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Reingewertz, Yaniv

University of Haifa

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Fiscal Decentralization - a Survey of the Empirical Literature

Yaniv Reingewertz[^]

Abstract

We survey the empirical literature on fiscal decentralization (FD) and analyze the advantages and disadvantages of shifting fiscal responsibilities to sub national governments. We suggest several conclusions: First, there are large disagreements regarding the influence of FD on the size of government and the effect of FD on tax competition, economic growth and corruption. Probably the only unanimous conclusion is that intergovernmental grants are heavily influenced by political considerations. The empirical literature deals with several additional issues which are related to FD. While the literature on these topics is more scant and is not always econometrically rigorous, it is also more in agreement: there is no evidence for a "race to the bottom" in welfare transfers due to FD; FD seems to increase inequality in developing countries but to decrease inequality in developed economies and there seem to be economies of scale in the provision of several local public services. We conclude that there is no general answer regarding the net effect of FD. Fiscal decentralization reforms have to consider a wide array of factors and local contingencies before a successful implementation could be made.

JEL Classifications: H61, H73, H77, E62

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[^] Division of Public Policy and Administration, School of Political Sciences, the University of Haifa.
yanivrein@poli.haifa.ac.il

1. Introduction

The division of power and responsibilities between the different levels of government is an issue which has received considerable attention in the academic literature as well as among policy practitioners. Specifically, the decentralization of the authority to collect revenues and spend public funds to sub national governments is a topic being debated in academia and politics alike. The way fiscal authority is divided between different levels of government has potential implications for economic growth, the efficient operation of government, political representation and participation and more.

The aim of this paper is to survey the empirical literature, with the purpose of assessing the applicability of the different theories of fiscal decentralization (FD); discussing the advantages and disadvantages of FD; and providing policy implications for the design and implementation of FD reforms. The complexity of the topic suggests that the optimal level of decentralization crucially depend on local contingencies. We will try to extract general guidelines from the empirical literature that might guide policy makers to better formulate decentralization (or sometimes centralization) reforms, hinting to the optimal level of decentralization and its determinants.

Decentralization can mean different things to different people. We will follow the economic literature and focus on fiscal decentralization – the shifting of spending and revenue raising responsibilities to sub-national governments. As we will see below, the effects of fiscal decentralization depend on whether the authority to spend, collect revenue or both are transferred to sub national governments.

We will follow Musgrave (1959) and discuss the effects of fiscal decentralization (FD) on the three branches of government: allocation, distribution and stabilization. We will first discuss shortly the theoretical predictions regarding the optimal division of responsibilities between different levels of government, in each of

these branches. We will then survey the empirical findings and try to assess the applicability of different theoretical models. We will conclude by offering policy implications and promising directions for future research.

Throughout this survey we will use the term sub-national governments (SNGs) to describe the entirety of elected governments at the sub-national level. These sub-national governments are different in geographical size, population, responsibilities and autonomy levels. Sub-national governments include the state level (in federal countries), a regional level, and a local level (municipalities, communities). Unitary countries lack the state level, but their sub-national governments may still have a relatively high level of autonomy, which is in many ways similar to the state level in federal countries. Intermediate levels are also common, such as the county level, or the district level. Throughout the discussion we will assume, without loss of generality, three levels of government. Therefore, FD can mean the devolution of power from the national government to state governments, from state to local governments, or even from the national government to the local level. The effect of FD might be different in each of these cases.

Finally, another important distinction which can be made is between developed and developing economies. Developed and developing economies might have different institutional and political settings. Therefore, FD is expected to yield very different results in these different economies (Baird 2002).

2. Theoretical Aspects

2.1. Allocation

The vast majority of the literature on fiscal decentralization focuses on allocation. Oates (1972) is a seminal manuscript describing the optimal assignment of responsibilities

between different levels of government. Oates (1972) provides a “decentralization theorem”, which states that local public goods should be provided by local governments. This result lies on information asymmetries, the assumption being that local governments have more information on local preferences, compared to higher levels of government. In the common case of spillovers/externalities of these local public goods to adjacent localities, transfers from the central government are warranted in order to internalize the externality.

Regarding revenues, Oates suggests that local taxes should only be imposed on immobile factors of production. Since the immobile factors’ tax base might be too small to finance the efficient amount of local public goods, transfers from the central government are suggested in this case as well.

The normative case for the use of intergovernmental grants (IGG) is contrasted with a positive analysis, suggesting that intergovernmental grants might not be optimal because some regions have more bargaining power and would tilt the equilibrium in their favor (Persson and Tabellini 1996a). As we will see, this theoretical result echoes throughout the empirical findings.

Another seminal contribution is by Olson (1969), which coined the term Fiscal Equivalence to describe the optimal allocation of responsibilities based on the area which is being affected by the public good. For example, national public goods, like national defence, should be provided by the national level, but local public goods, like policing, should be provided by a local government which its borders match the area being served.

The case of publicly provided private goods is not explicitly discussed in the theoretical literature, since these are assumed to be provided by private markets.

However, if the government chooses to provide such goods, they should probably be provided by local governments, due to its informational advantage.

Oates's Theorem relies on the classic paper by Tiebout (1956), which suggest that delegating power to the local level will lead to an efficient equilibrium where every local government is operating as a club. This model relies on strong assumptions such as the ability of people to freely migrate from one club to the other.

As mentioned above, the main advantages of FD with regard to allocation originate in the informational advantage of local governments. This informational advantage might help dealing with cultural heterogeneity (Olson 1969, 1986; Tanzi 2002). It might also lead to smaller, more efficient, governments (Oates 1972, Prud'Homme 1995). Finally, it can also lead to increased economic growth, due to lower tax levels, a closer fit between preferences and policies and a better performance of the local government (Brueckner 2006).

Another theoretical mechanism suggests that politicians in local governments might be more accountable to their voters, compared to politicians at the national level (Brennan and Buchanan 1980, Seabright 1996, Besley and coate 2003). Brennan and Buchanan (1980) compare the central government to a "Leviathan" that has monopoly in tax collection. FD might lead to competition between local governments that would mitigate the monopoly power of the federal government. This might be the case if there is competition between localities and if residents are able to "vote with their feet", or merely reflects the fact that the welfare of a specific region has a lower probability of affecting the reelection of central government politicians compared to regional government politicians. Increased accountability in turn might lower corruption. This mechanism might be more pronounced in autocratic regimes, where checks and balances are stronger at the local level. However, if political competition at the local

level is limited, these beneficial effects might reverse and corruption might even be higher than at the national government.

One way this competition might take place is through tax competition, which brings two theoretical questions. The first is whether FD leads to tax competition, and the second is whether tax competition is efficient. The theoretical literature dealing with this issue is huge and inconclusive. First, competition between localities might lower local taxes and hence the size of government (Wilson 1986, Besley and Case 1995, Qian and Roland 1998). This tax competition, however, might lead to an inefficiently low tax level, due to a horizontal tax externality (Zodrow and Mieszkowski 1986, Bucovetsky 1991, Kanbur and Keen 1993, Brueckner 2004). If mobile factors of production are being taxed by local governments the possibility of a “race to the bottom” arises (Oates and Schwab 1988). This result abstracts away from agglomeration effects, heterogeneity and other factors which might cause asymmetric tax competition, which might prevent a race to the bottom, and generally change the effects of tax competition (Bucovetsky 1991, Baldwin and Krugman 2004, Cai and Treisman 2005, Borck and Pfluger 2006). Another complexity arises due to a Vertical Tax Externality – the interaction between taxes at the national and local level. An increase in national tax rates would lower local tax revenues due to a common tax base and would eventually lead local government to increase their tax rates (Keen 1998). This effect could be mitigated by the national government through modifications to its tax rates or via transfers (Keen 1998, Hoyt 2001). Yet another set of models suggest that the results of prior models (e.g. Zodrow and Mieszkowski 1986) rely too heavily on arbitrary assumptions. Changing these assumptions can lead to tax rates which are too low or too high (Noiset 1995, Wilson and Wildasin 2004). It seems that the optimal assignment of tax authority is not at all clear from a theoretical perspective.

Fiscal decentralization has other potential effects, some of them are disadvantageous. Some local public goods might manifest economies of scale, which are more likely to exist when the scale of production is small, or in other words when the local government is serving a small population. Since FD means devaluating responsibilities to governments of smaller size, it will increase production costs if economies of scale exist. This is more likely to be the case in local governments which are relatively small. Lack of sufficient scale could be overcome by joint production of local public goods, either with other local governments or with the private sector.

Fiscal decentralization of spending authority might also exacerbate the soft budget constraint – the tendency of local governments to increase debt under the assumption that the central government would bail them out (Kormai 1979, Kornai, Maskin and Roland 2003). Central governments have a political incentive to bail out local governments, making soft budget constraints a real possibility (Goodspeed 2002).

The literature also discusses differences in organizational capacity and corruption levels between national governments and SNGs (Carmeli and Cohen 2001). This might be more relevant in the case of developing economies (Bardhan 2002). Yet another possible disadvantage in fiscal decentralization has to do with coordination issues between different local level governments (Bolton and Farrell 1990).

2.2. Distribution

The second role of government according to Musgrave is distribution. We will discuss the appropriate assignment of the power to redistribute resources in the economy between different levels of government. A related question is the effect of fiscal decentralization on income distribution and inequality.

There are several mechanisms to redistribute resources in the economy, with welfare and education being arguably the most important ones. The power to grant welfare transfers to the citizens should probably reside at the central level (Oates 1972). The main reason for this result is the possibility of a “race to the bottom” in local welfare transfers. If poor people can easily migrate they could move to localities which offer higher welfare transfers. If the locality needs to finance welfare transfers from independent sources then this migration would reduce welfare transfers per capita (i.e. a race to the bottom), or would increase local taxes, which in turn might induce outward migration of rich residents, hence a decrease in the tax base which would also lead to a race to the bottom

The second redistribution mechanism is education. Here, contrary to the welfare case, a Tiebout-like competition is probably warranted (Gramlich 1993). Residents would locate themselves to the locality which offers their preferred combination of local taxes and public education spending. In equilibrium, different localities would be formed, as residents “vote with their feet”. This would increase inequality between localities but would decrease inequality within localities.

The second question is the effect of fiscal decentralization on distribution. If fiscal decentralization of revenues is allowed, inequality might increase due to agglomeration effects or differences in natural resources endowments (Raveh 2013). Though IGGs could be used in order to fiscally equalize between different SNGs, they might distort efficiency, e.g. by changing the incentives to migrate (Boadway and Flatters 1982).

2.3. Stabilization

The third role of government according to Musgrave is stabilization, which could be taken to mean macroeconomic stabilization. According to Oates (1972) macroeconomic issues, the main ones being fiscal and monetary policy, should be entrusted with the central government. Monetary policy should be provided nationally if the currency is national, since spillovers to printing more money, i.e. inflation, are national. If localities had the power to print money they would have had a huge incentive to over-print it, since the benefits stay at the local level but the costs (inflation) are dispersed throughout the country.

Macroeconomic stabilization also involves fiscal policy. Here the questions are the following: is fiscal stimulus (or consolidation) needed; who should decide regarding its magnitude; who should fund it and who should execute it. Authority should probably be given to the central government since localities would tend to under provide fiscal stimulus due to positive spillovers. Funding should arguably come from the central government, for the exact same reason. Execution is a more complex issue, but some suggest that the fiscal multiplier is larger at the local level (Gramlich 1993, Ramey 2011). If indeed execution is given to SNGs, the issue of IGG arises. IGG can fund the execution of countercyclical fiscal policy, and therefore provide a form of insurance. However, this insurance can create moral hazard and therefore overprovision of the public good. IGGs can also create underprovision of the public good (Lockwood 1999).

Macroeconomic shocks might hit different regions differently. This refers mainly to fiscal policy, but might hold true for monetary policy as well. It might be worthwhile to take this heterogeneity into account during the decision-making process.

In addition, local fiscal policy might have macroeconomic implications. This is the case if FD is very heavily done so that local fiscal decisions have macroeconomic

consequences. This was the case, for example, in Argentina and Brazil (Fukasaku and De Mello 1998).

3. Empirical findings

In accordance with the outline of section II, we proceed by discussing the allocation, distribution and stabilization branches separately. We will review the empirical findings in each of these branches; discuss their conclusions and offer lessons for policy. We will begin with the allocation branch.

3.1. Allocation

The main advantage of fiscal decentralization might arise due to information issues. Two important empirical questions might be asked here. Firstly, whether indeed local governments have informational advantages. Second, if these informational advantages exist, are they influencing the way local public goods are provided. Unfortunately, empirical evidence regarding these issues is scarce. A notable study by Faguet (2004) shows that decentralization improved the responsiveness of governments to local needs in Bolivia. Alderman (2002) suggests that welfare transfers in Albania are better targeted because they are decided by local officials. Ligthart and Van Oudheusden (2011) show that fiscal decentralization increases the level of trust the citizens have in government. Finally, Borge et al. (2004) show, using a decentralization reform in Norway, that when spending discretion is decentralized it suits better local demand. In addition, indirect evidence regarding the way informational advantages improve local outcomes is given by Bjornskov et al. (2008). They show that subjective well-being of residents is increased after decentralization (Bjornskov et al. 2008). In short, there are some findings to suggest that SNGs do have informational advantages, and that they

can use them to better provide public goods. However, more research on this issue is clearly needed.

FD and tax competition

One of the main channels by which FD presumably affects the performance of government has to do with enhancing competition. Specifically, fiscal decentralization might affect tax policy, through tax competition. Büttner (2001) shows evidence of local business tax competition between German jurisdictions. Evidence regarding horizontal tax competition (i.e. competition between governments in the same tier) is also present for Belgian municipalities (Heyndels and Vuchelen 1998). On a related topic, Feld and Kirchgässner (2001) find that income tax rates affect the location decision of residents in Swiss cantons and cities.

Tax competition also has a spatial effect. Agrawal (2013) documents tax competition between neighboring counties in the US, and Eugster and Parchet (2013) document it for Swiss municipalities.

Estimating horizontal tax competition has to address multiple identification issues. First, taxes of neighboring jurisdictions are simultaneously responding to macroeconomic shocks to the economy. Second, the direction of causality is unclear. The standard practice in the literature discussed above is to instrument the neighbors' taxes with demographics and lagged taxes. However, a relatively new literature is critical towards that approach, and finding different results using more sophisticated identification techniques (Lyytikäinen 2012, Baskaran 2013, Isen 2014).

Lyytikäinen (2012) is using changes in statutory limits to property tax rates as a source of exogenous variation to estimate the responses of municipalities to tax rates in their neighboring municipalities. He finds no evidence of property tax competition

between Finnish municipalities. A comparison of his causal estimates to commonly used spatial estimates suggests that the standard spatial econometrics methods may have a tendency to overestimate the degree of interdependence in tax rates.

Baskaran (2013) uses a reform of the local fiscal equalization scheme in the German State of North Rhine-Westphalia to identify horizontal tax competition by municipalities in the neighboring state of Lower Saxony. He finds no evidence for the existence of tax competition in municipal business and property taxes. In contrast, traditional spatial lag regressions provide strong evidence for strategic interactions.

Finally, Isen (2014) uses close elections of local referenda in Ohio to isolate the effect of exogenous increases in taxation and spending of one jurisdiction on fiscal decisions of neighboring jurisdictions. For all jurisdictional types and referenda revenue sources (bonds, income, property, and sales tax), he finds no evidence of spillovers.

Tax competition is constrained by agglomeration effects, since localities in economic clusters will be able to exert higher taxes compared to localities in the periphery. Luthi and Schmidheiny (2011) provide evidence regarding agglomeration effects on taxes in Swiss municipalities. They report that tax competition between regions is weak, but tax competition within regions is much stronger.

In addition to the disagreement regarding the existence of horizontal tax competition, it is not clear whether this competition, if it exists, is efficient (Oates 2002). Therefore, it is hard to give policy advice regarding tax competition.

In addition to horizontal tax competition, there is a relatively new line of literature trying to analyze interactions between local and central tax policies, namely vertical tax competition. Vertical tax competition might lead to an increase in tax rates, as different tiers of government compete over the same tax base. The empirical

literature, similarly to the theoretical literature mentioned above, does not give a unanimous conclusion regarding the sign and magnitude of vertical tax competition. First, dealing with sales taxes, some suggest that an increase in the federal tax rate on cigarettes and gasoline leads to an increase in state tax rates on these items (Besley and Rosen 1998, Devereux et al. 2007). However, others suggest that state cigarette tax rates *decline* when federal cigarettes tax rates increase (Fredriksson and Mamun 2008). The results regarding gasoline taxes are also mixed: state gasoline tax revenues are adversely affected by past increases in federal gasoline tax rates, but positively affected by current tax rates (Devereux et al. 2007). In any case we can always expect state tax revenues to decline when federal tax rates increase.

The empirical literature also deals with income taxes. Esteller-More and Solle-Olle (2001) find that state income tax rates are positively correlated with federal income tax rates. A related paper finds virtually the same results for Canada (Esteller-Moré and Solé-Ollé 2002). The results regarding income tax rates provide no consensus as well, as others suggest that an increase in federal tax rates actually decreases state tax rates, both in the US (Goodspeed 2000), and Canada (Hayashi and Boadway 2001).

The relative magnitude of vertical vs. horizontal tax competition is a topic which was hardly studied in the literature. Brülhart and Jametti (2006) is one of a few papers providing evidence regarding this issue. They suggest that vertical tax competition dominates, at least in the case of income taxes. Devereux et al. (2007) suggest that vertical tax competition in excise taxes depends on the type of good being taxed – horizontal tax competition dominates for cigarettes tax, but vertical tax competition dominates for gasoline tax. However, the link between FD, vertical tax competition and horizontal tax competition remains unclear. Specifically, does FD increase horizontal tax competition more than it does vertical tax competition?

FD and the size of government

Since the seminal contribution of Brennan and Buchanan (1980), a rich empirical literature has emerged, dealing with the effects of FD on the size of government. Oates (1985) was probably the first to provide a systematic empirical analysis of the relation between FD and the size of government. As a measure of the size of government he used the share of tax revenues out of personal income. FD measures include revenue share and expenditure share of local governments, and the number of local government units in the state. Oates used two cross-section samples – one of the 48 contiguous states in the US and the other of 43 countries and showed that decentralization does not decrease government size.

In a response to Oates (1985), Zax (1989) claims that looking at the state level is misleading since FD should affect the local level but not necessarily the state level. He is using a sample of 3,022 counties and measures decentralization by the number of local governments in the county. He finds that having more cities in a county reduces government size, but having more school districts increases it. Measuring FD as having more government units at the local level is less common in the literature, as most studies follow the definition we provided above – the delegation of fiscal power to lower levels of government.

Both Oates (1985) and Zax (1989) rely on cross-sectional data. However, FD measures might be correlated with unobservable attributes which do not change over time, creating omitted variable bias and endogeneity. Marlow (1988) is taking a different approach, using a time series analysis for the US (years 1946-1985). He shows that government size is negatively associated with decentralization. Though he controls

for serial correlation, he does not provide evidence regarding a cointegration relationship between government size and FD.

More contemporary studies are mostly using panel datasets to explore the link between FD and government size. Jin and Zou (2002) is a notable example. They provide a fixed effects panel data analysis of 32 countries for the years 1980-1994. They find that expenditure decentralization leads to smaller national governments, larger subnational governments, and larger aggregate governments. They also find that revenue decentralization leads to smaller aggregate governments, and that vertical fiscal imbalances tend to increase the sizes of subnational, national, and aggregate governments. Fiva (2006) finds similar results, and the government enlarging effect of IGGs is in line with Grossman (1989).

Other contemporary studies find opposing results. Baskaran (2011) is analyzing two panel data, one for OECD countries, and the other for a sample of 44 countries. He uses fixed effects and an IV estimator and find that decentralization of both spending and revenue increase the size of the public sector. Cassette and Paty (2010) find similar results. Finally, Anderson and Van der Berg (1998) find no relationship between FD and government size.

One possible explanation for the mixed results is that FD might have a varying effect on the size of government, depending on the service being decentralized. Persson and Tabellini (1994) suggest that decentralizing the provision of local public goods will decrease the size of government, while decentralizing national public goods will increase the size of government.

Yeung (2009) provides a meta-analysis study of the effect of FD on government size. He concludes that while studies using the share of local spending tend to find a constraining effect of FD, studies which use measures of fragmentation find the

opposite effect. We conclude that the disagreement in the literature is wider than that, and there does not seem to be a clear cut answer regarding the link between FD and the size of government. This might be due to the difficulties in identifying decentralization reforms which are exogenous to other changes in government. One tentative conclusion that seems to come up in the literature is that FD of revenues is more likely to reduce the size of government, while FD of spending and an increase in IGG are more likely to lead to an increase in government size. However, since not enough studies deal with identification issues using contemporary econometric techniques, it is hard to give clear-cut conclusions or policy recommendations.

Vertical fiscal imbalances and Intergovernmental grants

Economic theory suggests that IGG should be given to SNGs when their optimal spending level is higher than their optimal tax revenues (Oates 1972). IGG can also reduce inequality, and compensate SNGs which provide public goods with positive spillovers to neighboring jurisdictions. However, the theoretical literature also suggests that IGGs might be determined by political considerations which are unrelated to inequality, spillovers or any other normative or efficiency consideration (Persson and Tabellini 1996a). There are several reasons why politicians might want to deviate from efficiency or equity considerations. First, politicians might want to divert funds to their constituencies, in order to increase their reelection prospects. Second, politicians at the national level might want to help their party at the local level. Lastly, they might want to extract economic rents.

The empirical literature regarding the political economy of IGGs is enormous and almost unanimous. Politicians seem to deviate considerably from either efficiency or equity considerations, and instead distribute IGGs to obtain personal gains and

increase their reelection prospects. Examples for such a behavior can be found, among others, for the US (Wright 1974, Cox and McCubbins 1986, Anderson and Tollison 1991, Grossman 1994, Levitt and Snyder 1995, Alvarez and Saving 1997, Larcinese et al. 2006, Berry et al. 2010, Albouy 2013); Japan (Meyer and Naka 1999); Brazil (Duchateau and Aguirre 2010, Brollo and Nannicini 2011); Argentina (Porto and Sanguinetti 2001); Germany (Kemmerling and Stephan 2002); Sweden (Johansson 2003); Australia (Worthington and Dollery 1998) and Israel (Alperovitz 1984, Rozevith and Weiss 1993).

Political factors affect IGGs through the will of state representative at the national level to get reelected. These representatives will try to divert IGGs to their home states. For example, Albouy (2013) shows that state representatives who belong to the majority party in congress are able to direct more federal funds to their home states. This problem is amplified if some states are over-represented, in terms of the number of representatives per capita. For example, Porto and Sanguinetti (2001) find that Argentinean provinces which are over-represented in parliament receive more intergovernmental grants. Pitlik et al. (2006) provide similar results for German states.

The reelection motive of state representatives at the national level might have different effects under different scenarios. On the one hand the incumbent might want to direct federal grants to regions where his supporters reside, in order to strengthen his support (Alperovich 1984). On the other hand IGGs might be directed to regions with swing voters, in order to try and persuade them to vote for the incumbent (Johansson 2003, Litschig and Morrison 2009, Padovano 2012). The exact behavior depends on local political contingencies.

A second mechanism which is related to the reelection motive is partisan alignment. Here the politicians at the higher level want to increase support for their

party at the lower level elections. Therefore, politicians at the central level might choose to give more grants to states or municipalities that are controlled by members of their party (Meyer and Naka 1999, Khemani 2003, Sole-Olle and Sorribas-Navarro 2008). For example, Sole-Olle and Sorribas-Navarro (2008) provide evidence for partisan alignment in Spanish municipalities, and Khemani (2003) document the same mechanism in Indian states. For the United States, Larcinese et al. (2006) show that states aligned with the president, meaning either states that have a high share of presidential votes or states that have a governor affiliated with the president's party are rewarded with more federal grants. Similarly, Berry et al. (2010) find that US presidents systematically influence the geographic distribution of federal spending toward states where the representatives belong to the same party.

When political considerations dominate, efficiency and equity suffer. Albouy (2012) suggests that the Canadian transfer system is inefficient and causes over-funded provinces to have population levels which are too high. In addition he claims that these transfers do not meet plausible equity considerations. Albouy (2009) claims that federal taxes could be thought of as IGGs since, much like intergovernmental transfers, they create geographical inefficiencies. The reason for that is that federal taxes do not take into account real income and differences in housing prices. Therefore, workers in highly productive cities are taxed too heavily and employment is shifted to rural areas.

Another disadvantage of vertical fiscal imbalances arises because they might create a soft budget constraint and exacerbate the occurrence of bailouts (De-Mello 2000, Jin and Zou 2002, Rodden 2002). Soft budget constraints and an increase in the likelihood of bailouts might create an incentive to over spend (Singh and Plekhanov 2005, Pettersson-Lidbom 2010). Bailouts, in turn, might be determined by political

considerations such as swing voters and not by efficiency or equity considerations (Sorriba-Navarro 2011).

Yet another issue with IGGs is their effect on other budgetary outcomes. Specifically, the literature is trying to assess the existence of the Flypaper Effect, i.e. the possibility that grants from the central government crowd in spending by SNGs, so that spending increases by more than the rise in IGGs. Knight (2002) is an important contribution suggesting that there is no flypaper effect in highways spending, since federal highway grants crowd out state highway spending. However, Gordon (2004) observes a flypaper effect in education spending, and Dahlberg et al. (2008) find that IGGs increase local spending and do not reduce local taxes in Sweden. Finally, Leduc and Wilson (2012) analyze the 2009 ARRA highway grants as well as a longer sample of highway grants (1983-2008) and reach an opposite conclusion compared to Knight (2002). They show that the difference in the results is caused by their longer sample, as well as by controlling for year fixed effects. In a related paper, Egger et al. (2010) find that IGGs increase local business tax rates. This could be seen as evidence (from the revenue side) regarding a flypaper effect. While there are some evidence regarding the existence of a flypaper effect, more work is needed in order to reach a definite conclusion.

While IGGs are clearly being affected by political considerations, it is worth emphasizing that political systems are quite different from one other, leading to differences in the distortions created. In effect, the distribution of grants has many peculiarities depending on the country's specific characteristics and institutions such as its degree of decentralization, its level of economic development, its intergovernmental fiscal systems, and so on (Persson and Tabellini 1996b, Boex and Martinez-Vazquez 2005).

FD and economic growth

Economic theory suggests that FD would increase economic growth. The empirical findings, however, are much more ambiguous. Davoodi and Zou (1998) are probably one of the first to empirically investigate this question. They use a panel of 46 countries between the years 1970-1989 to measure the effect of FD on growth and find a negative link between FD and growth in developing countries, but no link in developed economies. However, Limi (2005) extends their analysis for the years 1997-2001 and does suggest that FD increases economic growth.

Other studies focus on developed countries and again find mixed results. Thornton (2007) is using a cross-section of tax autonomy of 19 OECD countries and finds no link between FD and economic growth. Rodriguez-Pose and Ezcurra (2011) analyze a panel of 21 OECD countries for the years 1990-2005. They use expenditures shares as an indicator of FD and find a negative relation between FD and economic growth. Baskaran and Feld (2013) analyze a relatively long panel data of 23 OECD countries (1975-2001) and suggest that decentralization of tax responsibilities has a negative impact on economic growth.

Still other studies focus on a specific country, such as the US or China. Akai and Sakata (2002) analyze a cross-section of US states and find a positive link between decentralization and economic growth. Stansel (2005) analyze a cross section of 314 US metropolitan areas and find similar conclusions. Both studies rely on a constant measure of fiscal decentralization which might be correlated with unobserved attributes at the state level. They also have a very limited sample size of 50 states. Indeed, their results don't survive robustness checks. Xie et al. (1999) is providing a time series for

US data, and suggest that the relationship between decentralization and growth is non linear, and there is an optimal level of decentralization.

Zhang and Zou (1998) use panel data for Chinese provinces for the years 1980-1992. Their results suggest that FD reduced economic growth. However, Feltenstein and Iwata (2005) use a VAR methodology on a Chinese time series from 1952 to 1996, to examine the effect of FD on growth and find the opposite results.

Summing up the empirical literature we suggest, in line with Martinez-Vazquez and McNab (2003) and Feld et al. (2008), that the empirical evidence on the relationship between FD and growth are mixed. This is in part due to the use of different data sets and different methodologies, and in part due to the difficulty in measuring FD. Finally, the difficulty in isolating exogenous components of FD leads current studies to rely on less reliable identification techniques, leading to less reliable conclusions.

Economies of scale

A possible shortcoming which might arise from FD has to do with economies of scale. If economies of scale are present in the provision of public services, then delegating power to the local level would result in higher average costs. There is a large body of evidence regarding the existence of economies of scale in most municipal services, though parts of this literature are somewhat outdated (see Callan and Thomas 2001 for waste collection, Duncombe and Yinger 1993 for fire protection, Kraus 1988 for roads, Farsi et al. 2007 for public transportation and DeBoer 2004 for libraries).

Some suggest that economies of scale cease to exist after a certain threshold, from which exist diseconomies of scale (Solle-Olle and Bosch 2005, Rocaboy 2007, Breunig and Rocaboy 2008). Negative effects of size might be caused by congestion

(See Reiter and Weichenrieder 1997 for a literature review on crowding effects at the local level). Still others find no correlation between costs and size (see Bodkin and Conklin 1971, Dreksen 1988 for general municipal services and Gyimah-Brempong 1987 for police departments).

While there is clearly a need for more papers on the subject, there seem to be evidence regarding economies of scale in the provision of local public services, at least in specific services. These economies of scale, however, might well be exhausted after a certain size, which remains unclear. Therefore, this issue is more relevant to local governments, where some governments are too small to fully enjoy economies of scale.

Other issues

A possible advantage of FD is its effect on corruption. If local politicians are more accountable there might be less corruption at the local level compared to the central level. However, the effect of FD on corruption seems to depend on country contingencies. Some suggest that there is more corruption at the local level (Brueckner 2000, Treisman 2000, Bardhan 2002), while others suggest the opposite (Fisman and Gatti 2000). This has led Bardhan and Mookherjee (2005) to conclude that the link is unclear.

Fiscal decentralization might also have additional shortcomings. Delegating more responsibilities to SNGs might create coordination problems, either between local and national governments or between local governments themselves (Treisman 2000). In addition, the administrative capacity of local government might also be lacking (Fox and Gurley, 2006). These issues need to be explored further before a conclusion can be drawn.

3.2. Distribution

There are two important empirical questions regarding the link between distribution and fiscal decentralization. The first is whether the authority to redistribute should be decentralized. The second is whether fiscal decentralization in itself affects redistribution (or inequality). We will focus on welfare and education as the arguably most important redistribution programs.

Regarding the link between distribution and FD, theory suggested that welfare should not be decentralized because of migration which could cause a "race to the bottom". Does the empirical literature find this race in welfare transfers, or at least a significant migration of poor/rich based on welfare differentials? The answer is probably negative - evidence suggests that very few poor people migrate from state to state in the United States in search for higher welfare benefits (Hanson and Hartman 1994, Allard and Danziger 2000, Berry et al. 2003). This might be one of the factors allowing states to increase welfare transfers (Volden 2002).

Should education be decentralized? Theory suggests it should, because it allows different residents to buy different bundles of education. Unfortunately, there are hardly any papers giving an empirical assessment of whether this should be the case.

The second question is the effect of FD on distribution, or inequality. Theory suggests that FD will increase inequality because of agglomeration effects and differences in initial regional endowments. The empirical literature is offering a more complex result. It seems that FD is associated with reductions in inequality in developed economies, but with increased inequality in developing economies. This result is at the level of associations due to the difficulty in identifying exogenous FD reforms. Ezcurra and Pascual (2008) find that FD is associated with reduced inequality in a sample of European countries. Akai and Hosio (2009) analyze a cross-section of US counties and

find that FD is associated with a decrease in inter-county inequality. Lessmann (2009) documents similar effects using a panel of 23 OECD countries for the period 1982-2000.

Two studies deal with a panel of both developed and developing economies. Rodríguez-Pose and Ezcurra (2010) analyze a panel of 26 countries for the period 1990-2006. They find that FD increases inequality in developing economies, but decreases inequality in developed economies. Sepulveda and Martínez-Vázquez (2011) analyze a panel of 34 countries with a sample period of 1971-2000. They find that FD increases inequality in general, but decreases inequality if the central government is big enough (more than 20% of GDP). Since a large central government is one of the characteristics of developed economies, this result is in line with the previous studies.

While most papers deal with the general effect of FD on inequality, Galiani et al. (2008) focus on the decentralization of education. They find that school decentralization in Argentina improved the average performance of students, at the cost of increased inequality.

FD might still be optimal even if it increases inequality, since the central government can fight inequality through IGG (Rao and Das-Gupta 1995). However, as documented above, IGGs create additional distortions (see e.g. Albouy 2009, 2012).

3.3. Stability

Issues of macroeconomic stability are rarely discussed in the fiscal decentralization literature. This is partly because SNGs usually play a minor role in the macroeconomy. However, if FD reforms continue, SNGs would start to have a more noticeable macroeconomic impact. Most of the findings regarding macroeconomic stability and fiscal decentralization focus on sub-national fiscal imbalances and their

macroeconomic implications. For example, some suggest that macroeconomic stability is compromised in federal developing economies because of IGGs and vertical fiscal imbalances, which increases spending power at the local level, thus creating deficits due to the soft budget constraint (Fukasaku and De Mello 1998, Wibbels 2000).

Another result in the literature discusses the effect of decentralization on inflation. Evidence from China shows that decentralization created inflation because it enabled state-owned enterprises to over-consume and over-invest (Fan et al. 1996, Feltenstein and Iwata 2005). However, results from both cross-section and panel of countries suggest that revenue decentralization is associated with lower inflation (King and Ma 2001, Neyapti 2004). Here too it seems that the type of decentralization is important.

The findings regarding other linkages between FD and macroeconomic policy are rather limited. Financial regulation and macro-prudential policies are mainly done at the central level. Monetary policy and exchange rate policy might have heterogeneous implications at the sub-national level, but these implications are rarely discussed in the literature.

One of the reasons to discuss the decentralization of macroeconomic policy has to do with possible differences in the effects of countercyclical policy between states or regions. Carlino and DeFina (1998) find that three out of the eight regions in the United States have a different response to monetary policy. The Great Lakes region is more sensitive to monetary policy, whereas the Southwest and Rocky Mountains regions are much less sensitive, compared to the US average. These results are corroborated for the state level by Carlino and DeFina (1999). Carlino and Sill (2001) find that regional business cycles differ in their volatility, despite the co-movement of seven out of the eight regions. These findings suggest that geographical considerations

should be taken into account when formulating countercyclical policy. However, this avenue of research requires additional research, both theoretical and empirical, before solid policy recommendations could be formulated.

The causes of fiscal decentralization

A relatively new literature is trying to understand the causes of fiscal decentralization. One important difference between this literature and the rest of the FD literature is that here fiscal decentralization is the *endogenous* variable, and not the *explanatory* (i.e. exogenous) variable. As noted above, the direction of causality between FD and other attributes of public finance has to be well established before a valid conclusion can be made. Unfortunately, the literature on the causes of FD is mainly providing associations and hardly tackles the issue of causality.

Panizza (1999) was probably the first to discuss the determinants of FD. He provides a model of endogenous fiscal decentralization and tests the model on a cross-section of 57 countries. He finds that country size, income, ethnic fractionalization and the level of democracy are positively correlated with FD. Arzaghi and Henderson (2005) analyze a panel of 47 countries from 1975 to 1995. They Use random effects and GMM and suggest that income growth and population growth lead to FD. The positive association between FD and income was also found in other studies (Letelier 2005, Bodman Hodge 2010). They also suggest that federalism and democratization lead to FD and are arguably the only ones who try to identify a causal link between FD and its determinants, through their GMM estimator which uses Instrumental variables.

Another important paper is Treisman (2006), which analyzes a panel of 66 countries. His results are mostly in line with Arzaghi and Henderson (2005). For example, he finds that richer countries are more decentralized. This is more pronounced

in the decentralization of spending, leading to higher IGG in these countries. Federal states are more decentralized and so are democracies. He finds that large territory (but not necessarily large population) countries are more FD. Treisman (2006) is also providing an institutional analysis and finds that former colonies of Spain and Portugal are more centralized, while former Soviet Union countries are more decentralized. Finally, Letelier (2005) is analyzing a panel of 64 countries and finds that urbanization is negatively associated with FD.

Summing up the literature on the determinants of fiscal decentralizations, there is a general agreement in the literature regarding several associations – FD is positively associated with income, population and territory. It is also positively associated with federalism and democratization. Unfortunately, the direction of causality between FD and its determinants remains unclear. This is especially important in the case of income, due to the large literature dealing with FD as a determinant of economic growth.

4. Future research

The empirical literature on the causes and consequences of fiscal decentralization is enormous but also largely inconclusive. This leaves many unanswered questions and provides many avenues for future research. We will discuss several of those here. Again, we will divide the discussion to the allocation, distribution and stabilization branches.

Starting with allocation, one important direction for future research is the informational advantage of SNGs. While some evidence does exist, it is not sufficiently clear that SNGs have more information than national governments. Nor is it sufficiently understood what determines this informational advantage and what its magnitude is.

This question is crucial since having an informational advantage is one of the main reasons for the presumed superiority of FD.

The effect of FD on horizontal tax competition is not well understood yet, nor is it clear whether having more horizontal tax competition is better. In addition, much less is known regarding the link between FD and vertical tax competition. The net effect is also not clear: is an increase in horizontal tax competition as a result of FD greater than its (presumably positive) effect on vertical tax competition? All these questions remain as important avenues for future research.

Regarding IGGs, a unified framework is needed to incorporate both political considerations and normative ones, in order to assess the way IGG should be granted. What is the optimal level of IGG, taking the political constraints into account? Another question is whether these political constraints could be lifted through fiscal rules or other institutional changes, and if so, do countries with fiscal rules manage to have a better IGG system which doesn't suffer from political biases.

The literature regarding economies of scale does provide some results on the existence of economies of scale in specific local public services. However, parts of the literature are somewhat outdated and there is need for contemporary empirical studies which incorporate new and more sophisticated econometric methodologies.

Finally, the optimal allocation of responsibilities within SNGs received too little attention in the empirical literature as well. It is not clear whether FD should be done from the central level to the state level or to the local level. The differences between FD to these two tiers are rarely discussed in the literature. There is also not enough discussion regarding the role fiscal equivalence plays in the decision to FD. In theory, fiscal equivalence dictates a very specific division of power. Is FD bringing this division into effect or undermines it?

The link between FD and distribution also requires future research. Specifically, what is the reason FD has a different effect in developed and developing economies. The proper design of IGGs as a tool for redistribution should also be considered more closely.

While most of the literature deals with allocation issues, the area where future research is most needed is arguably stabilization. This is especially true for countries which underwent significant FD reforms, to the level that fiscal policy at the SNG level affects the macro-economy. Should fiscal and monetary policies have a regional component? If fiscal responsibility is decentralized, should countercyclical fiscal policy be decentralized as well? Fiscal and monetary policy might have heterogeneous effects at the sub-national level, but these implications are rarely discussed in the literature and deserve more consideration.

5. Conclusions and policy implications

This paper surveyed the empirical evidence regarding the different effects of fiscal decentralization on the economy. We gave the theoretical predictions and empirical estimates following the three roles of government – allocation, distribution and stabilization. Our main conclusion is that in most issues the empirical evidence is highly divided. This division is a result of sample differences as well as methodological differences.

Perhaps the toughest issue is the link between FD and efficiency. The effects of decentralized spending on horizontal competition, government size, economic growth and corruption are not well understood yet. Perhaps the only concrete finding is related to the impacts of the political level on IGGs. IGGs are a crucial component in every FD scheme, but a large literature shows the difficulties in the optimal design of these grants,

due to political influences. One possible policy implication is to establish fiscal rules for the distribution of IGGs, in order to weaken the political influence.

The empirical literature provides suggested links between FD and agglomeration effects and economies of scale. The effectiveness of FD also depends on the capacity of SNGs to operate. Policy makers should be aware of all these considerations while tailoring a suitable FD reform in a specific institutional and political setting.

Regarding the effects of FD on distribution, there is no evidence for a race to the bottom in welfare. This means that there might be a role for local communities to redistribute resources. There are very few studies dealing with education and FD but it seems like education can be locally provided as well. Whether FD increases or decreases regional inequality remains an open question which potentially depends on whether the country is developed or developing.

Regarding stabilization, there is evidence that fiscal policy and monetary policy have heterogeneous geographical effects. This result suggests that policy should be taken with these geographical differences in mind. Another important result is the tendency of FD to enhance local budget deficits, to the point that these deficits compromise macroeconomic stability.

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