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A Sub-national Perspective on Financing Investment for Growth II - Creating Fiscal Space for Public Investment: The Role of Institutions

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A SUB-NATIONAL PERSPECTIVE ON FINANCING INVESTMENT FOR GROWTH II

Creating Fiscal Space for Public Investment: The Role of Institutions



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A SUB-NATIONAL PERSPECTIVE ON FINANCING INVESTMENT FOR GROWTH II

CREATING FISCAL SPACE FOR PUBLIC INVESTMENT: THE ROLE OF INSTITUTIONS

By Camila Vammalle, Claudia Hulbert and Rudiger Ahrend[1]

Abstract:

Sub-national governments (SNGs) are key players for public investment in OECD countries, responsible for nearly two-thirds of it. At the same time, both the well-being of the population and economic performance depend on an adequate provision of public services, which require public facilities and thus public investment. Ensuring that sub-national governments command the resources for necessary public investment is hence important. While in the immediate, the fiscal space of a SNG for public investment is basically determined by its current fiscal capacities, in a longer-term perspective the evolution of fiscal space comes to depend increasingly on the institutional context. This includes the national framework of fiscal relations across levels of government, the nature and characteristics of SNGs' revenue sources and spending responsibilities, SNGs resilience to crises, and their structural ability to borrow. This paper explores the institutional ability of SNGs to influence their fiscal space for public investment. In this context, it also analyses the main challenges to be faced by SNG finances in the decades to come, as well as recent reforms implemented by SNGs to tackle these specific issues.

JEL classification codes: G28; H41; H71; H71; H74; H77

Key words: Fiscal space, sub-national governments, public investment, public services, institutions, fiscal relations across levels of government.

Résumé :

Les gouvernements infranationaux, responsables de deux tiers de l'investissement public dans les pays de l'OCDE, jouent un rôle crucial en matière d'investissement. Le bien-être de la population et la performance économique reposent en partie sur une provision adéquate de services publics, et réclament des infrastructures et équipements efficaces, financés à travers l'investissement public. S'assurer que les gouvernements infranationaux ont à leur disposition des ressources suffisantes pour investir constitue donc un enjeu de taille. À court terme, leur marge de manœuvre budgétaire disponible pour l'investissement est déterminée, en grande part, par leur capacité financière immédiate. Cependant dans une perspective de long terme, l'évolution de cette marge de manœuvre repose davantage sur le contexte institutionnel –

1. The authors are indebted to Dorothée Allain-Dupré, Claire Charbit, Isabelle Chatry, Marta Curto-Grau, Mario Marcel, Paul Bernd Spahn and Bill Tompson for useful comments, and to Erin Byrne for editorial assistance. Corresponding authors: Camila.Vammalle@oecd.org and Rudiger.Ahrend@oecd.org.

relations budgétaires entre niveaux de gouvernement, nature et caractéristiques des sources de revenus et de dépenses infranationales, résilience des gouvernements infranationaux aux crises, capacité structurelle à emprunter. Cet article analyse la capacité institutionnelle d'un gouvernement infranational à influencer sa marge de manœuvre budgétaire disponible pour l'investissement. Pour ce faire, il étudie les principaux défis que devraient rencontrer les gouvernements infranationaux dans les décennies à venir, ainsi que les réformes introduites récemment pour y répondre.

Codes JEL : G28; H41; H71; H71; H74; H77

Mots clés : marge de manœuvre budgétaire, gouvernements infranationaux, investissement public, services publics, institutions, relations budgétaires entre niveaux de gouvernement.

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DEFINITIONS

1. *Central government* (CG) refers to the national, central, or federal government, as it may be defined across countries.

2. *Regional/state government* (RG) refers to the level immediately below the central government in federal countries. This might be defined as "region", "state", province" or "Land", depending on the country.

3. *Local government or local level* (LG), unless otherwise noted, refers to all sub-national governments below the state/regional level in federal countries, and to all sub-national governments in non-federal countries.

4. *Sub-national government or sub-national level* (SNG), unless otherwise stated, refers to all levels of government below the central government level (*i.e.* includes both regional/state and local governments).

5. *Sub-national debt* refers to the definition of the OECD. This definition is wider than Maastricht debt as it includes insurance technical reserves and other accounts payable, but smaller than total liabilities as shares and equities and financial derivatives are excluded.

6. *Own revenues* are revenues other than transfers (*i.e.*, tax revenues and user fees); *autonomous revenues* refer to revenues which are modifiable by sub-national governments.

7. The *average* used in this report corresponds to a non-weighted average of OECD countries.

Defining and measuring public investment

Public investment is generally understood as capital expenditure that finances projects for physical infrastructure (such as roads, government buildings etc.) and soft infrastructure (capital expenditures linked to human capital development, innovation, and research and development) that last beyond the fiscal year. The way public investment is measured across countries varies. In this report, public gross fixed capital formation (GFCF) is used as a proxy for public investment.

Gross Fixed Capital Formation (GFCF) is defined in the National Accounts as: "acquisition less disposals of produced fixed assets, *i.e.* assets intended for use in the production of other goods and services for a period of more than a year. Acquisition includes both purchases of assets (new or second-hand) and the construction of assets by producers for their own use. The term produced assets signifies that only those assets produced as a result of a production process recognized in the national accounts are included. The national accounts also record transactions in non-produced assets such as land, oil and mineral reserves for example; which are recorded as non-produced assets in the balance sheet accounts and not as GFCF. Acquisition prices of capital goods include transport and installation charges, as well as all specific taxes associated with purchase".

Public investment is difficult to measure. Public GFCF is a narrow definition since it does not cover all public spending that could be considered as investment – it is sometimes difficult to determine the borderline between GFCF and public consumption. For example, acquisition of software with certain kinds of licenses, training of human capital or spending in research and development that does not entail any economic benefit for its owner will be classified as consumption, although it could have long-term repercussions. Maintenance operations can be classified either as intermediate consumption or GFCF,

according to their magnitude. Public-Private partnerships (PPPs) are not necessarily included in public investment figures either.

Fiscal space for public investment

The concept of fiscal space has been developed in the budgeting literature. According to Heller (2005), "fiscal space can be defined as the availability of budgetary room that allows a government to provide resources for a desired purpose without any prejudice to the sustainability of a government's financial position". This concept has been used extensively in the budgeting literature, with specific focus on sectors such as health or public infrastructure. The term "fiscal space for public investment" will be used in the report to refer to SNGs' capacity to finance investments.

References

Heller, P. (2005), "Understanding Fiscal Space", *IMF Policy Discussion Paper PDP/05/4*.

Marcel, M. (2012), "Budgeting for Fiscal Space and Government Performance beyond the Great Recession", www.oecd.org/eco/public-finance/Budgetingforfiscalspace.pdf .

INTRODUCTION

Sub-national governments (SNGs) are key players for public investment and the provision of public services. In 2011, they were responsible for nearly two-thirds of public investment in OECD countries. This share was over 80% in highly decentralised countries, such as Canada, Belgium and the United States, going down to below 40% in historically centralised or small countries, such as Turkey, Luxembourg, Greece or Estonia. Ensuring that sub-national governments command the resources for necessary public investment in order to provide an adequate level of public services is hence important, both for the well-being of the population and for economic performance.

In the immediate, fiscal space of a SNG for public investment is basically determined by its current budget balance, the capital transfers it receives, and the new debt it may issue to finance investment projects. In contrast, when lengthening the time perspective, the evolution of fiscal space comes to depend increasingly on the institutional context. This includes the national framework of fiscal relations across levels of government, the nature and characteristics of SNGs' revenue sources and spending responsibilities, SNGs resilience to crises, and their ability to borrow.[2] This paper therefore explores the institutional ability of SNGs to influence their fiscal space for public investment. In this context, it also analyses the main challenges to be faced by SNG finances in the decades to come, as well as recent reforms implemented by SNGs to tackle these specific issues.

The number of factors that potentially influence SNGs fiscal space for public investment in the medium-to-long term is large (see Box 1). On the revenue side, SNGs' ability to increase autonomously revenues (tax autonomy) is crucial in order to respond to asymmetric shocks. Moreover, the design of SNG sources of revenues, their volatility and (counter) cyclical properties affect the resilience of sub-national governments' economies to crises. The ability of SNGs to preserve public investment under fiscal pressure depends equally on the volatility of their total revenues (including transfers). On the spending side, a large share of SNG spending is constrained by central government rules and standards, leaving little autonomy for SNG to decrease it. In addition, in most OECD countries demographic developments are likely to generate fiscal pressure on SNGs responsible for expenditures on health, old age benefits or pensions. Many reforms of SNG revenues and debt have been implemented, and in several countries governments are seeking to gain economies of scale in public service provision via mergers of local authorities. Last, the repartition of SNG debt and the strength of fiscal rules affecting sub-national governments may also influence their ability to preserve public investment in times of crisis. Innovative local borrowing, such as municipal debt pooling, may be an alternative to traditional loans or bonds, and may be particularly useful for maintaining access to finance in times of widespread financial turmoil.

2. The ability of sub-central governments to invest *efficiently* also depends on their capacity in terms of strategic design and institutional quality, see OECD (2013).

Box 1. Determinants of SNG fiscal space for public investment

SNG fiscal space for public investment depends on its ability to increase revenues, adjust spending, and issue debt.

More precisely, on the revenue side, SNG fiscal space depends on:

- The nature of the tax mix (relative reliance on property tax, personal income tax, corporate tax, etc.) and the framework for transfers (formula based, discretionary, etc.)
- The capacity of SNGs to increase their tax rates or bases (tax autonomy)
- The revenue mix of SNGs between own revenues and grants
- The evolution of the regional GDP (as it may influence tax revenues)
- The level of wealth
- Direct effects of national consolidation plans, such as reductions in transfers, or indirect effects such as changes in the rate of shared taxes, or allocation formulae.

On the expenditure side, the fiscal space of SNGs depends on their capacity to redirect spending, which is influenced by:

- The size of SNG expenditure relative to GDP
- The importance of mandatory spending, and the ability of SNGs to adjust spending (spending autonomy)

Borrowing capacity depends on:

- The existing stock of debt
- The evolution of the cost of debt (interest rates and yields)
- Fiscal rules which constrain SNG borrowing

Finally, external factors such as the national and international economic and financial situation also affect SNGs' fiscal space, such as the ability and willingness of banks to lend to SNGs, or private actors' ability and willingness to finance public-private partnerships (PPPs).

I. Factors influencing the size and stability of sub-national revenues in the medium-to-long term

On the revenue side, fiscal capacity of SNGs depends on three main factors: 1) the income and wealth that can be taxed (measured for instance by regional GDP per capita); 2) the capacity of SNGs to increase their revenues autonomously; and 3) the stability and (counter-) cyclicality of taxes and transfer revenues.

1. Sub-national revenue autonomy

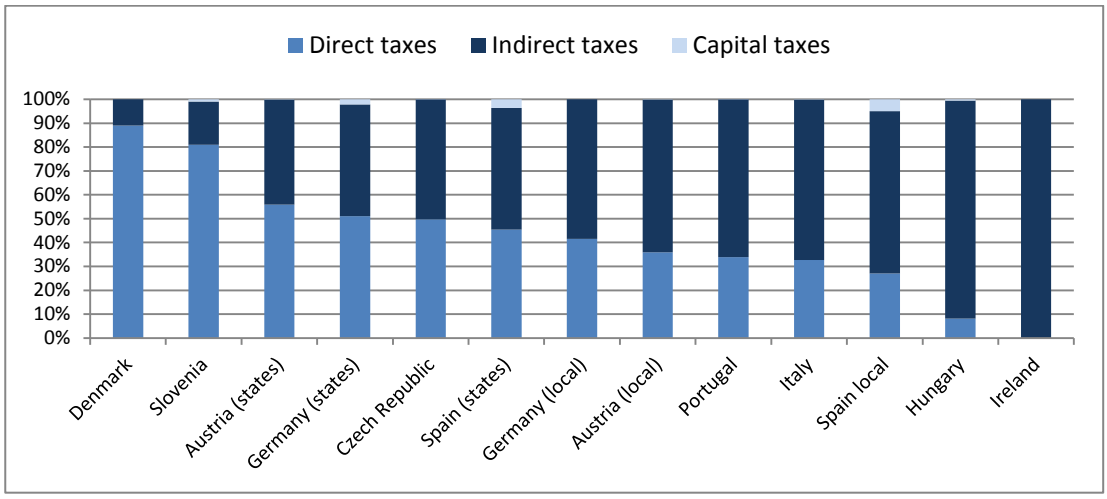
Across OECD countries, sub-national governments enjoy different degrees of autonomy on their financial resources. Though difficult to measure, financial autonomy is a key determinant of the long-run evolution of sub-national finances. In particular, state/regional and local governments with a greater degree of control of local tax rates, or who are able to levy large user fees, may be more resilient as they can better respond to asymmetric shocks. Sub-national governments in countries where transfers from other levels of governments are based on formulas are also likely to be relatively protected from a sudden decline in transfer revenues compared to those in countries where most transfers are discretionary.

The autonomy of a sub-national government to adjust its financial resources may have a large impact on its capacity to invest. Regional economies tend to be affected differently by nationwide developments or macroeconomic shocks, implying that tax rates set uniformly by the central government may not correspond to specific local financial challenges. The impossibility of SNGs to adjust revenues may cause financial difficulties, which in turn often lead to large cuts in public investment.

1.1 Taxes

On average, taxes represent somewhat less than 40% of SNG revenue in OECD countries, federal and quasi-federal countries tending to allocate a slightly higher share of taxes to SNGs than unitary countries. Taxes account on average for 42% of states/regions, and 37% of municipal revenues. These averages hide wide variations, with own tax revenues representing more than 70% of SNGs' revenues in Germany or Iceland, and less than 10% in Greece, the Netherlands or the Mexican states (Piñero Campos and Vammalle, 2011). SNG tax revenue is typically based on a mix of direct and indirect taxes, with capital taxes (such as succession taxes) only playing a minor role (Figure 1). The balance between direct and indirect taxes can vary widely across OECD countries.

Figure 1. Types of sub-national tax revenues (2010)



Note: Reminder: "states" account for federated entities in federal countries; "local" governments represent all levels of governments in unitary countries, and all levels of government below federated entities in federal countries.

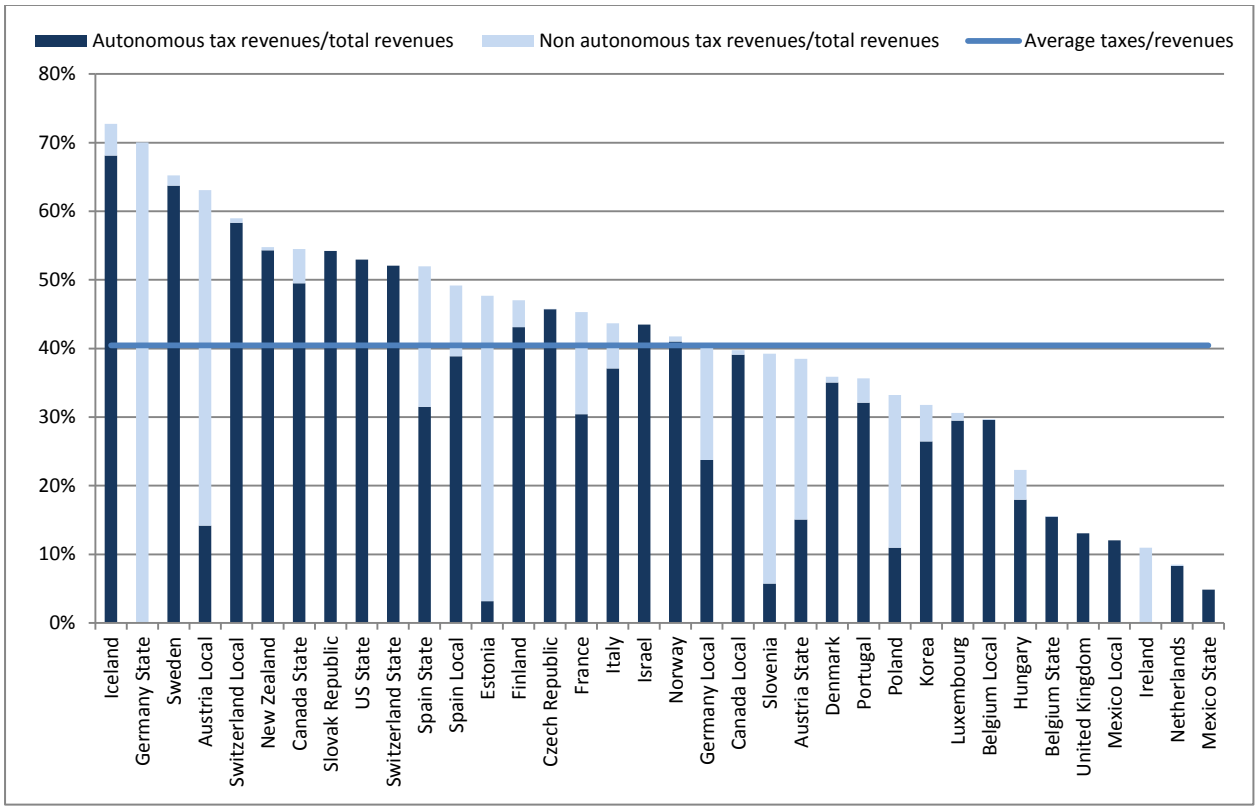
Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

The share of taxes in SNG revenues does not, by itself, provide a good indicator of SNGs' ability to increase revenues. OECD tax autonomy indicators show that in many cases the ability of SNGs to change the tax rate or base is constrained by CG regulations and legislations[3] On average, the share of autonomous taxes (defined as those taxes for which SNGs have the authority to set the rate and/or the base) in SNG tax

3. The OECD Network on Fiscal Relations across Levels of Government has developed a set of institutional indicators to estimate tax autonomy. These taxing power indicators measure the degree of own-taxing power for SNGs by capturing the degree to which SNGs can set their own tax rates and bases. The framework consists of five main categories of autonomy, ranked in decreasing order from highest to lowest taxing power (Blöchliger and King, 2006). This classification is carried out through a questionnaire sent to the countries. Countries are invited to rank the level of autonomy for each type of tax (property tax, personal income tax, business tax, etc.), and then compute the share of taxes for which SNGs have some degree of autonomy. The latest available information dates from 2008.

revenues is close to 70%. Again, this masks wide variations: in nine countries, it is above 99%, while in Germany it is 2%, and in Ireland and Turkey it is zero (Figure 2). The capacity to raise revenues therefore depends also on the share of autonomous taxes rather than simply the share of own taxes in the revenue mix[4]. However, even the "autonomous tax share" indicator may hide great disparities as to the real autonomy of local governments. For instance in Denmark, where taxes are classified as autonomous, municipalities can set tax rates within limits negotiated with the national government. If tax rates are higher than these limits, the central government may take actions, such as reducing transfers allocated to local authorities – hence in practice limiting the theoretical autonomy of SNGs to set rates (Olejaz et al., 2012).

Figure 2. Composition of SNG tax revenues as a share of total revenues (2008)



Source: Own calculations based on OECD (2013), Fiscal Decentralisation (database), http://dx.doi.org/10.1787/fsc-data-en (accessed on 20 August 2013).

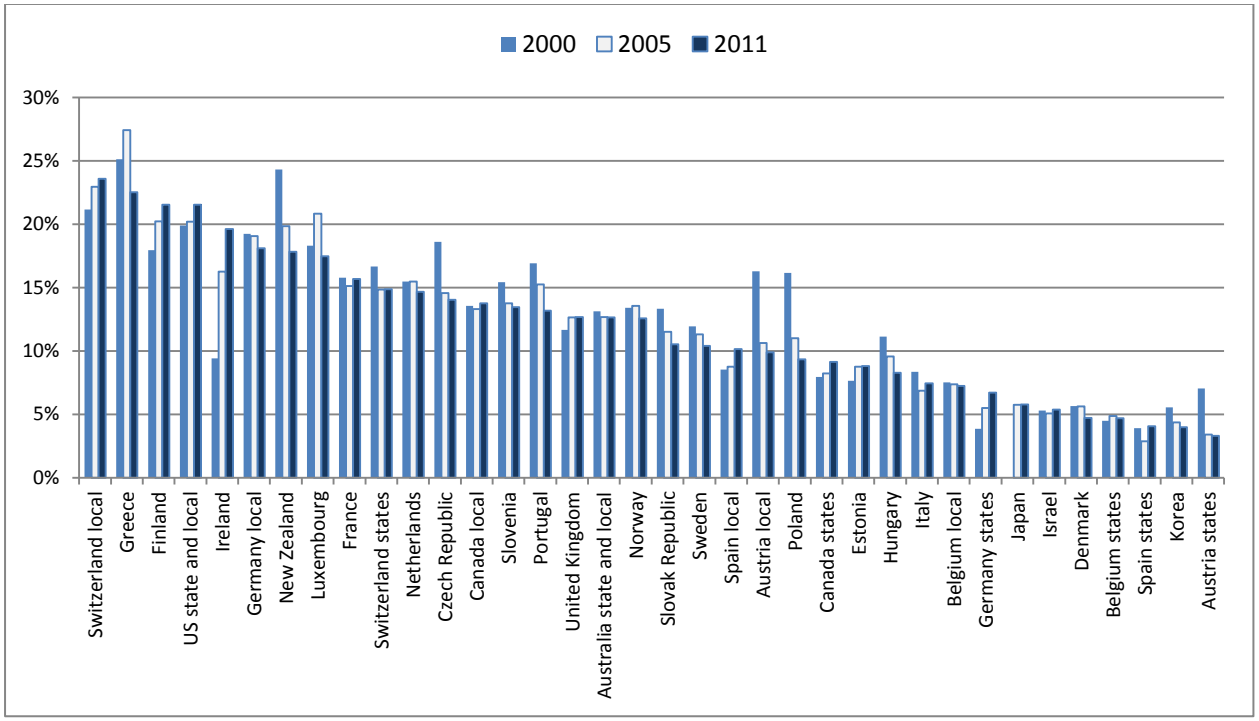
1.2 User fees

User fees typically represent a significant share of SNG revenues in federal countries (Switzerland, US, Germany, Canada), but are also important in some unitary countries (Greece, Ireland, New Zealand or Luxembourg) (Figure 3). Sub-national governments are responsible for setting, managing and collecting user fees, which represent a major source of their autonomous revenues. In times of crisis, for instance, SNGs are free to introduce or increase fees to compensate for declines in other sources of revenues. This phenomenon was observed in a number of OECD countries. Moreover, revenues from user fees are not

4. For example in 2008 (before the last reform of the financing system of local governments), Spanish local governments had a lower share of taxes in their revenues than the Autonomous Communities, but the share of their autonomous taxes was actually greater.

subject to earmarking from the central government, thereby increasing SNG's budgetary flexibility. The share of user fees in total SNG revenues has varied widely over time in OECD countries. A few countries have largely increased their reliance on that source of funding over the last decade (Switzerland, Finland, the US, Ireland, German Länder) while in others the share of user fees in revenues has declined (New Zealand, Czech Republic, Portugal, Austria, Poland).

Figure 3. Share of user fees in SNG revenues



Note: Canada, Korea and New Zealand: 2010 instead of 2011.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

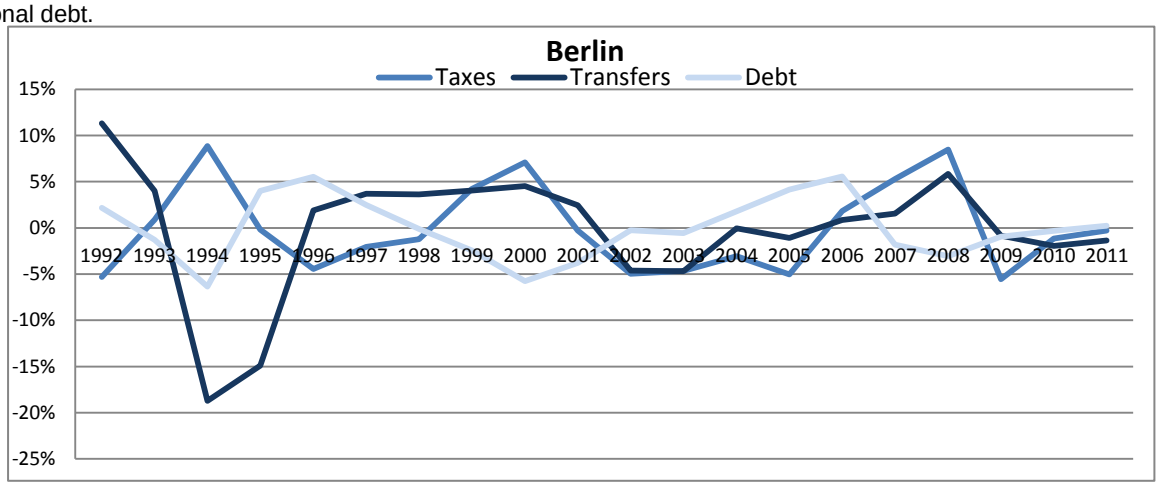
2. Stability and (counter) cyclicality of SNG revenues

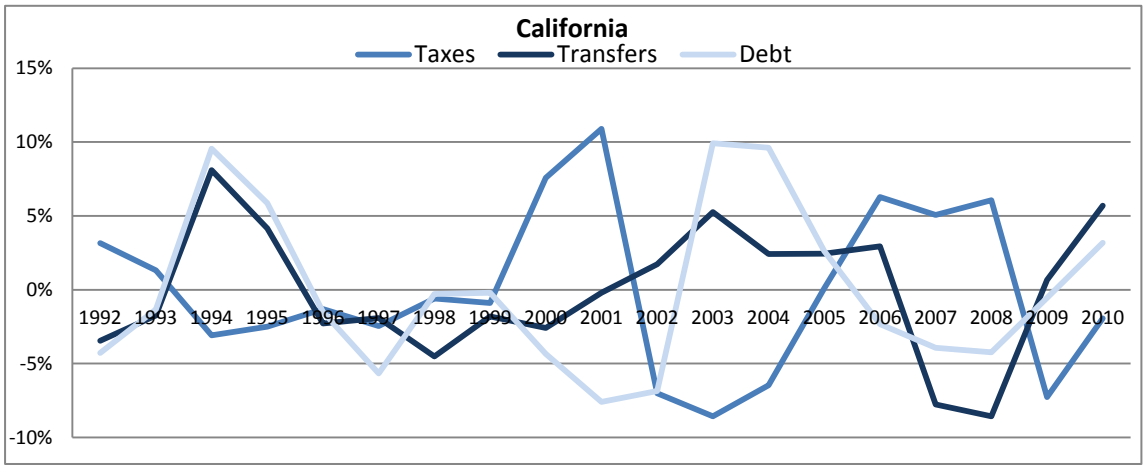
The volatility of taxes and transfers relative to output indicates whether these variables are rather stabilising or destabilising for SNGs' revenues, and consequently, for their financial capacity for public investment (Box 2). The stability and cyclicality of taxes and grants – which account for 80% of SNG revenues on average, while user fees and other revenues such as property related incomes only represent around 10% – are hence an important component of SNGs financial capacity for public investment.[5] In this respect, preliminary analyses carried out on individual regional data show that within a country grants may be pro-cyclical for some regions while counter-cyclical for others.

5. Federal and quasi-federal countries tend to rely more on own taxes than unitary countries, especially at the state/regional level: own taxes represent about 42% of SNG revenues for states/regions, and only about 37% for municipalities. Mexico and Belgium are exceptions, with taxes at less than 5% in Mexico and less than 16% in Belgium, at the state/regional level. Some unitary countries also rely heavily on own taxes for SNGs, such as Austria, Iceland and Sweden, where they represent above 60% of SNG revenues.

Box 2. Cyclicality of taxes and transfers and SNG debt

SNG debt may be used in order to compensate for declines in other sources of revenues, as an alternative source of funding to maintain public services in critical economic times. This assumption is supported by analysis at the regional level. Cycles in debt often tend to mirror cycles in the main source of funding of SNGs. For instance, in Germany, debt has often evolved in order to compensate for variations in SNG tax revenues. The following graph presents the evolution of the different sources of revenues of the Länder of Berlin (other German Länder present a similar pattern). The same observation can be made in the case of most US states. It is therefore likely that stronger cycles in German Länder's and US states' taxes result in higher levels of SNG debt. More generally, the more cyclical the main source of SNG funding, the more likely are sub-national authorities - when they are allowed to do so - to rely on debt to preserve public services. A well-designed mix of (usually pro-cyclical) taxes and counter-cyclical current transfers, or the introduction of rainy day funds for SNGs with highly cyclical revenues could hence help to limit sub-national debt.





Several countries have introduced "rainy day" funds for sub-national governments. These stabilisation funds accumulate resources in periods of economic growth and disburse them in times of fiscal stress (typically recessions) in order to compensate for declines in sub-national governments' revenues. Well-known examples are the stabilisation funds of US states. Over the last two decades, nearly all US states have introduced some form of stabilisation fund, although amounts saved in those funds vary widely from one state to another. Tight rules regulate the accumulation of funds: in most states, total funds accumulated must remain below 5% of a state's budget; in other, the limit is 10%, and a few states have no limits. Academic research confirms that stabilisation funds allow for a reduction in the volatility of SNG expenditures (see, for example, Sobel and Holcombe, 1996, Gonzalez and Paqueo, 2003, or Wagner and Elder, 2005).

In some countries, stabilisation funds for SNGs have been introduced by central governments. This is the case, for instance, in Mexico, where the federal government manages the Fondo de Estabilization de Ingresos de las Entidades Federativas (FEIEF). This fund is used to provide additional revenues to federated entities when grants from the CG are reduced in times of fiscal stress.

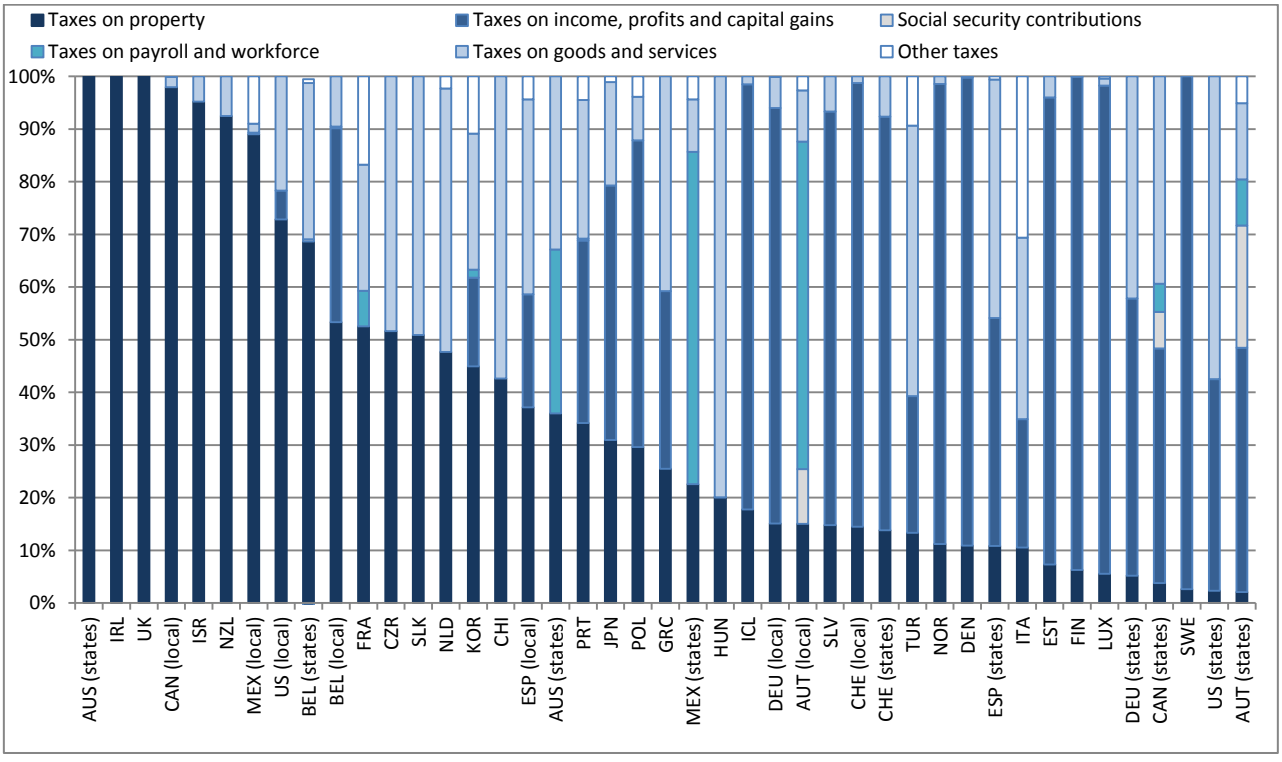
2.1 Transfers

Intergovernmental grants are more pro-cyclical and more volatile than SNGs' own tax revenue, and are indeed the most volatile of all sub-national fiscal variables, both for state and local governments (Blöchliger et. al, 2010). In particular, discretionary grants are likely to be pro-cyclical, as higher levels of governments tend to reduce them when they face financial difficulties themselves. However, discretionary grants have also been stabilising, e.g. when many CGs used them in 2008-09 to support SNGs during the global financial crisis (OECD, 2011). EU funds have also acted as budget stabilisers for regional and local governments in a number of countries. Allocation formulas for grants can be either based on elements which are little influenced by business cycles (as the number of young or elderly, etc.), or based on the amount of taxes collected by higher levels of government, GDP growth, or inflation rates. In that case, they will tend to be pro-cyclical, though affecting SNG revenues with a lag as they are calculated based on past tax collections. Capital transfers, which are more likely to be earmarked for specific investment projects, tend to be more volatile than other types of transfers.

2.2 Taxes

SNG tax revenue typically results from a combination of taxes with different cyclicality and stability properties. Property taxes usually constitute an important share of SNG revenues, in particular for local governments, and tend to be rather stable.[6] Some SNGs also rely heavily on personal income tax or business taxes, which may generate strong revenues, but tend to be more volatile.

Figure 4. Composition of SNG tax revenue composition



Note: Australia, Ireland, Mexico, the Netherlands, Poland, and Portugal: 2010 instead of 2011.

Source: OECD (2013), Revenue Statistics (database) http://dx.doi.org/10.1787/tax-data-en (accessed on 20 August 2013).

6. This is not true for property transaction taxes which are (potentially) highly volatile.

The composition of SNG tax revenue for federated entities (when applicable) seems to be different from that of most local authorities. A decentralised personal income tax (PIT) is a major source of tax revenues for federated entities in all countries but Belgium and Mexico (Figure 4). Personal income taxes are often absent at the local level - although in some countries they can represent a large share of SNG tax revenues. For instance, the personal income tax represents around or above 90% of SNG tax revenues in all Nordic countries.

Property taxes are the only taxes financing all sub-national governments, and typically represent a major source of revenues for local authorities. In contrast, the share of property taxes in the tax mix of federated entities is rather small, with the exception of Belgian provinces, where property taxes represent around 70% of tax revenues. Corporate income tax (CIT, not explicitly shown in Figure 4), social security contributions and payroll taxes play a marginal role in tax decentralisation, except in the case of Luxembourg, whose municipalities rely mainly on CIT. This was also the case in France before 2009, where the *taxe professionnelle* was one of the main revenue sources for the *départements*. But this tax was eliminated and replaced by intergovernmental transfers, as part of the stimulus measures implemented by the central government to support businesses (Blöchliger et. al, 2010).

It is generally agreed that SNGs should rely on taxes levied on assets that are: *i)* relatively immobile - such as property - in order to avoid tax-induced migrations of factors of production; and *ii)* relatively stable, to avoid large SNG budget fluctuations and pro-cyclical effects. Central governments are therefore usually assigned the taxes levied on the most mobile factors, taxes with higher income elasticities, and taxes levied on tax bases that are distributed unevenly across the country (Ter-Minassian, 1997). According to these criteria, corporate income taxes (CIT) should be assigned to central governments, while taxes on individuals and households (such as personal income taxes or property taxes) are more suited for SNGs - as these are seen as less mobile than businesses. Taxes on natural resources and on foreign trade are usually assigned to central governments, as well as multi-stage sales taxes (such as VAT). Issues of co-ordination between regions would make their management difficult for SNGs, and can lead to damaging "tax wars" of the kind seen in Brazil (OECD, 2011). Economic studies usually conclude that property taxes are less volatile than other sources of tax funding, and most also defend the idea that a balanced tax mix has greater stability properties (Box 3).

Other criteria may also explain the influence of SNG tax portfolios on the evolution of sub-national finances in the long run. For instance, population ageing may induce a downward pressure on SNG finances if local or regional authorities are mainly financed through personal income taxes, both as revenues of retirees tend to be significantly smaller than those of the working population, and in some countries are tax exempt (for evidence on Belgium see Belfius 2013a).

Box 3. The volatility of tax revenues and on SNGs' tax mix

Economic studies usually conclude that property taxes are less volatile than other sources of tax funding, and most of them also defend the idea that a balanced tax mix has greater stability properties. In particular, Hou and Seligman (2010) analyse the impact of newly-introduced consumption taxes to finance counties in the US state of Georgia. They find that property taxes decrease both short and long-run volatility, and that the shift from property taxes to consumption taxes has generated a higher short-run volatility within counties' revenues. Norregaard (2013) shows that, in the United States, property taxes tend to be less volatile than other sources of tax revenue; in particular, property taxes were more stable that the personal income tax or the sales tax during the 2008-2009 recession.

Other studies focusing on US states do not consider property taxes, which account for a very small share of states' tax revenues, but focus on the relative volatility of other types of taxes and the need to balance tax portfolios. Seegert (2012) shows that states with unbalanced tax portfolios tend to show higher volatility. The same conclusion is reached by Schunk and Porca (2005), who find that "movements towards increased revenues balance tend to result in both decreased revenue variability and increased revenue growth" for US states. Felix (2008) analyses the growth and volatility of tax revenues in the 10th Federal Reserve district (Colorado, Kansas, Nebraska, Oklahoma, Wyoming, and

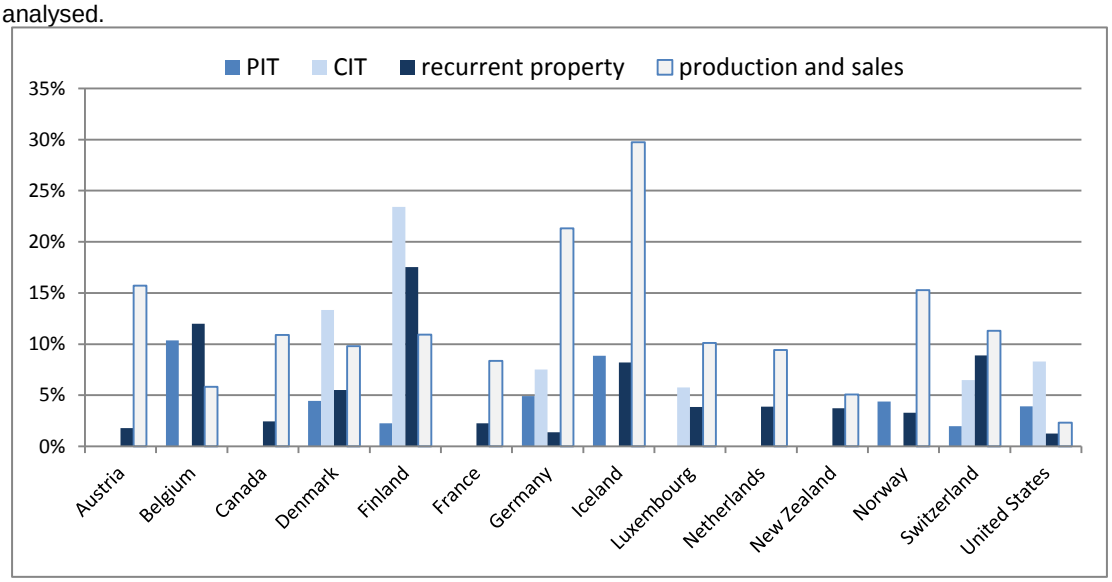
Box 3. The volatility of tax revenues and on SNGs' tax mix *(cont.)*

portions of western Missouri and northern New Mexico). Sales taxes are found to be relatively robust, while the corporate income tax is the most volatile component of states' tax portfolios. Braun and Ostuka (1998) find that the personal income tax tends to be less variable than other types of taxes; but "since no tax is found to dominate revenue growth and variability, the optimal portfolio must be a mix of tax components". Sobel and Wagner (2003) also analyse how to optimise tax portfolios in order to reduce the volatility of SNG revenues, recommending to assign stable revenues to crucial public expenditures, while volatile revenues (such as revenues from the corporate income tax) could be assigned to expenditures easier to cut in times of fiscal stress.

The structure of sub-national tax portfolios has also been shown to affect significantly both the growth and variability of US sub-national revenues in older studies; an "optimal portfolio" could theoretically be defined for SNGs (see for example Braun and Otsuka, 1998, Harman and Mallik, 1994, Gentry and Ladd, 1994). These optimal portfolios could differ for each state, as they are influenced by the specificities of each regional economy (Gentry and Ladd, 1994). This result, however, must be considered taking into account that non-uniform tax rates between jurisdictions can distort economic decisions. As the structure of SNG tax mix appears to affect both revenue growth and volatility, policymakers at the sub-national level could benefit from additional information on the characteristics of each tax policy, in order to adjust the tax mix in function of their priorities. Research is probably needed in order to explore more in-depth the impact of local tax portfolios on sub-national budget growth and stability – in particular in countries other than the United States.

A brief analysis of taxes' volatility

The volatility of each main tax category can be approximated by the standard deviation of its cyclical component. A large standard deviation indicates a strong cycle, which is likely to have a destabilising effect on total sub-national revenues and can affect other economic variables (for instance, it is possible that a high volatility of taxes or transfers affects SNG debt).This measure of volatility was calculated for SNG property taxes, personal income taxes, corporate income taxes, production taxes (including VAT) and total taxes for 19 OECD countries over 1985-2011 at the aggregated level. Countries that passed large reforms of SNG taxes, thereby generating breaks in the time series were excluded from the analysis (Italy, Spain, Japan), as well as countries for which times series were shorter than the period analysed.



In almost all countries, the volatility of corporate or production taxes was the highest among all categories of taxes. In comparison, property and personal income taxes were found to be relatively stable in most countries. Hence countries where SNGs rely strongly on corporate income or production taxes could probably generate more stable revenues by reforming their tax mix.

Resilience of the property tax

The resilience of property tax revenue could be attributable to two main factors. Norreggard (2013) estimates that that "during the house price boom, local governments tended to spend part of the 'rent' on (popular) rate reductions, while during the recession budgetary pressures forced them to raise property tax rates (possibly reflecting the relative ease with which base and rates can be adjusted as compared to other taxes). Furthermore, house price changes have

Box 3. The volatility of tax revenues and on SNGs' tax mix *(cont.)*

an effect on property taxes only after a lag of about three years, reflecting three basic features of the tax: (1) assessments take place in a backward-looking manner, as the current year's taxes are based on the assessed property value in previous years; (2) assessed values often lag market values, in some cases by design or legal mandate and, in others, due to "poor" administration (which may be intentional, particularly in jurisdictions which elect their assessor); and (3) most states have a cap or otherwise a limit on increases in revenues or taxable assessments (or even in rates). This would, during periods of rapid house price growth, prevent revenues from growing at the same pace as market values, and could create a 'stock' of untaxed appreciation.

3. Institutional reforms of the sub-national revenue mix

In some countries, the crisis triggered a reform of the financing system of SNGs.[7] Grant systems and local tax systems were reformed, usually granting more spending autonomy to SNGs in exchange for reducing the level of expenditure. Equalisation was also reinforced in a number of countries, reflecting the importance of equity concerns in periods of fiscal stress (Box 4).

Box 4. Examples of recent institutional reforms of the financing system of SNGs

Equalisation reforms. The global financial crisis and the ensuing fiscal consolidations affected regional economic performance to different degrees. Ensuing changes in the distribution of income across regions could, in turn, influence equalisation flows. In addition, the importance of equity concerns in resource distribution appears to increase in periods of fiscal stress. For example, an equalisation reform took place in Estonia in 2009. Equalisation was also reinforced in France with the creation of a new equalisation fund in 2011, the creation of an intercommunal and communal fund and the reinforcement of the capital region fund in 2012. In the Czech Republic, an amendment to the Act on Budgetary Allocation of Taxes, scheduled to come into force in 2013, should improve the financial situation of the municipalities with the lowest income per capita at the expense of the four biggest cities, and introduce a new criterion in the grant-sharing formula (the number of pupils).

Grant system reform. In the Czech Republic, in addition to the tax reform that aimed for greater equalisation, contributions for delegated central government administrations were increased. The aim was to remove an imbalance between the spending on delegated responsibilities and the grants provided by the central government for those purposes. Municipalities gained some degree of autonomy on property taxes (2009). In Finland, the government announced in 2011 its intention to reform the grant system but the details are still undecided. In England (United Kingdom), reductions in spending were matched by a radical reform programme which gave local authorities unprecedented freedom and flexibility and more control over budgets. Earmarking was abandoned, except for school grants and protected public health grants. Funding was also been simplified and streamlined by rolling grants into the main general-purpose formula-based grant. The number of types of grants was reduced from more than 90 to less than 10.

Local tax system reform. France made a major reform of the financing system of SNGs in 2009. Ireland, through the Finance Act of 2013, introduced a local property tax to increase local government responsibility in relation to financial matters. As introducing such a new tax takes time, the central government decided to introduce a household charge (i.e. a flat rate tax) in 2012 as an interim measure. The Slovak Republic envisages a change in the composition of shared taxes: in 2012, only a share of the personal income tax was transferred to local governments. This tax is of a strongly pro-cyclical nature, as shown by past experience. In order to increase the predictability of local government revenues, the revenues from four major taxes will be shared (personal income tax, corporate income tax, value-added tax and excise taxes).

7. Although reforms of the fiscal relations across levels of government are meant to make the relations more efficient, more equitable and more stable, the reforms often face stiff political resistance. Past experience shows that some of the envisaged and necessary fiscal reforms were watered down, postponed, or even abandoned. But the need for reform will not wither: it will become even more pressing in the coming years as sub-national governments will have to face an increasingly heavy burden of fiscal consolidation. However, policy makers may be able to reduce opposition and to secure a majority in favour of reforms by adapting the design: influencing the timing, the scope and the sequencing of the reform process (Blöchliger and Vammalle, 2012).

Box 4. Examples of recent institutional reforms of the financing system of SNGs *(cont.)*

Fiscal federalism reform. In 2009, Italy started reshaping the framework which governs financial relations between levels of government. The new framework aimed at giving more tax autonomy to SNGs in exchange for increased equalisation. The UK introduced in 2012 a reform of its fiscal federalism framework; new responsibilities, in particular in the social housing sector, as well as more independent sources of funding were granted to local authorities. In particular, from 2013 onwards local governments can "retain" a share of the corporate income tax, on which they have the power to set rates autonomously. In Belgium, an institutional agreement on the reform of the fiscal federalism framework was endorsed in December 2011 (the "Sixth Reform of the State"), to be implemented in 2013. This agreement provides significant decentralisation of taxing power and responsibility, to be set in the "Special Law of Finance". This reform is intended to improve the burden sharing of consolidation efforts, in particular to deal with the ageing costs which at the time were mainly borne by the federal government. One of the reform's objectives was to ensure fiscal sustainability of each level of government. In Hungary, work on the development of a new local government act is in progress, aiming to divide tasks and competencies between the central and sub-national governments (central government transfers and borrowing limits for local governments, debt ceilings, borrowing limited to investment for development). Greece carried out a major reform of its fiscal relations across levels of government in 2011, granting local governments new responsibilities.

Source: Vammalle and Hulbert (2013).

II. Factors influencing sub-national expenditures in the medium-to-long term

1. Types and developments of spending responsibilities

SNGs often have little room of manoeuvre to reduce spending. Not only are they typically responsible for crucial spending areas (such as education, health, social protection), where cuts can be costly in political and economic terms, but SNG spending is moreover often subject to mandates and regulations from the CG. In the average OECD country, SNGs represent about 30% of total public spending, ranging from 6% in Greece to more than 60% in Denmark and Canada. This corresponds to 15% of GDP in the average OECD country, but accounts for more than 25% of GDP in more decentralised countries such as Canada.

Although SNGs represent a large share of public spending in most OECD countries, the amount of funds spent by them often does not reflect their degree of spending autonomy. For example, welfare benefits in Denmark are entirely determined by CGs, but are distributed via SNGs (in other countries, they would have been classified under "social security"). The high share of SNG spending in Denmark is therefore spurious.

1.1 Responsibilities of SNGs across economic sectors

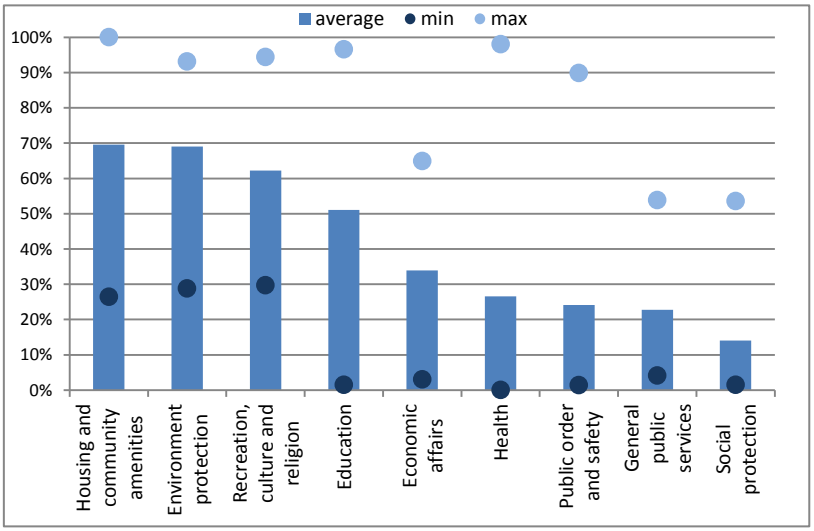
SNGs are important providers of crucial public services such as education, and in some countries, health and social protection (Figure 5).[8] On average, SNGs spend 50% of their budgets on education, health and social protection (Figure 6), i.e. sectors where cuts are particularly visible, unpopular, or may be costly in the long run.[9] Even in the absence of explicit spending mandates from higher levels of

8. The picture of SNG participation in health and social protection is differs across OECD countries. In some, SNGs represent above 80% of spending in health (Italy, Switzerland, Sweden, Spain, Finland, Canada), while in others, it is zero (New Zealand, Great Britain, Ireland, Greece, Luxembourg) or close to zero (Slovakia, Israel, Iceland, France). The same is true for social protection. In Sweden, Canada, Korea and Denmark, SNGs represent above 30% of social protection spending, while in Italy, Portugal, Greece, New Zealand or Luxembourg, this share is below 5%.

9. For SNG expenditure by function in individual OECD countries, see Piñero-Campos and Vammalle (2011), Figure 3.3.

government, when SNGs are the main providers of crucial public services and these account for a high share of their expenditures, reducing spending is in general particularly difficult.

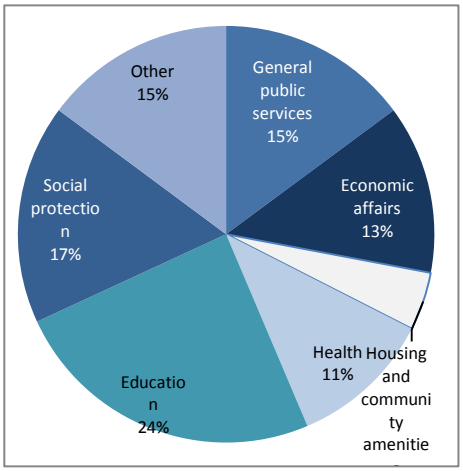
Figure 5. Relative share of SNG spending by government function in OECD countries (2011)



Note: data for Canada, Chile, Japan, Mexico, New Zealand and Turkey are missing. Korea: 2010 instead of 2011.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013) and OECD Fiscal Decentralisation Database.

Figure 6. SNG expenditure by function (OECD average, 2011)

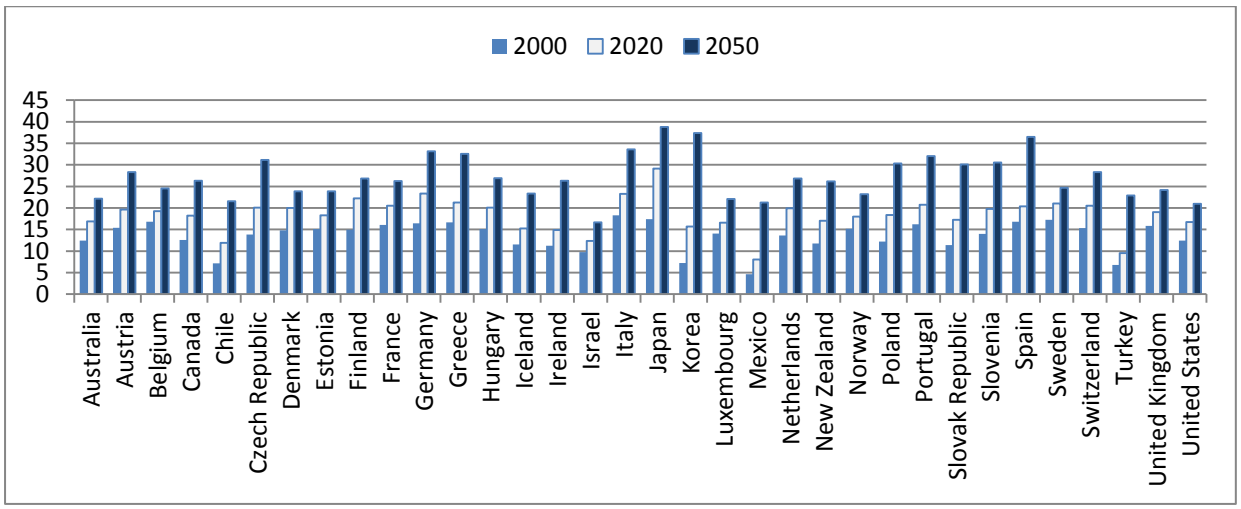


Note: data for Canada, Chile, Japan, Mexico, New Zealand and Turkey are missing. Korea: 2010 instead of 2011. Other: environment + defence + public order + recreation, culture and religion.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

Health and ageing, in particular, create challenges for sub-national governments in a number of countries. The old age dependency ratio is projected to increase significantly in all OECD countries in the decades to come (Figure 7). Responsibilities of SNGs for financing these particular sectors are a main concern in many OECD countries, as increasing health prices and an ageing population may induce drastic pressures on SNGs finances in the medium-to-long term. According to Dexia (2012), sub-national health expenditures in 2011 in the EU area represented 13.3% of sub-national revenues – compared to 11.3% in 2010.

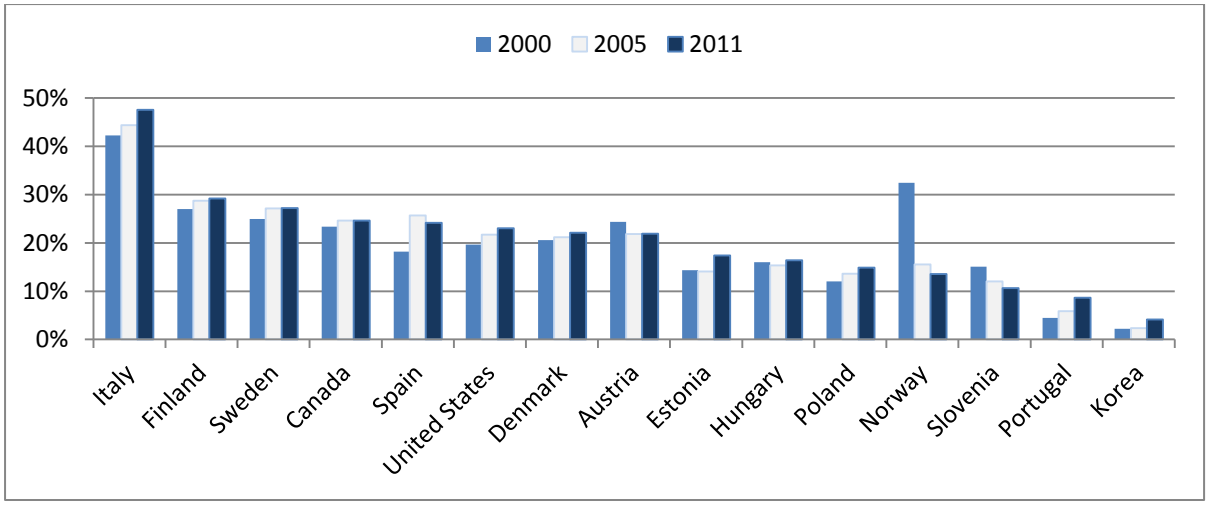
Figure 7. Old age dependency ratio in OECD countries



Source: OECD (2013), Demography and Population (database), http://dotstat.oecd.org/Index.aspx (accessed on 20 August 2013).

In most countries where health and social security (including old age) represent a significant share of SNG expenditures, the share of total SNG spending allocated to these specific sectors has already increased over the last decade (Figures 8 and 9). In some countries, projections related to old age and health expenditures point to unsustainable trajectories, in part driven by shrinking populations in certain countries. For instance, in the case of Germany, Geys et al. (2007) show that costs fall under-proportionally with a shrinking population in municipalities with up to approximately 10.000 inhabitants, reinforcing concerns that population declines will raise per capita costs of public service provision for small and mid-sized municipalities.

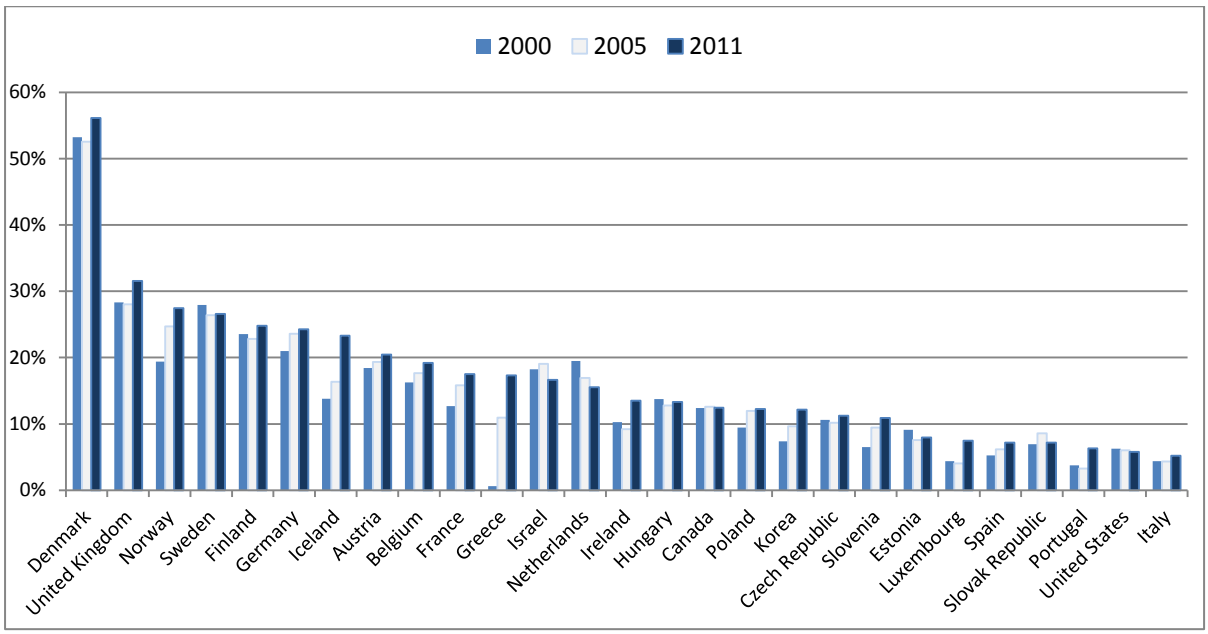
Figure 8. SNG health care expenditure as a share of total expenditure



Note: Canada: 2006 instead of 2011; Korea: 2010 instead of 2011; Poland: 2002 instead of 2000.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en.

Figure 9. SNG social expenditure as a share of total expenditure



Note: Canada: 2006 instead of 2011; Korea: 2010 instead of 2011; Poland: 2002 instead of 2000.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

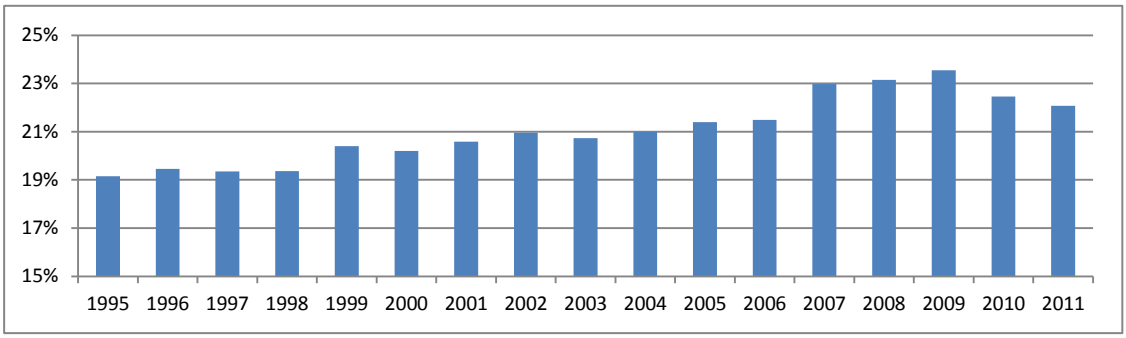
Major reforms relative to SNG finances or territorial organisation have already been implemented in order to tackle this specific issue, or should come into force in coming years. Recent reforms of territorial organisation in Denmark, Finland and Japan were conducted, in part, with the aim of gaining economies of scale to be able to finance SNG service provision in these specific sectors (Box 5).

Box 5. Repercussions of ageing and health spending on SNG finances in selected countries

Belgium: In Belgium, population ageing should have large repercussions on sub-national finances (Belfius 2013a), as local authorities are responsible for a large share of social measures in favour of the elderly – in particular via the *centres publics d'action sociale* (CPAS). Large investments will need to be carried on in the years to come in order to maintain an adequate provision of public services in this sector, which will induce additional stress on sub-national finances. Recently, the sustainability of public finances regarding costs induced by ageing has become a major subject in Belgium. A long term strategy based on a reduction of public debt was introduced. The diminution in future interest charges paid should generate extra funding to finance social protection expenditures. However, a recent reform (October 2011) of fiscal federalism in Belgium will transfer additional competencies to SNGs in 2014, including in the health and social protection (including old age) sectors. These additional competencies granted to local and provincial authorities should induce an increase of 4.4% of GDP in SNG expenditures. In parallel, the fiscal autonomy of SNGs should be reinforced, via an increase in autonomous revenues and the suppression of transfers from the federal government (the equalisation system will be maintained). These new competencies granted to SNGs in health care and social protection could hence generate additional fiscal pressures on sub-national budgets in the long run.

Denmark: The increase in sub-national local health care spending, together with a political will to provide health care services equally across regions, were main drivers of the Danish 2007 territorial reform (see below). The reform was implemented in parallel to the Health Act of 2007, and partly aimed to solve problems faced by the health care sector, where new medical technologies increased specialization and called for larger regions (OECD, 2012a). These problems had already led to a hospital reform in the region of Copenhagen, when several small municipalities merged their hospitals to provide a better service.

Local health care expenditures as a share of local revenues in Denmark (1995-2011)



Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

A main argument in favour of the reform was a potential decrease in bureaucratic costs and taxation levels; decentralised public services in health care needed to be designed in a way that could "meet future requirements by creating sustainable structures with a clear responsibility to provide high quality welfare service to the population" while maintaining democratic accountability (Strandberg-Larsen et al., 2006). Larger local authorities were seen as a solution to this problem. Although the Danish government expected to generate synergies and economies of scale in the long run, increased costs for municipalities in the short run were envisaged, and should be borne by municipal authorities. Regions are responsible for all hospitalization services, while municipalities gained responsibilities in medical prevention and health promotion. This health reform was accompanied by a reform of the financing of local governments towards less autonomy in spending (the independent taxes levied at the regional level were replaced by a health tax, redistributed as an earmarked block grant from the central government to regions and municipalities. The distribution of grants (which finance more than 80% of health care activities in regions) is based on a formula based on the expected need for health care (including the distribution of age at the local level). The reform was considered as a structural adjustment towards a sustainable provision of health care services by sub-national governments. A major evaluation of its impact on service provision and local finances is currently developed by the central authorities.

Box 5. Repercussions of ageing and health spending on SNG finances in selected countries *(cont.)*

Finland: The demographic evolution of Finland is anticipated to affect drastically sub-national finances in the years to come. Finland should experience an earlier and faster increase of its old age dependency ratio, compared to other OECD or European countries; in particular, the share of people aged over 80 will increase from less than 15% in 2000 to around 25% in 2050, when it will be high in the OECD and larger than in other Nordic countries. The financing of pensions, health and long-term care should hence become a major issue. Health and social protection account for nearly 50% of total local spending in Finland, and pressures on sub-national finances are already starting to emerge. The new territorial reform of Finland (see below "New Municipality Finland") aims to amalgamate municipalities on a voluntary basis in order to create larger entities which would allow reaching an adequate size for efficient service provision, and benefit from economies of scale.

Japan: Local governments in Japan are responsible for a large share of public spending in the health and old age sectors. Municipalities manage the National Health Insurance (kokumin kenko hoken), one of the two main health insurance schemes in the nation. Since 2000, they are also responsible for the Long-Term Care insurance (Kaigo hoken), which covers public spending for old-age services. The ageing population in Japan is a main challenge for local governments (Hayashi 2006). The old age dependency ratio should exceed 30% in 2030 and threatens redistributive expenditures in Japan. Moreover, the elderly tend to concentrate in regions with weaker economies and tax bases, which generate high pressure on local governments in these areas. The value of long-term care services should increase dramatically, from 6.2 trillion yen in 2004 to an estimated 19 trillion yen in 2025. In response to this financial pressure, the system has already been revised several times (change in unit prices in 2003; exclusion of some costs from insurance coverage in 2005; introduction of the "long-term care prevention allowance" in 2006).

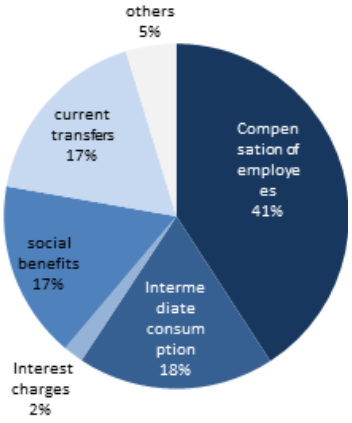
1.2 Responsibilities of SNGs in different categories of spending

The nature of SNG spending (whether on wages, social benefits, capital spending, etc.) also influences the ability of SNGs to reduce expenditures. For example, compensation of employees is difficult to reduce in the short run. Hence the institutional framework allocating expenditure responsibilities to SNGs might have a large impact on their capacity to invest.

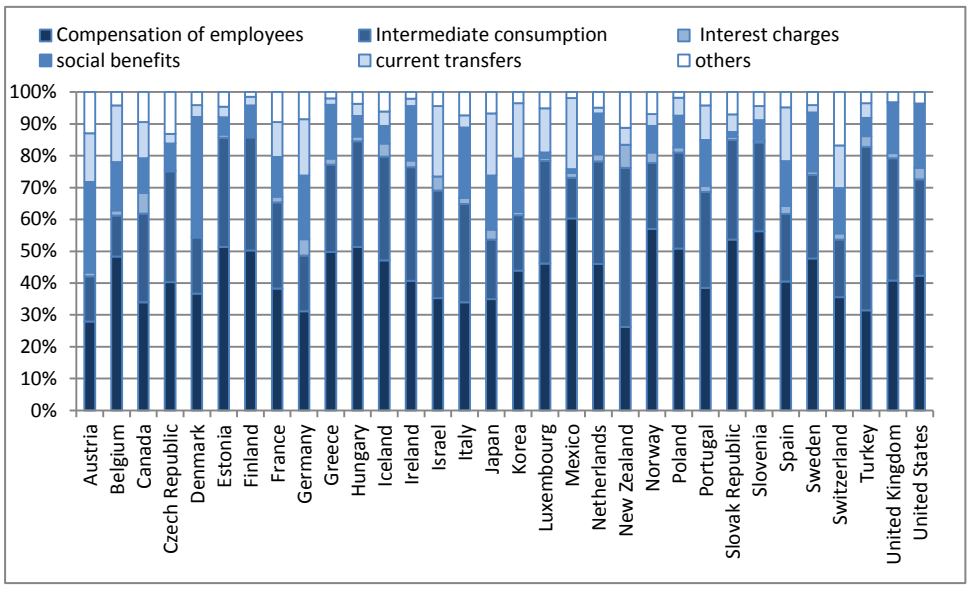
Measures such as direct wage cuts or laying off civil servants are highly unpopular, even if some countries (for example, Greece, Spain or the United States) have implemented them in recent years. Wage moderation policies and gradual reductions of the number of civil servants take time. Given the difficult economic situation, expenditures on social benefits have been increasing over recent years, and are expected to remain high. On average, wages and social benefits represent almost 35% of SNG expenditure (Figure 10a and 10b). SNGs where compensation of employees and social benefits account for a larger share of expenditures, are therefore expected to have relatively smaller manoeuvring room to preserve public investment (gross fixed capital formation) than SNGs where such items represent a lower share of spending.

Figure 10. Nature of SNG current expenditures (2011)

a) OECD average



b) by country



Note: Data for Australia and Chile is missing. Canada, Korea, New Zealand and Turkey: 2010 instead of 2011.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

The allocation of critical social spending responsibilities to sub-national governments may have a large impact on SNG resilience to crises. Vammalle and Hulbert (2014) shows that the largest SNG spending categories (i.e. final consumption and compensation of employees) rose on average at a similar or slower pace than total revenues; most of the increase in current expenditures was driven by increases in social benefits and current transfers paid by local authorities. Hence, countries in which SNGs have large responsibilities in these particular areas may suffer more from a deterioration of SNG finances in times of crisis. Shifts of social responsibilities towards SNGs – while beneficial from other points of view – may therefore decrease the financial resilience of SNGs in crisis times. For example, from 2013 onwards, local governments in the UK will be responsible for additional competencies related to social housing. The reform of the Housing Revenue Account (HRA) is thought to increase social benefits spent by local authorities, and could generate additional pressure of SNG finances in the medium-to-long term, in addition to the short run borrowing of many local governments to finance the transfer in competencies. In the Netherlands, substantial responsibilities in the social sector are to be passed from the central to sub-national governments from 2014 onwards. This transfer of key public expenditures may also generate pressure on SNG budgets in the medium-to-long term.

1.3 The burden of pensions on sub-national governments

In Canada, and in particular in federal countries, SNGs are responsible for the pensions of their civil servants (Belgium, Canada, Ireland, Germany, Mexico, the UK, the US, etc.). Sub-national pension systems may have a dual impact on SNG finances (Box 6). First, pensions may threaten the sustainability of SNG budgets through the impact of ageing on pension expenditures (which are included most of the time in the "compensation of employees" category). Second, in countries where SNGs are responsible for backing major pension funds, sub-national public finances may be relatively less resilient to financial crises, as a decline in the value of equities may require SNGs to allocate extra funds for pensions.

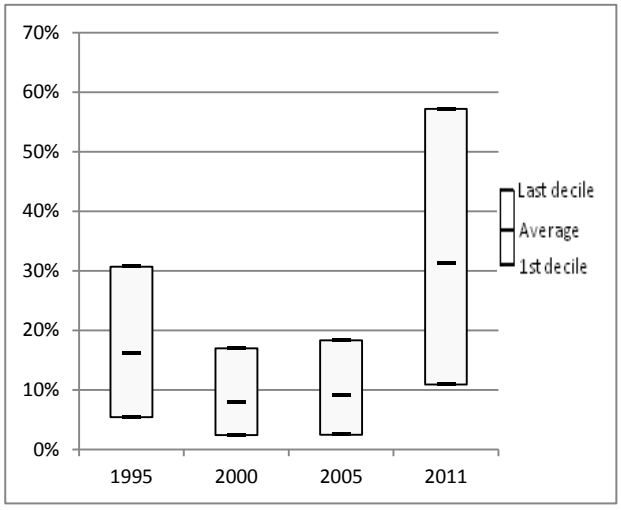
Box 6. SNGs' role in funding pensions

Belgium: In Belgium, communes are responsible since 1933 for the pension of their civil servants. In 2010, pension charges represented 10% of Belgian communes' compensation of employees. Several pension regimes coexisted in Belgium until a large reform of local pensions was implemented in 2011 (Belfius 2013b). This reform was driven by major concerns as to the sustainability of the previous system, not least in the face of population ageing. Although contribution rates had increased significantly over the previous decade, the system remained largely underfunded. The 2011 reform regrouped all the local pension systems in one fund ("fonds solidarisé de pension"), planning for increases in retirement age and contribution periods, and more generally changes in pension calculations.

Germany: In Germany, the Länder and local governments are also responsible for paying the pensions of their public servants. The demographic evolution in Germany may induce considerable stress on SNG budgets in the next decades - in particular at the Lander level.

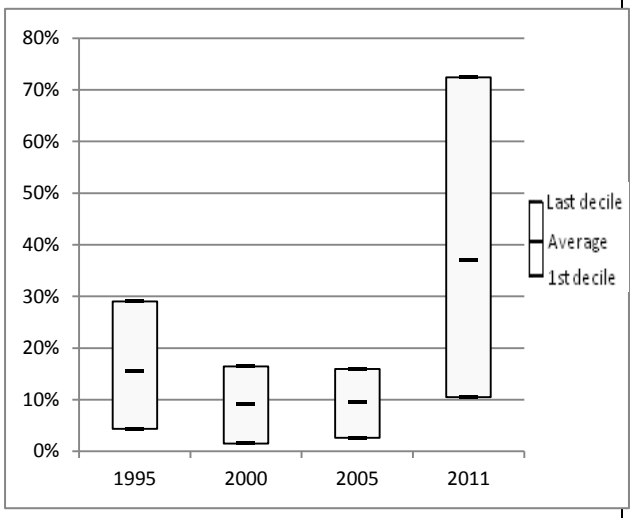
The United States: The 50 US states, as well as many large US cities, have at least one retirement system for their employees. Unlike the private sector, most of these pension funds take the form of "defined benefit" funds, where the risk of investment loss is borne by the employer (i.e., sub-national governments). SNG pension plans are subject to constitutional arrangements forbidding impairing the obligation of contracts. These constitutional arrangements even take the form of pension benefit guarantees in eight states. The 2007-2008 global financial crisis had a disastrous effect on SNG pensions funds' resources given the drastic reduction in the value of equities at the time. To maintain the defined pension benefits, SNGs had to step up – increasing greatly the share of SNG contribution in total pension funds' resources (see Figures below).

US states' contribution to State and Local Public Employees Retirement Systems (in %)



Source: authors' calculation based on data from the US Census.

US local governments' contribution to State and Local Public Employees Retirement Systems (in %)



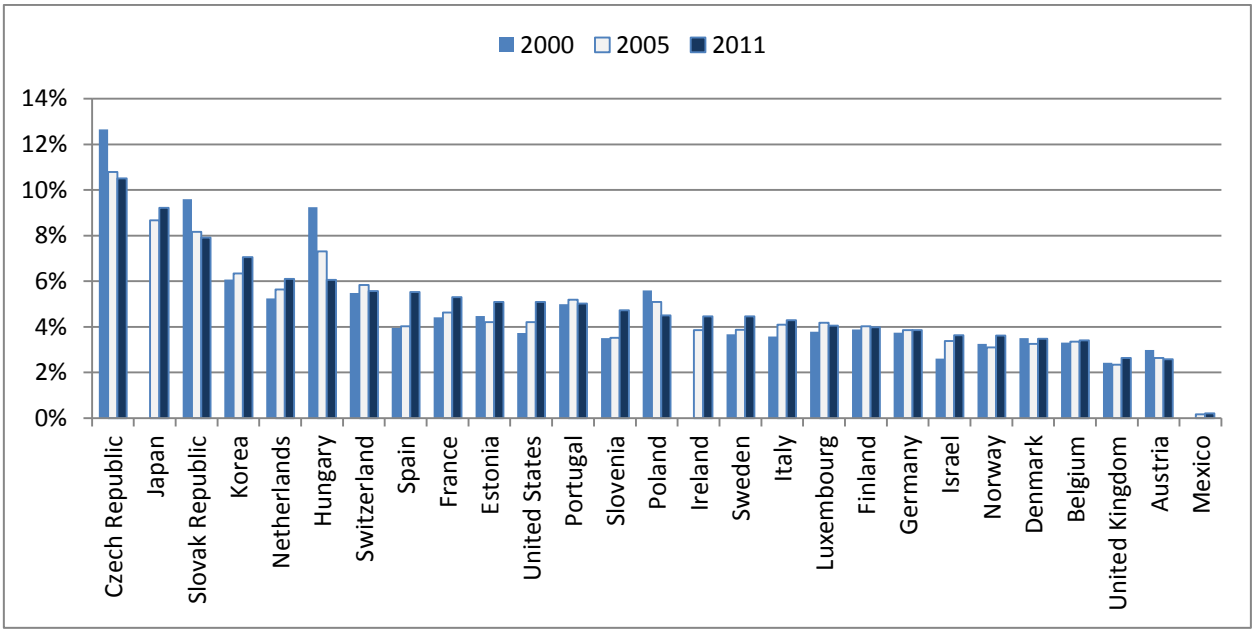
Source: authors' calculation based on data from the US Census.

The increase in pension funds' unfunded liabilities was extensively analysed in the press as well as in academic papers. According to Kelley (2012), "the unfunded liabilities within state and local pension plans have the potential to negatively impact the budgets of state governments, causing states to default and limiting future public borrowing". Unfunded liabilities may also lead to higher future taxes or larger borrowing costs for sub-national governments. The crisis triggered a reform of sub-national pension systems in some states. For example in California, the California Public Employees' Pension Reform Act of 2013 established new retirement benefits for new public employees and increased the retirement age for all new public employees.

1.4 Consumption of fixed capital

Consumption of fixed capital, i.e. the depreciation of public fixed assets, may also generate pressures on sub-national governments' finances in OECD countries, to the degree that these assets need to be maintained or replaced. There is no recent evaluation of the consumption of fixed capital across OECD countries at the SNG level. Data for general governments show that depreciation of fixed assets represented on average 5% of total general governments' revenues in 2011 (Figure 11); this value remained relatively constant over time. In some countries however, the consumption of fixed capital has increased significantly over the last decade (Japan, Korea, Spain, France, Estonia, the US, Slovenia, Ireland, Sweden, Italy). As most investments are carried out by sub-national governments, it is likely that consumption of fixed assets represent a much larger share of SNG budgets. A long-term increase in the depreciation of fixed assets may induce pressure on SNG finances, as additional investment may be required to replace or maintain fixed assets to achieve a constant quality in service provision. The problem of depreciation of fixed capital for sub-national governments has, e.g., been a major issue in Canada.

Figure 11. General government fixed capital consumption as a share of total revenues



Note: Korea, Switzerland: 2010 instead of 2011.

Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

2. Spending autonomy

On the expenditure side, SNG fiscal capacity for public investment depends on the capacity of SNGs to prioritise their spending, i.e., to reduce their spending in some areas to protect spending in others. The ratio of SNG spending over total public spending gives no information about the extent to which SNGs are subject to *de facto* or *de jure* mandatory spending. Identifying mandatory spending is a challenging task, not least because the definition is often related to other mandates, such as requirements concerning the delivery of local public services (civil servant management, standard setting, etc.). It is also the case that spending flexibility – while possible – may be costly in the short term (as, for example, when reductions in public employment require payment of substantial up-front severance packages) (Box 7).

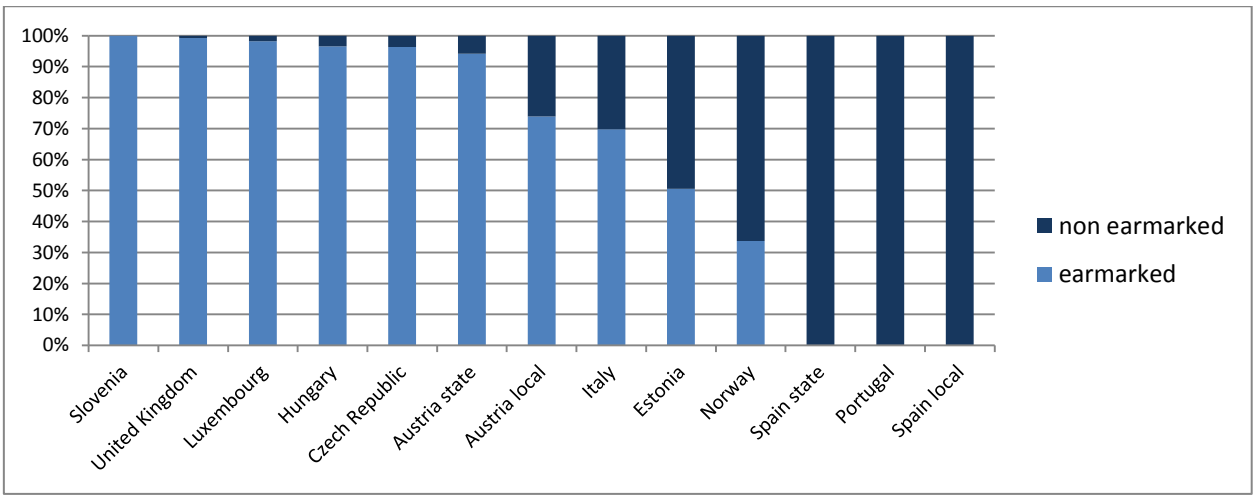
Box 7. Mandatory spending in Brandenburg

In Brandenburg (a Land located in the East of Germany, surrounding Berlin), about 90% of total spending is mandated, as it represents legal or contractual entitlements such as wages and salaries, and/or social transfers. In 2009, Brandenburg succeeded in containing the growth of personnel costs to 1.5%, due to a wage freeze imposed by regional authorities.[10] However, the increase of the wage bill rebounded in the following year (4.5%). In the longer run, the government is determined to reduce the number of civil servants from the present 50 000, to 40 000, a policy objective that is unattainable in the short run.

Source: Regional finances case studies: Brandenburg.

Sub-national governments may enjoy various degrees of autonomy to spend funds from transfers received from other levels of governments. Some transfers may be earmarked, i.e. allocated to specific expenditures; a large share of earmarked transfers reduces drastically the flexibility of SNG budgets. In an investment perspective however, a large share of capital transfers earmarked towards investment projects may stabilise public investment in times of crisis. The repartition of earmarked vs. non-earmarked transfers varies widely between countries (Figure 12). In some countries transfers from other levels of government are completely earmarked (Slovenia), while in others SNGs can allocate these funds freely (Spain, Portugal). A large share of non-earmarked transfers can allow SNGs to shift funds towards prioritised expenditures in times of crisis, but (for the same reason) could be detrimental to public investment in times where current expenditures are rising.

Figure 12. Distribution of earmarked vs. non-earmarked transfers (2009)



Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

Measuring SNG spending autonomy (i.e. the control SNGs exert over their expenditure) is a challenging task. Not only does it vary from country to country, but within each country, SNG spending autonomy differs from one policy area to the other. The OECD Network on Fiscal Relations across Levels of Government carried out a pilot study to estimate SNG spending power focusing on four policy areas (education, public transport, child care and elderly care) in five countries (Denmark, Germany, Ireland,

10. Since the federalism reform in 2009, the schedule for wages and salaries is no longer uniform throughout Germany, but can vary by region (Länder). Brandenburg's salary level is said to be about 20-25% below West German level.

Portugal and the Slovak Republic) (Bach et al. 2009). Hooghe, Marks and Schakel (2010) also provide an estimation of SNG spending autonomy, grouping policies in three main areas (economic, cultural-educational, and welfare), and building an index based on these general policy fields. The larger the number of areas where regional governments have authoritative competencies, the higher they will score in this index (Table 1). Higher spending autonomy gives more flexibility on the spending side to SNGs to adjust to shocks, and is therefore likely to be associated with greater financial capacity for public investment.

Table 1. Policy scope indicator from Regional Authority Index

0	The regional government does not have authoritative competence over economic policy, cultural-educational policy, or welfare policy
1	The regional government has authoritative competence in *one* of the following areas: economic policy, cultural-educational policy, or welfare policy
2	The regional government has authoritative competencies in *at least two* of the following areas: economic policy, cultural-educational policy, or welfare policy
3	The regional governments meets the criteria for **2** and is endowed with at least two of the following: - residual powers - regional police force - authority over own institutional set-up - authority over local government
4	The regional government meets the criteria for **3** and has authority over immigration or citizenship

Source: Hooghe, Marks and Schakel (2010).

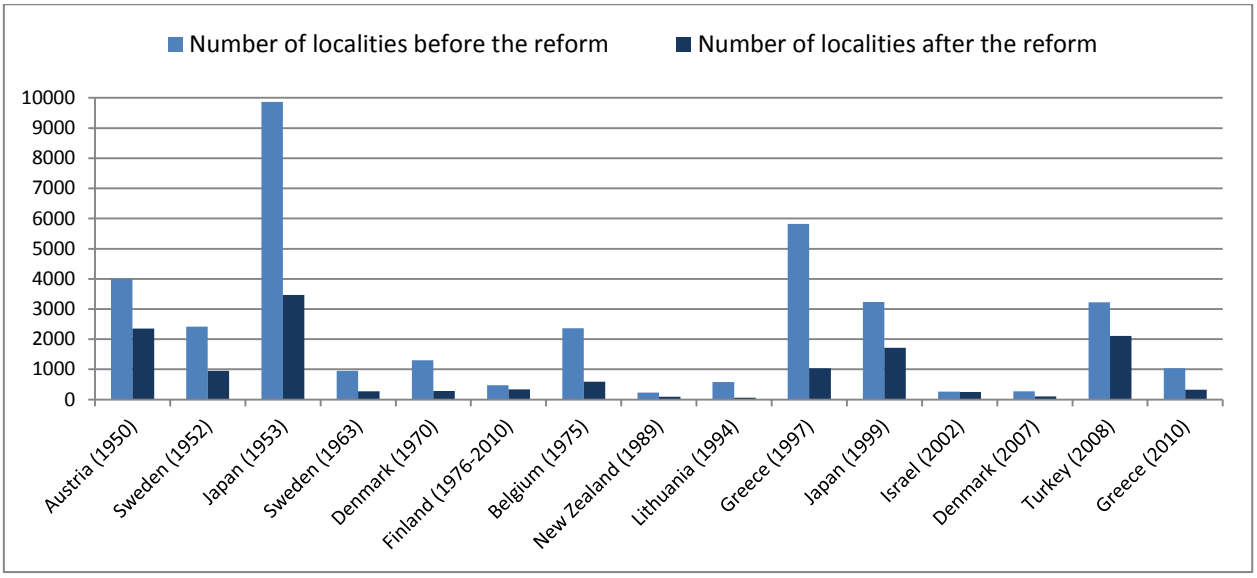
3. Efficiency gains

3.1 Municipal mergers – a quest for economies of scale

Central governments of many OECD countries have implemented major episodes of municipal mergers[11] (Figure 13). In addition to those dense periods of reform, municipal amalgamations were also implemented on a more continuous basis in Iceland, the Netherlands, New Zealand and the UK, or in Australia, Canada and Germany, in, respectively, certain states, provinces or Länder only. The approach to municipal amalgamation has been extremely different across countries, some countries promoting mergers on a voluntary basis, while in other cases mergers were forced upon local authorities (see OECD, 2012b).

11. In parallel, the number of municipalities increased largely in many Eastern European countries, such as Czech Republic (1993), Hungary (1992), Slovak Republic (1998) and Slovenia (2006). This increase in the number of municipalities responded to a series of mergers that had previously taken place under the Communist regime.

Figure 13. Main municipal mergers in selected OECD countries



Source: Dexia Credit Local/CCRE and authors' calculations.

A larger municipality should benefit from economies of scale, i.e. be able to provide public services at a lesser unitary cost. However, in reality the main rationale for municipal amalgamation is improving service provision, rather than cost savings. This is reflected in the inconclusiveness of the literature searching for costs savings of municipal mergers (Box 8), with most studies not finding evidence for reductions in spending. Indeed, measuring the effects of mergers is rather difficult, as such reforms may require transition costs for political economy reasons, or increase efficiency, i.e. provide *better* services at a similar cost; moreover, mergers may prevent costs from rising in the long run.

Box 8. Brief literature review on the impact of municipal mergers

Fritz (2011) finds that amalgamation increased local debt and total expenditures in municipalities from the Land of Baden-Württemberg over 1967-1975 (although administrative staff costs tended to decline). Bish (2001) finds no significant evidence for cost savings following municipal mergers in Canada; Bird and Slack (2013) come to similar results in their analysis of amalgamations in Toronto. Aulich, Sansom and Mckinlay (2013), Dollery, Byrnes and Crase (2008), and Byrnes and Dollery (2002) find no empirical evidence in favour of economies of scale in Australian local governments' service provision. Nakazawa and Miyashita (2013) find that economies of scale may be counter-balanced by a shift towards more decentralised expenditures in the case of Japanese municipal amalgamations, ultimately increasing total expenditures. In the case of Finland, Moisio and Uusitalo (2006) conclude that after ten years, per capita spending had increased more in municipalities amalgamated between 1970 and 1981 than in non-merged municipalities. Rouse and Putterill (2005) show that although performance improved in highway maintenance after the merger reform in New Zealand, this amelioration is unlikely to be driven by the amalgamations. Southwick (2012) concludes that municipal costs are U-shaped as regard municipal population, and that "mergers of municipalities of over 25 000 population should be discouraged". A similar conclusion is reached by Kushizer and Siegel (2005) – benefits from amalgamations may change according to the size of merging municipalities. A case-to-case approach to mergers is also defended by Fox and Gurley (2006).

In contrast, the number of studies supporting the presence of economies of scale is comparatively small, and they often focus on a particular sector (instead of total expenditures). A few analyses do conclude to the presence of economies of scale. Reingewert (2012) finds that municipal amalgamations in Israel following the 2003 reform led to a decrease of about 9% in municipal expenditures (on a sample of 11 amalgamations, concerning 23 municipalities). One study also finds evidence for economies of scale in Denmark (Blom-Hansen 2012). McDavid (2001) finds that municipal mergers in Canada induced economies of scale in expenditures for local solid-waste collection.

3.4 Other forms of co-operation

In many places, the crisis triggered an impetus for reform and a search for efficiency gains, in particular at the local government level. As a consequence of reduced revenues (taxes and transfers), inter-municipal co-operation has increased in a number of countries and regions (Box9). In some cases, the regional governments encouraged local co-operation. Some SNGs relaxed procedures for local government co-operation, proposed financial incentives to favour such measures, or even forced municipal co-operation (as in the metropolitan area of Vigo, Galicia). Such inter-municipal co-operation (e.g. shared services) was implemented to improve service quality and/or reduce costs by creating economies of scale and increased bargaining power with providers. New technologies such as e-procurement were also put in place to gain efficiency (e.g., Galicia and Basilicata).

Box 9. Examples of cost saving measures

Municipal co-operation in OECD countries

In **Wielkopolska** (Poland), some municipalities have consolidated their payment systems with neighbouring municipalities, and all have tried to reduce overhead costs of investments through organisational changes and co-operation. The decentralisation of partially funded responsibilities for waste management has spurred inter-municipal co-operation through the need to set up and manage specific purpose amenities in this area. Inter-municipal co-operation is also encouraged through co-funding by national, regional and local governments. For example, the program for co-operation in the area of building and maintaining roads explicitly fosters the formation of local associations, including private enterprises, even though this program has recently been curtailed by 60%.

In **Italy**, the central government seeks efficiency gains by encouraging municipal co-operation: it proposes a financial reward conditional on the setting-up of a "regional unit for purchasing" responsible for tender procedures for the provision of goods and services.

In Spain, the **Galicia** region has simplified procedures for inter-municipal co-operation. In the previous system, municipal co-operation was only possible through the creation of an inter-municipal body, which was a very long and bureaucratic procedure, and the financial risk had to be assumed by one municipality only. As a result, co-operation at the local level had not been much developed. The new "soft" agreements consist of contracts (inter-municipal *convenios de colaboración*, which are more flexible than an inter-municipal body, and allow distributing the financial risk among participating municipalities. The Galicia region promotes such soft inter-municipal co-operation using financial incentives: granting funding priority to projects involving several municipalities. This has greatly increased the number of inter-municipal investment projects, even if it is too early to assess its impact of regional public investment. The Galicia region also imposed inter-municipal co-operation in the urban area of Vigo, through the imposition of inter-municipal service provision by law. The creation in 2012 of the Metropolitan Area of Vigo, a municipal association of 14 municipalities defined by the regional government, was based on a previous history of "light co-operation" among 12 of the 14 participants.

Cost saving measures in health expenditures in Basilicata (Italy)

Basilicata was successful in containing health expenditures by creating a single general health fund, which manages a budget of roughly 1 billion Euros per year. The fund is allocated to four health service units, two territorial agencies (*Aziende sanitarie provinciale*) and two hospitals. More importantly, the fund has rationalised regional spending on health through harmonised procedures that respect both EU and national rules. Savings resulted not only from centralised management, but also from coordinating the procurement of pharmaceuticals (25 per cent of all hospital costs) and by channelling it through the Internet.

Italy was one of the first European countries to set up a regulatory framework for e-procurement, even allowing for purchases above the EU thresholds to occur online. This serves to enhance the efficiency of public spending and to simplify purchasing processes, in particular by cutting down on delays, by increasing transparency through standardised documentation, and by fostering competitiveness. As a side effect, greater transparency and standardisation reduce the risk of litigation, and hence contributes to reducing uncertainty and contingent claims. Basilicata was successful in exploiting these advantages by purchasing materials needed for its health services through e-procurement. Savings of about 10 to 15 per cent were reaped for the purchase of drugs using CONCIP, a public stock company owned by the Italian Ministry of the Economy and Finance, which specialises in e-government and can act on behalf of regional and local governments.

Box 9. Examples of cost saving measures *(cont.)*

Another avenue for cost savings in health expenditures is explored by providing centralised insurance against clinical risks related to patient safety. Basilicata is one of seven regions (and the only one in Mezzogiorno) to take part in a national pilot program to cut back on costs in this area. In 2011 the regional government paid about 10 million Euros to insurers and another 10 million Euros for damages. It expects to reduce these costs by one half through the centralised provisioning of insurance.

Sectorial inter-municipal co-operation in Galicia

The question of the optimal scale for investment seems particularly relevant in the water sector. Municipalities must provide their inhabitants with drinking water, and municipalities over 5000 inhabitants must also manage the treatment of collective waste. This devolution of competences implies large costs for small municipalities, and can explain why "soft" inter-municipal agreements have become very popular in this sector. Two pilot projects have been introduced for evaluating economies of scale reached by managing the integrated water cycle (water provision, sanitation, treatment of collective waste, etc.) at inter-municipal level. The *Consorcio del Louro* regroups 4 municipalities around the Louro river, while the *Consorcio de Aguas de Valdeorras* regroups 9 municipalities in a rural, sparsely populated area.

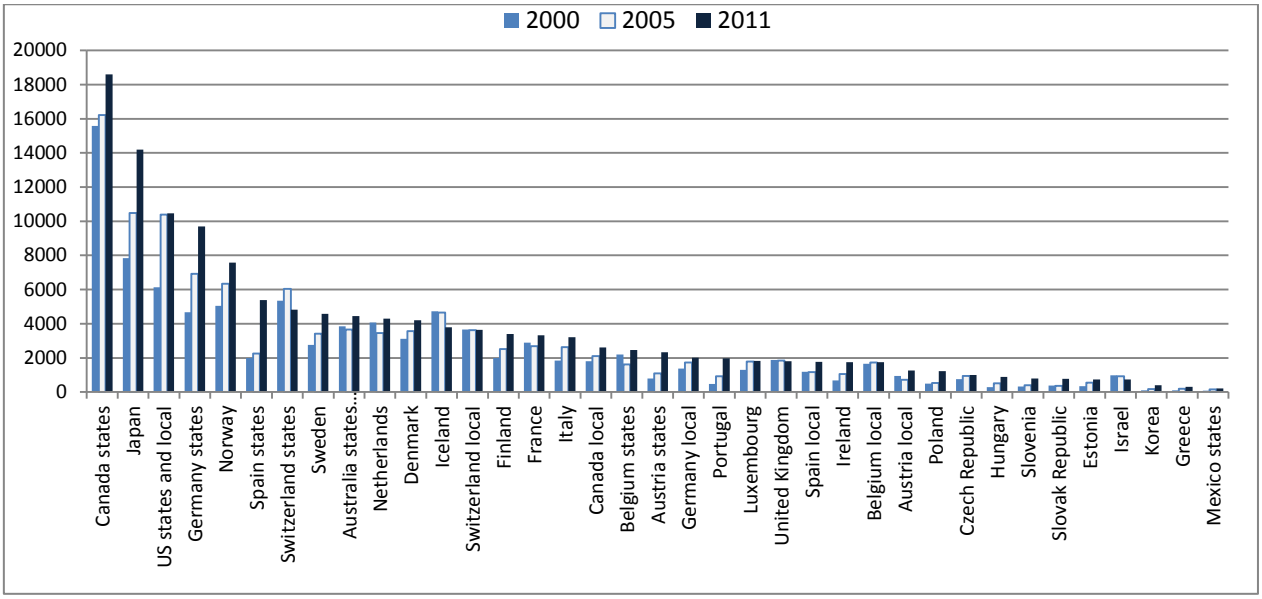
Local co-operation is also developed in other sectors through involvement of municipalities in the urban mobility plan (plan for public transport) developed by the regional government. This plan concerns the seven biggest cities in Galicia, i.e. around 50% of the population. It aims to introduce a common pricing policy for the whole area, to integrate inter-urban transport lines (regional competency) with intra-urban lines (municipal competency), to enlarge the supply of public transport and to improve information about transports. Finally, other areas of increased co-operation include: risk preventions and management (mainly with respect to fires), culture, sports, and infrastructure.

III. Factors influencing sub-national debt in the medium-to-long term

1. Repartition of SNG debt

SNG debt per capita has increased strongly in most OECD countries over the last decade (Figure 14). Historically decentralised countries typically have higher levels of debt per capita. However, as their initial levels of debt were low, many centralised countries show the greatest relative variation in debt over the last decade.

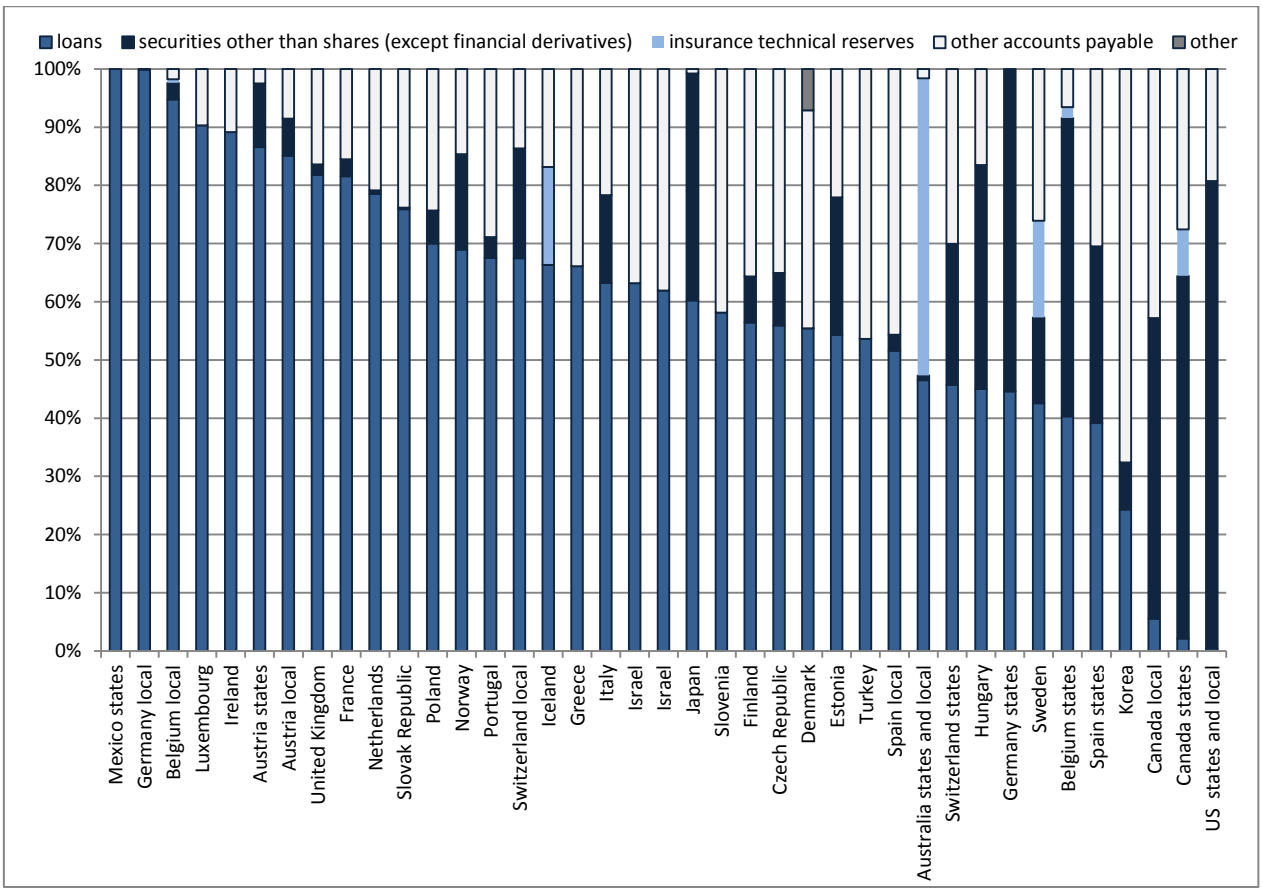
Figure 14. Evolution of SNG debt per capita



Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

Most SNGs in OECD countries principally finance their debt through loans (Figure 15). Countries where SNGs have accumulated sizeable amounts of debt per capita (Canada, Japan, the US, Norway, Spain, Sweden) also tend to have a significant share of their SNG debt financed through bonds. Other accounts payable (mainly commercial debt towards providers) can also represent a large share of SNG debt in certain OECD countries. This issue has been much discussed recently in the cases of Spain and Portugal, but is a wider issue as SNGs in other countries (e.g., Canadian local governments, Turkey) have even greater shares of debt within this category. The volume and repartition of SNG debt across loans, bonds, and other categories of debt may influence the ability of sub-national governments to borrow in the medium-to-long term, mainly by affecting the willingness to lend of the different potential lenders.

Figure 15. Repartition of SNG debt



Source: OECD (2013), National Accounts (database), http://dx.doi.org/10.1787/na-data-en (accessed on 20 August 2013).

2. Fiscal rules and sub-national borrowing

Fiscal rules that constrain SNG budgeting are common across OECD countries. The most common fiscal rule for SNGs (in particular for local governments) is a balanced budget requirement. In most cases, this is an annual objective and the possibility to carry over deficits to be off-set in subsequent budgeting years is rare (Blöchliger, 2012). Golden rules, which restrict SNG borrowing to capital investments, are also frequent. In the context of the consolidations in the aftermath of the global financial crisis, in a number of countries new fiscal rules were introduced or existing rules strengthened (Box 10).

The design of fiscal rules may have a large influence on the ability of sub-national governments to finance public investment in a tight fiscal environment in the medium-to-long term. For instance, a debt brake rule – while having merits in other dimensions - does not allow SNGs to borrow for capital investments, and therefore may have a greater impact than other fiscal rules on SNGs' ability to finance public investment in times of fiscal distress. In contrast, structural fiscal rules (such as in Austria) allow SNGs to increase borrowing in difficult economic times, and hence could better preserve public investment.

Box 10. Reforming fiscal rules

New fiscal rules in Austria

In spring 2012, Austria adopted new fiscal rules that came into force in December 2012. These new rules apply to all levels of government. Concerning deficits, all levels of government must reach a balanced budget in 2016. From 2017 onwards a structural balance rule will be implemented, relating deficits to the output gap. The new rules also include a debt criterion. All levels of government must reduce their level of debt by 1/20 per year. According to this new criterion, Austria's debt should pass from 75% of GDP in 2013 to 60% in 2016.

Debt brake in Germany

In 2009, Germany introduced a "debt brake" in its Constitution (*Grundgesetz*) to ensure that sub-national budgets are financed without any structural deficits from 2020 onwards, with only a small structural deficit allowed for the federal budget (0.35% of GDP). In addition, a new instrument, the Stability Council, was instituted to survey all public budgets on an annual basis using common benchmarks, to monitor public borrowing and to co-ordinate medium-term financial planning in a multi-level government context.

Fiscal rules in the Spanish constitution

In Spain, an amendment to the constitution was adopted in 2011 to underpin the fiscal consolidation targets for all Spanish administrations, following the EU framework. The main feature of the reform was that neither the central government nor the autonomous communities were allowed to have deficits which exceeded the maximum set by the EU, and local governments were required to balance their budgets. The maximum structural deficit should be set according to law as a percentage of GDP. This limit will only be in force from 2020 onward. The Organic Law 2/2012 stipulates that SNGs will no longer be able to borrow in order to finance current expenditures after 2020.

New Act on local governments in Iceland

In Iceland, the Parliament passed a new act on local governments in September 2011, which includes two main fiscal rules on local government finances. The first is a balancing rule for current operations of local governments, obliging them to balance revenues and expenditures over a three-year period. The second is a debt rule that limits the total debt and liabilities of local governments to 150% of total revenue. Local governments with debt and liabilities above 150% are required to bring the debt ratio under this benchmark in ten years. Local governments with total debt exceeding 250% of revenue are prohibited from raising new debt except for refinancing.

Source: OECD Network on Fiscal Relations across Levels of Government.

2.1 Enforcement of fiscal rules

In addition to establishing new or strengthening existing fiscal rules, some countries have also tightened their enforcement. This has been achieved either by increasing the transparency and reporting requirements, imposing financial sanctions or restructuring plans on SNGs breaking the rules. Some countries have even established sanctions for political officials responsible for breaking the rules (Box 11).

Box 11. Enforcement of fiscal rules for SNGs

In Italy, enforcement of the Internal Stability Pact was strengthened in 2011 by the introduction of a wide range of possible sanctions. For example, regions breaking the fiscal rules may not be allowed in the following year: *i)* to commit current expenditure (net of health) beyond the minimum commitment of the last three years; *ii)* to hire new personnel; *iii)* to hire external managers; or i*v)* to issue bonds and take out loans, not even for investment purposes. Regions may even experience a reduction or suspension of financial transfers from the CG. Reporting rules have also been tightened, in particular for periods before elections. The audited financial statements of the regions must be published on their websites. If the results are not consistent with the Italian Internal Stability Pact, heavy sanctions may be imposed on the political officers, such as automatic disqualification from office and a ten-year interdiction from office.

In Spain, where the autonomous communities missed their deficit target by a wide margin in 2011, the Minister of Finance proposed a gradual implementation of sanctions, ranging from retaining CG transfers to imposing penalties, or ultimately imposing a restructuring plan.

In Germany, the 2010 constitutional amendment included the establishment of a Stability Council to monitor the budgetary developments at the federal and Länder levels, and introduced a federation-wide early warning system to prevent budgetary distress. The Stability Council replaces the former Financial Planning Council, and is composed of the federal ministers of finance and economic affairs, as well as the Länder ministers of finance.

Austria's new fiscal rules foresee that if a government misses its target, it will benefit of a tolerance for one year; however, if the target is missed for two consecutive years, an internal excessive deficit procedure (EDP) will be launched. Within the framework of this internal excessive deficit procedure, the government which missed the target is given two months to design appropriate action to restore its public finances. Sanctions are decided by vote in a coordination committee between levels of government, where the concerned government is not allowed to vote (note that this holds even for the central government). Financial sanctions will represent 15% of the deviation, to be deducted from shared taxes.

Source: Fiscal Network Questionnaires (Sept-Oct. 2011, January, 2012).

3. Different forms of financing

3.1 Increasing reliance on financial markets

SNGs turn increasingly to financial markets to finance their borrowing needs (Box 12). In some countries, such as Canada (state and local), Hungary and Spain (state), bonds represent more than 30% of outstanding debt. However, in most OECD countries, reliance on financial markets by SNGs is still very limited, especially for local governments. In France for example, it only represents 3% of SNG borrowing. This may be explained by the fact that, until 2009, the cost of bond debt was higher than bank debt for most SNGs.[12]

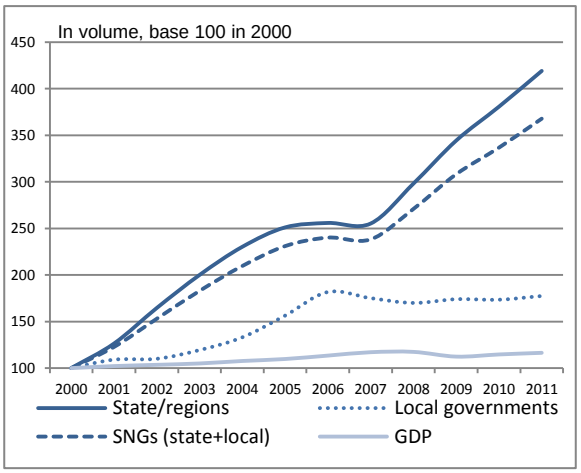
SNGs could potentially achieve important interest rate savings by relying more strongly on financial market financing. Abstracting from periods of widespread financial turmoil, financial markets are rather positive about SNG debt, as they perceive SNGs as generally closely monitored, obliged to adhere to strict fiscal rules, and therefore as usually being financially quite sound. Issuing debt on financial markets implies getting a credit rating from a rating agency, which – while tedious - may also be an opportunity for a SNG to find out more about its own strengths and weaknesses.

12. An interesting exception is Wielkopolska (Poland), which has exclusively used government bonds to finance itself. As bank loans require authorisation from the national government, the procedure of issuing bonds is faster and politically more convenient.

Box 12. Evolution of bond financing by SNGs in the EU

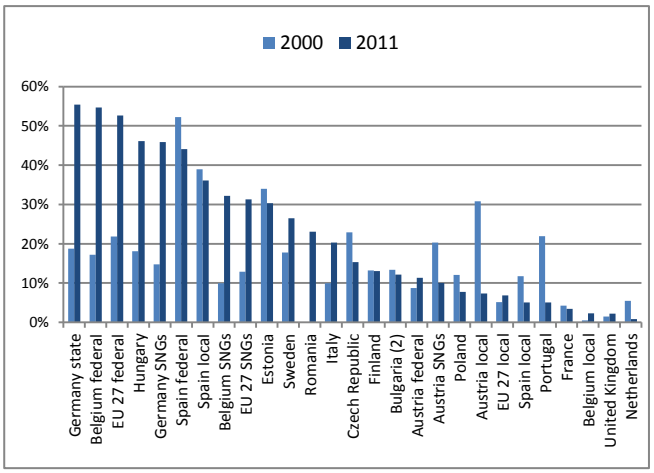
The share of bonds in SNGs outstanding debt has been rising continuously in Europe since 2000, going from 13% to 31% at the end of 2011. At that time, outstanding SNG bond debt amounted to nearly EUR 500 billion, of which 95% were long term (maturity above one year). The volume of outstanding bonds increased by almost 13% a year between 2000 and 2011. However, most of this rise came from federated states (German Länder, in particular, and Belgium regions). For federal countries, the share of bond debt in total SNG outstanding debt grew from 22% in 2000 to 46% in 2007 and 53% in 2011. Growth was more moderate for local governments. It went from 5% of outstanding debt in 2000 to 9% in 2007, and has basically been flat since. In Spain, total SNG bond debt strongly decreased after the beginning of the crisis in 2008, and 2011 levels are even below those of 2000.

Volume of SNG bond debt (2000-2011)



Source: Calculations by Dexia Credit Local/CCRE (I. Chartrie) based on data from Eurostat (May 2012).

SNGs' reliance on financial markets in the EU



Note: Germany (local), Cyprus, Denmark, Greece, Ireland, Lithuania, Latvia, Luxembourg, Malta, Slovakia, Slovenia: bond financing close to zero in 2011. Bulgaria, data for 2002, 2011.

Source: Calculations by Dexia Credit Local/CCRE (I. Chartrie) based on data from Eurostat (May 2012).

Note: 1. Note by Turkey: The information in this document with reference to "Cyprus" relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Turkey recognises the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of the United Nations, Turkey shall preserve its position concerning the "Cyprus issue".

2. Note by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognised by all members of the United Nations with the exception of Turkey. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

Source: Dexia Credit Local (July 2012).

3.2 Creating a public agency for SNG investment to pool SNG debt together

Loans to sub-national governments may be granted by several types of lenders (Table 2). Although most countries are mainly financed through loans from commercial banks, the central government is a key player in financing SNG debt in a few OECD countries. In particular, SNG loan debt towards the CG represents more than 80% of total SNG loans in Ireland and the UK. The distribution of SNG loan debt across these categories may affect SNGs' access to loans in the medium-to-long run. For instance, SNGs mainly financed through commercial banks' loans may be more affected in times of credit crunches, or by new banking regulations (such as Basel III).

Table 2. Composition of SNG loan debt

	Loans from CG	Commercial bank loans	Loans from banks related to SCGs
Czech Republic	0.4%	99.6%	0
Denmark	0%	0%	100%
Estonia	0	100%	0%
Finland	0%	100%	
France	0%	100%	0%
Germany (local)	0.7%	41.7%	57.6%
Greece	0%	100%	0%
Hungary	0%	100%	0%
Ireland	85.4%	14.6%	0%
Poland	10.9%	89.1%	0%
Slovak Republic	37.4%	62.6%	0%
Slovenia	0%	100%	0%
Spain (state)	0%	100%	0%
Spain (local)	0%	100%	0%
Switzerland (state)		100%	
Switzerland (local)		100%	
UK (English Local Authorities)	81.3%	18.7%	0%
UK (Devolved Authorities)	100%	0%	0%

Source: Questionnaires sent to the delegates of the OECD Network on Fiscal Relations across Levels of Government on September-October 2012.

Special SNG banks represent another possibility for financing loans to sub-national governments. Financial markets require large and standardised emissions, but individual SNGs often do not have sufficient borrowing needs or capacity to propose such large issues. By pooling their borrowing needs together, SNGs can obtain better conditions on financial markets. First, because the volume of the emissions is larger. Second, because the debt is backed by the potential revenues of a large number of SNGs, and therefore faces less risk, as the volatility of the pool of revenues is likely to be smaller than that of individual SNGs. This was done successfully since 1970 in the Canadian province of British Columbia, for example (Box 13).

Box 13. Original municipal funding mechanisms

British Columbia's municipal finance authority

The Municipal Finance Authority (MFA) of British Columbia was created in 1970, with the aim of financing most of regional districts' and municipalities' long-term debt. All local governments in British Columbia joined the MFA system, except for the City of Vancouver. The city does not borrow through the MFA, but remains part of the joint guarantee, as it belongs to the Greater Vancouver Regional District. Governance of the Authority is assured by members representing regional districts, proportionally to the districts' population. Although the MFA initially represented the collective long-term borrowing interests of local governments only, Greater Vancouver Water and Sewer Districts joined the agency in 1996, TransLink and Regional Hospital Districts in 1999, and the Capital Region Emergency Services Telecommunications in 2005, de facto extending its responsibilities. Debt issued by the MFA is backed by the revenues and assets of regional districts and municipalities, which have substantial taxing power, and revenues from the additional members already mentioned. The authority also established a debt reserve fund to which all members must contribute on the basis of repaid debt. To this day, the MFA is unique in Canada, as it does not bear the explicit guarantee of the provincial government. In all other provinces where municipal borrowing entities exist, they are the "creatures" of their provincial governments. The MFA has had a continuous AAA rating since its creation.

The MFA, borrowing on behalf of its members, leverages its larger scale and buying power to get better terms and competitive rates for investment funds (creation of the Pooled Investment Funds in 1989), and leasing contracts (1995). In the first stages of the creation of the agency, a fierce debate opposed proponents of the MFA (who emphasised the potential economies of scale made possible by the collectivisation of local borrowing) against those who argued that the provincial government was offloading responsibilities onto local authorities. Proponents of the MFA emphasised the administrative and monetary economies of scale that collective borrowing would enable, and that bringing the full borrowing power of all of British Columbia's local governments together would garner improved market acceptance and confidence. This was in line with the ideas behind the creation of the regional districts in British Columbia.

Municipal funding in North European countries

For several decades, sub-central governments in Denmark, Finland, Norway and Sweden have employed an original instrument to satisfy their borrowing needs. In these four countries, municipal funding agencies were implemented to provide the sub-central government sector in their respective country with low-cost liquidity. As a result, Danish, Finnish, Norwegian and Swedish sub-central governments are less dependent on capital markets than other sub-central governments in the OECD. The four main municipal funding vehicles are: KommuneKredit (Denmark), KBN Kommunalbanken (Norway), Kommuninvest i Sverige AB (Sweden), and Municipality Finance PLC (Finland). These vehicles were created at different times (in 1898, 1926, 1986 and 1989, respectively) and have different organisational structures, but share many similarities:

- They are not-for-profit entities with the sole purpose of providing competitive funding to sub-central governments.
- They hold big market shares in sub-central government lending in their respective countries: more than 90% for KommuneKredit in Denmark, around 50% for Municipality Finance PLC in Finland, 47% for KBN Kommunalbanken in Norway, and 40% for Kommuninvest i Sverige AB in Sweden.
- They are owned by the sub-central governments or the central government, and they benefit from various forms of "last resort" support mechanisms from their owners.
- They seek funding exclusively via the international bond markets, rather than via deposits.
- They have low-risk credit portfolios. Their 100% exposure to individual sub-central governments is mitigated by the strength of the Danish, Finnish, Norwegian and Swedish local government sectors.

Nordic municipal funding vehicles were particularly helpful during the global financial crisis, as they prevented disruption in the financing of sub-central governments. As of 31 December 2008, loans granted by Municipality PLC, Kommuninvest i Sverige AB, KBN Kommunalbanken Norway and KommuneKredit to their sub-central governments totalled EUR 7.6 billion, EUR 9.5 billion, EUR 12.2 billion and EUR 12.5 billion, accounting for 5.1%, 2.8%, 3.8% and 3.9% of GDP, respectively.

Source: Regional Finances Case Studies, British Columbia, and Vammalle et al. (2011).

3.3 The importance of public lenders has increased since the beginning of the crisis

The role of multilateral banks such as the European Investment Bank (for the EU 27), the Council of Europe Development Bank (CEB), the European Bank for Reconstruction and Development (EBRD) (for Central and Eastern European countries) and the World Bank has increased since the beginning of the global financial crisis. Some countries such as Ireland or the United Kingdom benefited from national sectorial investment funds (for housing, environment, etc.). In others, public treasuries also stepped in, for example through the Public Works Loan Board (PWLB) in the United Kingdom (Box 14), or the National Treasury Management Agency in Ireland. Public regional development banks also provided loans to SNGs, as the Bank Gospodarstwa Krajowego (BGK) in Poland.

Box 14. Public Works Loan Board, United Kingdom

The Public Works Loan Board (PWLB) is an independent public body responsible for granting loans to local authorities in the UK. It was established in 1793 and became permanent in 1817. Since 2002, it operates within the UK Debt Management Office. The PWLB consists of twelve Commissioners considering loan applications and collecting repayments. The Commissioners are authorised "to make loans to any local authority in Great Britain for any purpose for which the authority has power to borrow". Funds are drawn from the National Loans Fund, administrated by HM Treasury. All loan repayments, interests and premiums are paid to the Fund. The 1968 Act limits the total amount to be granted by the PWLB; since 2008, this limit has been set to £70 billion. Fixed rates are set twice a day by the Debt Management Office. During 2011-2012, the PWLB agreed to 477 new loans amounting to £16.1 billion. The total principal outstanding of the board was of £61.9 billion in late March 2012. Interest rates are relatively low. In August 2012, the government introduced a 20 basis points discount on loans from the PWLB for those local governments who provide improved information and transparency on their locally determined long-term borrowing and associated capital spending plans.

Source: Public Works Loan Board Report & Accounts 2011-2012.

Conclusion

The analysis of the medium-to-long term determinants affecting sub-national finances and investment shows that factors that may influence SNG fiscal space for public investment include the autonomy and volatility of sub-national revenues, as well as sub-national governments' spending responsibilities. On the revenue side, SNGs' ability to increase autonomously revenues is crucial in order to respond to asymmetric shocks. Moreover, the design of SNG sources of revenues, their volatility and (counter) cyclical properties affect the resilience of sub-national governments' economies to crises. The ability of SNGs to preserve public investment in a tight fiscal environment results automatically of the level of volatility and counter-cyclicality of their total revenues. SNG fiscal space for public investment may be more resilient if sub-national governments are financed through relatively stable taxes and balanced revenues, benefit from counter-cyclical transfers or rainy day funds and enjoy relatively small levels of debt.

On the spending side, the evolution of demography in most OECD countries is likely to generate fiscal pressure on SNGs responsible for such spending, via additional expenditures in health, old age benefits or pensions. Many reforms of SNG revenues and debt have been implemented, and in several countries governments are seeking to gain economies of scale in public service provision via mergers of local authorities. The repartition of SNG debt and the strength of fiscal rules affecting sub-national governments may as well influence their ability to preserve public investment in times of crisis. Innovative local borrowing, such as municipal debt pooling, may be an alternative to traditional loans or bonds in order to maintain sound borrowing conditions in a tight fiscal environment. Moreover, sub-national governments may enjoy various degrees of autonomy on their expenditures. Some spending may be mandated by higher levels of government, and some revenues may be earmarked, i.e. allocated to specific expenditures by central authorities; a large share of earmarked revenues or mandated expenditures reduces

drastically the flexibility of SNG budgets. In an investment perspective however, a large share of capital transfers earmarked towards investment projects may stabilise public investment in times of crisis.

In many countries, governments are well aware of future challenges to be faced by SNG finances. Many reforms targeting SNG revenues and debt have been or are being implemented, and in several countries governments are seeking to gain economies of scale in public service provision via mergers of local authorities, or enhanced co-operation between sub-national governments.

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