

# 13. Climate transition: implications for fiscal policies

**Lorenzo Forni**

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## 13.1 INTRODUCTION

The fight against climate change has become a global policy priority in the last decades and particularly in recent years. Most countries have committed to reducing their emissions within the 2015 Paris Agreement. The goal is limiting the global temperature rise to below 2°C above pre-industrial levels and pursuing efforts to limit it to 1.5°C. For example, the European Union committed to reducing emissions by 55 per cent by 2030 compared with 1990 levels and achieving net zero emissions by 2050. These targets are enshrined in the European Climate Law of 29 July 2021 and are binding for all member countries.<sup>1</sup> Several countries increased their commitments in various ways at the COP26 meeting held in Glasgow in 2021 and afterwards. Prior to Glasgow, the Biden administration in the US announced a (non-binding) target to reduce net greenhouse gas emissions by between 50 per cent and 52 per cent by 2030, compared with 2005 levels; the UK adopted an emissions reduction target of 78 per cent by 2035 compared with 1990 levels. Thus, at least for advanced countries, there seems no lack of progress on commitments.

However, following up on all these commitments will not be easy. It will require not only formulation of a detailed strategy, including a range of measures defined at the sectoral level, but also the establishment of clear governance to manage the process. Not only will following through on these commitments be challenging but also, to date, they are insufficient to achieve the Intergovernmental Panel on Climate Change (IPCC) goal of containing global warming to 1.5°C by the end of this century. At present, the best estimates are that the current commitments are consistent with an end-of-century temperature increase of more than 2°C, rather than the 1.5°C deemed necessary to avoid significant climate change-related consequences (Climate Action Tracker, 2022). Of course, the situation differs among countries. Some have made significant progress in recent years, thanks largely to the substitution of

coal with natural gas for power generation, and some have been able to meet the 2020 targets. However, further progress will be much more difficult.

In the European Union, the sharp increases in energy prices and the geopolitical implications of Russia's invasion of Ukraine hindered investment in the green transition. Governments have prioritized reduction of their energy dependence on Russia, combined with accessing alternative affordable sources, which, in many cases, has implied a return to use of fossil fuels such as oil and coal. The need to reduce polluting emissions seems to have been relegated to some future yet to be identified. So extreme was the rise in energy prices that some European governments intervened to ease the increases. This is inconsistent with climate needs that require a rise in the costs associated with CO<sub>2</sub> emissions and, thus, an increase in energy costs. What remains of European governments' ambitious commitments to reduce greenhouse gas emissions? The European Commission seems to be responding by implementing efforts to accelerate the green transition. In the RePowerEU plan, announced on 18 May 2022,<sup>2</sup> it reiterated the commitment to reducing emissions by 55 per cent by 2030 compared with 1990 levels, and achieving net zero emissions by 2050. The RePowerEU plan includes several measures to boost energy efficiency, diversify energy sources, accelerate adoption of renewables, reduce fossil fuel consumption in industry and transportation and increase public investment, but the challenges are significant.<sup>3</sup>

In addition, the strong growth in government spending because of the pandemic has not been directed toward "green" spending. The Covid-19 pandemic triggered the expansion of fiscal deficits, involving massive interventions to rescue the economy. However, in many countries, the composition of these interventions caused emissions to increase further rather than to reduce. According to estimates from Vivideconomics (2021), only around \$5 trillion out of a total announced or approved fiscal stimulus of \$17.2 trillion, as of July 2021, had green features. As of July 2021, 15 of the G20 countries' announced stimulus measures that would have a negative environmental effect. According to Pigato et al. (2021), at the end of May 2021, the global announced fiscal stimulus totalled \$19.8 trillion, with the 24 highest-income economies accounting for more than three-quarters of this amount. About 85 per cent of spending was aimed at "rescuing" the economy and can be classified, almost entirely, as "legacy" or "light brown" spending to support households, businesses and activities that would otherwise not have survived. Recovery spending accounted for only 15 per cent of the total stimulus. It included a relatively large share of green spending (19.4 per cent) and an even larger share of high-emitting activities (20.4 per cent). Thus, in general, the large sums invested in coping with the pandemic have not contributed to reducing emissions; on the contrary, they have probably contributed to their increase. Governments are now being faced with higher public debts, less

time to implement climate measures and increased emissions compared with the pre-pandemic situation. Thus, governments are finding that they have less fiscal space, but greater urgency to reduce emissions.

To meet the emissions targets required to avoid the risk of severe and irreversible climate change, governments – and fiscal policies in particular – must rapidly increase the ambition of their interventions. This begs the question of how to build a public policy package that, on the one hand, makes emissions increasingly costly, and, on the other hand, contributes – through public investment and tax incentives – to the growth of low-emission energy production capacity and energy efficiency. These measures cannot be the same for the whole economy and will require adaptation to the specific characteristics and needs of different production sectors. Finance ministries and fiscal policies more generally, must bear responsibility for this process, based on their obligations to implement fiscal measures to enable achievement of the official goals in terms of emission reductions. However, currently, even the most virtuous countries are producing higher levels of emissions than is consistent with their announced targets. In short, despite announced commitments, we have yet to truly embark on the path to a green transition.

The road to achieving climate goals involves at least three obstacles for fiscal policies. The first is the further increase in public debt that will be needed to finance the expenditure associated with the green transition. The second is the political barriers related to the required increase in emissions costs, which will have inflationary and redistributive effects. The third relates to the political uncertainty stemming from alternating governments with different preferences and sensitivities regarding the green transition.

This chapter will first discuss the range of fiscal tools that policymakers can use to steer the transition (Section 13.2). Second, it will argue that a combination of diverse fiscal tools might be needed to support the transition and that accepting a higher level of public debt during the transition phase is probably the strategy that can better achieve debt sustainability in the long run (Section 13.3). Section 13.4 highlights the challenges that fiscal policy must face, even assuming a fiscal strategy to support the transition has been devised. Finally, the paper will offer some suggestions on how fiscal policy should address the green transition, making the point that general climate principles and targets should be enshrined in the law and that all measures implemented by governments and fiscal authorities should follow from these principles (Section 13.5).

## 13.2 SEVERAL FISCAL INSTRUMENTS CAN SUPPORT THE GREEN TRANSITION

Economists have long advocated for the use of a carbon tax or a cap-and-trade system as a fiscal policy tool to reduce emissions. These systems are built on

the idea that emissions impose a cost on society, so companies must pay if they want to release greenhouse gases into the atmosphere. The underlying economic principle is externality: the emitting entity creates a negative externality that must be corrected by means of a Pigouvian tax. However, although a carbon tax is considered a fiscal policy pillar in relation to reducing the rise in emissions, global carbon tax levels remain low. Only about 20 per cent of global emissions are covered by a carbon pricing programme, and at a global average price – when taking account fossil fuel subsidies – is just a few dollars per ton. This is very far from the circa \$75 per ton global carbon price that is estimated to be needed to reduce emissions to maintain global warming at below 2°C (Parry, 2021).

It must be said that, within the international community, a more nuanced position regarding carbon pricing seems to be developing. There is a recognition that in the short run the elasticity of demand for energy to its price is quite low and that even large price increases for CO<sub>2</sub> emissions and, therefore, energy prices, may not stimulate significant levels of substitution by lower-emission forms of production. This would occur were there to be insufficient green (low-emissions) energy production capacity or green energy production not technologically well integrated into traditional energy production and distribution systems, such that economic agents would be unable to replace easily high-emissions energy sources with green energy sources even were the price charged for emissions to increase. The energy crisis in Europe, related to the Russian invasion of Ukraine, has made this point quite clear: at the present time, European countries do not have sufficient installed green energy production capacity to significantly reduce their gas consumption, despite the still relatively high gas prices. So, in the short term, the chances of substitution are limited. This limited short-run substitutability might limit the effectiveness of carbon prices in the short run also in normal times. For example, increasing the carbon tax may not be effective for reducing the use of combustion engine vehicles and promoting purchases of electric vehicles. A carbon tax would raise the price of gasoline only to a limited extent and, in the absence of a widespread network of recharging stations, would not encourage the purchase and use of electric cars. Investment in recharging stations would be more effective (Stock and Stuart, 2021). A second limitation of the carbon tax is that, in the current context with limited alternatives to traditional energy sources, it leads to an increase in the cost of energy and, thus, weighs particularly heavily on lower-income households for whom energy-related expenditure accounts for a relatively higher share of their incomes. This acts as a strong barrier to policies that impose a cost on or raise the price of emissions.

Overall, there is a need to construct a public policy package that, on the one hand, recognizes the importance of carbon pricing as a policy tool by making emissions increasingly expensive, but, on the other hand, acknowledges its

limitations and the need for other policies to complement carbon pricing. Fiscal policy can deploy other instruments to foster the climate transition, from incentives for private investments, to public green investments for mitigation, to direct regulation. The goal of these different measures would be to curb high-emissions activities while at the same time supporting the creation of higher production capacity of low-emissions energy. As I will argue in the next section, this process is likely to lead to higher public debt, not least because the transition will produce distributional effects that will need to be addressed.

### 13.3 THE FISCAL COST OF THE GREEN TRANSITION IS GOING TO BE SIGNIFICANT

There are three major areas of climate-related intervention that would affect public budgets: measures to support the “mitigation” process, that is, to reduce emissions; measures to support the “adaptation” process, that is, to both preventively and *ex post* manage the costs caused by extreme climate events (tornadoes, floods, fires, etc.); measures to address the distributive impact of the transition, be they the need to support workers in shrinking sectors, or measures to support households and firms to face the potentially high cost of energy during the transition.

There are several reasons why, within a package of measures – including carbon pricing or direct regulation – aimed at curbing emissions, an expansionary fiscal policy in the form of subsidies or direct public investment might be appropriate. First, as already mentioned, there is a need to increase green energy production capacity, both through public investment and private investment which may need to be subsidized. Second, an expansionary fiscal policy could help to support economic activity during the energy transition, when the high cost of energy is likely to have negative effects on economic activity. Specifically, fiscal policies aimed at fostering the expansion of green sectors would help to contain emissions and global warming in the medium term, and therefore reduce the associated negative impacts of climate change on the economy, while at the same time support economic activity in the short term. In turn, this would imply an expansionary effect on economic activity in both the short and medium-to-long runs and would therefore help to contain the long-run increase in government debt-to-GDP ratios.

In short, expansionary fiscal policy can raise green investments and so support economic activity to counteract the supply-side shock on brown sectors imposed by the rising cost of emissions. The latter will reduce activity in the high-emitting sectors, while subsidies and green public investment will foster production in low-emitting sectors. In this way, fiscal policy will accelerate the transition, by containing activity in brown sectors and expanding the one in green sectors. Estimates conducted with integrated macroeconomic and

climate models – in which the public sector is assumed to rebate carbon tax revenues in green tax incentives and, also, to activate green public investments – show that such policies may indeed also be optimal for long-term public debt sustainability. Compared with alternative policies, an increase in public debt to GDP would be observed in the short run to finance subsidies and government public investment, but it would drop to lower levels in the medium to long runs (Catalano et al., 2021).<sup>4</sup>

At this point, we might wonder whether the public spending currently planned by countries will be sufficient to achieve the stated goals. We have seen that, at the global level, it would not. However, since the European Union embarked on the de-carbonization path earlier than some other world areas, it can give us an indication on how complicated the journey might be. The European Environmental Agency analyses show that, in order to meet the 2030 targets, all major eurozone countries would need to reduce their yearly emissions by 5 per cent, to 8 per cent, a faster pace than achieved, on average, in the past.<sup>5</sup> Also, the transport and construction sectors, which are not subject to the European Trading System (ETS), are particularly lagging.<sup>6</sup> It must be emphasized however, that the situation is quickly evolving. For example, the European National Recovery and Resilience Plan (NRRP) calls for increased green spending. It requires EU countries: (1) to allocate at least 37 per cent of their NRRP funds, to measures that contribute to the green transition; and (2) for the remaining initiatives to comply with the principle of “Do No Significant Harm” (DNSH), which means that any NRRP interventions should not be harmful to the environment.

In terms of costs, those related to adaptation expenditures are difficult to estimate because they require forecasts of the progress of adverse climate phenomena related to global warming. According to Barrage’s (2021) analysis for the US, climate change might affect: (i) government intermediate consumption expenditures (e.g., health care); (ii) government transfers (e.g., income support); (iii) tax revenues; and (iv) expenditure on adaptations to climate change impacts (e.g., public funding for the construction of sea walls to protect against sea-level rises). Barrage estimates that, under a high-emissions scenario, climate change will increase total government consumption needs (and transfers) by about 1.45 per cent by 2050, with health care expenditures accounting for most of the cost increases. This low estimate should be considered a minimum level. It reflects the fact that, in the US, the federal government and states intervene relatively little in environmental disasters and a large portion of the costs are covered by private insurance companies.

Finally, the distributional effects of the green transition could be extremely significant. Some sectors may have to downsize considerably, which will raise the question of how to compensate displaced workers. This compensation would appear essential to prevent the formation of political blocs that oppose

the transition. In fact, it would be realistic to expect that these blocs would form anyway and will have the power to obtain generous concessions. The fiscal cost of these compensations is, currently, difficult to quantify, but should not be underestimated.

### 13.4 FISCAL POLICIES MUST RAPIDLY INCREASE THE AMBITION OF THEIR INTERVENTIONS

Finance and budget policy ministries are key players in managing the energy transition. The task is complex, as policymakers will have to face several challenges: (i) a growing need to use the fiscal lever to support the transition, with the associated likely increase in public debts; (ii) the political economy and distributional hurdles related to the transition; (iii) the need for consistency and credibility in policies if these need to steer expectations and private sector behaviours. In consideration of these challenges, the ambition of fiscal policies in the climate space should be stepped up significantly.

A first challenge that budgetary policy will have to face, as already argued, is the further increase in public debt necessary to finance expenditure related to the green transition. An increase in the public debt to GDP related to financing green public investment and green incentives could lead to a surge in public debt in the short run, but to its containment (compared with a scenario with less public investment) in the long run. This is because this type of spending would help to limit the increase in emissions and, thus, temperatures and adverse weather events, which have negative effects on the economy. However, managing an increase in public debt – from the high level already reached – will be challenging.

The second issue is the political obstacles related to the need for an increase in the cost of emissions, which will have inflationary and redistributive effects. In fact, achieving the Paris goals will require strengthened measures on the emissions costs side. It will be unfeasible to curb emissions to the extent necessary based only on expenditure side interventions (public investment and incentives), since this would put at risk the sustainability of public budgets (Catalano et al., 2021). Recall that green public investments support the transition on the supply side, but also support overall consumer demand without necessarily directing it toward green consumption. Therefore, a large reliance on carbon pricing will be unavoidable, and with it the need to support the households and firms more exposed to its effects.

Third, fiscal policy needs to play a crucial role in establishing credible measures and criteria that will influence long-term expectations. Climate policies must persist beyond the terms of alternating governments and must not focus only on the expenditure side. The stability of climate policies beyond electoral cycles is necessary to create a stable set of long-term rules. Climate policies

will be credible if, in addition to being predictable, they are consistent with climate goals and fiscally sustainable. Thus, it is important to acknowledge that emissions targets cannot be achieved just by leveraging budget incentives.<sup>7</sup> That is, we cannot construct a credible and lasting de-carbonization strategy based only on fiscal incentives. This would risk expenditure of substantial amounts of public resources with no coherent or plausible plan – something that is vital for the sustainable achievement of emissions reduction targets. To make the transition happen, clear and credible policies, able to direct private sector long-term expectations and help shift investment to lower-emitting sectors (G30 Working Group on Climate Change and Finance, 2020), are required. However, the formulation of long-term clear and credible policies, in a context of limited budget space, numerous other urgencies (e.g., military spending) and high levels of uncertainty about climate and technological developments, is far from straightforward. It involves the risk of suboptimal choices, such as over-investment in a technology that may not be the dominant one in the future. Governments should not focus on choosing among specific technologies, but rather should find ways to incentivize the adoption of low-emission technologies, while leaving it to the private sector to decide in which ones to invest.

### 13.5 HOW TO MOVE FORWARD

Many governments around the world, especially in advanced economies, have announced ambitious commitments in terms of emission reductions. However, they don't have the required policies ready to deliver on these commitments, or have a suitable governance process in place. Indeed, most governments around the world are only now beginning to incorporate climate goals in their budget processes. Green Public Finance Management (PFM), for example, is mostly embryonic even in the advanced economies; an OECD (2021) survey on green budgeting practices found that 60 per cent of OECD member countries do not use it. Only 14 countries in the world have implemented some form of green budgeting, mostly limited to *ex ante* or *ex post* environmental impact analyses to inform budget decisions. Implementation of green budgeting practices in Europe is scarce and, currently, is based on widely differing methodological approaches (Bova, 2021). Even the countries whose thinking is the most advanced in relation to the implementation of such policies tend to be at an early stage.

Moreover, emergencies able to push the green transition lower on the policy agenda often occur. Recently, it has been the rising prices of energy commodities resulting from Russia's invasion of Ukraine. This rise in gas prices so far had the effect, globally, of encouraging a renewal of fossil energy, by use of especially oil and coal which are relatively cheaper. In Europe, governments

have also missed an opportunity to let rising energy prices exert a more decisive consumption-reducing effect. Several European governments have intervened to curb rising energy costs, while a policy consistent with the need to address the climate transition would allow energy prices to rise and provide targeted support only to the most affected households and threatened businesses. However, the interventions have instead helped a very wide range of taxpayers and resulted in public expenditure of significant amounts with aims that conflict with the objective of emissions reduction.

In this contribution I have argued that fiscal policy is essential to steer the green transition. Carbon pricing should be used more forcefully to contain production in high-emitting sectors, while fiscal incentives and direct green public investment should foster an increase in green capital. The limited time span that the world has to reach Net Zero and avoid significant increases in temperatures, mandates a credible and effective intervention from fiscal policies. To achieve this, countries should enshrine climate goals in their national laws (some countries have approved climate laws) which define the criteria that governments must adhere to. For example, “Do No Significant Harm” (DNSH) is a smart priority, which perhaps could have contributed to limiting recent government measures in Europe to cap energy prices. In addition, independent institutions, such as climate councils, should be entrusted with monitoring the achievement of the targets set in national laws. If climate targets are incorporated in the national laws, then it will be imperative for climate councils to have the expertise necessary to make the relevant assessments and the power to force policy changes. Nevertheless, any change in this direction would constitute only a first step. We need much bolder and speedier action on the part of governments.

## NOTES

1. Even within the private sector, several companies have made net zero commitments by 2050. The Glasgow Financial Alliance for Net Zero (GFANZ) brings together a significant number of global financial institutions that have pledged to achieve the net zero goal by 2050.
2. [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_22\\_3131](https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3131)
3. In the EU, climate policy is included in the European Green Deal framework (European Commission, 2019). The European Green Deal or European Green Pact is a set of policy initiatives proposed by the European Commission, aimed at achieving climate neutrality in Europe by 2050. Within this framework, the “Fit for 55” package of measures to reduce net greenhouse gas emissions by at least 55% by 2030, compared to 1990 levels, has recently moved forward with the adoption of several proposals. The EU now has legally binding climate targets covering the main sectors of the economy.

4. Also, green expenditures might have a higher multiplier than dirty expenditures and so might contribute more to supporting economic activity (Batini et al., 2021).
5. <https://www.eea.europa.eu/data-and-maps/data/data-viewers/greenhouse-gases-viewer>
6. The existing EU Emissions Trading System (ETS) encompasses sectors such as thermoelectric, refineries, metallurgical, petrochemical, chemical, and manufacturing (including cement, lime, ceramics, bricks, paper, etc.), as well as combustion plants with a power capacity exceeding 20 MW. However, following the legislation passed in April 2023, the ETS will be expanded to include the maritime sector. In addition, a distinct ETS will be established to regulate emissions originating from buildings, road transport, and fuels.
7. In addition, budget incentives typically tend to be transitory and target-specific sectors.

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