



Green budgeting and tax policy tools to support a green recovery

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Recovery from the social and economic disruptions caused by the COVID-19 pandemic will require concerted policy action. As countries consider recovery packages, there are opportunities to prioritise green policy choices that help promote environmental objectives and speed up structural change towards the low-carbon transition, increasing society's resilience to future shocks and reducing future risks. This policy brief focuses on practical ways in which countries can use green budgeting and tax policy tools to implement stimulus packages that support a green recovery, and the inter-linked role of both tax and spend measures in aligning stimulus programmes with decarbonisation objectives.



Key messages

- **The COVID-19 pandemic has led governments to implement unprecedented fiscal policy action** as an immediate, emergency response to cushion the blow in the initial confinement phase of the outbreak. During the initial phases of the pandemic stark reductions in economic activity have prompted strong and necessary expenditures, focusing on the immediate need to provide liquidity to businesses and households. Following the easing of containment measures and the initial re-opening of businesses, the focus of government policy action has gradually shifted to mitigating solvency risks and supporting the economy as uncertainty remains high and confidence low. Policy action now also anticipates a need for economic stimulus in the post-pandemic recovery phase.
- **The extraordinary fiscal efforts are likely to continue through significant stimulus packages that aim to place countries on a path to sustainable, social and economic recovery.** Fiscal action can indeed strengthen recovery where it is weak. But given potential differences in the timing of exit from confinement, both across sectors and countries, as well as the varying depth at which sectors have been hit, stimulus during the recovery phase needs to be carefully timed and well targeted.
- **Governments have an opportunity to “green” recovery packages to speed up structural change towards the low-carbon transition.** Designing recovery packages with decarbonisation objectives in mind will help ensure that the recovery is strong and builds a more sustainable growth trajectory than the past. Greening recovery efforts will increase society’s resilience to future shocks and reduce future risks, including those related to climate change. In addition, fiscal spending during recovery with green objectives can also be economically justified because of strong fiscal multipliers and job creation. In the long run, green recovery packages can also help finance the extraordinary expenditures associated with the pandemic through approaches and investments that are cost-effective. By contrast, recovery packages that leave the longer-term decarbonisation objectives aside risk pushing societies and businesses towards consumption and investment choices that will delay the transition towards a low-carbon future, and increase the costs of the transition both for business and society.
- **Green budgeting can help facilitate the implementation of green recovery packages.** Governments can use the tools of green budgeting to assess how different budget measures impact green objectives and to help prioritise investments that support a low-carbon recovery as well as for reporting on how stimulus packages are estimated to impact green objectives. In this way, governments can mobilise public resources towards transformative investments that will help achieve overarching goals in relation to climate and the environment.
- **Well-designed tax policy reinforces green stimulus and additionally aligns traditional forms of stimulus with decarbonisation objectives.** In particular, carbon pricing encourages low-carbon investment and consumption choices and is a key tool for a successful recovery: Pursuing decarbonisation with green stimulus measures will be much less effective if carbon emissions continue to be under-priced. Even when stimulus is not targeted towards decarbonisation but is delivered through traditional means such as tax cuts or general investment tax incentives, carbon pricing raises the cost of carbon-intensive assets and will steer investment and consumption resulting from non-green stimulus in favour of low-carbon alternatives. Carbon pricing can also help restore public finances by augmenting tax revenues.
- **Well-communicated spending and tax policy choices that look at long-run benefits in terms of people’s well-being, environmental protection, and resilience to climate and future shocks can increase public acceptance.** Public awareness of the need to strengthen



resilience has led to calls for increased spending in green areas. There may also be pressure to increase the progressivity of tax systems to ensure that the burden to finance public spending is fairly shared. Exceptional times can provide a window of opportunity for broader tax reform, which could support the adoption of politically and socially acceptable reform packages that are aligned with a broader well-being agenda.

Sources: (OECD, 2020^[1]) (OECD, 2020^[2]) (OECD, 2020^[3]) (OECD, 2020^[4]) (The Coalition of Finance Ministers for Climate Action, 2020^[5]) (Hepburn et al., 2020^[3]) (OECD, 2019^[4])

Introduction

The current coronavirus (COVID-19) crisis offers governments a critical opportunity to implement response and recovery efforts that address some of the structural weaknesses of our economies and societies and help build back better. Recovery packages that focus on a swift return to business as usual are likely to be environmentally harmful. It is noteworthy that, so far, around 50% of policy support for energy in recovery packages is still directed towards carbon-intensive fossil fuels (Boone, 2020^[5]). By contrast, “green” recovery packages focus on aligning fiscal spending during the recovery with climate and environmental objectives. They provide governments with an opportunity to develop a new growth strategy that transforms the economy into one that is resilient, modern, protective of nature, low-carbon, resource-efficient and competitive.

Apart from driving the significant emissions reductions needed to halt climate change, a green recovery can also have a strong economic justification. In the first instance, the economic case relates to strong fiscal multipliers and job creation (Hepburn et al., 2020^[3]). In addition, accelerating the transition towards a low-carbon future will also decrease the costs of the transition both for business and society and reduce future risks, including those related to climate change. Recovery packages are not the only mechanism to achieve the transformational change towards a low-carbon economy. But seizing the opportunity to direct recovery packages towards reducing these risks, is a better option than paying the price of more costly mitigation and costly adaptation later.

While there are numerous justifications for greening recovery packages, their design and practical implementation is not necessarily straightforward. The first section of this note provides simple and concrete suggestions for how governments can use the tools of green budgeting to design and implement green recovery packages. Green budgeting tools can support countries in identifying and prioritising stimulus measures that support green objectives. The use of green budgeting tools allows countries to assemble stimulus packages that create jobs and economic demand, but also accelerate progress towards overarching climate and environmental goals. Because tax policy plays a powerful role in steering investment and consumption choices, the second section of this note looks at how well-designed tax policy tools need to complement recovery packages to create a strong enabling environment for decarbonisation during recovery and beyond. In particular, it looks at the role that carbon pricing and related policy instruments play in aligning incentives with decarbonisation objectives and ensuring that stimulus measures move the economy towards a low-carbon transition.

How green budgeting can support a green recovery

Governments’ budget decisions are key to delivering economic recovery. Green budgeting provides ways of using the tools of budgetary policy-making to help achieve environmental and climate goals. The OECD’s Green Budgeting Framework sets out the building blocks of a comprehensive green budgeting



approach, strategic and fiscal planning, budgeting tools for evidence generation and policy coherence, accountability and transparency and an enabling budgetary governance framework (OECD, 2020^[6]).

This section looks at how the tools of green budgeting can be used to support a green recovery. Depending on national circumstances, countries may already have some of the building blocks in place, while for others, data, methodologies or institutional set-ups are missing. Regardless of the stage of development, the section aims to provide countries with some simple and universally applicable green budgeting tools that can be developed and put in place in time for stimulus packages. Specifically, it highlights: tools that help identify green priorities and budget options to support them; tools for assessing how different budget measures impact green objectives; tools to help prioritise investments that support a low-carbon recovery; and tools for reporting how stimulus packages help meet green objectives.

Tools that help identify green priorities and budget options that support them

A strong strategic framework outlines national green objectives and can help to identify relevant green investments that support their achievement. A “green” strategic framework refers to relevant strategies, policies and plans, which include clear climate and environmental goals for government policy. Experience shows that the strategic framework needs to be specific enough to guide budget allocations, including realistic cost estimates and an operational framework (World Bank, Forthcoming^[7]). In this way, the strategic framework can be used to help direct resources towards the strategic priorities of government in the areas of climate and the environment. A well-defined strategic framework can also help guide what budget items are relevant in more ambiguous situations. For example, a combined cycle gas turbine power plant replacing a coal-fired power plant may be considered climate positive relative to the status quo, but also climate negative since natural gas still contributes to global warming. The EU Sustainable Taxonomy (EU Technical Expert Group on Sustainable Finance, 2020^[34]) together with the benchmarks developed in the framework of the EU Emissions Trading Scheme (ETS) or the Best Available Techniques developed through the EU Joint Research Centre, also serve as a useful guide for identifying low-carbon technologies. Understanding the extent to which different budget measures align with longer-term climate policy helps in developing a recovery package that will in turn help achieve longer term green and inclusiveness objectives. In Finland, for example, budget measures are framed in accordance to its long-term national strategy for sustainable development, focussing on a carbon neutral and resource-wise Finland, and a non-discriminating, equal and highly skilled Finland.

Tools such as green budget tagging can be useful to help governments identify how budget items align with green objectives set out in a strategic framework. In the context of budget management systems where it can be difficult to track how budget policy impacts cross-cutting goals, green budget tagging allows countries to identify areas of expenditure and revenue that are helpful or harmful to green objectives. The information from tagging builds a useful evidence base that can help governments improve coherence between budget measures and green goals whilst also improving transparency in relation to the government’s budget policy. This, in the context of recovery efforts, can inform allocation decisions and in-year adjustments as well as feed into other budgetary processes, such as spending reviews, where considerations of efficiency and effectiveness are held in relation to their climate and environmental impacts. The example of how green budget tagging supported the design of a green recovery package in France is presented in Box 1.



Box 1. How green budget tagging supported the design of a green recovery package in France

France has recently developed a comprehensive approach to green budget tagging initiated from its participation in the OECD's Paris Collaborative on Green Budgeting. This involves classifying budget lines according to their impact (either positive or negative) on six environmental objectives: climate change adaptation, climate change mitigation, biodiversity and sustainable land use, circular economy and risk prevention, water resources management and pollution abatement. This approach also helps to assess potentially negative or positive spill-over effects from one environmental sphere to another. The analysis was presented for the first time as part of France's Budget for 2021.

France was able to use its new approach to green budget tagging to support the design of its recovery plan, announced in September 2020. The French Government set an objective of having 30% of the EUR 100 billion "Plan de Relance" allocated explicitly to green measures. Green budget tagging was carried out in relation to the initial planned expenditure. This allowed the government to identify expenditure measures that would help France meet its objective of having EUR 30 billion dedicated towards the green transition. It also allowed the identification of harmful expenditure measures that were counter to France's environmental and climate objectives. Overall, the information from green budget tagging supported efficient decision-making on the final composition of the recovery plan so that it was compatible with the government's green objectives.

Source: Authors

Tools for assessing how different budget measures impact green objectives

Tools such as impact assessments can provide information on the environmental impact of individual policies and programmes and help inform budget decision-making. Impact assessments that are conducted *ex ante* in relation to proposed projects or policies can help to inform budget decisions before a policy is implemented. *Ex post* impact assessments can also inform decisions about the continuation of specific policies, or adjustments to them. The EU directive on Strategic Environmental Assessment (SEA), for example, requests the assessment of the proposed policy plans or programmes for likely significant effects on the environment.

Preliminary information from a Green Budgeting Survey undertaken by the OECD and the European Commission suggests that only a third of OECD countries were able to integrate a green perspective into recent COVID-19 rescue measures given the expediency with which measures were introduced (OECD/EC, Forthcoming^[9]). Five countries reported undertaking *ex ante* environment or climate impact assessments of individual response measures (Austria, Canada, Denmark, Turkey, the United Kingdom), while Colombia, France and New Zealand reported undertaking an *ex ante* or climate impact assessment of the recovery package as a whole. However, given the additional lead time to prepare economic recovery packages, more than half of OECD countries plan specific actions to integrate green perspectives into forthcoming economic recovery packages. Indeed, twelve OECD countries already plan to undertake *ex ante* environmental or climate impact assessments of individual measures in forthcoming recovery packages (Austria, Canada, Denmark, Greece, Ireland, Latvia, Slovak Republic, Slovenia, Spain, Sweden, Turkey and the United Kingdom). In addition, five countries (Colombia, Denmark, Latvia, Portugal and Spain) plan to undertake *ex ante* environmental or climate impact assessments of the recovery package as a whole (OECD/EC, Forthcoming^[12]).

Where information from impact assessments is provided alongside budget proposals, this can help inform stimulus packages that have positive impacts on green objectives. It is usually more feasible to undertake this type of assessment where a strong framework or tradition of *ex ante* environmental or climate impact



assessment already exists. This was seen in relation to gender budgeting where impact assessments have been a useful tool to inform decisions about how COVID-19 response measures impact on gender equality in countries such as Canada and Iceland (see Box 2).

Box 2. Use of gender impact assessments in planning COVID-19 response measures in Iceland and Canada

Iceland

As part of Iceland's response to COVID-19, line ministries were asked by the Ministry of Finance (MoF) to estimate the impact of project proposals by the number of potential jobs created as well as its impact across gender. In many instances, its existing framework for gender budgeting has helped to provide relevant information for analysis. Initial assessments found that social measures and labour market initiatives were expected to have a positive effect on gender equality or to preserve the status quo while assessment of its investment programme indicated that most jobs created would be done by men. Building on these efforts, as part of the second phase of its investment programme in the upcoming budget, Iceland plans to adjust project composition to improve the gender impact of investments.

Canada

Canada used its existing Gender Based Analysis + (GBA+) system to understand how policy measures in response to COVID-19 were likely to impact gender equality, income distribution and intergenerational equality. Based on initial analysis, the Government found that 77% of the value of direct measures of the COVID-19 Economic Response Plan was broadly gender balanced with 9% disproportionately benefitting men and 14% benefitting women. Additionally, Canada used its Gender Results Framework to map out how response measures would impact on key indicators (such as child benefits, gender-based violence and education).

Source: (Iceland Ministry of Finance and Economic Affairs, 2020^[8]) (Finance Canada, 2020^[9])

In addition to *ex post* impact assessments, environmental audits can serve as a valuable tool to conduct *ex post* reviews of performance, processes and progress that a policy or programme is making towards environmental objectives. Increasingly, Supreme Audit Institutions (SAIs) are using performance audits to provide insights into complex problems and risks that cut across government programmes, levels of government and sectors. Some countries include environmental considerations in their performance audits. Ongoing and future audits of COVID-19 recovery measures can shed light on their impact on climate and environmental objectives and provide a set of considerations for forthcoming recovery packages to improve performance towards these targets. Examples can be seen from the European Union and the United Kingdom in Box 3.



Box 3. Environmental Audits in the EU and the UK

European Union

In 2016, the European Court of Auditors (ECA) published a special report on the EU's target to spend at least 20% of its budget on climate-related action. The report highlights the significant progress made but identifies specific methodological and institutional risks to the achievement of the 20% target.

United Kingdom

The UK National Audit Office undertook a review of sustainability in the Spending Review. It suggested the consideration of a set of reforms to the spending review process, to better address the sustainability dimensions, including the adequacy of the coverage of environmental issues in Single Departmental Plans (SDP) and how the SDP can best support accountability to Parliament on environmental targets.

Source: (ECA, 2016^[10]) (NAO, 2016^[11])

Tools to help prioritise investments that support a low-carbon recovery

A number of OECD countries will attach green conditionality in relation to support measures to help “green” economic recovery packages. This is one way in which governments can prioritise investments that support the achievement of environmental and climate objectives. For example, the Slovak Government has stated that support measures should not bring significant harm to the environment and the Italian Government is making an additional EUR 50 million available as part of forthcoming support measures provided that it is used for the purchase of low-emission vehicles (OECD/EC, Forthcoming^[9]). Furthermore, the European Coronavirus Recovery Fund, worth over EUR 1 trillion over the course of 2021-2027, earmarks 30% specifically for green projects. Even those parts of the package not specifically earmarked for climate spending must “do no harm” to the EU’s goal to become carbon neutral by 2050. Where conditionality is in place, it is important that there are clear criteria for measures that can or cannot be included. For example, the EU Sustainable Taxonomy (EU Technical Expert Group on Sustainable Finance, 2020^[34]) together with the benchmarks developed in the framework of the EU ETS or the Best Available Techniques developed through the EU Joint Research Centre, may serve as a useful guide for some countries in classifying low-carbon technologies.

Spending reviews are another useful tool for expenditure prioritisation. Where a spending review includes consideration of the impact of budgetary programme on national environmental and climate goals alongside considerations of efficiency and impact, it can also be a useful tool to help prioritise investments that support a low-carbon recovery. A number of countries are using spending reviews to help them prioritise investments for the next stages of the recovery process. Spending reviews present a strategic opportunity to ensure that budget decisions are closely aligned with the medium-term goals of the government. To help prioritise investments that support environmental goals, spending reviews can include consideration of environmental dimensions alongside considerations of efficiency and effectiveness. This can be done across all scopes of spending review: from narrow (reviews covering 0 to 5% of total government spending), to broad (covering 5-20% of spending) and comprehensive (covering 20 to 100% of spending). An example of how this has been done in the past is provided by the United Kingdom (see Box 4).¹

¹ Using a shadow carbon price in the evaluation of public investment is another way to prioritise investments that support a low-carbon recovery. The French and UK approach to shadow prices is further discussed in Box 11.



Box 4. Incorporation of environmental considerations in UK spending review

The 2015 UK spending review was an important opportunity for HM Treasury to encourage a co-ordinated approach to meeting environmental targets. The design of the spending review, which in contrast to many OECD countries also looks into new spending proposals, gave government departments the scope to put forward information on environmental risks, impacts and obligations as part of their bids. HM Treasury took steps to encourage departments to do so by asking them to provide a summary of the impact of their bids on carbon targets and advised their teams to consider climate change, energy, fuel poverty and air quality legislation while assessing departmental bids. As a result, HM Treasury reported that some departments improved the way they made their case for their spending on environmental objectives and were better placed to quantify the associated benefits than in previous spending reviews. HM Treasury took the step of preparing a provisional analysis of the impact of the spending review on environmental objectives. This analysis, undertaken during the spending review, assessed the extent to which collective bids would have a material effect on government's ability to meet these objectives.

Source: (NAO, 2016^[13])

Another way to utilise spending reviews is by conducting targeted reviews of climate or environment-related expenditure. This helps to ensure that these funds are effectively and efficiently utilised to achieve a country's green goals. Lessons from the OECD suggest these reviews can be targeted to specific institutions (as in the case of Ireland) or a cross-cutting theme (as in the case of the Netherlands, seen Box 5).

Box 5. Targeted environmental spending reviews in the Netherlands

In 2019, the Netherlands undertook a spending review on the air quality in the country. This spending review involved different entities and investigated the efficiency of the measures in place that intended to improve air quality as well as the roles of different government entities and the co-operation between them to improve air quality in the country.

Source: (Mistry of Finance, Netherlands, 2019^[14])

Looking beyond immediate recovery packages, the integration of green perspectives into medium and long-term budgetary frameworks is likely to help countries to embed environmental priorities alongside considerations for fiscal sustainability. Fiscal rules and general fiscal stewardship oblige governments to ensure that existing and future public resources are used efficiently, and have maximum impact, as a condition for the allocation of funding for new priorities. This requires well-informed budget decisions to support the management of trade-offs and synergies between different policy goals. By embedding environmental considerations in multi-year budget frameworks (such as Medium Term Expenditure Frameworks), these can be placed alongside considerations of fiscal parameters over the multi-year horizon and improve the effectiveness of spending by harmonising public expenditure with national priorities. Additionally, integrating environmental risk into longer-term fiscal assessments would help governments to identify and, if possible, quantify potential risks as well as opportunities for budget planning by the public sector. Lessons can be found from the United Kingdom and Germany, as described in Box 6.



Box 6. Incorporating environmental considerations in long-term fiscal sustainability analysis

United Kingdom

For the first time in 2019, the Office for Budget Responsibility (OBR) included a discussion of climate-related risks to the economy and the nature of climate-related fiscal risks in their fiscal risk report. While the assessment is qualitative in nature, the OBR plans collaboration with the Bank of England to see how financial stability stress-testing scenarios can be adapted for fiscal risk analysis. Further collaboration is envisaged with the OECD Network of Parliamentary Budget Offices and Independent Fiscal Institutions and the OECD Network for Greening the Financial System.

Germany

The 2009 study, commissioned by the Ministry of Finance, uses different scenarios of socio-economic and climate development to examine potential impacts of climate change on Germany's fiscal sustainability. The report includes a qualitative and quantitative assessment based on 10 case studies covering the most affected sectors, buildings, agriculture and forestry, energy, water, tourism, transport, insurance and health, and two cross-sector on sea-level rise and the importance of international influences.

Source: (OBR, 2019^[12]) (Peter and Lückge, 2009^[13])

Tools for reporting how stimulus packages help meet green objectives

Reporting alongside the budget, using tools such as green budget statements (GBS), can provide summary information on how recovery measures align with a country's green objectives. Using information from green budget tagging, impact assessments and other tools, a GBS can support greater transparency, accountability and public engagement on budget policy. These statements may be published as part of a draft budget proposal, serving as one element to contribute to deliberations at the approval phase of the budget cycle. In France, for example, information generated from their green budget tagging process as well as other information, such as information on the economic effect of environmental taxes on households and firms, accompanies its annual budget to contribute to the discourse on budget allocations. For example, a GBS could include information, such as:

- A **general green budget statement**: This summarises in broad narrative terms how measures introduced in the budget are intended to support green priorities and goals.
- A **green progress statement**: This provides a more detailed explanation of how the budget measures advance the government's green agenda, by reference to established objectives and indicators. For example, the OECD proposes key indicators for tracking the environmental success of recovery packages over time, alongside economic, employment and other social indicators (OECD, 2020^[3]).
- **Distributional impact analysis**: This is an assessment of how specific green measures (both revenue and expenditure) affect individuals, households or firms.

Interlinkages between spending and tax measures to support a green recovery

Green public spending can support the recovery, but trade-offs exist. Spending on, for example, energy efficiency measures to retrofit existing buildings, or green R&D to unlock novel clean technologies can



provide stimulus and help curb carbon emissions. However, it is not realistic for all stimulus money to go directly to green projects, and there can be trade-offs between environmental, economic and social goals (Agrawala, Dussaux and Monti, 2020^[14]). Managing trade-offs between competing goals and difficulties in explicitly greening all stimulus spending, suggests a need to employ additional tools.

Carbon pricing and related tax policy tools can ensure that stimulus policies that are not explicitly green can nevertheless be aligned with green objectives. Even recovery packages that have a large green component tend to also include a substantial share of traditional stimulus to address other social and economic priorities. For example, the EUR 100 billion French “Plan de Relance” presented on 3 September 2020 allocates 30% of the stimulus money explicitly to green measures; 70% are targeted towards “rearming industry” and ensuring social and territorial cohesion. With meaningful carbon price trajectories in place, businesses receiving government support without any green conditionality will face additional incentives to invest in cleaner technologies, without the government needing to identify the most promising technologies and spending choices in advance.

In some instances, expenditure policy can be used to help facilitate the introduction of certain green tax policies. For example, spending measures that support energy efficiency programmes and help reduce carbon emissions can make it easier in the longer term to introduce carbon pricing. In the same way, environmental tax revenues can partially be returned to households through spending measures, to help mitigate potential negative distributional impacts, e.g., on low-income households.

Tax measures have the key advantage that they can improve environmental outcomes in a cost effective way, while also raising government revenues (OECD, 2017^[16]). For example, in their response to the recession in the early 1990s, Nordic countries showed how increased taxes on fossil fuels can provide an effective way to raise funds for social welfare and economic stimulus. A shift in taxation from labour to fossil fuels ensured the Nordics had enough revenue to maintain high social spending and reduce the impact of higher energy prices on the public (International Institute for Sustainable Development, 2020^[17]).

Given the important role of tax policy in supporting a green recovery, more than ever, the power of taxes to create clear and strong incentives needs to be harnessed. The following section highlights options for redesigning tax policy in support of decarbonisation objectives. In particular, it looks at the powerful role that carbon pricing can play in contributing to a better alignment of incentives for a post-pandemic green recovery.

Redesigning tax policy in support of greening stimulus packages

One prerequisite and stepping-stone to greening the recovery is to align broader tax policy with decarbonisation objectives. Tax policy can steer investment and consumption choices in favour of low-carbon alternatives. Due to the direct effects of the crisis and to policy action during the crisis, tax revenues are likely to be significantly reduced for a number of years. The best way to boost tax revenue will be to support solid recovery, including through sufficiently strong and sustained stimulus. In addition, tax policy reform can bolster revenue raising capacity, in response to an increased demand for public spending post-pandemic. For example, carbon pricing can contribute strongly to public finances, although its implementation requires a careful balancing act.

This section highlights some of the key elements of a green tax policy framework. Specifically, it looks at the role of carbon pricing as a central tax policy tool to foster decarbonisation, particularly when significant amounts of government resources are spent on green and other stimulus measures. It discusses how specific carbon pricing design features and the mobilisation of the broader tax policy framework can facilitate its implementation and foster decarbonisation.



Carbon pricing as a core tool of a green tax policy framework

Carbon pricing is a core tool of a green tax policy framework as it provides a technology-neutral case for low-carbon investment and consumption, reinforcing green stimulus. Pushing decarbonisation with stimulus measures during recovery will be much less effective if carbon emissions continue to be under-priced. Strong carbon pricing in the future increases the benefit of carbon-neutral technologies making them worthwhile even in the absence of explicit green conditionality. Also, defining low-carbon priorities that receive stimulus is challenging. Pricing carbon raises the cost of carbon-intensive assets and helps ensure that investment and consumption incentives in the recovery phase are aligned with decarbonisation objectives.

Carbon pricing is not currently being used to its potential. Carbon prices are too low to incentivise deep decarbonisation for most energy users and other emitters of greenhouse gases (see Box 7). OECD (2019^[18]) research shows that 97% of energy-related carbon emissions from advanced and emerging economies are not taxed at a level that is compatible with decarbonisation according to the Paris Agreement, while 70% of emissions are entirely untaxed. The use of emissions trading systems increases the share of priced emissions in some countries, but taking emissions trading into consideration does not reverse this global picture (OECD, 2018^[19]). The presence of fossil fuel subsidies sometimes implies that carbon prices are effectively negative.² Therefore, carbon pricing reform should ideally be considered alongside reforms to fossil-fuel subsidies in order to genuinely boost low-carbon incentives and create more fiscal space for recovery packages.

Box 7. Carbon pricing is well below where it should be to stimulate deep decarbonisation

Countries use different tools to price carbon emissions, or a combination of them:

- carbon taxes typically set a tax rate on energy use based on its carbon content,
- specific taxes on fuel use (primarily excise taxes) typically set a tax rate per physical unit or unit of energy, but can be translated into effective carbon tax rates based on the carbon content of each form of energy,
- trading systems, where the price of tradable emission permits represents the opportunity cost of emitting an extra unit of carbon regardless of the method to allocate pollution permits.

The OECD's Effective Carbon Rate represents the sum of these three components to calculate the total price that applies to carbon emissions from fuel use as a result of market-based policy instruments.

The extent to which countries choose to price carbon emissions through taxes and emissions trading systems varies substantially. Overall carbon price signals are far too weak to encourage citizens and businesses to take the climate costs of their actions into account. Recent evidence shows that taxes on polluting fuels are nowhere near the levels needed to encourage a shift towards clean energy. Adjusting taxes and subsidies and encouraging investment, will be unavoidable to curb carbon emissions.

Source: OECD (2018^[19]; 2019^[18]) and Saint-Amans (2020^[20])

In countries where support for carbon pricing reform is currently low, committing to increasing carbon pricing gradually over time can help unlock low-carbon investments now. Raising carbon prices may not be straightforward in the current period of economic hardship, but committing now to future price increases once the recovery is underway can create strong incentives, particularly for investments in long-lived

² <http://www.oecd.org/fossil-fuels/>



assets and infrastructure (see Box 8). Strong political commitment to raising prices and reforming fossil fuel subsidies, as well as general forms of commitment to long-term climate goals, can help unlock low-carbon investments. Opportunities to raise prices will vary by country and pricing instrument. Gradually phasing in higher carbon prices also provides an opportunity to explore options for international co-operation and co-ordination on carbon prices in the meantime.

The credibility of carbon price trajectories is key to enabling long-term investments in low-carbon assets. Statements of intent may not be sufficient to reassure investors. Enshrining a carbon price trajectory into law has greater credibility than government announcements, but potential investors may nevertheless be concerned that future governments will later change these laws. This risk is elevated where support for carbon pricing divides along political party lines and in countries where carbon-intensive assets currently contribute substantially to GDP. In this context, efforts to build a broad based consensus around carbon pricing will be important and can help provide greater credibility for long-term carbon price trajectories.

Box 8. Carbon price trajectories in Canada, Germany and the Netherlands

Canada

The Pan-Canadian Pricing on Carbon Pollution guarantees a coherent carbon price ambition across Canadian provinces, but leaves the choice to provinces whether to implement a tax or trading system. Provinces implementing a carbon levy should start at a minimum price level of CAD 20 per tonne of CO₂-eq. in 2019 that increases over time by CAD 10 per tonne annually to reach CAD 50 per tonne in 2022, when a review of the overall pricing approach is scheduled.

Germany

Germany decided to implement a national carbon pricing in sectors that are not covered by the EU ETS, in particular heating and transport. The national trading system will enter into force in 2021 with a fixed price of EUR 25 per tonne of CO₂-eq. Prices will rise subsequently according to a predefined corridor, reaching EUR 55-65 per tonne in 2026.

The Netherlands

The Dutch government proposed the introduction of a national carbon levy in the industry sector, taking the form of a supplement on top of the EU ETS price for emissions that exceed a tax-free base per facility. The total carbon levy (i.e. ETS price and national supplement) includes a price trajectory that was originally set to start at EUR 30 per tonne of CO₂-eq in 2021 and was proposed to rise in a straight line to EUR 125-150 per tonne in 2030. There is also a proposal to introduce a minimum carbon price for the electricity sector as of 2021, including a price trajectory.

Source: Environment and Climate Change Canada (2017^[23]), BMU (2020^[21]) Deutsche Emissionshandelsstelle (2020^[22]), Government of the Netherlands (2019^[24]; 2020^[25])

Using “abatement payments” in recovery packages can provide direct support for decarbonisation until stronger carbon pricing reforms are politically feasible. Abatement payments are price-based instruments that reward businesses and citizens for reducing emissions.³ The payment level could correspond to the difference between current carbon pricing levels and price levels compatible with decarbonisation objectives in the Paris Agreement. To stimulate the economic recovery, abatement payments could initially

³ Traditionally, abatement payments have been used for incentivising emission abatement in sectors not covered by a carbon price, such as in the agricultural sector. For a discussion of their advantages and drawbacks, see OECD (2019^[42]).



be financed with public debt. Fiscal costs could be contained by reserving payments for priority projects relating to essential low-carbon technologies, such as ultra-low carbon materials or carbon capture and storage. Providing direct support for abatement efforts, as part of stimulus packages, can help avoid locking in carbon-intensive assets until stronger carbon pricing reforms are politically feasible. This could also facilitate carbon price reform later as it decreases future compliance costs and may reduce political opposition to higher carbon prices.

Paying producers and consumers for abatement can take shape via different policy tools. For example, governments can use carbon contracts to pay producers for emission reductions as long as current carbon price levels are below a previously set carbon strike price. Such an approach can reduce uncertainty about future carbon prices and support specific technology investments (Sartor and Bataille, 2019^[26]; DIW, 2019^[27]). Feebates reward products if they are less carbon-intensive than a certain, product-specific standard and charge a fee (a tax) for those products that are more carbon-intensive (see Box 9). If stimulus is needed and fiscal space permits, governments could boost the bonus component during the stimulus phase. Governments can complement such instruments with carbon price trajectories that provide guidance to consumers and producers without the need to raise carbon prices immediately when the economy has yet to recover from the crisis. Design challenges vary by instrument and may include agreeing a reasonable strike price, setting a credible baseline against which to measure emissions reductions and defining emission intensity standards for a wide range of products.

Box 9. Feebates

Feebates, also called bonus-malus schemes, levy a sliding scale of fees (excise taxes) on products (or activities) with above-average emissions and a sliding scale of rebates (subsidies) for products (or activities) with below-average emissions. They have been shown to substantially encourage the uptake of motor vehicles with lower CO₂ emissions – e.g. in France (D’Haultfœuille, Givord and Boutin, 2014^[28]) – as consumers shift to less polluting vehicles to benefit from the rebate and avoid the tax. The strength of the incentives to reduce emissions depends on the amount by which feebates make low-carbon products cheaper than high-carbon products. Feebates are typically designed to be revenue neutral – the fees collected on carbon-intensive products are used to subsidise the cleaner alternatives – even if in fact they have sometimes turned out to be more costly than intended (Teusch and Braathen, 2019^[29]). They generally do not raise government revenues that could be used for other purposes, including redistribution. However, the fact that feebates provide both carrots (i.e. the rebate) and sticks (i.e. the fee) may increase the public acceptability of this instrument.

Source: Authors

Abatement payments are a flexible tool that allow countries to prioritise different policy goals and technologies throughout the recovery phase. Countries that aim for general green stimulus and enhancing the credibility of carbon price trajectories can opt for broad abatement payments that cover all sectors and technologies. Jurisdictions that wish to limit fiscal costs may opt for targeted support for a few promising clean technologies that may achieve significant cost-reductions later.

Carbon taxation goes hand-in-hand with innovation policy and specific technology support

Supporting innovation efforts through targeted support for promising clean technologies can help to accelerate the transition to a carbon-neutral economy, particularly when combined with commitments to a strong carbon price. The need for low-carbon innovation and the potential for spill-overs justify targeted support in R&D and in technology-transfer towards application, including support through the corporate tax



system (for example, corporate tax incentives to reduce or postpone the tax liability of an investor). If well-designed, they can encourage investment in specific technologies (Maffini, Xing and Devereux, 2019^[31]). Such incentives can be targeted to specific sectors, technologies or directed towards R&D overall (see Box 10). Targeted technology support that generates low-carbon investment can reduce the cost of complying with carbon pricing in the future, and become a powerful tool in building support for stronger carbon pricing.⁴ Care must be taken to avoid technological ‘lock-in’ and providing windfall profits to investors for activities they would have undertaken anyway. Governments need to carefully balance their targeted interventions to avoid excessive spending on fragmented support that may be achieved at a lower cost with a well-designed carbon price reform.

Box 10. Green corporate tax incentives in the Netherlands and the United States

The Netherlands

An Environment Investment Allowance in the Netherlands allows companies that invest in “environmentally-friendly” assets to deduct 36% of their capital costs from taxable profit in addition to regular fiscal depreciation. An “Environment list” that is updated annually defines which assets qualify for the allowance. The current list includes technologies that aim to encourage the low-carbon transition, such as equipment for the electrification of the chemical industry, fuel cells or hydrogen.

The United States

The United States has a longstanding tradition of using corporate tax credits to encourage investment in renewable energy production, such as wind and solar. For example, in 2020 companies that invest in solar power plants can claim a credit of up to 26% of their capital costs against their corporate tax liability.

Source: Netherlands Enterprise Agency (2020^[33]), Internal Revenue Service (2019^[32])

Targeted low-carbon innovation support has increasingly become a practicable option given international advances in the classification of clean technologies and standards. Governments are well placed to take on the additional risk from targeted technology support as the choice of picking technologies *ex-ante* remains challenging. The EU Sustainable Taxonomy (EU Technical Expert Group on Sustainable Finance, 2020^[34]), together with the benchmarks developed in the framework of the EU ETS or the Best Available Techniques developed through the EU Joint Research Centre, provide starting points for classifying promising low-carbon technologies. Where standards for clean products and processes exist, they could be used to direct targeted support.

Using a shadow carbon price, or shadow carbon price trajectory, is an additional tool to target sectors or technologies with green recovery packages. Applying a shadow carbon price when deciding which projects merit targeted support would align recovery packages with decarbonisation objectives. A shadow price, or shadow price trajectory, puts a monetary value on the future emissions of an activity (Box 11). This will provide another incentive to target support towards investments or existing assets where emission reduction potential is the greatest.

⁴ Tax relief is also often provided through the corporate and personal income tax system or the VAT to encourage the take-up of energy-saving appliances, buildings and technologies (Greene and Braathen, 2014^[45]).



Box 11. Shadow carbon prices in policy evaluation in France and the United Kingdom

France

In 2019, at the request of the French Prime Minister, the “Quinet Commission II” published a report on the “Value for Climate Action” to guide socio-economic analysis of public policies and investment choices by the government. It sets out a trajectory for shadow carbon prices to ensure the country reaches carbon neutrality in 2050, updating the results of a previous commission in 2009.

The United Kingdom

HM Treasury regularly publishes an updated set of carbon values for policy appraisal and evaluation. Through a review in 2009, the government moved away from applying values based on the damage associated with carbon emissions towards using carbon values that are consistent with the government’s greenhouse gas emissions targets.

Source: France Strategie (2019^[35]), HM Treasury (2018^[36])

Greening the recovery requires approaches that go beyond explicit decarbonisation policies

Ideally, recovery packages should aim to avoid misalignments with climate objectives and create a strong enabling environment for decarbonisation. In addition to tax policy tools with an explicit environmental intent, many aspects of the tax system can create an unintentional bias against clean alternatives (see e.g. Box 12).⁵ The tools of green budgeting mentioned above provide countries with useful instruments to identify the main misalignments in the broader tax framework.

Box 12. Electricity taxation

Electricity taxes typically do not directly encourage power producers to shift to cleaner sources and do not provide direct incentives for the decarbonisation of the power sector. This can discourage the electrification of industry, heating and mobility. The reason is that most electricity taxes are not differentiated by energy source, and hence make all energy sources more expensive irrespective of the carbon content. There are exceptions to this common practice, however, such as electricity taxes in Ireland and South Africa that are limited to electricity generated from fossil fuels. In addition, many countries exempt certain small-scale installations that produce electricity for own consumption from the obligation to pay electricity taxes. To the extent that such exemptions benefit rooftop solar or other cleaner sources, electricity taxes do provide some direct incentives for decarbonisation. This suggests a need and a merit to reform electricity taxes to ensure that they are better aligned with countries’ decarbonisation objectives.

Source: OECD (2019^[18]).

In particular, the overall corporate tax framework can contribute to the green business environment and

⁵ Negative environmental impacts can also unintentionally be part of the personal income tax system (Harding, 2014^[43]; Roy, 2014^[44])



can, in some instances, induce a bias against clean alternatives. Currently domestic and international corporate tax systems are going through dynamic reform efforts. While decarbonisation is not at the core of these efforts, opportunities to improve the appeal of cleaner choices may arise and should be identified and pursued. While corporate tax incentives can provide targeted support (refer back to Box 10), misalignments in the system may discriminate against low-carbon assets. Research does, for instance, point to the possibility of unintended technology-bias in corporate income taxation regarding clean technology alternatives as tax provisions for capital cost recovery are not entirely technology-neutral (Dressler, Hanappi and Van Dender, 2018^[37]).

Green tax policy has a strong revenue-raising component, but advancing proposals for carbon price reform during the recovery phase of the crisis requires a careful balancing act

Tax policy, including carbon pricing, can contribute to financing the costs of the crisis, but efforts to restore public finances should not come too early. Increased awareness of the need to strengthen resilience has led to calls for increased spending of taxpayer money on public goods, which will in turn require higher tax revenues. Carbon pricing can make a significant contribution to public finances. For example, the additional revenues arising from implementing a carbon price of EUR 30 per tonne of CO₂ for all energy-related emissions that are currently priced at lower rates could amount to approximately 1% of GDP (Marten and Van Dender, 2019^[40]). In the case of emissions trading systems, reaping the revenue potential requires the auctioning of emission permits.

Where perceived competitiveness issues and the potential for carbon leakage hinder the greening of recovery packages, additional policy tools may be needed. *Ex-post* evaluations of current carbon pricing systems usually do not identify significant effects on competitiveness and even find that carbon prices improve some competitiveness dimensions, including innovation and productivity (Arlinghaus, 2015^[38]; Ellis, Nachtigall and Venmans, 2019^[39]). However, as carbon price differentials emerge between jurisdictions, carbon leakage and competitiveness can become a concern in a small number of energy-intensive and trade-exposed industries. If left unaddressed, this may reduce countries' ambition to align recovery packages with long-term decarbonisation objectives. It is less promising to provide stimulus to specific trade-exposed sectors by freely allocating emission permits, by granting tax exemptions or by compensating business for increased input costs. Alternative tools exist that make a more convincing case by enabling stronger carbon prices throughout the sector (e.g. border carbon adjustments, carbon consumption charges, and the above mentioned abatement payments), but often involve a number of technical, legal and political challenges. The prospect of a tool that addresses potential carbon leakage could strengthen expectations about higher carbon prices in the future.

Poorly timed or communicated reform proposals could generate public resistance and stall efforts to reform carbon prices. It is tempting to argue for carbon pricing now to exploit the relatively low pre-tax energy prices, especially for oil products. Where such reforms are now within reach, they should indeed be pursued. There is a risk, however, that price increases are poorly received by the public or that push-back would come if pre-tax energy prices return to their previous levels. To some degree, this happened in France, Mexico, and Indonesia prior to the COVID-19 pandemic. As the pandemic and resulting crisis has disproportionately affected vulnerable households, distributional concerns over potential price increases merit particular attention by policy makers. Low pre-tax prices may provide only temporary political cover and do not in themselves make it easy to raise taxes.

A gradual and comprehensive approach to tax reform can alleviate affordability and distributional concerns and foster the political acceptability of the reform. Stronger carbon pricing as well as tax reform to cover the extraordinary expenditures linked to the pandemic may affect some households disproportionately. Distributional and affordability concerns linked to tax reform need to be taken seriously from the start of the recovery phase. It is essential that tax reform be accompanied with targeted communication and information campaigns, together with other complementary policy measures. For example, policy



measures could focus on promoting the use of low-carbon substitutes or on support measures for those households that are affected particularly strongly by decarbonisation policy in the short run, but that cannot easily adapt to the reform due to financial or other external constraints.

It is essential that purchasing power support in green recovery packages maintains incentives for decarbonisation. Targeted support measures for the poor may be channelled through the social benefits system or as an income-tested payable tax credit. An alternative to targeted support is a lump-sum payment to all households. These are highly visible and may increase support as households benefit across the political spectrum. Lump-sum payments benefit a larger number of households. This implies that when the amount spent by the government is fixed, they distribute less money to the poor than targeted transfers. Support that comes through the general social benefit system, or via income-tested or lump sum benefits, keeps incentives in place to reduce carbon-intensive consumption patterns because carbon price signals are unaffected. In contrast, supporting specific households by providing them with preferential energy tax rates or exemptions weakens their incentive to make cleaner choices. Likewise, providing direct support to households for pre-defined purposes (e.g., via vouchers for energy use) may undermine the incentives necessary to drive decarbonisation (OECD, 2019^[41]).



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