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Improving subnational governments' resilience in the wake of the COVID-19 pandemic

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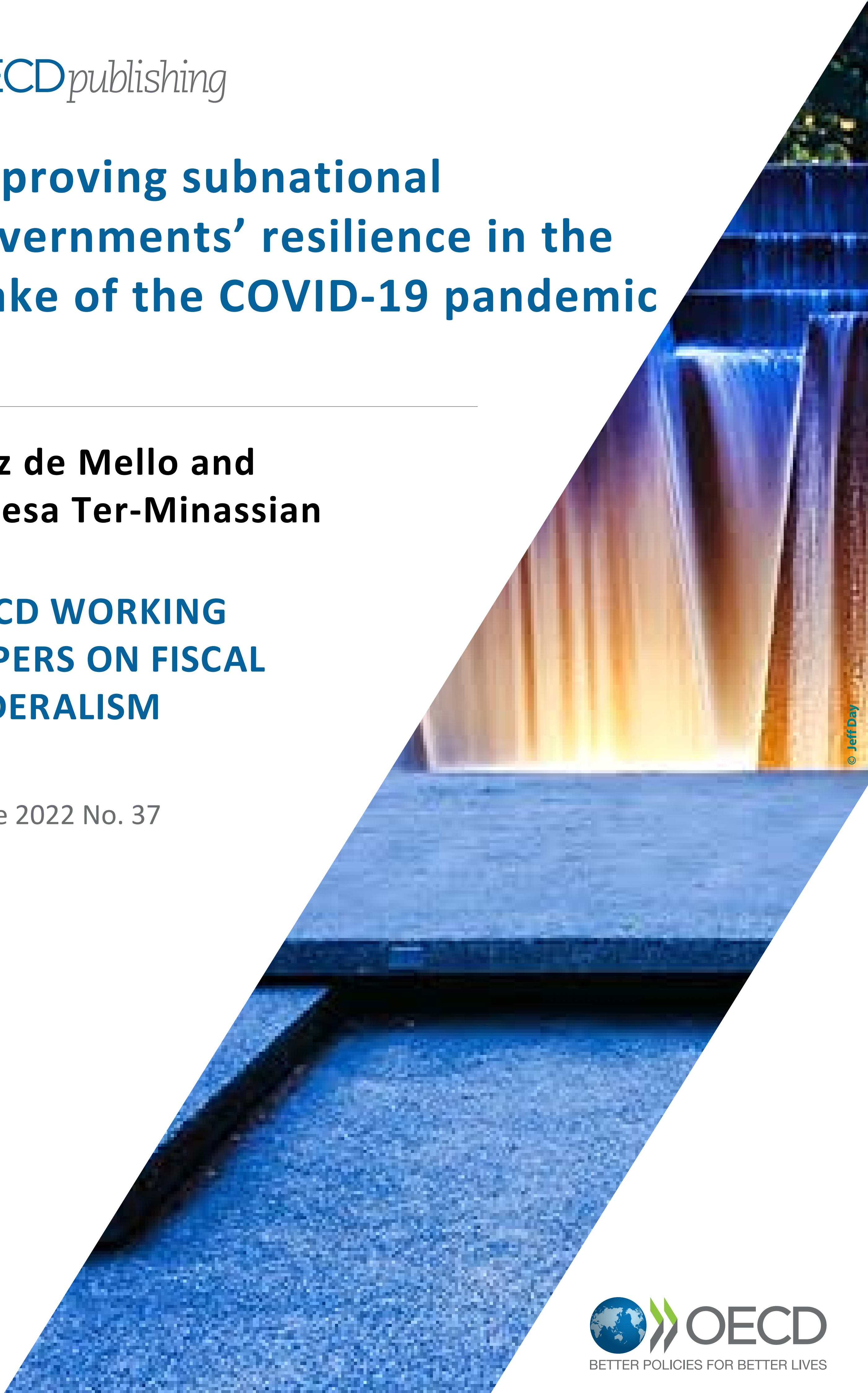

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Abstract

Improving subnational governments' resilience in the wake of the COVID-19 pandemic

The Covid-19 pandemic has had devastating effects on lives, the economy, and the public finances worldwide, drawing attention to the need to enhance resilience to future shocks. This paper focuses on subnational governments, given their important and growing role in the provision of essential public goods and services worldwide. The paper discusses key aspects of subnational resilience, in particular the sensitivity of subnational finances to macroeconomic cycles and shocks and the availability of fiscal buffers; the main factors influencing subnational governments' ability to provide essential services during crises; and their ability to anticipate and prepare for future shocks, especially those related to climate change. The paper also discusses policy and institutional reform options for both national and the subnational governments to strengthen subnational resilience.

Keywords: fiscal federalism, intergovernmental relations, economic resilience, the future of public finance

JEL classification: E62, H72, H77

Résumé

Améliorer la résilience des administrations infranationales au lendemain de la pandémie de COVID-19

La pandémie de COVID-19 a eu des effets dévastateurs sur la vie des personnes, l'économie, et les finances publiques dans le monde entier, mettant en lumière la nécessité de renforcer la résilience face aux chocs futurs. Ce document se concentre sur les administrations infranationales, eu égard au rôle important et croissant qu'elles jouent dans la fourniture de biens et services publics essentiels à l'échelle mondiale. Les auteurs examinent les principaux aspects de la résilience des administrations infranationales, notamment la sensibilité des finances publiques à l'échelon infranational aux cycles et chocs macroéconomiques, et les marges de manœuvre budgétaires disponibles ; les principaux facteurs influant sur la capacité des administrations infranationales à fournir des services essentiels en période de crise ; et leur capacité à anticiper les chocs futurs et à s'y préparer, en particulier ceux liés au changement climatique. Le document s'intéresse également aux options de réformes politiques et institutionnelles qui s'offrent aux autorités nationales et infranationales afin de renforcer la résilience à l'échelle régionale et locale.

Mots clés : fédéralisme budgétaire, relations entre les administrations, résilience économique, avenir des finances publiques

Classification JEL : E62, H72, H77

Improving subnational governments' resilience in the wake of the COVID-19 pandemic

Luiz de Mello and Teresa Ter-Minassian[1]

I. Introduction

1. The COVID-19 pandemic has had devastating effects on lives, economies, and public finances worldwide. The damage has varied widely across and within countries, reflecting differences in a host of economic and social factors, as well as governments' policy responses.

2. Although the COVID-19 pandemic caught all nations by surprise in its virulence and persistence, the extent of its social and economic damage was very much influenced by several policy-related and structural factors. They include primarily: *(i)* the fiscal space that governments had at the onset of the crisis to provide financial support for individuals and businesses, and *(ii)* their ability to design and enforce effective containment measures, as well as to adapt the provision of health care, education and other essential public services to an environment of reduced mobility and escalating demands for essential services. The effectiveness of efforts to mitigate the impact of the pandemic was also influenced by institutional factors, such as the design of intergovernmental fiscal arrangements and the robustness of coordination mechanisms both across and within each level of government.

3. A lesson that stands out, among the many emerging from the crisis, is the importance of governments' preparedness – at all levels of administration – to deal with shocks, maintain the delivery of essential services during crises, and mitigate their longer-term impact on economies and societies. In other words, the COVID-19 pandemic has brought into stark relief the importance of governments' resilience to shocks, and the need to improve such resilience, as countries move, albeit still with fits and starts, into a post-pandemic "new normal". This paper focuses on the resilience of subnational governments (henceforth SNGs), given their important and growing role in the provision of essential public goods and services.

4. In Section II, the paper discusses key aspects of subnational resilience, in particular the sensitivity of subnational finances to macroeconomic cycles and shocks, and the availability of fiscal buffers; the main factors influencing SNGs' ability to continue providing essential public services in the face of unexpected shocks; and their preparedness to anticipate and prepare for future shocks, especially those related to climate change. All these aspects are illustrated by reference to the (admittedly still limited and preliminary) available evidence on SNGs' performance in different OECD countries and on the relation of such performance to the design and practice of intergovernmental relations.

[1] This paper was prepared for the 2022 annual meeting of the OECD's Network of Fiscal Relations across Levels of Government. The authors thank the referees, Lukasz Rawdanowicz (ECO) and Scott Cameron (GOV), as well as helpful comments from Junghun Kim, Sean Dougherty, Dorothée Alain-Dupré, Isabelle Chatry, Moisio Antti and Margaux Vincent. The authors remain solely responsible for any remaining errors or omissions.

5. Section III discusses key policy and institutional reform options for both central and subnational governments to strengthen subnational resilience in the various dimensions highlighted in Section II. It must be emphasised that, given the wide variety of relevant economic, social, and institutional conditions of different countries in the wake of the pandemic, any country-specific reform strategy, including the composition, design, timing and sequencing of reforms, needs to be tailored to reflect such initial conditions. The section discusses key considerations that could inform the choice of specific reform options in different types of countries. Section IV offers some concluding reflections.

II. Subnational governments' resilience to shocks: lessons from COVID-19

6. The OECD defines resilience as "the capacity of systems to absorb a disturbance, recover from disruptions, and adapt to changing conditions while retaining essentially the same function as prior to the disruptive shock" (OECD, 2019a and 2021a). Countries' resilience to shocks depends on a range of economic (e.g., their level of development and the diversification of their productive structure), social (e.g., the extent of poverty and inequality and society's tolerance for the same, and the effectiveness of social safety net mechanisms) and institutional factors (in particular, the quality of governance and the state of the public finances at different levels of government).

7. Broadly speaking, subnational resilience has three main dimensions: (*i*) robustness of the subnational finances to exogenous shocks; (*ii*) SNGs' ability to ensure "business continuity" in the provision of the key public goods and services under their responsibility during crises; and (*iii*) their capacity to foresee future shocks, take preventive steps to the extent possible and mitigate their impact on the affected populations when the shocks materialise. In what follows, each of these dimensions is discussed in turn, in light of the available evidence on subnational performances during the pandemic.

1. Robustness of subnational finances to exogenous shocks

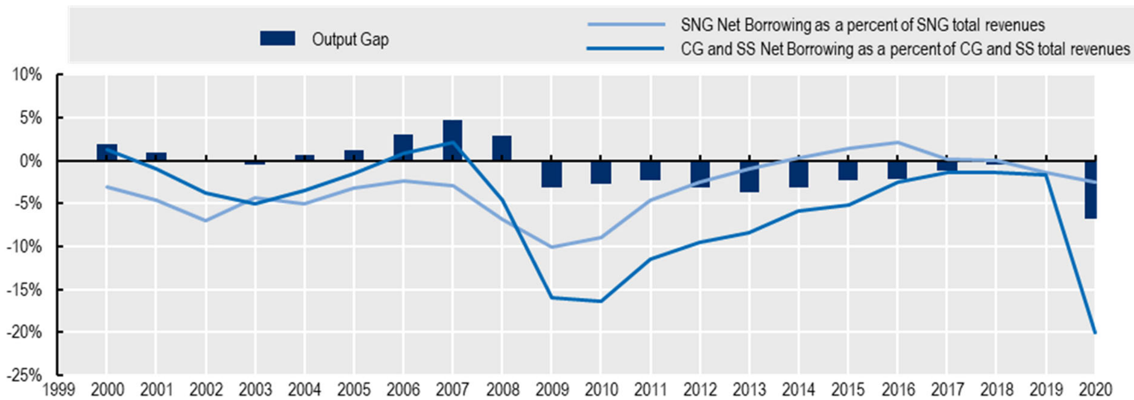
8. The resilience of subnational finances to shocks depends, on the one hand, on the sensitivity of SNGs' revenues and assigned spending responsibilities to the business cycle and to other shocks, and on the other hand on the extent of their fiscal buffers (in terms of budget balances and debt) both at the outset of the shock and in its wake. Both aspects of resilience are shaped to a large extent by specific features of intergovernmental fiscal-financial relations.

9. Overall, for a number of reasons that will be discussed below, subnational finances are less responsive to changes in output than those of national government (including the central government and the social security system) (**Figure 1**). This is the case on average for OECD countries, since the deterioration of the budget balance is sharper for national governments than for SNGs during downturns. By the same token, the improvement in budget outcomes is stronger for national governments than for SNGs during upswings.

10. A counter-cyclical fiscal stance for the general government as a whole – with a deterioration of the budget balance in downturns and a corresponding improvement during upturns – helps minimise short-term fluctuations in output associated with the business cycle and other shocks, as well as mitigate the likelihood of longer-term losses in aggregate supply. While stricter financing and liquidity constraints for SNGs than for the national government typically require the latter to shoulder the burden of active countercyclical fiscal policies, it is important that the SNGs are not forced into procyclical policies by inadequate fiscal buffers.

Figure 1. Responsiveness of national and subnational budgets to changes in the output gap

%, 1999–2020



Note: Average of all OECD countries for which information is available. CG and SS refer to central government and social security system, respectively. The output gap reflects the difference between actual and potential GDP, relative to potential GDP.
Source: OECD Fiscal Decentralisation and National Accounts databases; OECD (2022), *Fiscal Federalism 2022*.

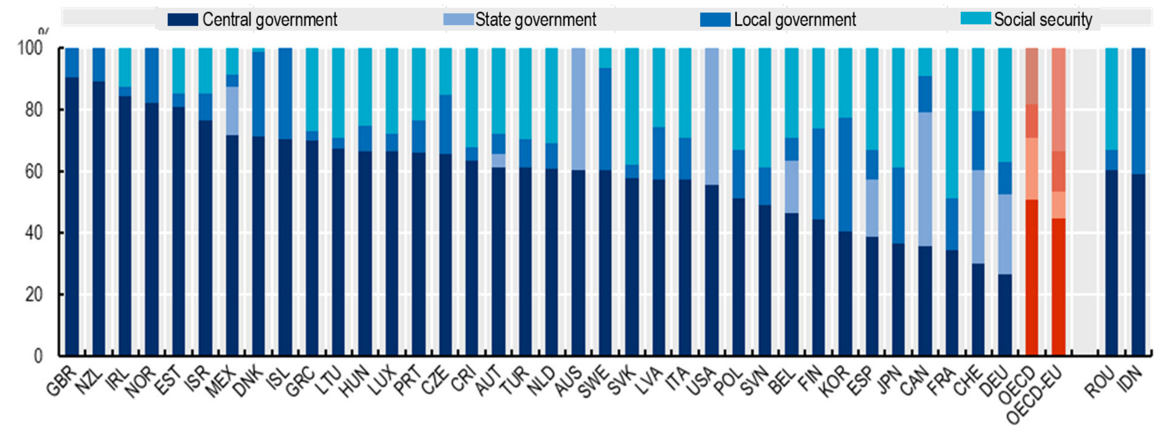
a. Sensitivity of subnational revenues to changes in output

11. The overall sensitivity of subnational revenues to changes in economic activity is influenced by the mix and design of their three main components: (*i*) own tax and non-tax revenues, (*ii*) shared revenues, and (*iii*) intergovernmental grants and transfers. The SNGs account for significant shares of general government revenues in most OECD countries, but there is significant variation in their dependence on intergovernmental transfers (**Figure 2**). The SNGs, especially local governments, tend to rely on property taxation as the main source of own revenues. Many regional and some local governments also levy own taxes on retail trade and on personal income, or piggyback on the personal income tax levied by the national government, albeit generally with lower progressivity. In the short term, these tax sources typically exhibit lower elasticities/buoyancies than the main revenue sources of the national governments, such as the corporate and personal income taxes and social security contributions.

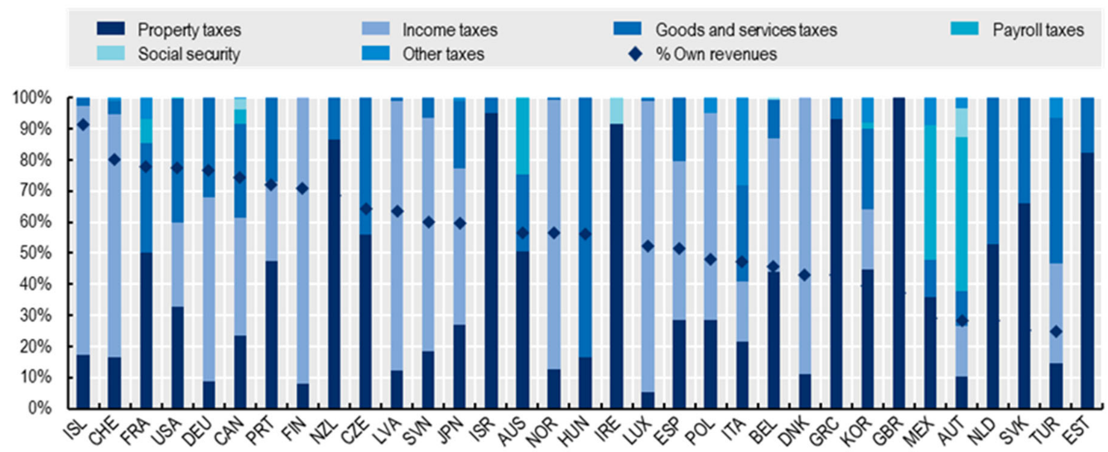
12. Shared revenues between the national government and the SNGs tend to be more volatile than subnational own revenues. This is because they reflect the higher cyclical sensitivity of the national personal and corporate income taxes, and in some cases consumption taxes, which are the main national revenues that are typically shared with the SNGs, as well as revenues from royalties in countries dependent on non-renewable natural resources. Also, in the absence of compensating measures, shared revenues are adversely affected by changes in national tax policies, such as tax reliefs or forbearance during downturns, often forcing SNGs into procyclical spending cuts. Finally, intergovernmental grants, especially those of a discretionary nature, are typically quite volatile, and they are sometimes cut back by financially hard-pressed national governments during cyclical downturns.

Figure 2. General government revenue: composition across levels of government and tax instruments

Panel A: Revenue across levels of government (in % of total revenues, 2020)



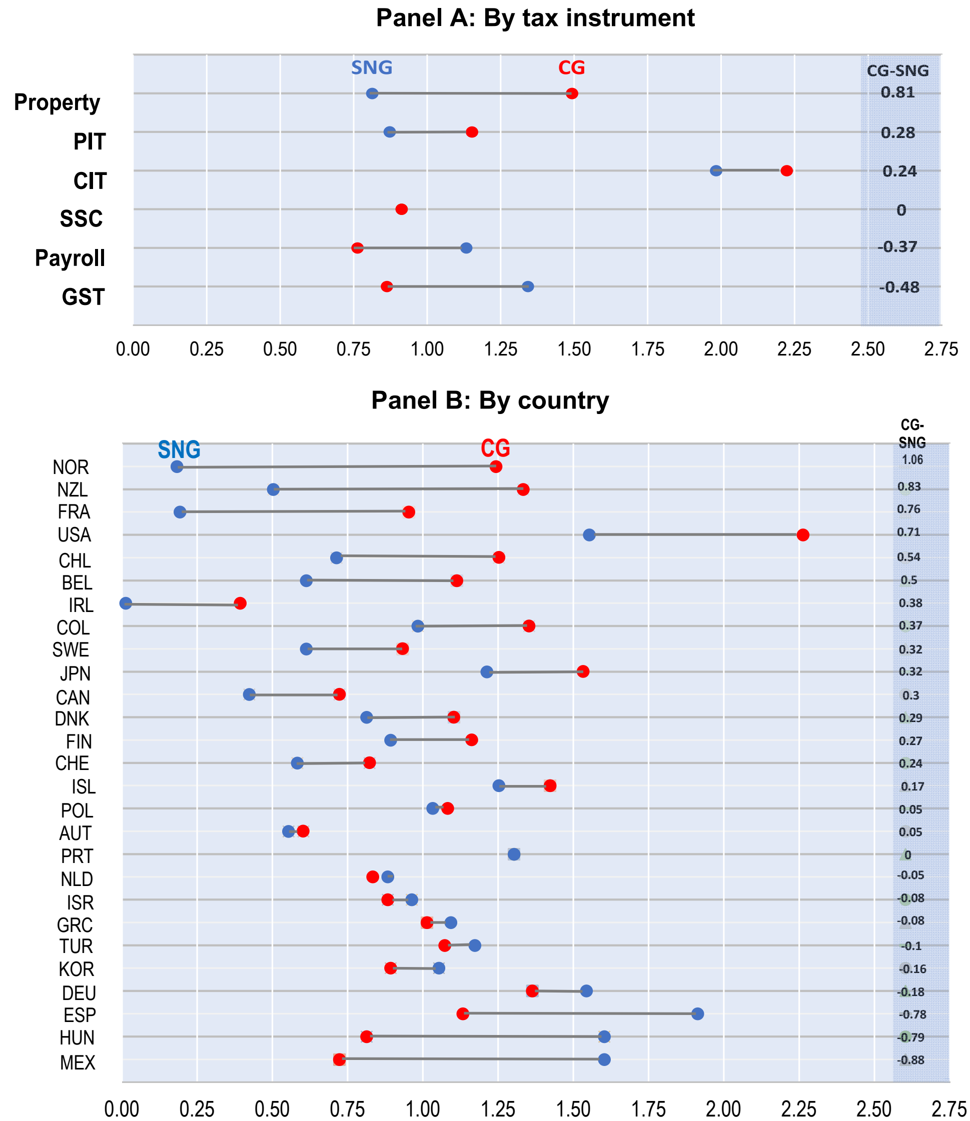
Panel B: Subnational revenue by instrument (in % of total taxes/revenues, 2019)



Note: 1. For Panel A, data for Chile and Colombia are not available. Data for Türkiye are not included in the OECD average due to missing data. Flows between levels of government are excluded (except for Australia, Korea, Türkiye, Costa Rica and Indonesia). For Japan, data for sub-sectors of general government refer to fiscal year and are for 2019 rather than 2020. Data for New Zealand and Indonesia refer to 2019 rather than 2020. Local government is included in state government for Australia and the United States. Australia does not operate government social insurance schemes.
2. For Panel B, data refer to 2019 or latest available. The denominator of the ratio for the bars is total taxes while the denominator for the own revenues is total revenues.
Source: OECD Revenue Statistics and OECD Fiscal Decentralisation database; and OECD National Accounts Statistics (database).

13. A recent empirical analysis of OECD and selected partner countries' tax buoyancies (i.e., changes in revenue associated with fluctuations in the business cycle) suggests that, on average, subnational revenues tend to indeed be less cyclical than national revenues (**Figure 3**) (Dougherty and de Biase, 2021). The cyclicality of subnational revenues is also positively correlated with the degree of dependence of SNGs on intergovernmental transfers. There is also evidence of significant variation among OECD countries in the difference between the cyclicality of national and subnational revenues, reflecting the respective compositions of the two types of revenues.

Figure 3. Short-term tax buoyancy across levels of government



Note: Short-term buoyancies were calculated using an error correction model with a dummy for negative GDP growth and with panel data from 1990 to 2019. PIT, CIT, SSC and GST stand for personal income tax, corporate income tax, social security contributions, and goods and service tax, respectively. The dark-blue column shows the difference of the short-term buoyancies between the central government and SNGs. Negative and high buoyancies (higher than 3) were removed for visualisation purposes. There is no country in which SNGs rely substantially on SSC and, therefore, only the short-term buoyancy for the CG is shown. Short-term buoyancy for each type of tax (Panel A) is computed using the mean group estimator.Source: Dougherty and de Biase (2021).

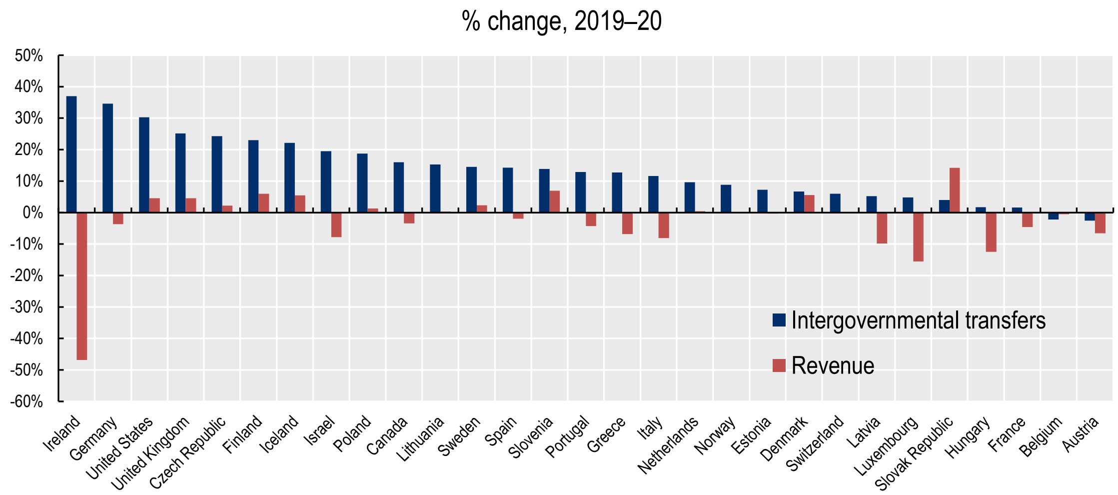
14. Comparable information on developments in the components of subnational revenues in OECD countries during the COVID-19 pandemic crisis is still scant.[2] Also, parts of own and shared revenues lag developments in the respective bases, reinforcing the need for caution in drawing conclusions on subnational revenue performances during the pandemic. With these caveats, preliminary data suggest that declines in subnational tax revenues in 2020 were on average relatively small, and smaller than those experienced by the national governments (OECD, 2022). In some cases, non-tax revenue, such as user

[2] See the OECD Regional Recovery Platform for more information.

charges and fees for services, are important sources of subnational revenue and also decline in tandem with the slowdown in activity. However, there was significant variation across countries, with a few experiencing subnational tax losses in excess of 5%.

15. In most OECD countries, the national governments stepped up intergovernmental grants to mitigate the impact of the crisis on subnational finances (**Figure 4**). However, there is substantial variation across countries in such responses, and the extent of the increase does not appear to be significantly correlated with that of the loss in subnational taxes.

Figure 4. Intergovernmental grants and SNG tax revenue: effects of the pandemic



Note: The data refer to consolidated changes in tax revenues and intergovernmental transfers received by SNGs.
Source: OECD Fiscal Decentralisation database.

b. Sensitivity of subnational spending to the business cycle

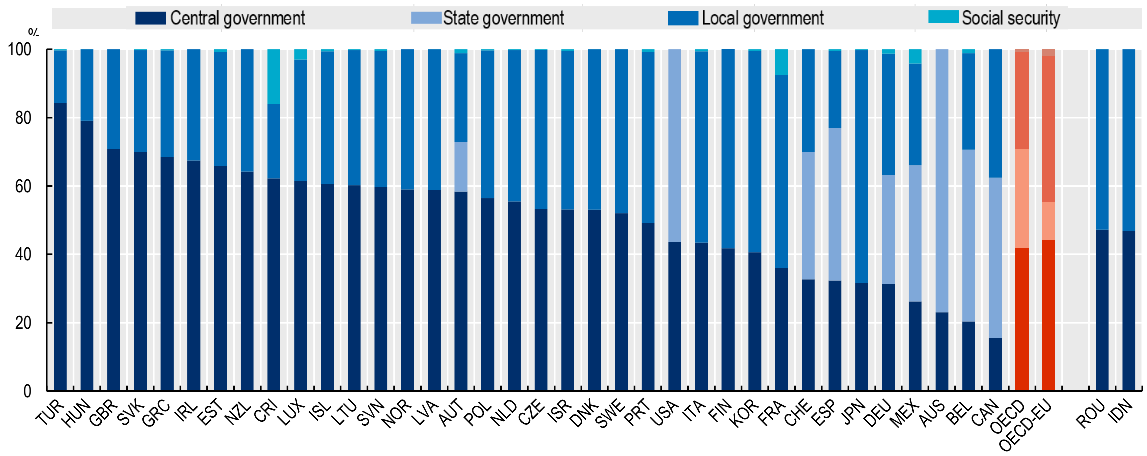
16. As in the case of revenue, spending is less sensitive to economic cycles at the SNG level than for the national government. This is essentially because unemployment insurance, which is key automatic fiscal stabiliser on the spending side, is generally a national responsibility.[3] In addition, the SNGs face more binding financing constraints than the national governments. These constraints can – and frequently do – impart procyclicality to an important component of subnational spending, namely public investment, unless the national government is able and willing to increase transfers to safeguard subnational investments. This is important, because the SNGs account for a large share of investment across OECD countries (**Figure 5**).

17. Moreover, the subnational budgets are vulnerable to shocks that affect the demand or supply of essential public services, since the SNGs are responsible for the provision of many of them, including education, health care, social assistance, public security and disaster relief. The extent of responsibilities of the SNGs in these areas varies significantly both by function and across countries (**Figures 6 and 7**). In particular, the SNGs carry out almost one-quarter of general government spending on education (mainly primary and secondary) on average across OECD countries. Their average shares in public spending on social assistance and public order are significantly smaller than that on education but with significant variance among countries, ranging between near zero at the low end of the spectrum, to 85% and 90%, respectively, at the high end.

[3] The United States is a notable exception in this area.

Figure 5. Public investment across levels of government

% of total, 2020

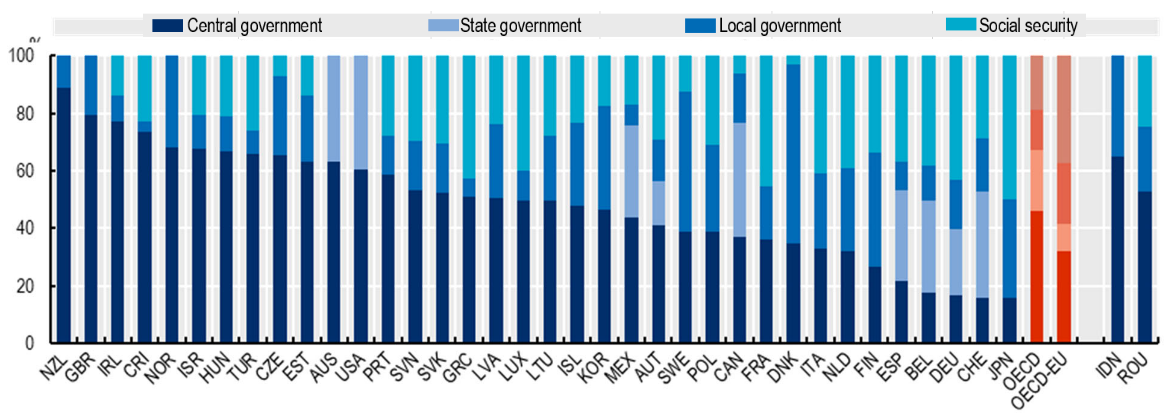


Note: Data for Chile and Colombia are not available. Data for Türkiye are not included in the OECD average due to missing data. Local government is included in state government for Australia and the United States. Australia does not operate government social insurance schemes. Social security funds are included in central government in New Zealand, Norway, the United Kingdom and the United States. Data for Japan are for 2019 rather than 2020.

Source: OECD National Accounts Statistics (database); OECD (2021) "Subnational governments in OECD countries: key data"; and OECD Regions and Cities at a Glance database.

Figure 6. Government spending across levels of government

% of total, 2020

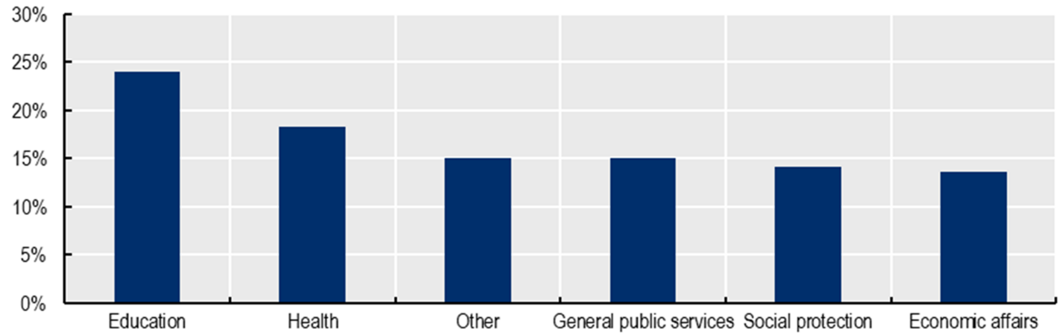


Note: Data for Chile and Colombia are not available. Data for Türkiye are not included in the OECD average due to missing data. Local government is included in state government for Australia and the United States. Australia does not operate government social insurance schemes. Social security funds are included in central government in New Zealand, Norway, the United Kingdom and the United States. In Panel A, flows between levels of government are excluded (except for Australia, Korea, Türkiye, Costa Rica and Indonesia). For Japan data for sub-sectors of general government refer to fiscal year and are for 2019 rather than 2020. Data for New Zealand, Türkiye and Indonesia refer to 2019 rather than 2020.

Source: OECD National Accounts Statistics (database); and OECD (2021) "Subnational governments in OECD countries: key data" and OECD Regions and Cities at a Glance database.

Figure 7. Subnational spending by selected functions

% of total subnational spending, 2019

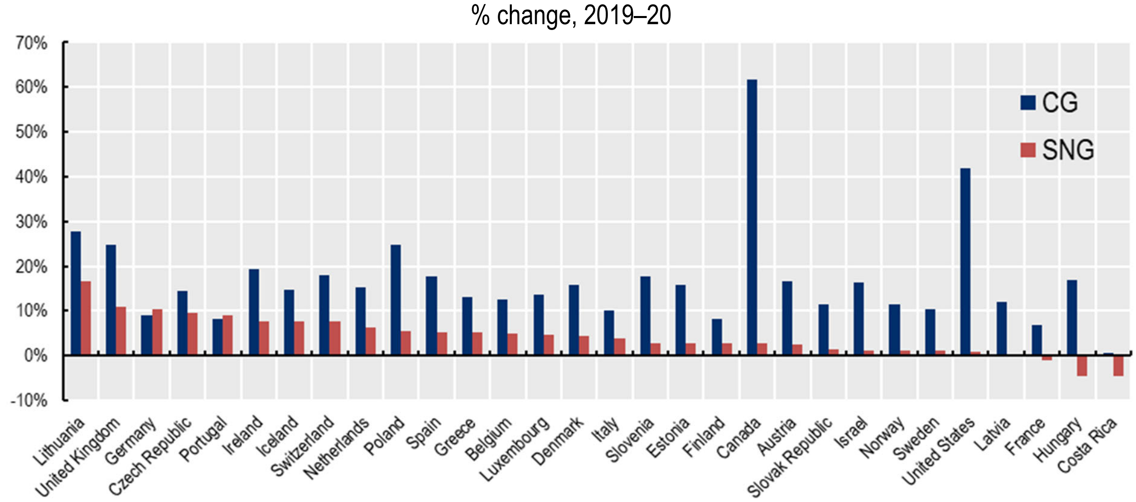


Note: Based on an OECD average excluding Canada, Mexico and Chile, weighted by population size of each country. Subnational government is defined here as the sum (non-consolidated) of regional and local governments.
Source: OECD Subnational Government Structure and Finance database.

18. The COVID-19 pandemic has increased pressures on spending in all these essential services and areas of spending, but the largest share of the financial burden has fallen on the national governments. This has been the result of proactive policies put in place by the national governments themselves rather than the existing distribution of spending responsibilities among the different government levels. In most OECD countries, the national governments took the lead in supporting the development of vaccines and in funding their procurement and distribution to SNGs for subsequent administration to the population. Additional expenditures to enable a virtual delivery of education and to improve school facilities to pave the way for a safe return to in-person schooling were mainly funded by intergovernmental grants. Moreover, the national governments put in place in most countries more or less massive packages of support to lower-income households, laid-off workers and businesses in industries and services affected by the mobility restrictions, thus limiting the fallout of the pandemic on subnational spending on social assistance. As a result, increases in national spending significantly outpaced those in subnational spending in virtually all OECD countries in 2020 (**Figure 8**).

Figure 8. Government spending across levels of government during the pandemic

% change, 2019–20



Note: The data refer to consolidated changes in spending by the central government (CG) and the subnational governments (SNGs).
Source: OECD Fiscal Decentralisation database.

c. Developments in subnational fiscal balances

19. In summary, during the pandemic, subnational finances were safeguarded to a large extent in most OECD countries by the support provided by the national government to their SNGs through higher transfers and increased spending on services of concurrent responsibilities. Direct support to household and business incomes and demand also helped to sustain the SNGs' own and shared revenues. . These developments have helped limit the impact of the COVID-19 crisis on subnational budget balances, at least during 2020, the last year for which data for subnational finances are available. According to preliminary data, such balances deteriorated in 16 and improved in 13 OECD countries between 2019 and 2020. In most countries, deteriorations were considerably less than 1% of GDP. Only in Australia, Belgium, and Canada did consolidated subnational fiscal deficits exceed 1% of GDP in 2020. In 15 of the OECD countries, SNGs recorded modest aggregate surpluses. In contrast, most of the countries experienced a deterioration in their national government's balance in excess of 5 percentage points of GDP (in a few cases, in excess of 10 percentage points of GDP).

20. So far, there is only limited evidence on how much the impact of COVID-19 on subnational finances has varied within individual countries. Differences within national territories in tax bases and their sensitivity to the pandemic, and in morbidity rates, as well as the criteria for distribution of intergovernmental transfers point to the likelihood that the impact has been very uneven. This is confirmed by data collected by the OECD for four federal countries (Brazil, Germany, Spain and the United States), which show wide and uncorrelated variations in the growth rates of state revenues and expenditures in those countries (OECD, 2022).

d. Subnational fiscal buffers

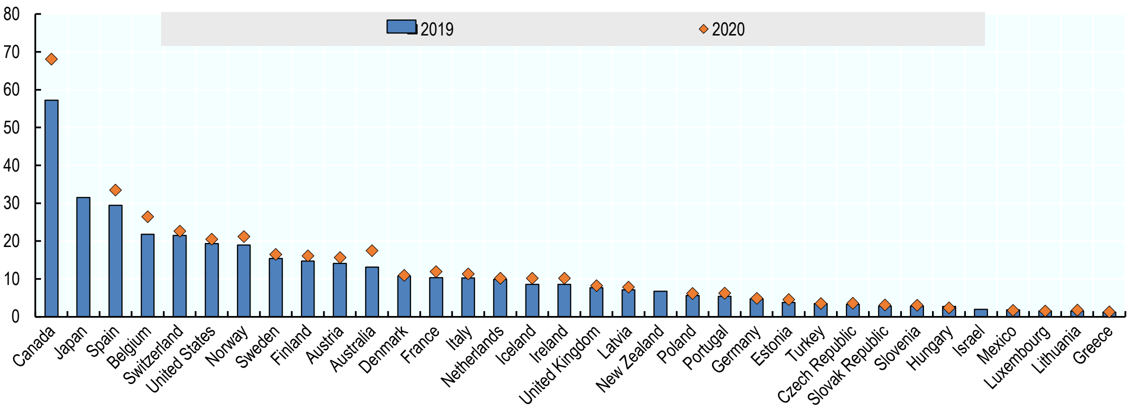
21. Debt levels constitute a significant indicator of the resilience of the subnational finances to shocks. Relatively low levels of debt facilitate access to financing by SNGs facing unexpected revenue shortfalls or increased spending pressures during a shock or in its wake. They also facilitate macro-fiscal stabilisation by the national government, as they contribute to a good standing of the country in financial markets and minimise risks for the national government to have to bailout SNGs facing liquidity or insolvency crises.

22. Subnational debt levels vary considerably among OECD countries (**Figure 9**). Not surprisingly, debt levels tend to be higher in federations than in unitary states, although they are sizeable in some of the latter, such as Japan and some of the Scandinavian countries. Reflecting the relatively modest average deterioration of subnational balances in 2020, increases in subnational debt during the first year of the pandemic were also relatively small on average, with the exception of some federations (especially Austria, Belgium, Canada and Spain), where they were already elevated. The increases in debt were facilitated by the fact that, in many OECD countries that constrain subnational borrowing through numerical fiscal rules, these rules were suspended during the pandemic.

23. Subnational debt-to-GDP ratios are not perfect indicators of SNGs' fiscal vulnerability. Individual SNG's capacity to service their debt is also influenced by other factors, including the level and volatility of their revenues, the degree of rigidity of their non-interest expenditures, as well as the maturity profile of their debt and its sensitivity to changes in interest rates and exchange rates. The higher levels of subnational indebtedness in OECD federations are partly explained by the generally higher levels of revenues (own and shared) which they control, as well as by their greater autonomy in borrowing, and the fact that they belong to large countries with greater access to international financial markets. In some unitary countries, although subnational debt levels are relatively low in relation to GDP, they are significant in relation to the revenues on which they have control.

Figure 9. Subnational government debt

% of GDP



Note: The data refer to the local governments in most cases and to the regional and local governments where information is available.
Source: OECD Fiscal Decentralisation and National Accounts databases.

24. Moreover, in many of the OECD countries, both federal and unitary, national government debts have reached unprecedentedly high levels during the pandemic (OECD, 2021b; IMF, 2021). This outcome has significantly reduced the national governments' fiscal space to support the SNGs in the event of another major shock as extensively as they did during the COVID-19 pandemic. These considerations highlight the need to strengthen or rebuild fiscal buffers at all levels of government in the post-pandemic period. Main policy options to do so are discussed in Section III below.

2. Subnational governments' ability to fulfil spending responsibilities in the face of shocks

25. As noted above, the SNGs spend substantial shares of their budget on the provision of essential public services, such as education, health care, social assistance, and public order. However, in most of these functions, subnational responsibilities are concurrent with those of the national government, and the dividing lines are not always clearly demarcated. Moreover, the subnational shares of general government spending are not necessarily good indicators of the degree of autonomy of the SNGs to formulate and implement policies in the above-mentioned functions (Dougherty and Phillips, 2022).[4] The interplay of national and subnational powers in these areas and the related need for well-functioning cooperation among the different levels of government are important determinants of the quality and effectiveness of provision of these key public services, especially in crisis situations. These issues were brought into stark relief by the COVID-19 pandemic.

26. As regards health care, the pandemic by its very nature entailed adverse spillovers on public health across regions and localities. This argued for centralising decisions about containment measures, such as mobility restrictions. Centralised procurement of preventive equipment, tests, and subsequently vaccines and treatment drugs was advisable to prevent competition among SNGs, especially in the phases of the pandemic when those supplies were scarce. On the other hand, individual SNGs were best placed to assess the incidence of the pandemic in their respective jurisdictions and the related pressures on health care facilities in terms of medical and paramedical personnel, ICU equipment and other supplies in rapidly changing conditions.

[4] Dougherty and Phillips (2022) provide an overview, based on a survey of relevant government officials, of subnational autonomy in decisions about policies, budget, inputs, outputs and monitoring in each of the above-mentioned functions.

27. Effective responses to the pandemic required an unprecedented level of intergovernmental coordination, but the institutional structures to ensure such coordination were inadequate in most cases, especially in the early phases of the pandemic. Also, in some countries, especially federations with high degree of subnational autonomy, such as the United States, coordination was sometimes hindered by political differences between the national government and some SNGs, and even among the SNGs themselves (e.g. states and large municipalities).

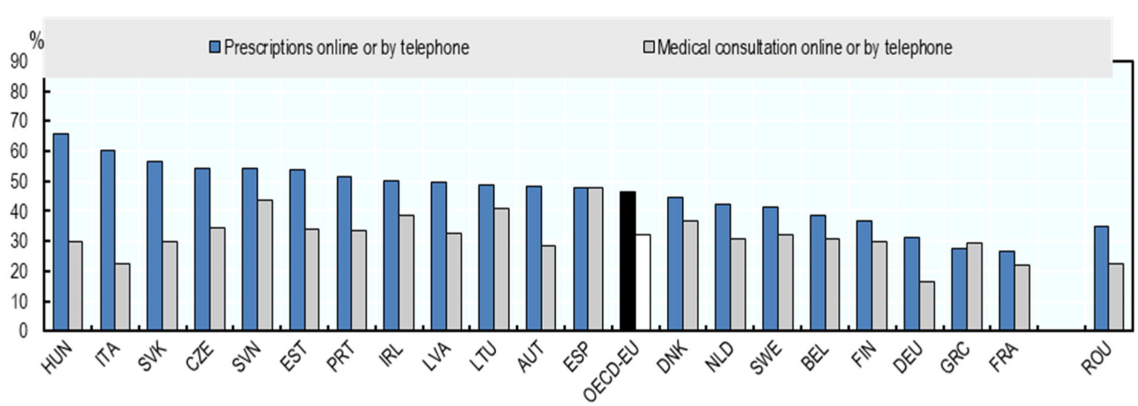
28. There has been much progress in this area, not least through the creation or strengthening of various institutional structures (high and mid-level committees of relevant officials) to co-ordinate public health responses to the pandemic in many countries (OECD, 2020 and 2022). Innovative mechanisms were established in many countries, especially in the areas of policy design, disaster risk management and service delivery. For example, Australia, Canada and Chile activated or created agencies dedicated to intergovernmental crisis coordination (OECD, 2020). In Australia, for instance, an intergovernmental commission was substantially strengthened to facilitate high-level cooperation across levels of government (OECD, 2022). The European Committee of the Regions promoted peer-learning platforms for local and regional governments to share experiences. In other cases, even in the absence of dedicated coordination bodies, the need to face the challenges posed by the pandemic has enhanced intergovernmental coordination, often despite pre-crisis tensions among the different levels of government.

29. The pandemic has also highlighted substantial disparities in the capacity of SNGs both across and within countries to provide adequate health care to their populations in a crisis situation. The poorer and rural communities were the hardest hit. Reducing such disparities through appropriate reforms of intergovernmental transfers and other actions is a clear priority going forward; options in this respect are discussed in Section III below.

30. Moreover, the pandemic has underscored the need to better exploit the power of digitalisation and make further progress towards the digitalisation of subnational administrations. Governments at all levels were called upon to upgrade their digital capabilities across a range of functions, including health care and education, and to deliver financial support for households and businesses (**Figure 10**). They also had to modernise their own internal administrative processes and procedures to cope with the shift towards virtual interactions, both internally and with society.

Figure 10. Access to digital health care

% of survey respondents receiving telephone and online health care services since the start of the pandemic, 2020



Source: Eurofound (2020), Living, Working and COVID-19; and OECD Government at a Glance database.

31. In the case of education, as schools shifted away from in-person to virtual instruction during periods of mobility restrictions, students faced unequal access to on-line learning opportunities at home. The pandemic has shown that students living in overcrowded homes and with limited access to broadband internet connection were affected most adversely. These students are also most likely to live in disadvantaged neighbourhoods, which tend to have schools with lower quality of teaching and more limited means to acquire appropriate digital teaching tools.

32. Despite much progress, the SNGs typically face significantly greater hurdles than the national governments in the area of digitalisation, ranging from shortages of the relevant skills in both providers and users of their services, to physical and funding constraints, regulatory uncertainties, and also in dealing with cybersecurity risks and citizen's privacy concerns (de Mello and Ter-Minassian, 2020). The crisis has also tested the ability of governments to manage and share data, within and across levels of administration, as in the case of health care management and the rollout of mass vaccination programmes. Obstacles related to the interoperability of ICT systems, a lack of common identity of users and a lack of means and experience with the sharing of ICT services came to the fore in many countries during the pandemic.

33. Ultimately, resilience depends on the government's preparedness to deal with the challenges posed by digitalisation through innovation, by adopting new technologies and, perhaps most importantly, by adapting and adjusting to the digital world. This calls for efforts to foster innovation at all levels of government, but especially at the subnational level, because the regional and local governments tend to be less innovative than the central government (OECD, 2019b) and face more severe financial and human resource obstacles to innovation (de Mello and Ter-Minassian, 2020; OECD, 2021a).

34. As regards mitigating the social impact of the pandemic, so far the national governments have primarily dealt with the provision of income support to both households and businesses. The contribution of SNGs has varied across countries, focusing in particular on in-kind support to groups in the largest need and in some cases on regulatory measures, such as temporary rent freezes and eviction bans in their respective jurisdictions, when they were not already mandated at the national level. In some countries, they have also helped distribute national transfers to households and businesses.

3. Subnational capacity to anticipate, and prepare for, future shocks

35. A key aspect of resilience is governments' capacity to assess the likelihood of events with substantial adverse impact on their operations and finances, and to take appropriate steps to prevent them, if possible, or at least mitigate their effects, if and when they materialise. The SNGs are, of course, vulnerable to a range of adverse macroeconomic and structural shocks that impact their revenues and expenditures. These shocks include not only recessions, inflation, exchange rate devaluations and increases in interest rates, but also a bursting of property price bubbles and changes in the geographical distribution of economic activity related to, for example, the closure of industries. Some of these shocks may be unintended consequences of national government policies (Ter-Minassian and de Mello, 2016), a fact that highlights the importance of effective forums for intergovernmental dialogue and cooperation to minimise adverse surprises.

36. Subnational government finances are also affected by longer-term structural trends. These include population ageing, which is a key driver of health care spending, at the same time as it may shrink the bases of taxes on labour income (OECD, 2019c; de Biase et al., forthcoming). Internal and cross-border migrations triggered by demographic change and geopolitical crises can strain SNGs' capacities to provide essential public services. Another major challenge stems from climate change, with the resulting increased recurrence of various types of natural disasters and possibly epidemics linked to an emergence of related zoonotic diseases.

37. Most SNGs, especially in smaller or less developed regions and localities, have limited capacity to carry out adequate analyses of these various types of risks and to prepare for them, even those, such

as population ageing, whose effects on the public finances and the mix of services needed by residents are comparatively easier to anticipate. There may also be political economy incentives for the SNGs to overlook the risks and shift the burden of dealing with shocks to the national government, especially in the case of natural disasters, instead of aiming to mitigate the consequences of shocks through prior regulatory measures and the creation of fiscal buffers by the SNGs themselves.

38. The case for strengthening the role of SNGs in mitigation and adaptation to climate change is especially compelling. It is estimated that over 40% of greenhouse gas (GHG) emissions comes from activities (notably transport and land use) on which SNGs exert regulatory and taxing powers (Martinez-Vazquez, 2021). Also, SNGs play potentially important roles in the infrastructure investments needed to meet decarbonisation goals and to effectively adapt to climate change. Available case studies suggest that so far, the SNGs have been more involved in mitigation policies, including energy conservation, than adaptation, but the latter has been gaining ground in subnational policy agendas, due to mounting public opinion pressure (Oliveira, 2009; Burke and Ferguson, 2010; Jones, 2014).

39. Evidence to date on how much SNGs actually spend on dealing with the consequences of climate change is limited. A 2022 study for 33 OECD countries found that cities and regions in 2019 were responsible for 63% of environment-related spending and for 69% of environment-related investments (OECD, forthcoming). However, those shares vary substantially across countries. Moreover, both subnational environmental expenditures and investment were quite low in relation to GDP (1.3% and 0.4%, respectively on average), and had recorded only negligible growth since 2000. The study emphasised the significant caveats to such estimates and the need to improve and standardise methodologies to classify subnational environmental expenditures, and to strengthen subnational capacities to monitor and report such expenditures on a timely basis. Reliable information is crucial to assess the progress made towards national and subnational environmental objectives and targets.

40. Related to adaptation is SNGs' capacity to manage natural disasters, since they play an important role in, for example, rescue, public order and safety, and civil protection services that are central to natural disaster management (see paper in companion session). They are also responsible for several aspects of regulation, including building codes, urban planning and land use, that are essential for risk prevention. They take the lead in monitoring compliance with those regulations, so that man-made vulnerabilities, such as for example, those associated with informal construction in hazardous areas, do not exacerbate those related to climate change risks. The subnational governments also play an important role in disaster recovery, including in rebuilding lost or damaged physical infrastructure and identifying good practices that can be shared and used to improve resilience to similar shocks in the future. Indeed, the Sendai Framework for Disaster Risk Reduction emphasises the role of local governments in all phases of a disaster, from prevention to recovery (UNISDIR, 2015).

41. In summary, climate change will likely put increasing strains on subnational budgets to fund mitigation and adaptation efforts, and to deal with damages to public infrastructures, including claims by subnational government agencies, state-owned enterprises or other partners that own or operate infrastructure and services (OECD, 2019d). These impacts will vary across and within countries, depending also on subnational capacity to face the challenge.

42. The transition to a greener economy will inevitably entail even greater costs for the governments of countries dependent on the production and export of non-renewable natural resources. Royalties, government takes of production-sharing arrangements, and taxes or dividends from oil and gas companies will dwindle over time. In most countries, the national governments control all or most of these revenues, but in many countries, they are also shared with the SNGs. Replacing these revenues with more sustainable alternatives will represent an additional important challenge for the subnational finances, one that they will need to start preparing for as soon as possible.

III. Policy options to strengthen subnational resilience post-COVID-19

43. Section II has made the case for strengthening the resilience of the subnational finances as the world emerges from the pandemic. This section discusses policy options for both national governments and SNGs to strengthen subnational resilience post-COVID-19. It offers a broad menu of such options. Choices among them would need to reflect a number of country-specific factors, including the institutional and legal characteristics of the systems of intergovernmental fiscal relations, and the economic and social factors influencing the impact of the COVID-19 and other future shocks across and within countries. This section discusses the main considerations that could inform such choices among OECD countries.

1. Strengthening subnational fiscal robustness

a. Ensuring debt sustainability

44. The respective roles of the national governments and SNGs in defining and implementing subnational fiscal responsibility frameworks vary across countries and also across subnational government levels. These differences are rooted in the constitutional nature (federal or unitary) of each country and frequently in its history of intergovernmental relations. Generally, albeit not always, the SNGs at the intermediate level of government (states, regions or provinces) have substantial autonomy to define their own fiscal responsibility frameworks, including in particular any limits on borrowing, or on the debt stock or its service. They can also mandate such limits for the local governments in their respective jurisdictions.

45. Therefore, in many federations the national governments can foster subnational fiscal sustainability mainly through agreements with the regional governments or by creating incentives for those governments to adopt and implement appropriate fiscal responsibility frameworks/fiscal rules. In contrast, the national governments in most unitary countries have the power to regulate the access of regional or local governments to borrowing, and may choose to do so in different ways, ranging from administrative controls to standing fiscal rules, periodic agreements, or mainly reliance on discipline by financial markets.

46. In the OECD, EU members have been supporting the implementation of the area's numerical rules for the general government with rules for their SNGs, agreed through the so-called internal stability pacts, or enacted through legislation, in some cases at the constitutional level (as in Germany and Spain). In contrast, in federations such as the United States and Canada, fiscal rules are set unilaterally by each state or province. Some unitary countries still use administrative controls (subnational borrowing being subject to approval by the national Ministry of Finance), while others (e.g., New Zealand) rely mainly on market discipline. Subnational fiscal rules vary significant across countries in number, the budgetary aggregate they apply to, and their enforcement mechanisms. A survey-based overview of their main features as of 2019 in OECD countries can be found in Vammalle and Bambalaite (2021).

47. Subnational fiscal rules were suspended at both the national and the subnational levels in many countries during the pandemic to allow for the operation of the automatic stabilisers and the adoption of packages of support to households and firms. This is the case, for example, of the European Union member countries and those with internal stability pacts. As the post-pandemic recovery progresses, countries are facing the question of how the rules can be reinstated, recalibrated, or even modified in other ways, including by changing their bases, introducing further elements of flexibility, and/or strengthening enforcement mechanisms.

48. A particular challenge is to reconcile two potentially conflicting objectives: (*i*) accommodating public investment in priority areas, such as mitigation and adaptation to climate change, needed improvements in digital and other essential infrastructure, reducing the risk of future pandemics, and dealing more effectively with their consequences, when they materialise; and (*ii*) ensuring that public debt returns to, or remains at, levels that are sustainable under scenarios that adequately account for the structural (longer-term) fiscal impact of population ageing and shorter-term effects on the public finances

of global geopolitical and macroeconomic risks, including the risk of a significant tightening of financial conditions in the major advanced economies. Much of the current debate on reforming the EU rules centres on this challenge, and its eventual outcome will undoubtedly shape subnational fiscal frameworks and rules in the EU member countries.

49. On a more general level, the following considerations could be useful, specifically as regards subnational fiscal frameworks and rules. First, while frameworks based only on transparency and financial market discipline may be adequate in countries with well-established track records of fiscal responsibility, and with limited degrees of spending decentralisation, they are unlikely to be appropriate in countries where the SNGs are large, carry major spending responsibilities, are heavily dependent on intergovernmental transfers and/or have a history of receiving bailouts from the national government. In these countries, well-designed fiscal rules, whether mandated by the national government or self-enacted by the SNGs, are likely to remain a necessary, albeit not sufficient, condition for subnational fiscal discipline. Therefore, reinstating rules that have been suspended (modified or recalibrated, if necessary) should be a policy priority going forward.

50. Secondly, there is much to be said for including in subnational fiscal frameworks a debt ceiling/“anchor”, as a ratio to own and shared revenues on the use of which the SNGs have control (i.e. excluding earmarked and discretionary transfers from higher government levels). The level of the anchor should be prudently chosen on the basis of various considerations, in particular the foreseeable average costs of debt under a range of different scenarios about market conditions. If current debt levels are higher than the ceiling, the fiscal framework should specify a path for convergence to it over an ambitious but realistic time period. This would constrain the path of the subnational fiscal balances during the same period.

51. If the ceiling is not binding (i.e. if current debt levels are below it), there are alternative potential approaches to choosing a rule to guide the annual budget process. One option would be to require that, in preparing their annual budgets, the SNGs also prepare and transparently report in the budget documentation, detailed medium-term projections, with underlying assumptions, pointing to a high probability that the projected balances would be consistent with complying with the debt ceiling under a range of deterministic or stochastic debt-dynamics scenarios. Such an approach would require significant capacity in the budget offices of the SNGs, and therefore would likely only be feasible for intermediate-level governments and larger municipal ones. Moreover, it would require that the projections be vetted by a reliable independent “watchdog”. For smaller municipalities with limited access to financial markets, a balance-based rule may be more appropriate.

52. Another option would be to adopt a spending rule, for instance, one limiting the growth rate of SNGs’ expenditures to the growth rate of their trend GDP, if the relevant data were available, or of the trend national GDP, if regional GDP is not available. This type of rule would be relatively simple to implement and would have the advantage of preventing procyclical fiscal behaviour during both revenue upswings and downturns. However, to ensure debt sustainability, a spending rule should be subordinated to the debt rule, which implies that its application should be conditioned on verifying that it would not lead to exceeding the debt limit. An expenditure-based rule could be designed to accommodate priority investments by allowing their exclusion from the rule, provided that the debt ceiling is respected and that the SNGs have sound and effective public investment management (PIM) systems in place, to ensure sound selection and implementation of such investments. However, expenditure-based rules have the disadvantage, compared with balance-based ones, of not incentivising SNGs to fully utilise the tax and non-tax revenue handles assigned to them. Thus, their adoption would appear to be most appropriate in countries with already relatively high levels of own revenues.

53. Thirdly, any revisions of existing or suspended subnational fiscal rules should aim to improve both their flexibility in the face of shocks and their enforcement. Escape clauses are all the more important in an environment, like the current one, of major economic and geopolitical shocks. They should be tailored

as best as possible to the country's main specific vulnerabilities, and their applicability should be verified by independent watchdogs. Escape clauses should include criteria to determine the end of their applicability and the time path to correct deviations from their targets due to the shocks. To minimise the risk that financing constraints force SNGs to conduct procyclical fiscal policies during economic downturns or other shocks, the SNGs should be required, or at least encouraged, to build up sizeable rainy-day funds.

54. Fourthly, numerical rules are just one (albeit key) element of sound subnational fiscal responsibility frameworks. Their effectiveness is strongly influenced by the state of subnational systems for budget, investments, and debt management, in particular by the SNGs' capacity to prepare reliable short-term forecasts and medium-term projections of revenues and non-discretionary expenditures; and to monitor, and quickly react to, risks of significant deviations from such forecasts (Corbacho and Ter-Minassian, 2013). Accurate recording and transparency of subnational liabilities, especially any in foreign currency and those resulting from public-private partnerships (PPPs), are especially important in this area. National governments can and should play a proactive role in strengthening subnational fiscal transparency and public financial management (PFM) capacities, through legislation and regulations, when legally empowered to do so, and through technical and financial support to the SNGs' own reform efforts in this area, whenever appropriate.

55. There is also some empirical evidence (albeit only at the national government level) that compliance with fiscal rules is enhanced by the existence of independent institutions (watchdogs) responsible (and adequately equipped) for monitoring their observance (see Rawdanowicz et al., 2021 for a detailed discussion of such evidence). Unfortunately, such institutions are rare at the subnational levels of government, and many national IFIs do not delve into the SNGs' finances (Dougherty, Renda and von Trapp, 2021). The national governments, when legally empowered to do so, should expand the mandate and resources of their own fiscal watchdogs to encompass the monitoring of SNGs' compliance with the relevant fiscal rules. When legally unable to do so, they should use moral suasion and other appropriate incentives to get SNGs to set up their own watchdogs.

56. Fifthly, it is crucial for the effectiveness of subnational fiscal rules that they be supported by substantial ownership on the part of the SNGs subject to them. This is obviously easier to achieve when the rules are self-imposed, as in the case of the constituent governments in federations. However, close cooperation between the national and subnational levels of government is especially important in such cases, to ensure that the different subnational frameworks are broadly consistent and contribute to a sound fiscal stance for the general government as a whole. Even in federations with a high degree of subnational fiscal autonomy, and only limited use of numerical rules, national governments can promote adequate fiscal discipline by minimising sources of subnational soft budget constraints, such as large vertical imbalances, and the use of gap-filling discretionary transfers and other forms of bailouts of SNGs that are suffering the consequences of irresponsible budgetary policies. Furthermore, even in unitary countries where national governments are empowered to define fiscal rules for their SNGs, they should seek to build consensus around such rules through the use of well-functioning vertical intergovernmental fiscal cooperation fora.

57. Finally, reforms of fiscal responsibility frameworks could usefully be complemented and supported by the adoption of subnational insolvency resolution frameworks, aiming to clarify how, in the event of a sub-national default, the debt would be restructured in an orderly manner; which essential public services would be maintained, and how; and what structural adjustment measures should be undertaken by the defaulting jurisdiction to restore its solvency (OECD, 2022). If appropriately designed and implemented, such frameworks can provide a number of benefits:

- Help reduce disruption in the provision of public services, and the related political pressures for bailouts;
- Facilitate orderly workouts, minimising problems stemming from holdout creditors;
- Facilitate the eventual return of defaulting jurisdictions to credit markets; and

- Help prevent both SNGs' and lenders' expectations of bailouts, thus effectively hardening subnational budget constraints.

58. The design of insolvency frameworks must balance the protection of creditor rights with that of core functions of the SNGs involved. It should also create sufficient political costs for leaders of defaulting jurisdictions to minimise moral hazard. It requires consideration and definition of many complex issues. Comprehensive discussions of such issues can be found in Liu and Waibel (2008) and OECD (2022).

b. Bolstering subnational revenues

59. To expand the fiscal space to attend to new spending needs in the post-COVID-19 era while respecting the requirements of sound fiscal responsibility frameworks, most SNGs in OECD countries will need to both increase their revenues in as efficiency and equity-friendly ways as possible and rationalise their existing spending. This subsection of the paper focuses on options for both national governments and SNGs to bolster subnational revenues. The next subsection focuses on possible spending measures. Both areas have received much attention in the fiscal federalism literature to date, and these subsections draw extensively on the main findings thereof.

i. Reform options for own revenues

60. As shown in Panel B of Figure 2 above, the degree of subnational revenue autonomy varies substantially across the OECD, with the share of own in total revenues ranging from 90% in Iceland to less than 20% in Estonia. Relatively low own revenues may reflect the nature of revenue assignments and autonomy (OECD, 2022), the characteristics of the revenue bases assigned to the SNGs, the latter's revenue effort and tax administration capacities and, in most cases, varying combinations thereof. Accordingly, an analysis of policy options to increase subnational own revenues in each country should start from a diagnostic of the specific mix of factors responsible for the current level of these revenues. This mix also influences the respective roles of the national government and the SNGs in this area.

61. Specifically, national governments can support subnational own-revenues mobilisation efforts in a number of ways:

- By assigning new (sole or shared) tax bases to SNGs, for example by allowing SNGs to levy surcharges on some national taxes, such as those on personal incomes or excises, possibly modifying their own tax rates on the same bases, when appropriate in light of the level of the overall tax burden. Such choices should take into account the trade-offs between different characteristics of each tax handle (such as revenue-raising potential, cyclical sensitivity, equity and efficiency implications, administrative ease, etc.) that make them more or less appropriate in different country circumstances (for details see e.g. Ambrosanio and Bordignon, 2006; Bird, 2010; Fretes and Ter-Minassian, 2015);
- By raising any existing nationally determined upper limits on the rates at which subnational taxes can be levied, to the extent that is consistent with societal tolerance for the overall tax burden;
- By helping subnational tax administrations through systematic exchanges of information, joint audits, technical assistance and financial support to their modernisation and digitalisation efforts; and especially
- By providing, through the imposition of a hard budget constraint on their SNGs, appropriate incentives for the latter to more fully exploit their revenue-raising potential.[5]

[5] See Ter-Minassian (2015) for a discussion of causes, consequences, and remedies for subnational soft budget constraints.

62. For their part, SNGs have a number of options to increase own revenues through efficiency- and equity-friendly reforms:

- Introducing or increasing surcharges on national taxes, taking into account the trade-offs mentioned above;
- Adopting or progressively raising "green" taxes and levies (see Section III.3 below for details);
- Broadening the base of existing own taxes, by reducing or eliminating existing exemptions and other preferential treatments and mitigating the impact of the changes on lower-income groups through targeted transfers, if needed, as well as by raising their rates when appropriate. In general, steps to broaden the tax base should be preferred to increases in rates, because they are more efficiency-friendly,[6] improve horizontal equity, and facilitate the administration of the tax, unless rates are relatively low, in which case changes in tax schedules may also be appropriate;
- Strengthening and modernising the administration of own taxes, in particular the property tax, better exploiting the relevant opportunities offered by digitalisation (such as the use of on-line map data for updating property cadastres and of "big data" on property transactions to update valuations; and moving to semi-annual or quarterly on-line payment facilities to reduce impact on taxpayers' liquidity and compliance costs). Also, better utilising the scope for taxing increments in property values due to improvements in local infrastructure;[7]
- Increasing user fees for subnational services. Some of these services are still provided at below-cost rates, a fact that can lead to excess demand and waste. Reforms to raise them to cost-recovery levels can increase both revenues and efficiency, and even vertical equity, if accompanied by compensating cash transfers to poor households; and
- Better utilising subnational assets, in particular real estate properties. There is significant scope even in OECD countries for improving the management of non-financial assets, especially in urban areas (Detter and Folster, 2017). Many SNGs, even large cities, lack comprehensive inventories of the properties they hold, even less have clear evaluation of their commercial potential. The creation of appropriately endowed institutional structures to professionally manage their stock of real estate is likely to be a very fruitful investment for regions and cities.

It must be recognised that most of these options are unlikely to be politically popular. Therefore, they may well need to be implemented gradually, and their rationales should be clearly explained to the population.[8]

ii. Reform options for intergovernmental transfers

63. Reforms of intergovernmental transfers (including revenue-sharing arrangements) are among the most complex reforms of intergovernmental fiscal systems, since they typically aim at different, and sometimes conflicting, objectives and tend to be viewed by affected governments as zero-sum games. This paper focuses on three objectives that appear most relevant for the post-COVID-19 context, namely: 1) avoiding significant unfunded mandates for SNGs; 2) reducing the procyclicality of the transfers and increasing their predictability for subnational budget managers; and 3) increasing the capacity of the transfers to mitigate asymmetries in the impact of shocks across the national territory.

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[6] The deadweight loss entailed by a tax is estimated to rise more than proportionally to the increase in its marginal rate.

[7] Examples of these innovations (generically dubbed betterment levies) are development impact fees (one-time levies assessed on developers during the permit approval process), and the setting up of tax increment financing (TIF) districts. Burge (2010) and Brooks and Meltzer (2010) provide extensive discussions of development impact fees and TIFs, respectively. See also Sjoquist and Stephenson (2010), for a comparison of these instruments with other local revenue sources.

[8] See e.g., OECD (2021c), for a discussion of the political economy of property tax reform.

64. The first objective is made more compelling by two considerations, i.e., the fact that, as discussed in Section II above, most SNGs will face significant additional spending pressures in their traditional and new responsibilities (such as adaptation to climate change); and the fact that national governments, faced with own fiscal adjustment needs, may be tempted to "push deficits down" by cutting back on transfers to their SNGs. However, as broadly recognised in the literature, ensuring an adequate *ex ante* correspondence of subnational revenues (including transfers) with their assigned spending responsibilities is quite difficult, as it requires (inevitably controversial) judgments about subnational own revenue efforts and the allocative and technical efficiency of their spending. For these reasons, the vertical distribution of revenues among the different levels of government ends up being in most cases the product of negotiations between the national government and the SNGs, with outcomes mostly influenced by the changing balance of respective political powers over time. Well-established vertical fora for intergovernmental dialogue can help improve the level of trust and the quality of information needed to inform the above-mentioned judgements, and thus avoid substantial unfunded mandates.

65. The objective of providing a reasonable degree of predictability to intergovernmental transfers argues for formula-based vertical and horizontal distribution systems. Minimising discretionary transfers is also advisable to avoid subnational soft budget constraints. However, formula-based revenue sharing mechanisms transmit to subnational budgets the cyclicality of national revenues, which, as argued in Section II above, tend to be more cyclically sensitive than subnational ones. Also, they shift to subnational budgets part of the cost of discretionary cuts in national taxes and part of the gain of tax increases, thus aggravating risks of procyclical spending cuts by the SNGs.

66. Options to mitigate these effects include basing revenue sharing arrangements on moving averages of national revenues (net of the impact of discretionary tax measures) and shifting the composition of intergovernmental transfers towards grants linked to indicators of subnational spending needs, which tend to be less cyclically sensitive than national revenues. In view of the increased incidence of unforeseen exogenous shocks, such as natural disasters in recent years (and presumably in the future), higher-level governments (national and regional) may need to increase their contingency reserves to support affected lower-level ones through *ad hoc* grants, should such shocks materialise. At the same time, however, to avoid moral hazard, they should require the recipient governments to take appropriate preventive actions, such as relevant regulations, purchases of insurance and the maintenance of adequate own contingency reserves, including rainy-day funds.

67. Exogenous shocks, such as natural disasters and even pandemics, typically have asymmetric impacts across national territories, as demonstrated by the recent COVID-19 experience. Frequently, the severity of the impact is negatively correlated with revenue-raising capacities and positively correlated with spending needs of the SNGs. Thus, in principle, well-designed equalisation transfers aimed at reducing subnational differences in both should also help reduce asymmetries in the impact of shocks. However, in practice such correlations are weakened by idiosyncratic characteristics of the shocks (e.g., regions and cities in earthquake-prone areas are more affected by this type of disasters than other zones). Lags in the indicators of revenue capacities and spending needs utilised in the calculation of equalisation transfers have similar effects (Dougherty and Forman, 2021), which imply that the SNGs may only receive compensation payments for shocks years after their occurrence. These considerations reinforce the case for focusing on appropriately modulated ad-hoc grants as the primary instrument to deal with asymmetric effects of exogenous shocks on the subnational finances.

2. Rationalising subnational spending and maintaining service delivery during shocks

68. For many SNGs, increased own revenue and intergovernmental transfers are unlikely to create adequate fiscal space for the new spending pressures and to reduce debt levels, when needed to ensure fiscal sustainability. For this as well as efficiency reasons, SNGs will need to strengthen efforts to cut back on lower-priority and inefficient expenditures. The desirable mix of actions to rationalise subnational

spending will necessarily have to be country-specific, reflecting not only the current composition of expenditures and efficiency considerations, but also local preferences and needs, vertical and horizontal equity considerations, institutional capacities, and political feasibility.

69. While technical considerations cannot be expected to dominate in all decisions on spending reforms, they should provide at least a sound analytical basis for such decisions. A key instrument increasingly used by national governments for this purpose are spending reviews, which can be defined as the process of developing and adopting budgetary savings measures, based on the systematic scrutiny of baseline (i.e. on current policies) expenditures. Spending reviews may be efficiency reviews (focused on savings through improved efficiency) and/or strategic reviews (focused on savings achieved by reducing services or transfer payments) (Robinson, 2014). They can be comprehensive, encompassing the entire spending envelope, or selective, focused on one or more categories of expenditures, specific spending programmes, or individual spending departments/agencies. They can also be carried out on regular or a one-off basis. Comprehensive reviews are time and resource-intensive and are thus less frequent than selective ones.

70. Available evidence at the national government level (e.g., Tryggvadottir, 2021) suggests that spending reviews are most effective when they are seeking pre-specified levels of savings and enjoy high-level political support. The latter is especially important when identified potential savings require changes in legislation (as for instance with entitlement programmes) to be realised in practice. Spending reviews can be a useful instrument at the subnational level, probably beginning with larger and higher-capacity regional and urban governments, and with selective reviews. National governments that are already well experienced with spending reviews could encourage their adoption by selected SNGs on a pilot basis and support them with technical assistance and possibly some financial incentives.

71. Medium-term rolling expenditure frameworks (MTEFs) represent another important tool to rationalise spending and are now systematically used by national governments in the OECD area,[9] but their adoption at the subnational level is much less frequent. Yet, the systematic preparation of adequately detailed MTEFs, at least by regional governments and cities, would not only be useful in facilitating their compliance with fiscal rules, as discussed above, but also in identifying the drivers of existing spending and correspondingly the nature and scope of measures to curb their growth. This is another area where cooperation could be very fruitful between national governments and SNGs, to begin with, and among SNGs subsequently, as capacities develop at different speeds among them.

72. Efforts to rationalise SNG spending also include taking into account the need to build capacities, and enhance preparedness, to maintain the delivery of services during adverse shocks. Special attention needs to be paid to those services that account for a large share of subnational spending, as discussed in Section II, such as education, health care and social protection. Enhancing preparedness in this area requires action by the different levels of administration in their respective areas of own and concurrent responsibility. In crisis situations it is particularly important to:

- Secure the availability of inputs in the presence of supply chain disruptions. This includes pharmaceuticals and medical equipment, as was evident in the early phase of the pandemic, but also equipment to perform search and rescue operations during natural disasters, for example;
- Adapt the delivery of services. This includes in particular, in the case of health care, the rapid deployment of pandemic control instruments along with the continued provision of non-pandemic related care; the shift to on-line education to cater for the needs of students during lockdowns;[10]

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[9] See OECD, *Government at a Glance* (various issues), Brumby and Hemming (2013), and Harris et al. (2013).

[10] Even as schools return to in-person teaching, there is a continuing need to upgrade facilities to allow for better ventilation and spacing of students, in order to minimise lingering and future contagion risks, and to ensure better access by students to quality learning on-line in the event of new waves of COVID-19 or of new pandemics requiring mobility restrictions.

as well as the mobilisation of law-and-order personnel, and rescue services in case of natural disasters;

- Ensure the functioning of the public administration itself. This was evidenced during the pandemic when civil servants were unable to provide in-person services or work from their regular duty stations as a result of confinement measures. Damage to government buildings and related infrastructure is another consideration in the case of natural disasters;
- Provide support for vulnerable social groups to limit a crisis-related deterioration in their circumstances. This can be achieved by simplifying and facilitating eligibility requirements and verification procedures and rolling out on-line versions of otherwise in-person services, when feasible.

73. In all these cases, various prerequisites need to be fulfilled. First and foremost is effective intergovernmental cooperation and coordination in areas ranging from the design and implementation of crisis management strategies to the financing of policies and programmes, especially in the presence of concurrent mandates that are common in education, health care and social protection. For example, maintenance of strategic stocks of medical equipment is best carried out centrally, requiring effective distribution during crises. Deployment of law-and-order personnel, as well as rescue teams is particularly important in some cases and may require overcoming institutional barriers, especially in the more decentralised countries or federations. Targeted or time-bound adjustments to social protection programmes, including eligibility criteria and the duration/generosity of benefits, often depend on national governments but could reflect local needs as appropriate by targeting affected areas.

74. To improve intergovernmental cooperation and coordination, dedicated fora may need to be established, including to facilitate information sharing. The positive experience of several countries during the pandemic, as discussed in OECD (2022), is instructive in this regard. Cooperation and coordination mechanisms are also especially important where regional disparities are associated with capacity bottlenecks and infrastructure deficiencies in subnational jurisdictions in distress, which may require targeted interventions. Where capacity building is needed, there may be scope for horizontal initiatives among same-level jurisdictions and with the support of the national government, especially in countries with sizeable regional disparities. Several options are discussed in detail in Ter-Minassian and de Mello (2016).

75. In addition, action in all these areas requires the development of digital capabilities to ensure effective service delivery during crises. This includes not only a focus on frontline services but also a modernisation of SNGs' own organisational structures, administrative processes, and procedures to cope with the shift towards virtual interactions, both internally and with society. Of particular importance is the need to manage and share data, ensure the interoperability of ICT systems, and put in place common identifiers and databases of service users and benefit recipients to allow for a seamless identification of targeted populations. Reform options in this area are discussed in detail in de Mello and Ter-Minassian, 2020.

76. In the area of disaster risk management, action is needed at all levels of government. This includes investing in the resilience of critical infrastructure, such as those that produce and deliver electricity, gas, water, and telecommunications, in the form of system redundancies, diversification of suppliers, and availability of back-up productive capacity.[11] There is also scope in several OECD countries to compile national inventories of critical infrastructure assets, systems, functions or operators (OECD, 2021c). Moreover, governments will need to prepare to deal with future pandemics and the emergence of zoonotic diseases associated with climate change by devising appropriate, often spatially differentiated, prevention

[11] Indeed, according to a recent survey by the OECD (Survey on Governance of Critical Infrastructure Resilience, 2019–2020), only a minority of countries offer incentives for critical infrastructure operators to invest in resilience in the form of grants or financial rewards, or through regulatory provisions and financial penalties for service disruption.

and management mechanisms. To make progress on all these fronts, a case can also be made to establish permanent scientific advisory mechanisms, such as standing bodies responsible for the provision and coordination of scientific advice in the management of novel and unexpected crises.[12]

3. Dealing with the challenges of climate change

77. Section II above discussed how climate change and the associated increase in the incidence of natural disasters can impact regional and local economies and finances. This subsection focuses on policy options for national governments and SNGs in mitigating such impacts through prevention and adaptation. In the short term, most of the options need to reflect existing intergovernmental fiscal arrangements and the capacities of governments at different levels. Over the longer term, as subnational capacities improve, it may become possible, and more efficient, to increase subnational spending and revenue autonomy in dealing with the challenges of climate change.

78. OECD countries currently differ significantly in the respective roles of the national government and the SNGs in mitigation policies. In many, mostly unitary, countries, environmental targets and standards are set by the national government, with the SNGs mainly charged with implementing the nationally mandated policies to meet the targets in their respective jurisdictions (OECD, 2019e and 2021d). In others, including some federations, the national government sets minimum standards, leaving to the SNGs scope to exceed them. In yet others, mainly federations, SNGs enjoy substantial autonomy in the choice of environmental standards and the policies to pursue them.

79. The economic case for a strong involvement of the national government in this area rests on the fact that subnational polluting activities can generate significant externalities across the national territory. Moreover, SNGs may use lax environmental standards to attract polluting industries (a race to the bottom). However, the extent of environmental externalities is likely to vary depending on the nature of the activity and the geographic characteristics of each SNG. Moreover, citizens' degree of tolerance of environmental risks is also likely to vary within national territories. These considerations would argue against both full centralisation and full decentralisation, and for the intermediate approach mentioned above.

80. Under any of the approaches, well-functioning coordination mechanisms among the different levels of government are key. They include prior consultations on proposed policy changes, including in relevant laws and regulations and on subnational investments in decarbonisation and the related financing; and adequate flows of information among the agencies responsible for environmentally sensitive functions, especially timely and transparent reporting on key environmental indicators, which is increasingly facilitated by ongoing advances in digital technologies. National governments can lead in promoting both more effective coordination fora and improved capacities of their SNGs in designing and implementing mitigation policies. They can also support horizontal cooperation fora, which are growing in OECD and other countries (see Martinez-Vazquez, 2021 for examples).

81. The SNGs' role is more clear-cut as regards adaptation policies, such as land use regulations to minimise risks of flooding, investing in infrastructure less vulnerable to climate change-induced disasters, and preparing contingency plans to respond to such disasters. Such activities are by their nature more localised in their impact, although they too can have some (positive or negative) externalities, especially on adjacent jurisdictions. The national governments have a role in promoting adequate adaptation efforts on the part of SNGs, for various reasons: to avoid common pool and moral hazard problems, as discussed in Section II above; to provide their SNGs with technical support to assess the climate change-related risks

[12] One such body is the UK Scientific Advisory Group for Emergencies (SAGE), which is responsible for ensuring that timely and co-ordinated scientific advice is made available to the relevant decision-makers, depending on the nature of the emergency and the issues under consideration (OECD, 2021a).

they face and to design the appropriate remedial actions; and to supplement subnational resources devoted to adaptation through special-purpose transfers, as discussed below.

82. Some of subnational investments in mitigation, and most of their investments in adaptation and disaster recovery are likely to require additional resources. The considerations outlined in the subsection above on bolstering SNGs' own revenues are relevant in this respect. Of particular importance is the potential for increasing a range of "green" taxes and levies, including subnational excises on fuel products, congestion charges in cities, taxes and license fees on motor vehicles, charges on local industrial effluents and households' use of disposable plastics, and betterment levies on properties benefiting from public investments in adaptation. SNGs can explicitly earmark the revenue from these levies to "green" investments, which may facilitate their social acceptance.

83. The instrument of choice for national governments to support financially their SNGs in adapting to climate change is special-purpose, earmarked grants. General purpose transfers, such as revenue-sharing and equalisation transfers have different objectives and therefore respond to different criteria than subnational needs related to climate change. The specific level and design of such grants should reflect country-specific circumstances, such as the extent and distribution of climate-related vulnerabilities across the national territory, and differences in subnational technical and financial capacities to address such vulnerabilities. Such considerations would affect, for example, choices about whether to include matching requirements in the design of grants and the nature of conditionality attached to them. In some cases, it may be appropriate for national governments to provide low-cost and long-maturity loans, rather than grants, to finance subnational climate-related investments. They could also provide partial guarantees[13] or tax advantages to subnational "green bonds" (i.e. bonds whose proceeds are earmarked to finance "green" investments), as well as engage in contractual arrangements with the SNG to fund at least in part their climate action.

IV. Concluding remarks

84. Governments worldwide are increasingly having to reckon with the occurrence of a range of exogenous shocks with huge macroeconomic and fiscal implications, such as geopolitical conflicts, pandemics, and climate change-induced and other natural disasters. Although in most countries national governments are primarily in charge of anticipating and trying to prevent such shocks, and dealing with their impact when they occur, the SNGs also need to deal with their effects, particularly in the areas of their assigned responsibilities, such as education, some aspects of health care, social assistance, environmental protection and public order, as well as public investment. This highlights the importance of strengthening subnational resilience to shocks.

85. This paper has focused on three main aspects of subnational resilience that appear of special significance in the post-COVID-19 environment; namely, strengthening fiscal buffers, rationalising spending and ensuring "business continuity" during and in the wake of shocks, and coping with the impact of climate change. It has discussed a range of policy options to improve subnational performances in each of these areas.

86. As the SNGs differ greatly across and within countries in responsibilities, resources, budgetary autonomy and capacities, there are no one-size-fits-all prescriptions. The specific nature, intensity, timing and sequencing of the reforms needed to strengthen subnational resilience must reflect the economic, social and institutional characteristics of each country and of its universe of SNGs. Therefore, the paper has focused on offering a menu of options, drawing on the relevant literature and some country experiences to date.

[13] Partial guarantees would be preferable to full ones to keep some "skin in the game" on the part of both the issuer SNGs and the investors in the bonds.

87. Of fundamental importance to the objective of strengthening subnational resilience is restoring appropriate fiscal responsibility frameworks, especially in countries where fiscal rules have been suspended during the pandemic. The paper has discussed a number of considerations that could guide the revision of such frameworks, including of the key features of subnational fiscal rules, with a view to increasing their flexibility in an increasingly uncertain world but also to improving compliance with them.

88. The paper has also discussed the pros and cons of various options to increase subnational own revenues, including “green” taxes and levies that would yield a double dividend in terms of both revenue mobilisation and reduction of polluting activities. It has explored some considerations that could guide reforms of intergovernmental transfers to reduce their sensitivity to national revenue shocks and to better respond to shocks that affect SNGs in asymmetric ways.

89. Efforts to bolster subnational revenues will need in most cases to be accompanied by effective steps to rationalise subnational spending, in order to accommodate new spending pressures, including in the health care and education areas and in adapting to climate change. Greater use of spending reviews and medium-term expenditure frameworks, especially by regional and larger municipal governments, can be very helpful in this respect. The COVID-19 pandemic has also highlighted the importance of effective intergovernmental coordination and of digitalisation in coping with shocks that impact areas of subnational spending responsibilities. There is scope for substantial further progress in both these areas. Finally, both national governments and SNGs can make better use of their regulatory powers in areas such as environmental standards and land use that are important in the fight against climate change.

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