 2024. The impact of Covid-19 has been most severe in construction, the manufacturing sectors that supply investment goods, and consumer services.

The VAT recovery scenario and Green Recovery Plan are both effective at boosting activity in most sectors. Results for the Green Recovery Plan are better, particularly in the services sectors. The only sectors that fare worse under the Green Recovery Plan are energy and utilities, which see reduced demand from the energy efficiency measures.

Table 1: Sectoral output impacts in Germany (2024), % difference from no-Covid baseline

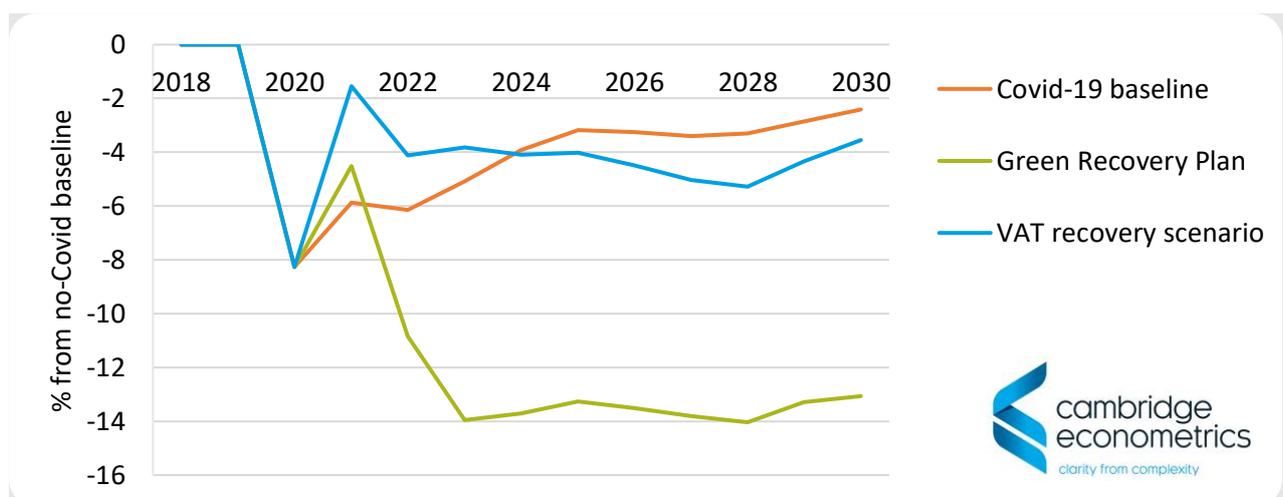
	Covid-19 baseline	VAT recovery scenario	Green Recovery Plan
Agriculture	-6.0	2.5	2.1
Energy and Utilities	-6.0	-4.4	-6.8
Basic Manufacturing	-10.2	-7.8	-7.1
Advanced Manufacturing	-13.4	-13.1	-12.0
Construction	-11.5	-10.8	-9.1
Consumer Services	-8.2	-5.1	-3.8
Transport and Comms.	-7.2	-4.8	-3.8
Business Services	-5.9	-3.8	-2.9
Public Services	-1.3	-0.7	-0.2

The energy and utilities sector includes a range of different types of companies, some of which focus more heavily on renewable energy than others. Our view is some power generators with a strong presence in renewables would significantly benefit from a Green Recovery Plan. The emissions reductions figures presented in Figure 3 would support an assumption that reduced demand for energy (for example as a result of improved energy efficiency) would result in fossil fuels are replaced by renewables.

Emissions impacts

Figure 3 shows the impact of the scenarios on CO₂ emissions. In the Covid-19 baseline scenario and VAT recovery scenario, emissions return close to the no-Covid baseline by 2030. However, the Green Recovery Plan could lead to a large and sustained reduction in emissions, with a fall of 12 per cent – 14 per cent by 2023 compared to a no-Covid baseline, and then remaining largely unchanged up to 2030.

Figure 3: Emissions impacts in Germany



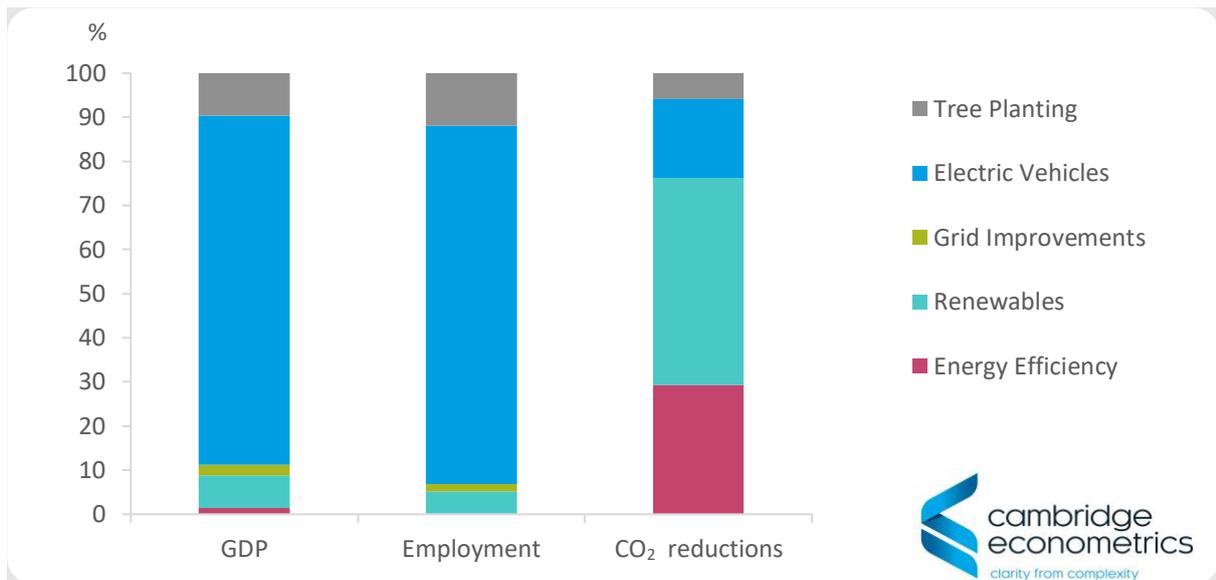
Contributions of each policy

Figure 4 shows the percentage contribution of each of the policy measures included in the Green Recovery Plan, aggregated across 2021–30. For both GDP and employment, around 80 per cent of the benefits come from the car scrappage scheme and EV promotion. This result reflects both the

potential of building the EV market share in Germany, as well as the impact of exporting EVs to other countries. The tree-planting scheme makes a small additional contribution to both GDP and employment.

The impact of EVs on CO₂ emissions is limited up to 2030, largely due to the use of coal in electricity generation. The greatest emissions reductions arise from the renewables subsidies, followed by the energy efficiency measures. However, it should be noted that there is an additional benefit from the interaction of having more EVs and increased renewables to power them, which is not shown in the chart.

Figure 4: Contribution of each Green Recovery policy in Germany (2021–30)



“Germany needs to set a positive example for an ambitious and clear green recovery path. Recovery funds must be used to trigger investments in the transformation needed for achieving ambitious climate targets. This includes the market roll-out of electric vehicles, boosting renewable energies, upscaling low-carbon industry processes and doubling the building refurbishment rates.”

Sabine Nallinger

Managing Director of Foundation 2°

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