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GREENING THE RECOVERY BY GREENING THE FISCAL CONSOLIDATION

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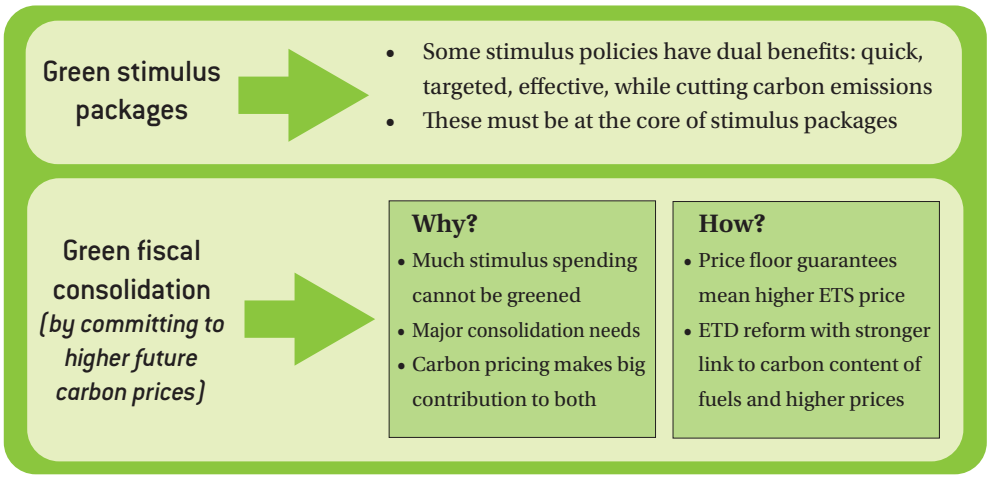
THE ISSUE

The long road to economic recovery from the COVID-19 shock is just beginning. European countries are considering how best to reboot their economies, with fiscal stimulus plans at the core of the consideration. Meanwhile, the European Commission has put forward its own stimulus plan. These stimulus packages will amount to several percentage points of GDP, and can therefore influence the future orientation of the economic system. For this reason, policymakers aim to incorporate long-term goals into recovery packages, most fundamentally a just transition towards a climate-neutral economy.

POLICY CHALLENGE

Greening the recovery is a significant policy challenge. While there are clearly recovery policies that have positive effects on greening the economy, such as promoting energy renovation of buildings, there is a limit to the proportion of stimulus that can be explicitly greened. Beyond focusing on the explicit greening of stimulus policies where possible, greater emphasis should thus be placed on altering expectations, so that market agents anticipate higher future pay-offs from low-carbon investment. The European Union needs to announce today a significant increase in carbon prices after 2021, to be engineered through revisions of the Emission Trading System and the Energy Taxation Directive. Such reforms could provide annual additional revenues of €90 billion. This could make a major contribution to the post-COVID-19 fiscal consolidation requirements, which might be in the order of one percent of GDP per year.

TWO PILLARS FOR A SUCCESSFUL GREEN RECOVERY



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Amid the chorus of voices calling for the post-COVID-19 recovery to be a green recovery[1], it is often overlooked that a similar narrative was developed in 2008, as Europe and the world designed their recovery plans in the aftermath of the great financial crisis. The rationale for a green approach was clear then and is clear now: the disruption, in this case caused by the pandemic, offers an opportunity to build a new eco-friendly system, for the benefit of current and future generations.

But pursuing a green recovery might not be as straightforward as one might think. Trade-offs must be weighed between the need to provide a short-term stimulus to the economy and the need to address the long-term challenge posed by global warming. In the short term, there is a clear limit to the proportion of effective short-term stimulus that can be explicitly greened. Green conditions can be attached to public investment and the support given to companies, but the experience of 2009-2010 in the euro area showed that about half of the total stimulus comprised cuts to direct and indirect taxation, social security contributions, or direct income support – in other words, measures to keep current activities going, rather than to give them a new green direction.

For this reason, in order to turn the green recovery vision into practice, it is important in response to COVID-19 to do what was not done sufficiently in 2009-2010, which is to have a clear understanding of both the economic impacts and the economic policy response, and to then properly integrate the green component into the recovery. In particular, greening the recovery needs to be thought of as a long-term project, and measures should be taken now to alter expectations so that market agents receive the clear message that low-carbon investment will from now on generate the largest pay-offs. In the European Union setting, the main avenue via which a 'green consolidation' – or an embedding of the green recovery – can be achieved would be to ensure a significant and durable rise in carbon prices after 2021.

1 COVID-19: THE ECONOMIC POLICY RESPONSE

The economic policy response to COVID-19 involves three phases: relief, recovery and fiscal consolidation.

In phase 1, governments put in place indiscriminate and national-based measures to keep firms and workers afloat in the face of near-universal cash shortfalls. As the economic crisis becomes longer and bankruptcy risks loom, governments will also have to provide solvency support through direct recapitalisation to certain, selected, firms (Anderson *et al*, 2020).

In phase 2, governments – along with EU support – will put in place measures to reboot their economies from the severe contraction, with interventions aimed at stimulating both aggregate demand and supply. This can be attempted directly via increases in government expenditure, or indirectly via incentive mechanisms to increase investment/consumption from the private sector (Bénassy-Quéré *et al*, 2020). As a second wave of the epidemic is possible, this phase might be at certain points be also accompanied by a return of phase 1 measures[2].

In Phase 3, governments will have to implement fiscal consolidation measures. Relief and recovery policies will significantly increase public debts across Europe. Darvas (2020) has shown how European countries with higher initial levels of debt might see alarming increases. Typical measures would include increases in taxation or cuts to public spending. Already in the relief and recovery phases, the expectations of companies and households about future consolidation measures are important and will guide investment decisions. This is where the concept of 'green consolidation', specifically commitments made today to higher carbon prices in the future, will be pivotal for stimulating green investments today.

As the economic policy discussion advances towards the design of the recovery phase, it is important to integrate the green element into the complete set of criteria that policymakers will use to inform their recovery policies.

1. See for example https://www.europarl.europa.eu/news/en/press-room/20200419IPR77407/eu-covid-19-recovery-plan-must-be-green-and-ambitious-say-meps.

2. Questions must also be asked about how effective government stimulus can be at boosting aggregate demand in an environment in which agents suspect that another lockdown and stop to business might be around the corner.

2 GREEN, FAIR AND EFFECTIVE: A SET OF CRITERIA TO ASSESS RECOVERY POLICIES

A wide range of policies can contribute to economic recovery. The decision on the right policy mix will depend on which policies are most effective at stimulating the economy, and on what other short- and longer-term effects they might have. Here, we list three criteria for policy-makers to consider when determining a portfolio of recovery policies: effective promotion of economic growth, fairness and the green recovery.

2.1 EFFECTIVE PROMOTION OF ECONOMIC GROWTH

The basic idea behind recovery policies is use of public money to stimulate aggregate demand. The expectation is that each euro of public money will not only imply an increase in demand for goods and services worth the exact same euro, but that the suppliers of the goods and services will use the extra income to themselves demand additional goods and services, and so forth. The greater the impact on GDP of each euro of public spending (the so-called multiplier), the stronger the recovery will be, given a fixed amount of spending.

But estimating the multiplier of individual recovery policies – let alone entire recovery programmes – is complex. Theoretically, we know that the lower the share of money leaked from the domestic economic cycle in the form of savings or imports, the higher the multiplier of a policy will be. We know that policies that are able to stimulate demand that is passed through extensive national value chains will have high multipliers. For example, a policy stimulating demand for automobiles will have significant knock-on demand effects for industries feeding into the final product, such as steel, aluminium, plastics and rubber. Meanwhile, if stimulus is absorbed by those with high savings rates, the multiplier will be lower. An example would be a cut to the highest income tax bracket, benefitting wealthier people with relatively higher saving rates[3]. It is also not necessarily the case that policies with the highest GDP multipliers have also the highest employment multipliers. Furthermore, the multiplier also depends on a variety of other factors, including the specific situations in which recovery measures are applied[4], the speed with which recovery programmes are deployed[5], the size of the measures[6] and their eventual targeted nature[7].

Although the main focus of stimulus packages is to boost aggregate demand through anti-cyclical stimulus, governments must consider the effects of stimulus on long-term sustainable economic growth. In the same way that the Great Depression accelerated a large structural shift in the US automobile manufacturing sector (Bresnahan and Raff, 1992) it is likely that the current economic crisis provides an opportunity for structural supply-side shifts. As businesses rethink value chains, and as governments inject stimulus into depressed economies, their role in shaping future growth is larger than during normal times. In 2020, the key challenge for governments is to provide effective signals encouraging supply-side restructuring and rationalisation, to be based upon a shift away from carbon-based production.

2.2 FAIRNESS

Individual recovery policies can have very different distributional effects. For example, lump-sum transfers to low-income households are progressive, while state aid to capital-intensive industries is regressive. There can be positive and negative interactions between the fairness criteria and other objectives. For instance, helping poorer credit-constrained households can reduce inequality and generate above-average multipliers (Palagi *et al*, 2017). On the other hand, reducing energy taxes can be a stimulus policy that quickly supports low-income households much more than high-income households, but might imply increasing energy consumption and hence greenhouse gas emissions. We know that income tax cuts disproportionately help the rich, social contribution cuts help the middle class, and most consumption tax cuts help the poorest.

Despite the high volume and political importance of fairness in the design of

3. See, for instance, Tenhofen *et al* (2010) on the macroeconomic effects of exogenous fiscal policy shocks in Germany.
4. Buchheim *et al* (2018) found that a solar photovoltaic installation programme created many jobs in labour markets that featured a lot of slack, but close to none in empty labour markets.
5. If the crisis runs too long then self-reinforcing cycles might draw the economy unnecessarily low. However, policies take time to implement and to become effective, and multipliers take time to kick-in.
6. Even well-balanced policies with many positive and limited negative spillovers might not help much if they cannot be brought to the necessary scale to increase aggregate demand in a country.
7. Some policies allow targeting of specific regions, sectors or population groups. Such targeting cannot only be helpful for the political economy, but it might also increase effectiveness.

programmes, the distributional effects of stimulus measures should not be overstated. The big-envelope programmes in particular are typically temporary and only modestly redistributive (a six-month tax cut even of the most regressive taxes will do little to tackle inequality). Structural measures such as education or the design of consolidation policies will have longer-lasting effects.

2.3 GREEN

In designing recovery policies, governments should seek to prioritise low-carbon sectors, or to support carbon-intensive companies only when 'green strings' are attached (von der Leyen, 2020; Gewessler *et al*, 2020). Ideas have already emerged about how to structure a green recovery: focus on energy efficiency of buildings, clean-energy infrastructure and clean transport to create well-paying local jobs that boost economic growth in the short-term, while at bringing long-term climate gains. In addition, investment in hydrogen and batteries should be boosted, to position Europe at the forefront of two technologies that are widely expected to be the next decade's breakthrough (Birol and Timmermans, 2020; La Camera, 2020)[8].

All this is sensible, but a caveat is necessary: it's been tried before. In the wake of the great financial crisis of 2007-2008, the European Commission published a European Economic Recovery Plan aimed at speeding up the shift towards a low-carbon economy, with a focus on clean infrastructure, energy efficiency in buildings and green cars (European Commission, 2008). But the results of such initiatives have been unconvincing, with limited progress in housing renovation and clean cars since then (Tagliapietra *et al*, 2019).

Can it be different this time? Brought to the fore by growing public pressure on policymakers to green their recovery plans (Ipsos, 2020), and by low-carbon technology developments and cost reductions (Lazard, 2019), the green policies now widely accepted as providing the necessary energy savings and new energy sources are now poised to effectively deliver large economic multipliers reasonably quickly, while contributing to reducing Europe's emissions.

3 GREEN THE RECOVERY BY COMMITTING TO HIGHER CARBON PRICES

While the first step toward a green recovery is to promote green policies that conform to necessary stimulus criteria, the greatest emphasis should be placed on altering market expectations. While the target of fiscal stimulus is to encourage consumption and investment today, the overarching objective in terms of greening the stimulus should be to show market agents that higher future pay-offs will arise from low-carbon investment.

There is a clear limit to the proportion of effective short-term stimulus that can be explicitly greened. In order to fulfil the typical criteria for a successful stimulus, a significant proportion of recovery packages is likely to be made up of broad-based, technologically-neutral measures, and measures that perpetuate status-quo economic activity, but neither clearly increase nor cut greenhouse gas emissions. Examples include temporary cuts to indirect taxation, wage subsidies, and increased generosity of social security payments.

A European Central Bank (ECB, 2010) decomposition of stimulus budgetary measures adopted by the euro area in 2009-2010 illustrates this point. Half of the total stimulus was for household measures: typically cuts to direct and indirect taxation, social security contributions, or direct income support. A little more than a quarter (28 percent) of stimulus came through public investment. Here, there are substantial opportunities for explicit greening, though the pre-COVID supply-side position of the economy limits the proportion of public investment that can be explicitly green (ie the extent to which the necessary green skills and businesses currently exist to allow for green infrastructure programmes to be brought quickly to significant scale). Furthermore, public investment in green infrastructure projects will compete with similarly desirable investment in areas such as healthcare (inevitably higher than usual

8. Given the difficulty in estimating recovery policies multipliers, Hepburn *et al* (2020) tried to identify policies with high potential in terms of both the economic multiplier and climate impact by surveying 231 high-level policymakers and economic experts from G20 countries. The result was largely in line with what have become the standard green recovery ideas: clean infrastructure, building efficiency retrofits, investment in education and training, natural capital investment, and clean research and development. In their attempt to identify policies with high climate and recovery impact, the IEA's Sustainable Recovery plan (IEA, 2020) also pointed to similar investment areas.

on the list of priorities) or education.

The next largest share (17 percent) came in the form of business support, typically accelerated payment of VAT refunds, subsidies and export promotion. In this category, some explicit greening might be possible, but governments will largely take a broad approach, hoping to protect as many jobs as possible. Finally, at just 5 percent in 2009-2010, labour-market policies are likely to make up a larger share of stimulus spending this time. There are indeed many valuable jobs that can and will be created within green industries, but governments will want to match as many unemployed workers to jobs as quickly as possible.

Given the significant difficulty associated with the explicit greening of a large proportion of recovery funds (ie everything outside of public investment), the most efficient tool to encourage broad cooperation in a green recovery will be strengthened efforts to increase the price of future carbon emissions. While today's carbon price affects decisions on the use of carbon-intensive equipment, expected future carbon prices affect investment and divestment decisions. The size of stimulus packages about to be unleashed within the EU, and the fact that many businesses will look to restructure their business models and supply chains, mean that now more than ever carbon prices can play a significant role in shaping future economic systems.

This is a key lesson from the response to the great financial crisis, when relatively unsuccessful efforts were made to launch clean infrastructure programmes within economic environments with carbon prices that were unsupportive of those programmes. One of the lessons from the attempts to green the recovery in 2008-2009 is that stimulus funding will be most effective when aligned with long-term price signals (IEA, 2020).

When well communicated, households will take the future carbon price into account when using stimulus money to invest in new cars, housing renovation or heating systems. Companies that might be encouraged to invest by loose monetary conditions and broad fiscal support will consider the effect of increasing carbon prices on their investment projects. For instance, a high enough carbon price might encourage companies to invest in capital for producing technologies which will be key for low-carbon economies, such as heat pumps, smart meters and electrolysers, rather than internal combustion engines.

Governments and financial institutions will take the carbon price into account when evaluating the business models of firms that seek debt restructuring. And the decisions of some investors might encourage others to also pursue new low-carbon investment.

From a macro-economic perspective, stimulus measures aim to kickstart the economy now but will result in higher debt levels later. Consolidation will be needed, but it should only start after the recovery gained enough momentum. The fiscal consolidation need might be greater than 1 percent of GDP per year for several years[9], meaning about €140 billion per year for the EU.

4 ALTERING EXPECTATIONS

For a successful 'green consolidation', in which governments seek to reduce high levels of public debt while placing a significant emphasis on raising revenue through taxation of carbon, EU carbon prices must increase significantly after 2021. In practice there are two major tools to engineer this: the emission trading system (ETS) and the energy taxation directive (ETD, 2003/96/EC).

4.1 THE EMISSIONS TRADING SYSTEM

The ETS covers large installations that are responsible for about half of EU emissions. Increasing the price in the emission trading system can be achieved by reducing the number of allowances put onto the market by member states. The price effect should largely exceed the volume effect, resulting in higher state revenues. An increase in the allowance price from about €25 /tonne of carbon dioxide currently to around €50 could be engineered by accelerating the annual linear reduction factor (currently 2.2 percent). With a doubling of the carbon price, expected revenues in 2022 would increase from less than €25 to €50 billion.

9. This is a rough estimate based on Barrios *et al* (2010), who wrote *"a fiscal consolidation is considered as successful if it brings down the public debt level by at least five percentage points of GDP in the three years following a consolidation episode"*. The exact figures will depend on many factors. Countries will not want to consolidate so quickly that is damages GDP growth, while an environment of low borrowing costs might reduce consolidation requirements.

But as the allowance price is driven by the interplay of a relatively complex system, market expectations and political feedback loops, it will not be so easy to hit a concrete price target.

One solution, which implies a stimulus of its own, would be to enable the European Investment Bank to provide financial guarantees to private investors that a certain level of carbon price will be achieved in 2025 or 2030. This would set a soft floor price for the ETS (see Zachmann, 2013). The EIB would sell options that would pay out the difference between whatever the ETS price is in 2025 and a guaranteed price (eg €50), thus providing greater business certainty around low-carbon investment.

However, credibly announcing a tightening of the ETS for after 2021 will not only lead to an increase in future emission allowance prices after the tightening is implemented, but will also encourage current market players to not sell/buy allowances below/above the higher price expected beyond 2022[10]. Hence, today's allowance prices would converge to the expected higher future price. This would act like an immediate tax increase[11] and potentially counteract short-term economic stimulus programmes. This undesirable near-term effect should be compensated for, to avoid climate policy being held responsible for a sluggish recovery.

We think the ETS can be adapted in order to actually provide a Europe-wide stimulus in the short term without losing its most important function as guiding today's investments towards 'green'. The idea would be to tighten the allocation of allowances after 2021 by increasing the linear reduction factor from currently 2.2 percent per year to a value consistent with a carbon price of €50/tonne in 2022. To counteract the backward-induced price increase already in 2020/2021, emitters in 2020/2021 would temporarily not need to surrender 100 allowances per 100 tons of CO2 equivalent, but only a slightly lower number (eg 95 allowances)[12]. This would facilitate an increase in carbon cost after 2021, without this increase in price holding back the recovery. This strategy would essentially go beyond the ETS's automatic stabiliser function[13] because it would engineer a temporary price-reduction that goes beyond the effect of change in long-term emissions. Moreover, it would be an EU wide programme based on an EU tool. The political problem is that this might sound like encouraging emissions in 2020-2021. Therefore, it must be very carefully communicated that the short-term stimulus is included only to counteract the backward-induced additional price increase.

4.2 THE ENERGY TAXATION DIRECTIVE

The ETD sets EU-wide minimum rates for national energy taxes (which are outside of the ETS). In 2015, the European Commission withdrew its 2011 proposal to revise the ETD[14] given the inability to find agreement between all EU countries[15]. The file was opened again in November 2019, when the European Council took note of the European Commission evaluation, which concluded that the ETD of 2003 is outdated, and requested that the Commission should come up with a new proposal[16]. The European Green Deal communication (European Commission, 2019a) scheduled the revision for 2021.

Accordingly, the speed and ambition of a compromise now largely depends on the political attention given to this topic – which could in our view be the most crucial climate policy question of this Commission's mandate. A key improvement will be to ensure a stronger link between tax rates and the carbon content of fuels[17].

The main impact will be on transport and heating fuels[18] (Figure 1). In 2018, transport and heating accounted for about 1.3 billion tonnes of CO2. Placing an additional €50 per tonne carbon price on those fuels would result in an additional €65 billion per year in revenues. In reality this number will be smaller, mainly[19] because many EU countries already apply higher tax rates than the European minimum. Some countries with higher rates than the EU minimum might only have to slightly increase their tax rates, generating limited additional revenue. However, by imposing a higher floor, minimum rates

10. Maybe with a slight discount for the capital cost of carrying allowances, and some discount for the remaining uncertainty about future price developments.
11. That is, on the one hand higher government revenues from auctioning allowances and on the other hand higher costs for companies that are largely passed through into the prices consumer have to pay for carbon-intensive goods – reducing the disposable income of consumers.
12. Other options would be to (i) introduce a forced exchange of old (issued until 2021) into new (issued after 2021) allowances at a certain change rate, eg 0.9; or (ii) instead of reducing the linear-reduction factor to tighten allocation, reduce the carbon value of all allowances, eg to 0.9 tonnes of CO2 equivalent. But those options might be legally more difficult as they imply reducing the value of property rights held by the current allowance owners.
13. The fact that emission allowance prices were unaffected by the crisis indicates that the ETS market stability reserve, introduced in 2019, essentially undid the system's automatic stabiliser function.
14. See https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX-%3A52015XC0307%2802%29.
15. Taxation decisions require unanimity.
16. See http://data.consilium.europa.eu/doc/document/ST-14608-2019-INIT/en/pdf.
17. This was already part of the proposal that member states previously rejected.
18. As electricity generation is already covered by the ETS.
19. Short-term price elasticity tends to be relatively low.

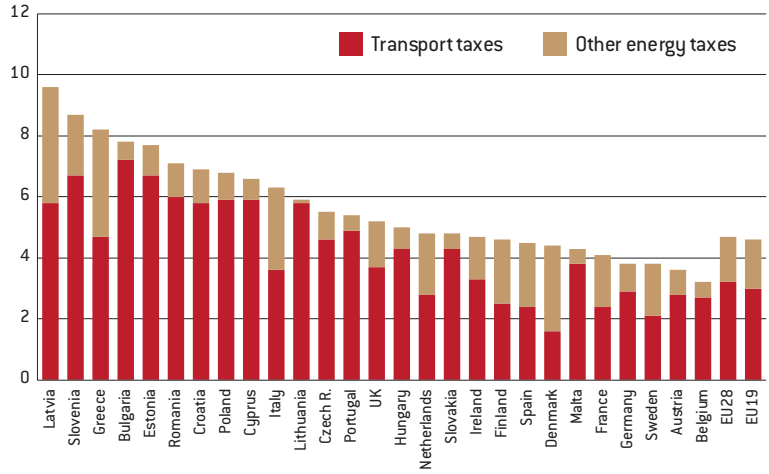
also reduce the extent to which certain member states can undercut those who are prepared to implement higher energy taxes. Member states with higher prices, which might now be hesitant about increasing such price differentials within the EU (because of fears of lost competitiveness), would now be afforded more scope for increasing prices.

Revising the ETD will be complex and it will take time to find a balanced, acceptable solution. But the European Council can already today commit to link a CO2-component in energy taxes to the ETS carbon price (probably with some delay for operational reasons). A credible announcement would give a strong indication to companies, financial markets, administrations and households.

4.3 LEGAL COMMITMENTS

Alongside explicit market mechanisms, the European Commission in March 2020 proposed a law that would make binding in EU law the target of net-zero greenhouse gas emissions across the bloc by 2050. The process of passing this through the European Parliament and Council of the EU, and the accompanying noise it will generate, will provide a similarly important low-carbon signal to investors. In EU countries, national governments can make similar guarantees. For instance, within the automobile sector, commitments to phase-out internal combustion engines by certain dates provide strong signals.

Figure 1: Energy tax revenues of EU countries as percentage of total tax revenues, 2017



Source: European Commission (2019b).

5 CONCLUSION

The response to the COVID-19 crisis comes at a pivotal moment for the EU in its own efforts to address the climate crisis. Billions of euros of taxpayer's money is set to be spent over the coming months and years in an effort to alleviate the pain of what might otherwise be the largest recession since the Great Depression. To the greatest degree possible, governments must direct such revenues to stimulus policies that boost depressed economies whilst contributing towards the transition to a zero-carbon economy.

However, it is unrealistic to expect that governments are able to explicitly green all (or even most of) stimulus policies. A range of priorities, not least providing an immediate and sizeable boost to the economy, will compete with the green objective. The experiences of 2008-2009 show that much stimulus spending is likely to be based on boosting demand within existing economic structures, rather than pursuing aggressive supply-side reform. This is where the concept of a 'green consolidation' will be fundamental to ensure a truly green recovery. Where explicit greening is not possible, implicit greening can be achieved by adjusting market expectations to a future world of higher carbon prices.

In order to effectively green the fiscal consolidation, the EU will need to implement both a tightening of the ETS and a reform of the ETD. In our example, the annual additional revenue this could generate EU-wide could amount to €90 billion. Granted, some of this revenue will be used to address the initial potentially regressive effects of higher carbon prices. Yet, even taking this into account, it is clear that carbon pricing can make a non-trivial contribution to meeting the fiscal consolidation needs, which could be about 1 percent of GDP (ie €140 billion) per year.

Carbon pricing has long been the economist's favoured tool for reducing carbon emissions. However, given the current circumstances, an EU strategy of effective stimulus measures today, while allowing increases in future carbon prices to play the role of greener-in-chief, appears more attractive than ever.

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