CESifo Economic Studies, Vol. 59, 3/2013, 449–488 doi:10.1093/cesifo/ift001
Advance Access publication 19 March 2013

A Fiscal Union for the Euro: Some Lessons from History*

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Abstract

The recent financial crisis starting in 2007–2009 is the longest and the deepest recession since the Great Depression of 1930. The crisis that originated in the US subprime mortgage markets spread and amplified through international financial markets and resulted in severe debt crises in several European countries. Events revealed that the European Union (EU) had insufficient means to halt the spiral of the European debt crisis. The aim of this study is to identify the characteristics of a robust common fiscal policy framework that could have alleviated the consequences of the recent crisis. This is done by using the political and fiscal history of five federal states: Argentina, Brazil, Canada, Germany, and the USA. Our study suggests that a fiscal union is necessary to avoid divergent fiscal policies and we identify five conditions crucial for it to function effectively: (i) a credible commitment to a no-bailout rule, (ii) a degree of revenue and expenditure independence reflecting the preferences of the voters, (iii) a well-functioning European system of transfers in times of distress, (iv) the creation of a euro bond market serviced by taxes collected by the EU government, (v) the ability to learn from and adapt to changing economic and political circumstances. (JEL codes: H10, H70, H73)

Keywords: fiscal federalism, euro, ECB, fiscal policy, monetary union, optimal currency area

1 Introduction

The euro area is a unique form of a monetary union—with no historical precedence. The member states of the euro area have assigned the framing of monetary policy to a common monetary authority, the European Central Bank (ECB), set up as a highly independent central bank to insure that it will be able to carry out a policy of price stability. Fiscal policy within the European Union (EU) remains the task of the national governments under a set of rules given initially by the Maastricht Treaty and the Stability and Growth Pact (SGP).

Ever since the plans for a single European currency were launched about 20 years ago, the institutional system for framing fiscal policies

* We have received constructive comments from many. We would like to thank in particular Iain Begg, Michael Bergman, Daniel Heymann, Sven Langedijk, Paul van den Noord, Jakob von Weizsäcker, Guntram Wolff, and two anonymous referees.

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and for preserving the fiscal sustainability of the European monetary union has been the subject of a heated debate—among economists and policy makers.[1] The European debt crisis has added new impulses to the debate about the proper fiscal policy arrangements within the EU.

So far the debate has shown no signs of an emerging consensus.[2] Rather, it is getting more heated due to the present crisis. One reason for the lack of unanimity is that the euro area represents a new type of monetary union. More precisely, the euro area is the first monetary union where monetary policy is set up at the central (European) level, while fiscal policy is carried out at the sub-central (national) levels. Thus, the economics profession lacks historical cases to use as guidance for theoretical and empirical work. Instead, many contributions are based on either theoretical considerations or econometric calibrations and tests on data, in some cases originating prior to the launch of the euro.

The aim of our study is to contribute to this by now very topical debate by turning to the political and fiscal history of five federal states in search for an answer to the question: Would the adoption of a fiscal union similar to the fiscal arrangements currently in place in the federal countries help to avoid some of the centripetal fiscal forces that threaten the stability of the European monetary union? In short, we try to bring out the lessons from the past concerning the fiscal arrangements in the euro area of today. As we are primarily concerned with macroeconomic stability issues, we focus on fiscal policy as an instrument of stabilization. We are well aware that fiscal policy making covers many policy areas, in particular, distributional tasks that are closely related to questions of macroeconomic stabilization and insurance. These issues are beyond the scope of this study.

The recent European crisis has highlighted deficiencies in both the fiscal framework and the financial regulatory framework of the euro area. In this study, however, we do not analyse the issue whether the euro area needs a common financial stability authority. We focus solely on fiscal issues relevant for the stability of the euro area.

We organize our study in the following way. In Section 2, we give a brief overview of some key concepts and central issues. Next, in Section 3, we summarize past and current experience of monetary and fiscal unions in five countries: the USA, Canada, Germany, Argentina, and Brazil.

[1] For early surveys of this debate, see for example, Buti and Sapir (1998) and Hallet et al. (1999). More recently, Buti and Franco (2005), Korkman (2005) and Wierts et al. (2006) among others deal with fiscal policy issues of the EMU. See also European Economy (2009) on the record of the first 10 years of the EMU.

[2] The debate about the Stability and Growth pact before its reform in 2005 is a striking illustration of the widely divergent views—more than 100 separate contributions—within the economics profession on the role of fiscal policy in the euro area. For a survey of these views on the proper design of the SGP, see Jonung et al. (2008).

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In Section 4, we condense lessons from our account of the evolution of fiscal federalism and also compare these lessons and the framework for fiscal policy governance in the Euro area. Section 5 concludes.

2 Fiscal federalism and fiscal policy in monetary unions

2.1 The concept of monetary and fiscal unions

A monetary union is commonly defined as a group of states sharing a single currency. In the strictest sense of the term, a monetary union means complete abandonment of regional or separate national currencies and full centralization of monetary authority into a single joint institution. This is the case of the euro area, a subset of the Economic and Monetary Union (EMU), which covers all the 27 member states of the EU.[3]

The concept of a fiscal union entails fiscal federalism among its members, which could be either sub-national (sub-central or regional) political units or nation states. Fiscal federalism is based on a cooperative arrangement between the members of the fiscal union regarding the design and distribution of taxes and public expenditures.

There is no single definition of fiscal federalism. Sorens (2008), for example, defines the 'ideal type' of fiscal federalism as consisting of the following four elements: (i) sub-central political entities enjoy independence/autonomy to decide taxes and expenditures, (ii) these governments face fairly hard budget constraints, that is a no-bailout rule is consistent with the ideal type of fiscal federalism, (iii) there is a common market based on free trade and mobility within the fiscal union, thus there is scope for competition among sub-central governments, and (iv) the system of fiscal federalism is institutionalized in a set of rules. We would like to add a fifth element to this list: (v) the common market is based on a common currency, that is, the sub-central and the central fiscal authorities are members of the same monetary union.

The governance structure of the EU is a challenge to put into the standard framework of fiscal federalism as there is no similar institutional set-up anywhere else in the world. The EU is different as stressed by Begg (2009): 'the fact that the EU is set up as a union of citizens *and* of Member States is one of its most distinctive features'. Its 'federal' budget, that is the EU budget, is about 1% of the national incomes of the Member States. This is a much smaller ratio than the size of the federal budgets in the typical federal country. As stressed initially, the centralization

[3] Presently, the euro area includes the following 17 countries: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain, Slovakia, and Slovenia.

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of monetary policy in the ECB and the decentralization of fiscal policy to the Member States of the euro area is another unique feature of the EU. Still, in our opinion there is much in the history of fiscal federalism that can bear upon the design of EU governance in spite of the fact that EMU and the euro are unique institutions with no historical precedence.

Musgrave (1959) provides the classical approach concerning the policy tasks of the public sector. His scheme identifies three basic policy functions: allocation/efficiency, distribution, and stabilization. These functions can be performed by different political entities within a fiscal union according to the adopted fiscal system. The study of fiscal federalism, as defined by Oates (1999), analyses how these roles are assigned to different levels of government and the ways in which they relate to one another through different policy instruments. The stabilization function, that is the implementation of monetary and fiscal policies, is usually the task of the central government and the central bank. The stabilization of economic activity via fiscal policy can be achieved through two main channels. The first one refers to the role of automatic stabilizers, smoothing economic activity via the automatic response of taxes, and transfer systems to the business cycle. The second channel consists of discretionary fiscal policy measures.

2.2 The normative arguments for fiscal federalism

As stated by Oates (1972), 'The traditional theory of fiscal federalism lays out a general normative framework for the assignment of functions to different levels of the government and the appropriate fiscal instruments for carrying out these functions'. This theory contends that the central government should have the basic responsibility for macroeconomic stabilization and income distribution. In addition to these functions, the central government should provide national public or collective goods that service the entire population of the country such as defence.

Decentralized or lower levels of government have their *raison d'être* in the provision of public goods and services whose production and consumption is limited to their own jurisdictions. The economic argument for providing public goods at the sub-national level was originally formulated in a decentralization theorem that '... the level of welfare will always be at least as high if Pareto-efficient levels of consumption are provided in each jurisdiction than if any single, uniform level of consumption is maintained across all jurisdictions', see Oates (1972). Such defined, fiscal federalism addresses several issues. First, it has as the objective to respond to different political preferences across a country. Second, it produces positive externalities as it may generate benefits from intergovernmental competition, improve the fiscal responsibility of government, foster political participation and a sense of being member of a democratic community,

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and help to protect basic liberties and freedoms (Inman and Rubinfeld 1997). Finally, fiscal federalism also provides a way of maintaining the central government share of GDP at a low level (Sorens 2008).

An obvious cost of federalism is the loss of autonomy by the central government. In fact, the benefits of decentralization require that the central government's authority is limited (Rodden 2006). As a result, in highly decentralized fiscal federations, central governments might find it difficult to implement coordinated economic and other type of policies and provide federation-wide collective goods.

The conclusion that decentralized governments will provide the efficient level of public goods rests on a number of assumptions. One is that households and firms are freely mobile within the federation to generate competition between jurisdictions. If free mobility is not the case, competition among sub-central governments may lead to sub-optimal outcomes. Another assumption is the lack of interdependencies between the policies of different jurisdictions. When this is not the case, competition among sub-national governments may generate negative spillovers or externalities, and thus sub-optimal outcomes.

If there are strong fiscal interdependencies between sub-national jurisdictions policy makers might face incentives to increase their expenditure while externalizing the cost to the others. Rodden (2004, 2006) argues that this incentive is higher if the central government cannot fully commit to a no-bailout rule. Furthermore, the central government's commitment becomes less credible if sub-central governments are heavily dependent on transfers from the central authority. Intergovernmental transfers, as opposed to local taxation, change beliefs about the levels of local expenditure that can be sustained by creating the perception that the central government will ultimately provide financial help. Transfer dependent local governments usually face weaker incentives for responsible fiscal behaviour. For this reason, Rodden (2004, 2006) recommends a principle of sub-central sovereign debt within fiscal federations to maintain overall fiscal discipline.

2.3 Fiscal policy in the theory of optimum currency areas

The traditional theory of optimum currency areas (OCAs), based on the work by Mundell (1961), McKinnon (1963), and Kenen (1969), also labelled by McKinnon (2004) as Mundell I, is the standard approach used by economists to evaluate and study the optimality (and thus the desirability) of monetary unions, in particular that of the euro area. This approach weighs the benefits for a country of adopting a common currency against the costs of abandoning its national currency and thus its independent monetary policy.

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The benefits are higher if countries willing to join the monetary union are open economies and their trade is highly concentrated with other potential union members. On the other hand, the costs are higher when macroeconomic shocks are more asymmetric (country specific) and when other adjustment mechanisms are less effective in offsetting these shocks. These mechanisms include the flexibility of wages and prices and the mobility of labour and capital. If these mechanisms are not sufficiently developed, an appropriate fiscal policy could minimize the loss of the exchange rate channel for adjustment to asymmetric shocks.

Thus, domestic fiscal policy becomes the sole tool of stabilization policy left for a member of a monetary union where monetary policy is carried out by a common central bank. Fiscal policy may also be organized and coordinated at the central level of the monetary union, implying a transfer of both monetary and fiscal policy to common central authorities.

While traditional OCA theory emphasizes the trade and adjustment characteristics of regions/nation states willing to form a currency union, recent developments of the OCA approach, also labelled Mundell II as inspired by Mundell (1973), focuses on the role of financial integration as a source of risk sharing (insurance) and consumption smoothing.

The OCA approach according to Mundell II suggests that monetary unification triggers financial market integration and the development of market-based risk-sharing mechanisms. These mechanisms may substitute for fiscal policies as they attenuate the effects of asymmetric shocks. As Eichengreen (1991, p. 17) notes, ‘Interregional transfers accomplished through federal taxes are justifiable only if insurance cannot be provided by the market’. The OCA theory in the Mundell II version identifies such a channel of private insurance. It is an empirical issue to what extent this channel replaces fiscal transfers within a monetary union.

If the private insurance channel is not sufficient, a monetary union requires a system of interregional and intertemporal transfers which can alleviate the consequences of negative shocks such as occurred in the recent financial crisis of the euro area. Increased public spending, necessary during economic recessions can be financed either by the federal or sub-national governments which in turn could borrow domestically or internationally. The benefits from sub-nationals’ access to the financial market are numerous. Yet sub-national borrowing, left unregulated, entails the risk of insolvency, which threatens local service delivery as well as macroeconomic and financial system stability of the entire monetary union. According to Webb (2004), sub-national debt markets have three important agency problems: (i) sub-national borrowers have an incentive not to repay their lenders as principals if they anticipate bailouts; (ii) sub-national borrowers have an incentive not to reveal certain

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characteristics about themselves to lenders as principals, resulting in adverse selection; (iii) banks are implicit agents of the nation, entrusted to maintain the nation's payment system and creditworthiness, and they often abuse this trust by lending to not creditworthy sub-national governments with the expectation of bailouts by the federal government in case of trouble.

These agency problems related to sub-national borrowing suggest that federal debt is a superior solution. The empirical literature provides clear evidence that federal bonds are superior to state bonds because of a lower risk premium (see e.g. Amihud and Mendelson 1991; Poterba and Rueben 1997; Lemmen 1999). The risk premium on federal bonds is lower because the federal government, in a monetary union controls money creation, has tax autonomy and has access to more liquid markets than lower levels of government do.

A major weakness of the OCA approach, old and new, is the lack of attention paid to political and institutional factors.[4] The preferences of the public across the member states of a monetary union are the major determinant of the sustainability of monetary unification. These preferences are influenced by many factors, political and economic ones. Here, the design of the institutional framework for fiscal policy making—at the national and at the union level—comes at the centre.

2.4 Fiscal policy in the euro area

An extensive literature analyses the macroeconomic consequences of the institutional framework for monetary and fiscal policy making in the EMU. In particular, it investigates the impact on inflation and debt accumulation by the existence of many independent national fiscal authorities and one single central bank.

The theoretical literature on the interaction of fiscal and monetary policies identifies various mechanisms which may lead to spillover effects (externalities) across member states. For example, Dixit and Lambertini (2001) show that if monetary and fiscal authorities have different ideal output and inflation targets, Nash equilibrium output or inflation or both are sub-optimal. Similarly, Chari and Kehoe (2004) find that if the central monetary authority does not commit to a future policy path, the free rider problem leads to inefficient outcomes, i.e. excessive inflation in the entire monetary union and excessive debt issued by each member. Similarly, Uhlig (2002) concludes that the existence of independent fiscal authorities and one central leads, in a non-cooperative Nash equilibrium, to higher

[4] For the shortcomings of the OCA approach, see for instance Dellas and Tavlas (2009), Goodhart (1998), and Mongelli (2005).

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deficits of the member countries than in the cooperative equilibrium where they would be set to zero.

In line with the argument by Rodden (2004, 2006), these studies point out that a setup of a single monetary authority and numerous fiscal authorities requires binding fiscal policy constraints to avoid excessive deficits at the sub-central level, that is on the level of the member states in the case of the euro area. Default by a sub-national government is likely to impose a negative externality upon other sub-national governments or the federal government by increasing the cost of borrowing for all fiscal units. An important question in these circumstances is the impact of effective discipline on borrowing that is imposed by financial markets. These market forces can work efficiently only if sub-national governments have no belief of a bailout by the central government or the central bank. Lane (1993) argues that expectations of a bailout are the most important reason for the failure of financial market discipline. If a bailout occurs, it might weaken or even destroy completely fiscal discipline exerted by financial markets, and thus preventing fiscal units from over-borrowing.

To summarize this literature, the interplay between several fiscal authorities and one monetary authority within a federation generates free-riding issues or common pool problems.[5] This mechanism works as follows. Each of the individual fiscal authorities sees itself only as a small player who has a little impact on the common monetary policy. As a result, its fiscal policy choices are purely driven by national interests. In equilibrium, each country free rides and the outcome is worse than the one that could be reached in a cooperative equilibrium.

3 The evolution of fiscal federalism within five monetary unions

A monetary union accompanied by a fiscal union is likely to operate more smoothly than a monetary union without it. A fiscal union, however, functions smoothly only if a number of assumptions, advanced in the previous section, are satisfied. History has frequently shown that the necessary conditions may not be in place. In that case, fiscal centralization can lead to damaging fiscal policies and result in large macroeconomic imbalances reflected in high and variable inflation and unsustainable debt developments.

[5] The common pool problem arises in situations where the costs of an activity, which benefits a small group, are shared among a wider group of individuals, countries or provinces as in our case of a monetary union.

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To isolate the characteristics that were key to the creation of durable fiscal unions, we first present an account of the historical developments and then of the recent experience of five fiscal unions. We focus on two groups of federations: first the USA, Canada, and Germany; second Argentina and Brazil. The first group largely represents cases of successful fiscal unions, as measured by inflation and debt performance, and demonstrated in Table 1. The second group consists of less successful examples of fiscal unions. These federations are characterized by a much higher average rate of inflation than the USA, Canada, and Germany, as illustrated in Table 1.

We do not aim at delivering an exhaustive description of the histories of these federations. Instead, we focus on episodes that are particularly relevant for the question under scrutiny. More precisely, we analyse (i) the circumstances in which the federations were born; (ii) the evolution of the federal-sub-national governments relationships, in particular, their transformation during the Great Depression; and (iii) the debt history of the five federations including the development of bond markets and bailout episodes.

In this section, we will often refer to sub-national, regional, local, or sub-central political entities within various federations. We will interchangeably call them jurisdictions and communities. In addition, depending on the federation in question, these regions take different names; states in the USA, provinces in Canada and Argentina, Länder in Germany, and municipalities in Brazil.

Table 1 Inflation, national debt, and interest rate performance of five fiscal federations, 1980–2006

Country	Inflation rate	Inflation volatility	Debt/ GDP	Debt volatility	Nominal LT yields	Nominal LT yields' volatility
USA	3.9	2.6	39.0	6.6	7.6	2.8
Canada	3.8	3.0	42.2	9.9	8.4	3.1
Germany	2.4	1.7	25.7	8.9	6.4	1.8
Argentina	294.9	692.7	66.1	5.5	n.a.	n.a.
Brazil	403.1	856.3	40.4	8.0	23.4	9.6

Sources: OECD, World Bank, National databases.

Notes: Due to the lack of data for the debt-to-GDP ratio, the statistics are calculated for the period 1989–2006 for Argentina and 1991–2006 for Brazil. Long-term rates and their variability in Brazil are calculated for 1995–2006. These figures are not available for Argentina.

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3.1 The USA

3.1.1 *Creation of the US federation*

During the pre-federal period, the union that existed under the Articles of Confederation constituted a league of sovereign states. It did not have the power of national taxation, or the power to control trade, and it had a comparatively weak executive. It was a 'league of friendship' which was opposed to any type of national authority and the majority of the power rested with the states. As Congress, under the Articles, did not have the power to collect taxes, the central government was unable to balance its finances. It resulted in a debt of $42 million after the Revolutionary War which weakened considerably the government's economic credibility. This financial obligation was not paid off until the early 1800s.

The US Declaration of Independence, an act of the Second Continental Congress, was adopted on 4 July 1776. It declared that the 13 colonies were independent of the Kingdom of Great Britain. The Articles of Confederation served as a 'transition' between the Revolutionary War and the Constitution. In 1789, the US constitution was ratified and in 1790, the federal government assumed responsibility for the war debt, which some have called an early form of federal aid.

3.1.2 *Alexander Hamilton and the restructuring of US debt*

US debt history began with the Revolutionary War, which was mostly financed (85%) by the issue of fiat money by the Congress and the states. The Congress had virtually no taxing power, while that of the states was too limited to pay for more than a small fraction of total expenditure. Foreign bond finance—deteriorated by uncertainty about the war's outcome—and domestic bond issues were limited by a thin bond market. In 1782, the federal government, unable to raise taxes on its own both before and after the 1783 Articles of Confederation, had to default on both its domestic debt and debts to France.

The Constitution of 1789 gave the federal government expanded powers in monetary and fiscal affairs including the ability to raise tax revenues and the sole right to issue currency. Alexander Hamilton, the Secretary of the Treasury between 1789 and 1795, put together the plan to restructure the public debt and create deep financial markets. Bordo and Vegh (2002) posit that the package included four elements: (i) funding the national debt, (ii) creation of a Sinking Fund, (iii) securing sufficient tax revenue, and (iv) creation of the Bank of the USA. The central idea of the plan was to convert outstanding federal and state debt obligations into long-term bonds and to create mechanisms to both service and amortize this debt. This would help in creating an effective capital market and hence to facilitate government borrowing in wartime.

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The debts were converted into a debt package that greatly reduced the effective interest rate. Shortly after successful conversion and funding of the debt, US government securities became quickly accepted both at home and abroad and yields fell to rates comparable with bonds of the leading European powers (Perkins 1994, p. 218).

Following the British example of 1717, Hamilton proposed a sinking fund as a way of ensuring the credibility of his funding program. The idea was to set aside revenues provided by specific taxes to be used to purchase public securities on the open market. The interest earned by the sinking fund would be used to acquire more public securities and eventually pay off the debt. A key feature was that the revenues accumulated by the fund could not be diverted by the Congress at a later date for other expenditures.

Another element of Hamilton's debt package was to ensure the government's ability to collect sufficient tax revenues to continuously service the debt. Debt service was an important ingredient of the program of creating a well functioning, credible long-term capital market. Hamilton proposed a national tariff sufficient to generate revenues equal to 10% of import values. Tariff revenues were to be supplemented by excise taxes, and the sale of public land.

Alexander Hamilton's debt package had all the elements of a modern stabilization plan. It led to the creation of a US government bond market which in the future would be a key to long-term sustainability of the US fiscal union.

3.1.3 *The no-bailout lesson of 1840*

In the period after the ratification of the US constitution, the states engaged in extensive borrowing to finance their internal activities and development which resulted in high debts. Instead of introducing new taxes or adjusting their spending, numerous states demanded bailouts from the federal government. In fact, the states assumed that their debt implicitly carried a federal guarantee on the assumption that the experience of the 1790s would be repeated. However, the Congress refused to bailout indebted states. The argument was that the earlier assumption of debt was for a noble cause—independence from Britain while this bailout was to pay for debt incurred for state public expenditure. Indeed the states incurred the debt on the hope that the infrastructure investment would generate a rise in revenue sufficient to service the debt. A serious financial crisis and recession from 1839 to 1843 dashed these hopes (see Sargent 2012). Thus, in 1840, several states defaulted on their debt and had to undertake painful adjustment measures. In this fashion, the federal government sent a costly but clear signal regarding the limits to its commitment to fiscal support to the states.

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As a result, in the following decades, the US states developed the fiscal sovereignty that we still observe today. As Rodden (2006) puts it, 'states may occasionally dance around the topic of bailouts but hopes for them are not sufficiently bright that states would actually refuse to adjust while waiting for debt assumption'.

3.1.4 *US federalism and the Great Depression*

The Great Depression played a particularly important role in the reconstruction of the relations between the central government and the states. The period from 1929 to 1941 was the most serious economic crisis in US history. Real GDP and prices fell by a third and the unemployment rate rose above 20% in 1929–1933. Recovery to the 1929 level was not achieved until the start of World War II. The states were unable to respond effectively on their own to the economic consequences of the Great Depression leading to a major change in fiscal federal arrangements. In 1933, as a major component of his New Deal, President Franklin D. Roosevelt and the Congress greatly expanded the federal government's role in the domestic economy.

The New Deal era represented a turning point in the history of American federalism, particularly in the area of federal–state and local relations. The main change in government structure during the 1930s was the shift in expenditures from the local to the state and federal levels. Wallis (1984) argues that the emergence of 'big' government in this period was a result of a change in the relative importance of federal and sub-national governments rather than an increase in the growth rate of government expenditures by itself. He shows that between 1932 and 1940 the shares of government expenditures originating in federal and local governments were almost exactly reversed. Before 1932 relative shares for each level were roughly 50% local, 20% state, and 30% federal government. After 1940, 30% of relative shares were local, 24% state, and 46% federal. A major part of increasing government expenditures, 75%, came in programs administered at the federal level but in cooperation with state and local governments.

The most important modification of the US federation framework came as a new role for the fiscal policy of the central government. Before the Great Depression, the US government borrowed in time of war, and most of the time ran surpluses to pay off accumulated war debt. The possibility of using the government deficit as a tool of macroeconomic management was never considered. The Great Depression made it impossible to preserve this pattern. De Long (1996) notes that both the Hoover and the first Roosevelt administrations wished to maintain the pattern of surpluses of peacetime, but both found the austerity necessary to achieve surplus in the time of the Great Depression to be politically impossible. In the end, the

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US government accepted that large deficits in time of recession helped to attenuate the business cycle.

3.1.5 *Contemporary federalism in the USA*

Contemporary federalism, the period from 1970 to the present, has been characterized by shifts in the intergovernmental grant system, the growth of unfunded federal mandates, concerns about federal regulations, and continuing disputes over the nature of the federal system. There has been some devolution of programs back to the states, reflecting, in part, dissatisfaction with the economic effects of several large federal programs.

American states are largely free in their choice of tax bases and rates, subject to only a few limitations imposed by the federal constitution. On the expenditure side, most major spending functions are located at the state or local government level, important exceptions being national defence, pensions and health insurance for the elderly and disabled. Total expenditures of local governments are almost as large as those of state governments, and the sum of these two, as can be seen in column 1 of Table 2, is roughly equal to central government expenditure, reflecting a high degree of decentralization in the USA.

Table 2 Characteristics of federalism (averages for the 1990s)

Country	Expenditure decentralization (1)	Fiscal decentralization (2)	Transfer dependence (3)	Tax autonomy (4)	Borrowing autonomy (5)	No-bailout rule (6)
USA	0.53	0.42	0.34	0.32	3.0	Yes
Canada	0.65	0.51	0.32	0.32	2.7	Yes
Germany	0.45	0.34	0.70	0.04	4.0	Yes
Argentina	0.44	0.18	0.56	n.a.	4.5	No
Brazil	0.41	0.28	0.36	n.a.	n.a.	No

Sources: Government Finance Statistics (GFS) Yearbook, IMF; Taxing Powers of State and Local Governments, OECD Tax Policy Studies no. 1, OECD; Paris, Rodden (2006) and Reserve Bank of India (2006).

Notes: All indices are calculated as averages over the 1990s.

Column (1): expenditure decentralization: sub-national expenditures/total expenditures; column (2): fiscal decentralization: own source sub-national revenue/total revenue; column (3): transfer dependence: grants plus revenue sharing/total sub-national revenue; column (4): tax autonomy: sub-national tax revenue/total revenue; column (5): borrowing autonomy: the index of borrowing autonomy has been constructed by the Inter-American Development Bank. It considers debt authorization requirements and limits on the use of debt imposed by the central government. This variable ranges from 1 to 5. See Rodden (2006) for details; column (6): no-bailout rule: a 'yes' implies that the central government is legally constrained by a bailout rule and a 'no' that a no-bailout rule does not exist.

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Sub-national governments in the USA are, in principle, free to borrow without federal involvement. In reality, however, nearly all states have some kind of constitutional or statutory balanced-budget requirement. Indeed, according to Table 2, column 5, the borrowing autonomy of the sub-central governments is rather limited. The precise nature of the requirements varies considerably across states. The US federal government has followed a no-bailout policy (column 6 in Table 2).

3.2 Canada

3.2.1 *Creation of the Canadian federation*

The evolution of the federal system in Canada contrasts significantly with the evolution of the American federation. Both the origins of the two systems and their major developments differ. Watts (1987) argues that the Canadian federation was born in pragmatism rather than from an anti-imperial revolution sentiment. The major incentive for the unification of the Canadian colonies in 1867 was the threat of political, economic, and military absorption by the USA.

Two distinctive features marked the federation created by the British North America Act. First, central powers were highly concentrated. Second, the Canadian political system combined a parliamentary form of government (similar to the British) with federalism.

3.2.2 *Public debt in Canada*

The history of Government of Canada bonds in the domestic market dates back to 1868 with the issue of 6% 10-year bonds. The Government issued bonds in the domestic market to retire foreign debt which had been issued by the provinces prior to Confederation in 1867. At the same time, the Government continued to issue bonds denominated in both sterling and US dollars, in the London and New York markets.

During the Great Depression, Canada borrowed abroad extensively. In spite of the fact that it already had considerable borrowing from abroad, the risk premium on bonds sold abroad did not increase during the 1930s. This suggests that investors did not view Canada as likely to default. Similarly, during the First and the Second World Wars, a well-developed bond market allowed the Canadian government to collect funds domestically at a low cost. By the early 1950s, Canada had a framework in place for a domestic bond market and had many years of experience of borrowing in both domestic and international markets.

During the recessions of the 1980s and 1990s, several provinces issued excessively high levels of public debt leading to an increase in risk premia and a downgrading of their bond ratings, and pressure on the federal

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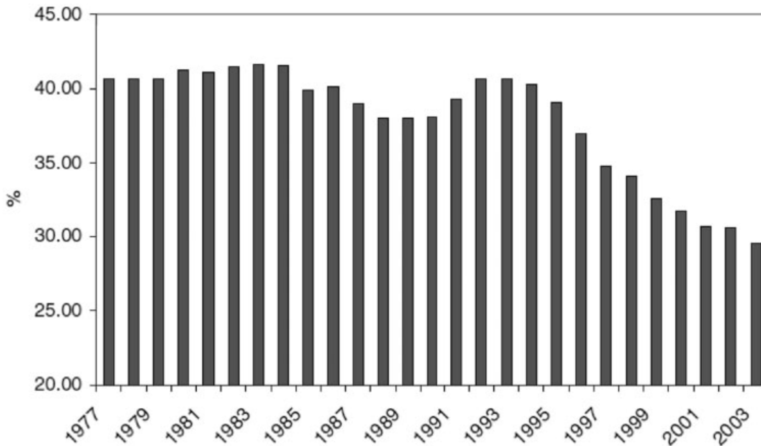

Figure 1 Provincial and territorial governments' debt as a share of total Canadian GDP (in percentages). *Sources*: Statistics Canada, CANSIM. *Notes*: The data on provincial debt are only available until 2004. For total GDP, we use gross domestic product at market prices, CANSIM table 380-0063. For non-central government debts, we use consolidated provincial and territorial general and local governments net financial debt; CANSIM table 385-0017.

government for a bailout. The evolution of the share of provincial debt since the 1980s is plotted in Figure 1.

Since 1983–1984, provincial–territorial program spending has declined as a share of GDP. As a result, some provinces issued excessively high levels of public debt leading to an increase in risk premia and a downgrading of their bond ratings, and pressure on the federal government for a bailout.

In the early 1990s, Canadian provinces and territories were hit hard by the recession, which caused a significant increase in spending on social assistance and social services. By the mid-1990s, increasingly large deficits and debt burdens, especially those of the federal government, led to a downgrading of Canada's debt rating by Moody's. After several unsuccessful attempts to restore fiscal balance a deal was worked out by Finance Minister Paul Martin in 1995 that involved significant reductions across a wide range of federal expenditures, including transfers to provinces and territories. The provinces also cut expenditures and raised taxes. Following this arrangement, both the federal government and the provinces have pursued very sound fiscal policies (Redish 2012). Also following this deal, Canadian province became the main providers of social programs involving public services, while the federal government is largely restricted to social programs that involve transfers. The fact that such

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social programs include a significant proportion of program spending at both levels of government emphasizes the importance of redistribution as an objective of government policy.

3.2.3 *The Great Depression and Canadian federalism*

Like the USA, Canada suffered a major depression from 1929 to 1939. In terms of output loss, it was similar in both timing and magnitude to the Great Depression in the USA. Between 1929 and 1933, GNP dropped by 43% and exports shrank by 50%.

Similarly to the US example, the Great Depression was a turning point for Canadian economic policies. Before 1930, the government intervened as little as possible, believing the free market would take care of the economy. During the depression, it became much more interventionist and proposed legislation that paralleled Roosevelt's New Deal agenda. In particular, it introduced high tariffs to protect domestic manufacturing, established minimum hourly wages, a standard work week, and unemployment insurance. The Bank of Canada was created in 1934 as a central bank to manage the money supply and bring stability to the country's financial system.

In 1937, the federal government appointed the Royal Commission on Dominion-Provincial Relations, commonly known as the Rowell-Sirois Commission which proposed a set of unconditional transfers aimed at equalizing provincial fiscal capacity (Ruggeri 2006). In return, the federal government acquired exclusive jurisdiction over personal and corporate income taxes and succession duties. This new division of responsibilities between different levels of the government represented a major shift towards fiscal centralization.

3.2.4 *Recent developments in the Canadian federation*

Since the British North American Act of 1867, the provinces have been assigned an increasing number of taxes. As stressed by Shah (1995), today, they are responsible for tax collection in all areas except customs, unemployment insurance premiums, and contributions to the Canada Pension Plan.[6]

Canada has a highly decentralized federal system. Sub-national expenditures accounted for more than 50% of total public expenditures during the 1990s (columns 1 and 2 in Table 2). As noted by Shah (1995), in Canada, there are elaborate mechanisms for federal–provincial fiscal coordination. The majority of direct program expenditures are at the sub-national level but Ottawa (i.e. the Canadian federal government)

[6] Sometimes Canadian provinces share the tax responsibilities with the central government.

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retains flexibility and achieves fiscal harmonization through conditional transfers and tax collection agreements.

In the past several years, provincial concern has emerged over the use of federal spending power simply as a means of transferring revenues to the provinces. Canada, like almost all federations, is characterized by a vertical fiscal gap: a mismatch between the revenue means and expenditure needs. In particular, Canadian federal revenue exceeds what is required by direct and indirect spending responsibilities of the central government. Regional governments have fewer revenues than their expenditure responsibilities with the result that excess central revenue being transferred to the provinces in one form or another. Over time, the size of the vertical gap has gradually decreased, implying that provinces have gradually become more and more self-sufficient.

Much of the discipline on public sector borrowing comes from the financial sector—monitoring deficits and debt at all levels of government. Moreover financial markets, especially bond and stock markets and provincial electorates impose a strong fiscal discipline at the sub-national level. The borrowing autonomy index in Canada is the lowest in the group of countries under study (column 5 in Table 2). Furthermore, national policies explicitly forbid bailouts of provinces at risk of default (column 6 in Table 2).

3.3 Germany

3.3.1 *Foundation of the German federation*

Germany is a relatively recent nation-state. In the mid-19th century, Germany was a collection of smaller states that were linked together as a German confederation. This confederation was dominated by Austria, which as an imperial power was politically and economically superior to the smaller German states. In the 1860s, the dominance of Austria was challenged by Prussia and the process of unification and codification of German law began.

A gradual process of economic interdependence from the early stages of the Industrial Revolution through to the mid-19th century saw the German states move towards economic unification. For example, the growth of the railway network in Germany led to easier access to different resources across the confederation. This helped to stimulate economic growth and meant that economic prosperity was increasingly reliant upon strong links between different member states of the German confederation.

This led to the introduction of the *Zollverein* customs union, an agreement amongst the German states to have preferential customs policies for member states. This economic union excluded Austria, illustrating a

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growing German sense of identity and a lesser dependency upon the largest of the German states.

The final national unification of Germany was achieved in two steps: the creation of the North German Confederation in 1866–1867 and then of the German Reich in 1871. In 1866, a war broke out between Austria and Prussia, lasting a few weeks. The Prussian victory over the Austrians led to a clearer division between Austrian and German interests. This new situation also forced the smaller states to align themselves with the Prussians, with whom they shared more economic ties due to the common *Zollverein* customs agreement.

At the same time, between 1866 and 1870, relations between Prussia and France worsened. In 1870, France declared a war that was won by Prussia. Following victories over France, in January of 1871, Prussia persuaded other German confederation members that unification was desirable. As a result, Wilhelm, King of Prussia, was proclaimed Emperor of Germany on 18 January 1871 in Versailles. The Second German Reich was born.

3.3.2 *The evolution of the German federation*

With unification, Prussia inherited a set of states with already highly institutionalized governance structures in place: well-developed public education systems, effective systems of public finance, and stable populations, see Ziblatt (2004). After unification, the German Reich increased its spending so that the share of total government expenditures over GNP rose from 10% in 1881 to 17.7% in 1913, while the central government's share increased from 2.9 to 6.2% [Hefeker (2001)].

World War I ended in defeat for Germany. As the government financed its burgeoning deficits by the monetary printing press, saddled with enormous war debts and reparations, the economy slid into a hyperinflation in 1922–1923. The hyperinflation was ended by a stabilization package based on fiscal consolidation.

In early 1928, Germany's economy slipped into recession, then stabilized before turning down again in the third quarter of 1929. The decline in German industrial production during the Great Depression was roughly equal to that in the USA. Lacking adequate sources of finance, the federal government was forced to cover its budget to a large extent by issuing debt, running ultimately into a serious debt crisis. The German government did not use activist fiscal policy to attenuate the effects of the crisis.[7]

In January 1933, Hitler was appointed Reich Chancellor. In terms of economic policy, the Hitler regime did not represent a radical break with

[7] Cohn (1992) notes that Germany opted for conservative fiscal policies because of its huge national debt.

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past conservative policies, at least not until 1936. It increased spending for military purposes. The Nazi regime created a unitary state with all powers held by the central government while the states were relegated to administrative districts.

After the Second World War, a new type of federalism was imposed on Germany by France, UK, and the USA. Because of the Nazi totalitarian experience, a unitary structure for post-war Germany was ruled out. Instead a federal solution was adopted, founded on the creation of new Länder that had not existed before. They were conceived as state units, clearly distinct from the federation. The distribution of powers between the central and Länder governments according to the German Constitution, the Basic Law (*Grundgesetz*) of 1949, still reflects some aspects of the Weimar Republic. However, since World War II, the federal government has been more limited in several areas. The creation of the structure of federalism continued in 1990 when six new Länder were established with German reunification.

3.3.3 *German debt and bailouts*

Although the German federal government and the Bundesbank are famous for its prudent monetary and fiscal policies, the fiscal performance of the sub-national sector is far less admirable (Rodden 2005).

In the immediate post-war period, the level of the public debt was rather low and evenly distributed between the three levels of the German federation. In the 1970s and 1980s, the debts of the central government and especially of the Länder have risen rapidly. Some of the Länder, which were particularly indebted and which were also used to receive high amounts of transfers, expected the central government to bail them out. In order to strengthen its credibility, the central government could have refused, as the US federal government did in 1840. Instead, in early 1987, the Länder of Bremen and Saarland began to receive special supplementary transfers form the central government explicitly aimed at coping with their high debts.

In 1992, the Federal Constitutional Court handed down a decision stipulating that the constitution required the Bund to make extra transfers to Bremen and Saarland, reaching 30 billion DM over the period from 1994 to 2000.[8] Furthermore, the transfers to Bremen and Saarland have never had to be repaid.

The bailout provided by the German government was a signal of its lack of commitment, demonstrating the difficulties to commit in the existing

[8] A ruling by the Federal Constitutional Court in 1992 introduced the notion of extreme emergency as the necessary condition for support from the federal government.

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constitutional setting, and created incentives for further irresponsible fiscal behaviour on the part of the Länder. The huge debts at the Länder level were largely responsible for Germany's problem of following the SGP in 2002.[9]

A second, interesting feature of German federalism is that all Länder participate in the German fiscal equalization system which guarantees a minimum level of annual tax revenues. In practice, the minimum is very close to the average and some Länder are permanent net recipients while others are permanent net contributors. This fiscal equalization also affects the markets' perception of a sub-central government's credit risk, as the central government may find it hard to refuse bailouts to states which are permanent net recipient of equalization grants. Schuknecht et al. (2009) find that, German regions, and, in particular, those that were consistently net recipients in the German equalization scheme, did not pay risk premiums related to their fiscal performance in excess of the German federal government.

3.3.4 *Recent developments in German federalism*

The Basic Law divides authority between the federal government and the Länder, with the general principle governing relations articulated in Article 30: 'The exercise of governmental powers and the discharge of governmental functions shall be incumbent on the Länder insofar as this Basic Law does not otherwise prescribe or permit'. Thus, the federal government can exercise authority only in those areas specified in the Basic Law.

The system created by the Basic Law did not facilitate cooperative federalism or even the sharing of political responsibility between federation and state. The rather competitive structure of the German federation reduced the financial responsibility of the already largely transfer-dependent Länder. Although the central government officially follows the no-bailout rule, this commitment is not fully credible. There is an incentive for the Länder to borrow excessively as their taxing authority is rather limited. Indeed, the excessive debts of some of the Länder and the financial security provided by the central government, after the Second World War, demonstrate the lack of credibility and commitment of the Lander.

The Länder retain no significant powers of taxation. The revenue provided by these taxes is very low, relative to total sub-national revenue.

[9] See Heppke-Falk and Wolff (2008) for a discussion of the moral hazard problem and the issue of bailout in the German fiscal federation.

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Indeed, as indicated in column 4 of Table 2, tax rate autonomy is equal to 0.04, much less than in the USA and Canada.

A key aspect of the German federal state is the solidarity between the individual Länder. However economically weak individual Länder may be, no single Land will have <95% of the average per capita budgetary resources. The Basic Law provides for the establishment of equal living conditions throughout the country and the maintenance of legal and economic unity in the national interest. This includes the constitutionally mandated revenue sharing with the Länder from federal taxes. Virtually all of the major federal tax revenue sources are shared in this way. These constitute extensive non-discretionary unconditional transfers to the Länder.

Watts and Hobson (2000) note that in addition there are substantial intergovernmental transfers both from the federal government to the Länder, and among the Länder, which, as a result, are highly, transfer dependent. When the measure of the latter includes revenue sharing mechanisms, Länder reach the transfer dependence of 70% (column 3 in Table 2).

On the other hand, Länder are autonomous in their borrowing activities (column 5 in Table 2).[10] The central government has no power to place numeric restrictions on the borrowing activities of Länder. Nevertheless, Länder have their own laws imposing adequate restrictions. Most often, these are based on the golden rule, i.e. the loan is designated for investment purposes. However, as Rodden (2005) notes, investment is a slippery concept and many of the financial needs can be presented as investments. Such a complex, interdependent, and collaborative style of federalism as the current German fiscal framework, tends to weaken fiscal accountability and soften budget constraints.

3.4 Argentina

3.4.1 *Creation of the Argentinean federation*

The Argentine state was born out of the union of colonial regions with differing economic and social characteristics. The revolution of 1810 against Spanish control led to the declaration of independence of the United Provinces of the Rio de la Plata in 1816. Independence revealed strong regional disparities which had been hidden by Spanish rule. As a result, the establishment of a national government and a constitution took almost four decades accompanied by violent struggle. Finally, in 1853, the Constitution established a constitutional federal republic. The changes in

[10] The Länder get individual ratings from rating agencies.

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the Constitution introduced in 1860, gave the provinces priority over the central government.

By the beginning of the 20th century, Argentina was one of the most developed countries in the world. However, after the Great Depression, it entered a path of economic decline largely reflecting a succession of poor economic policies.

3.4.1.1 *The Argentinean federation and the Great Depression*. The Great Depression began in Argentina in the late 1920s, even before the date of the start of the depression in the core countries of North America and Western Europe following the Wall Street crash of 1929. Like in many countries of the periphery, Argentina was exposed to commodity price shocks and, during the 1920s, its terms of trade worsened considerably. By the end of 1929, a balance of payments crisis developed, and the exchange rate was allowed to float after only 2 years of participation in the gold standard. Recovery began in 1931, and by 1934–1935, output had regained its 1929 level.

The Argentine Great Depression was mild and short-lived by international standards. From its peak between 1929 and 1932 domestic real output fell by 14% and by 1935 it had surpassed its 1929 level. Deflation was about 6% in the 1929–1932 period. In other gold-standard countries, such as the USA and Canada, the decline in real activity reached more than 30% and price levels declined by more than 20%.

Major monetary policy actions from 1929 to 1935 were responsible for accommodation of the negative shocks of the 1930s. In response to the economic difficulties, two major institutional changes in the conduct of monetary policy took place in the first half of the 1930s. The first was in 1931, when the decision was taken by the Conversion Office (a currency board established in 1910) to shift the monetary regime from a metallic regime standard based on gold to a fiduciary regime and to revalue the monetary gold stock and devalue the currency. This resulted in a more flexible monetary regime which could adapt to the economic crisis. Second, a Banco Central, a central bank, was created in 1936. This independent institution replaced the Conversion Office and abandoned its nominal anchor commitment device.[11]

During the depression, fiscal policies in Argentina remained even more conservative than in countries, such as the USA. The Great Depression created a sudden decrease in federal revenues. As a result, some tax collection responsibilities shifted from the sub-national to the national level. The federal government started to collect taxes that were previously

[11] For the details of the reforms, see Della Paolera and Taylor (1999).

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assigned to the provinces, invoking the 'critical situation' clause in the Constitution.

3.4.2 *Argentinean debt history*

The history of excessive Argentinean public debt started early. The revolution from Spain in 1810 led to the constant expansion of military expenses and to a drop in trade revenues. As a result, during the period 1813–1821, the Buenos Aires authorities had to issue the first compulsory loans which amounted to 2.96 million pesos. In 1819 and 1820, to pay the military and public wages, the government issued small-denomination notes to be used by the customs (see Bordo and Vegh 2002). By then the difference between the public debt and money had disappeared. At that time, the only solution to the problem was to consolidate the total debt and convert it into long-term debt. The funding operation was carried out in 1821 and further bond issues in 1823 and 1824 were necessary to complete it. By the end of the funding operation in 1824, 6.4 million worth of bonds had been issue.

In 1825, the war with Brazil began. To finance the war, and given that the interest rate charged by the Banco Nacional was considerably below the open market rate, the Buenos Aires government first relied heavily on credit from the Banco Nacional. Next, Banco Nacional had to start printing money. The resulting inflation spiral began in 1826 and continued until mid-1830. At the beginning of 1830, long-term government bonds were selling at an average discount of 40% and in 1840, the Treasury concluded that bond financing was no longer worth it, and money financing became the only other important fiscal tool (in addition to trade taxes).

During the next 60 years, Argentina joined and left the Gold Standard several times. On each occasion convertibility was suspended, mainly in years of political turmoil and rising levels of money-financed government deficits. The final convertibility suspension occurred in 1914 at the outbreak of World War I. In the interwar period, Argentina followed conservative monetary and fiscal policies, returned to gold during 1927–1929, and in the 1930s followed mildly expansionary policies (see Della Paolera 1995; Della Paolera and Taylor 1998, 1999). A return to high inflation regimes, as in the 19th century, began with Peron after World War II (see Di Tella and Dornbusch 1989).

Continuous growth of government in successive decades brought public expenditures to about 50% of GDP in the second half of the 1990s. During the 1980s, both levels of government borrowed extensively, reflecting weak fiscal management. In the late 1980s, the provinces accounted for roughly 40% of the deficit of the consolidated non-financial public sector. These deficits were financed not only by discretionary transfers and loans from the federal government but also by loans from the provincial banks

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and other parts of the financial system, see Saiegh and Tommasi (1999). The provinces borrowed from their provincial banks, who then discounted the debt at the central bank, effectively giving the provinces a share in the seignorage from inflation. This process led, by the end of the 1980s, to a hyperinflation.

During the period 1992–1994, the federal government provided special financial rescue operations for seven provinces. Nicolini et al. (2002) argue that one of the main sources of deficits in provincial finances was the state provincial pension system. Financial aid to provinces in difficulties took the form of issuing national treasury bonds. Using this *ad hoc* mechanism, the central government granted huge loans.

By establishing a currency board arrangement, the Convertibility Law of March 1991 ended inflationary central bank financing of public sector deficits at all levels. A set of structural reforms was introduced in the 1990s, however, a budget policy or a fiscal responsibility law that would control provincial spending was not developed.

As shown in Table 3, the public debt grew roughly 40% between 1997 and 2001. In total, 64% of this growth was contracted locally, implying that the domestic debt of the government almost doubled. The domestic debt was also contracted in dollars. The annual public and private external debt service amounted to 41% of total exports, and the total public and private external debt stock was equivalent to almost five times the annual exports.

In 1998, the Argentinean economy was struck by a series of shocks which plunged it into recession. The 1998s Russian crisis dramatically reduced the inflow of foreign capital available to emerging countries (see Lischinsky 2003). The first signs of restricted credit were the high lending rates for the provinces, which did not impede the excessive borrowing. Furthermore, the recession decreased tax revenues, the basis for servicing debt. As this problem became clear to market participants, spreads rose on Argentine paper and maturities shortened, creating increasing difficulty in rolling over the debt and increasing debt-servicing costs. This again worsened the debt dynamics, eventually forcing Argentina to default on its debt.

Table 3 Composition of Argentine debt

	1997	1998	1999	2000	2001 June	2001 September
Public debt	101	112	122	128	132	141
External	73	81	82	81	79	87
Domestic	28	31	39	47	53	54

Source: Ministry of Economy, Argentina, March 2002.

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The combination of inadequate fiscal adjustment and (external) borrowing in foreign currencies proved in the end damaging for Argentina's attempt to maintain the currency board and avoid default. Irresponsible fiscal behaviour of the provinces leading to run-ups in the national debt to GDP ratio was a key ingredient in the process leading to this crisis (Sturzenegger and Werneck 2006).

3.4.3 *Argentinean federalism today*

Provincial governments in Argentina have abundant powers to decide their own rules of governance as well as taxing and spending decisions, while municipalities report to the provincial governments. Although the Argentine Constitution establishes substantial room for sub-national taxation, in practice, provinces have delegated to the national government the responsibility of raising a large share of their taxes. Sturzenegger and Werneck (2006) argue that, at the same time, the responsibility for key social functions is in provincial hands. As a result of expenditure decentralization and tax centralization, the Argentinean federal system is characterized by a high degree of vertical fiscal imbalance gap. This gap, coupled with the relatively large fraction of government services provided at the sub-national level, creates a common pool problem across provinces. As a consequence, some of the provincial governments are not even aware of any hard budget constraint (Tommasi 2002).

Argentina addresses its large vertical fiscal imbalance gap through a complex and extensive system of intergovernmental transfers. These transfers and other revenue sharing proceeds account for more than half of total revenues of the provinces (column 3 in Table 2).[12] The most important component of this transfer system is the tax-sharing agreement called 'Coparticipación', which refers to the process by which shares of the taxes collected by the central government are reallocated to the provinces. Over time, this tax-sharing system has been often modified and several new amendments have been added to it. Furthermore, some direct transfers appear to be determined by political considerations. Its complexity and lack of transparency resulted in its description as the '*fiscal labyrinth*'.

Within Argentina's federal structure, all levels of government are generally permitted to borrow both domestically and abroad. However, in many provinces, the provincial Constitution imposes some restrictions on the borrowing ability of the government. These restrictions are very often violated, and in many provinces they are too loose to be binding. In Table 2, we see that during the 1990s among the five countries studied,

[12] See also Cetrángolo and Jiménez (2004).

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Argentina had the highest degree of borrowing autonomy and reached almost full borrowing autonomy of sub-national entities.

3.5 Brazil

3.5.1 *Creation of the Brazilian federation*

The Brazilian federation was created along with the Republic in 1889. It was born out of the decision to divide the unitary state that prevailed during the Imperial Regime. The Federal Regime was convenient mainly for the most developed provinces of the South and Southeast, in particular São Paulo (Castanhar 2003). These regions were rich in the new agricultural export products at that time and would obtain additional revenues from local taxes on these exports. In return, the less developed regions were granted political representation in the government more than proportional to their population.

3.5.2 *Evolution of the Brazilian federation*

This fiscal federal arrangement has undergone substantial changes over Brazil's history. During most of the 19th century when the country had a parliamentary monarchy a high degree of centralization prevailed. The power of provincial governments was weak until 1889 as these governments had little control over fiscal revenues. The provinces were not allowed to collect import taxes or interprovincial trade taxes, but implicitly they had the right to collect export taxes and in practice they also collected interstate taxes. In 1889, a republican movement overthrew the emperor in a peaceful revolution and established a provisional government in charge of drafting a new constitution. The first draft of the constitution was then created and submitted to the Constitutional Congress for a final revision and approval. The Constitutional Assembly passed a new Constitution on 24 February 1891, which provided states with great autonomy, in particular, the right to tax exports, to set up their own armed forces, and to have independent gubernatorial elections. By not including any limitations to the amount of debt states could issue, the Constitution implicitly gave states the right to issue debt domestically and abroad.

After the 1891 Constitution, state revenues from export taxes represented on average around 60% of total revenue between 1914 and 1916. States, such as Espírito Santo and Rio Grande do Norte collected more than 85% of their revenues from export taxes. São Paulo increased its collection capacity per capita three times after 1891, collecting almost 40% of what all the states collected with only half of the total exports and less than one-fifth of the population. In contrast, Góias and Rio Grande do Sul collected only 24 and 29% of their revenues from export

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taxes. This tax collection independence of states had large repercussions on the cost of capital. In particular, states with larger exports per capita and resulting larger tax income were able to sell more debt in international markets and paid lower interest rates for those loans, see Martinez Fritscher and Aldo (2010).

3.5.2.1 *The Great Depression and Brazilian federalism.* During the Great Depression, Brazil, like many other commodity dependent economies went into a deep crisis. The price of coffee (70% of Brazil's exports share during the 1920s) dropped from 22.5 cents a pound in 1929 to 8 cents in 1931. As in the other federations studied by us, the economic depression accelerated expansion and consolidation of the centre's power. In 1929, Brazil like Argentina began to devalue its currency and as a result experienced only a relatively mild downturn and had largely recovered by 1935.

The central government was strengthened further during the authoritarian Vargas regime between 1930 and 1945. The end of the Vargas dictatorship brought a new constitution which delegated a large amount of revenue and political power towards the sub-national governments, and in particular towards the municipalities. Sub-national governments were directly or indirectly given a much more generous share of the aggregate taxes collected in the country. Although the Constitution already enhanced the taxing power of sub-national governments, it additionally established transfers based on revenue-sharing rules, see Sturzenegger and Werneck (2006).

Soon after the approval of the new Constitution and a new tax system in particular, the central government faced growing financial difficulties. In response, it undertook efforts to increase its tax revenue. As a result, inefficient taxes were introduced, i.e. various forms of turnover taxes that had been eliminated from the Brazilian tax system in the 1960's.

3.5.3 *Public debt in Brazil*

The Republican Period was marked by difficulties in domestic and external financing and restructuring. First, the long stretch of time during which outstanding securities could not be converted (1839–1889) affected its credibility. Second, due to the large diversity of instruments with different maturities and interest rates the debt was highly fragmented. The last two issues spelled trouble for domestic debt negotiation and liquidity. In 1902, consolidation tried to solve the problem of debt fragmentation and succeeded, at least initially. Nearly all outstanding securities were exchanged for new ones, yielding interest rates of 5% a year. However, the effect of this unification was also short lived.

The years of not paying interest on outstanding debt and rising inflation forced Brazil to introduce compulsory public securities. The stagnation of

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the voluntary issuing of public securities complicated the financing of growing budget deficits even further, especially as of the mid-1950s. Since the government had no public credit and was unable to raise the tax burden, the deficit was mainly financed by issuing currency, and hence increasing inflation.

Brazil has experienced three major state-level debt crises between the end of the 1980s and 2000. In each of these crises, the same pattern reoccurred. The states facing unstable fiscal situations with high levels of spending on personnel and interest payments were pushed into debt-servicing crises by exogenous shocks. To control sub-national budget deficits, the 1988 Constitution restricted their borrowing ability and introduced surveillance by the Senate. Despite these provisions, state deficits have been a persistent concern throughout the post 1988 period. The last state debt crisis of the mid 1990s, triggered by the soaring interest rates following the implementation of the 'Plano Real' in 1994, exposed the serious macroeconomic threat posed by the risk of default of the four major debtor states of Sao Paulo, Rio de Janeiro, Minas Gerais, and Rio Grande do Sul, and ended up requiring a bailout by the central government. In fact, the federal government authorized the exchange of state bonds for federal and central bank bonds and thus relieved the states from the burden of servicing their debt. Rodden (2006) emphasizes that large, indebted states such as Sao Paulo and Minas Gerais were aware of the fact that the centre could not let them default because of negative spillovers onto the Brazilian economy. Accordingly, in each of the crises irresponsible states received bailouts, and the federal government responded by taking measures to assume the state debts. This led to increases in the federal debt burden—fuelling a crisis.

Table 4 shows that the State Debt in Bonds, as percentage of GDP, more than doubled between 1990 and 1996, and that more than 90% of

Table 4 Brazilian state debt in bonds—1990 and 1996

State	1990		1996	
	% of GDP	% of total	% of GDP	% of total
Minas Gerais	0.5	21.7	1.3	22.4
Rio de Janeiro	0.4	17.4	0.9	15.5
Sao Paolo	0.9	39.1	2.1	36.2
Rio Grande de Sul	0.4	17.4	1.0	17.3
All others	0.1	4.4	0.5	8.6
Brazil	2.3	100	5.8	100

Source: Central Bank of Brazil.

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it was concentrated in the four biggest states of the country. It is important to note that during the period between 1990 and 1996, the access of sub-national governments to new debt was almost completely restricted, either by regulations or by credit risk assessment. Therefore, the increase in the outstanding debt was due, almost entirely, to the capitalization of very high interest rates that the state debt had to bear. The inflated interest rates reflected low liquidity but mainly high default risk premia.

In the late 1990s, the regulations of sub-national borrowing were strengthened, leading to the unifying framework in 2000. Statutory controls on sub-national borrowing have always existed in Brazil—controls on new borrowing and the total stock of debt, expressed as percentages of revenue—but sub-national governments had been creative in evading them. The federal government bailed out sub-national debtors in earlier crises, but resolution of the third debt crisis in 1997 was conditioned on states undertaking difficult fiscal and structural reforms. Unconditional bailouts were avoided in 1997 to minimize moral hazard. The strengthened ex ante borrowing regulations were embedded in the debt-restructuring agreements between 25 states and the federal government in 1997, sanctioned by legislation. The 2000 Fiscal Responsibility Law consolidated various pieces of legislation into one unifying framework (see Webb 2004).

3.5.4 *Brazil and present federalism*

The decentralization of the Brazilian federal system, initiated by the Constitution of 1988, resulted in a mismatch of the assignment of revenue and expenditure functions to sub-national governments. In particular, while the assignment of revenue sources across different levels of government is clearly specified, expenditure functions are not always devolved in a clear and systematic way to sub-national governments. There is no clear division of responsibilities across government levels in many areas, such as health care, education, and social security. Furthermore, there are considerable disparities in institutional capacity at the sub-national level. Therefore, even in cases where expenditure mandates are clearly defined, higher level authorities (states and Federal government), do not delegate them to lower tiers of governments for fear of disturbances in service delivery (see Afonso and de Mello 2000 for details).

Brazil has a gross tax burden of more than 36% of GDP; a high number for an emerging economy. Officially, the majority of the taxes are collected by the federal government. The states' own revenue corresponds to slightly >25%. Municipalities are left with a share of <5% of the total tax collection. However, once constitutional transfers are taken into account, the distribution of the aggregate tax revenue across jurisdictions differs dramatically. After all, the states remain with roughly 25% and the central

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government receives about 60% of the tax revenues. The great net beneficiary of the redistribution is the municipalities.

Afonso and de Mello (2000) state that it has been widely accepted in Brazil that state debt negotiations with the federal government could be interpreted as a bailout operation unless accompanied by institutional changes aimed at imposing hard budget constraints at all levels of government. Since the late 1990s, however, an important effort took place in order to provide a sound basis for macroeconomic stability. In particular, it required changes in the fiscal-federalism arrangement, to impose hard budget constraints on sub-national governments. The recent changes in the legislation have laid the foundations for a rule-based system of decentralized federalism that leaves little room for discretionary policy-making at the sub-national level. It remains to be seen how effective this new system will be.

4 Lessons from the history of fiscal federalism

Our account of the evolution of fiscal federalism in five countries covers also their political history. The reason is that all the fiscal unions evolved in close interaction with the political unions forming the ultimate basis for fiscal cooperation. Friedrich (1968) notes that federalism is not only a static pattern or design, characterized by a particular and precisely defined division of powers between governmental levels. It is a continuous process by which a number of separate political communities enter into arrangements for working out solutions, adopting joint policies, and making joint decisions on common problems. Thus, each federation is an evolving entity and its structure is shaped by economic and political events. Below we seek to identify the major driving forces behind changes in the fiscal frameworks of the studied federations and draw lessons of relevance for the euro area today.

The historical account demonstrates that most of the countries created their unions for similar reasons. Many independent regions decided to found a union because of military insecurity and a consequent need for a common defence or a desire to be independent of foreign powers. This was the case of the USA, which was founded in revolution against the British Empire. Similarly, the British North American Act established the Canadian federation in response to the threat of political, economic, and military absorption by the USA. The foundation of the Argentine federation reflected a desire to gain independence from the Spanish empire. The union of provinces that founded the Brazilian federation was mainly driven by potential economic benefits. The creation of the German federation was determined by both potential economic gains and political reasons.

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Franck (1968) argues that although factors, such as a common language, similar culture, complementary economies, and hope of independence, as noted above, have generally triggered the birth of federations, they are all important but not sufficient conditions for the success of a federation. According to him, far more important is what Friedrich (1968) calls the 'federal spirit', i.e. a commitment to the value of federalism and to compromise. Indeed, the Canadian case shows that in spite of the cultural differences between the original units, in particular different languages, these entities desired to unite because of such a 'federal spirit'.

The European project was born in a similar fashion. In spite of cultural and economic differences, the European leaders chose to establish the European Coal and Steel Community and the European Economic Community, in 1951 and in 1958, respectively. These first steps towards European integration were a form of escape from the extreme forms of nationalism that had devastated the continent during the World War II.

Furthermore, we find a clear difference between well-functioning and poorly functioning federal states concerning inflation and debt accumulation. Federal states that have maintained a relatively strict fiscal discipline among sub-national units during recent decades, like the USA and Canada, have fared better than those that have not, like Argentina and Brazil. As a rule, they have displayed lower rates of inflation; less inflation variability and less debt accumulation (see Table 1). Germany is an intermediate case as it has an excellent history in controlling inflation but poor experiences with the excessive debt accumulation of some Länder.

The present system of budgetary discipline in successful fiscal federations is the result of a 'learning by doing' process. In the presence of moral hazard, the federal government has to give a signal of commitment to the sub-national authorities. Otherwise, the latter will not learn. For example, the US government as early as in 1840 did not assume the states' debts thereby establishing a no-bailout norm (Henning and Kessler 2012). Subsequently, during the 1840s and 1850s, states adopted balanced budget rules in their constitutions or other provisions in state laws. This was true even for financially sound states that had not defaulted. Today, virtually all of the US states have their own balanced budget rules and, most importantly, they respect them.

The USA of the 19th century shared many similarities with the current euro area members. As pointed out by Wallis et al. (2004),

> United States was more akin to the empires of that era with distinct economies reflecting geographical and climatic differences, and also differences related to whether a component state had long been settled and possessed established institutions or was one of recent settlement and newly developing institutions

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Similar to the current euro area members, the states in the 19th century had very different economic structures and institutional frameworks making economic and fiscal integration difficult.

The USA of the 19th century had, however, in place a central government which guided the rules of federation and was able to alleviate the consequences of states' defaults, the constituent that the euro area is currently missing. The borrowing and tax collecting functions of US government were developed already in the 18th century by Hamilton. He introduced a unified long term bonds issued by federal government to fund the national debt and secured sufficient tax revenue. In a context similar to the euro area today, the individual states' excessive debts were converted into a national debt package that greatly reduced the required interest rate. Shortly after this conversion and funding of the debt, US government securities became quickly accepted both at home and abroad and yields fell to rates comparable to bonds of the leading European powers (Perkins 1994, p. 218).

To create an efficient euro area bond market, one needs to establish a central government first. Subsequently, similarly to the 18th century US example, euro area central government could issue debt at considerably lower cost than (most) individual member states. The main advantage of the potential euro-wide bonds' market would be an increase in liquidity, credibility, and international importance of the euro. This form of risk sharing could, however, create incentives to free ride by over-borrowing of individual member states (see, for instance, Chari and Kehoe 2004). Our account of fiscal federalism supports the argument of Rodden (2004, 2006) and demonstrates that in federal union individual members need fiscal discipline and that a no-bailout clause has helped in obtaining this discipline. This has worked in combination with a system of close surveillance of the fiscal policy and debt accumulation of the members of the monetary union in studied successful federations. This surveillance has been carried out by an institutionalized system as well as by financial markets. It is important to emphasize that without a strict and credible no-bailout clause, the financial market mechanism is likely to fail as an efficient disciplining device for fiscal policy.

Three out of the five federations were not able to learn from their negative fiscal experiences in the past. In contrast to the US example, the Argentine and Brazilian federations during the 1980s and 1990s experienced several financial crises, which were principally driven by an undisciplined fiscal policy. Moreover, in each of these crises, the central government has bailed-out sub-national authorities thereby contributing to a deficit bias. Germany's experiences from the 1990s illustrate similar weaknesses of its federal fiscal framework. Although the central government officially follows the no-bailout rule, this commitment is not

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credible. This is the case mainly because in numerous instances, the federal authority provided bailouts for insolvent Länder giving them an incentive to borrow excessively in the future.

The historical account shows that the central government is often strengthened in a response to exceptional events, in particular to deep economic crises. The most prominent example is the Great Depression of the 1930s which affected in a fundamental way the institutions of the five federal states. In response to crises, central governments increased their power. As a result, during and after the Great Depression, the American, Canadian, Argentine, and Brazilian federations underwent a process of centralization. In Germany, the depression contributed to the rise of the National Socialist movement, resulting in an enormous centralization of power. This centralization made it easier for the governments to either introduce (as in the Canadian case) or extend (as in the US example) measures aiming at equalization of incomes across regions. Such measures were part of the stabilization process, since the regions which were more harmed by the recession received larger financial transfers. The main policy innovation of the Great Depression was a new role for the fiscal policy of central governments. Governments increased their spending and/or cut taxes to stabilize the distressed economy.

In case of a major negative shock like the Great Depression, the federal state must be ready to implement measures necessary to improve the conditions of the most harmed states. As already emphasized, history suggests that the most appropriate way to finance interregional transfers in distressed times is by national bond markets. Early Argentinean and US war experiences provide adequate examples of how the federal states can respond and prepare for the next possible distress. In the 19th century, Argentina faced two conflicts which resulted in huge public debts. In both episodes, this debt was monetized because the federal government had access neither to stable domestic financial markets nor to adequate tax revenues.

In the euro area today, a single country default would require substantial rescue funds because of the unavoidable contagion effects. As Krugman (2011) argues along the lines of the OCA (Mundell 1961; McKinnon 1963; Kenen 1969), in a monetary union where the currency devaluation is not an option and the labour mobility is low, the central government has to guarantee transfers to avoid vicious circles of falling confidence and increasing borrowing costs. Such transfers are part of federal relationships in three successful federations: USA, Canada, and Germany.

Indeed, the legislative response of the EU since the start of the recent crisis strongly suggests that such a movement has started. It covers a number of measures. First, the annual economic and budgetary

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coordination is being strengthened; the so-called European Semester has been launched. It provides a framework for the Commission for coordinating economic policies across member states where the recommendations of the Commission may impact the budgets of the member states. Here, the Commission can make country-specific policy proposals. Second, the EU surveillance framework is fostered by the so-called six-pack, two-pack and the Fiscal Compact. They focus on identifying macroeconomic balances at an early stage and enforcing sanctions more efficiently than in the past. One directive aims specifically at improving national fiscal frameworks, setting up country-specific numerical fiscal rules, better accounting and statistical reporting, and independent fiscal councils. Finally, financial stability is dealt with more explicitly and aims at finding solutions to the debt crisis. Here a European Systemic Risk Board has been established and a European Stability Mechanism (a monetary fund for EU) is being set up. These measures give the EU facilities to counter and resolve sovereign debt crises.

Besides the legislation and agreements reached so far, the debt crisis has also initiated a process towards more integration as reflected in the present plans for a banking union and a deeper fiscal and monetary union. All these measures, taken and proposed, represent clear steps to strengthen the powers of the EU over national fiscal polices. This pattern suggests that the European debt crisis will contribute to an increase in the central fiscal power of the EU, paving the way for larger transfers to the member states hardest hit by the crisis. This trend is similar to the pattern of centralization generated by deep crises that we observed in the five studied federations.

5 Conclusions

To answer the question raised initially concerning the role of a fiscal union in making the euro a sustainable currency, we have turned to a study of the experience of five fiscal federations. The record of these cases provides us with a number of conditions necessary for a fiscal union to function smoothly and successfully. The first and probably the most important condition is a credible commitment to a no-bailout rule. The second one is a degree of revenue and expenditure independence of the members of the fiscal union reflecting their preferences. The third condition is a well developed transfer mechanism to be used in episodes of distress. This transfer mechanism can be facilitated by the establishment of a common bond.[13]

[13] Such a common bond guaranteed by the members of the EU is already issued by the European Investment Bank to finance infrastructure investment. A similar arrangement could be made for other purposes.

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The fourth condition is a capacity to learn from past mistakes and adapt to new economic and political circumstances.

The euro area was created without an effective fiscal union. The institutions that were established to serve as a fiscal union (the Maastricht Treaty and the SGP)—that is to discipline the fiscal policies of the member states—did not function as planned as revealed by the present crisis. The lessons from the historical experience of the five federal states as surveyed in this study could be helpful for the euro area to avoid disintegration. History also suggests that in periods of deep depression the centre of a fiscal union gains more control over fiscal affairs. This process seems to be well underway in the euro area presently.

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