

2 Key Principles of Fiscal Decentralization

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Chapter 2 outlines key principles of fiscal decentralization, as drawn from the academic literature, including: (1) the rationale for devolving service provision and financing responsibilities to subnational governments; (2) guidelines for assigning particular expenditures and revenues across levels of government; and (3) a framework for designing and allocating intergovernmental transfers. Implications for education sector decentralization are discussed. Finally, the literature on the impact of transfers on education spending and the impact of spending on education outcomes is briefly reviewed and some outstanding issues and policy questions are highlighted.

RATIONALE FOR FISCAL DECENTRALIZATION

The decentralization of responsibility for the provision and financing of services from central governments to subnational governments is a pervasive phenomenon in developing and transition countries (Martinez-Vazquez and Vaillancourt 2011; Smoke and Loffler 2013). In theory, decentralization results in a better match between subnational public service delivery and diverse citizen preferences. The expected benefits are a function of the relative physical proximity of subnationals to their respective constituents. Greater proximity allows subnationals to determine citizen demand for services more accurately than the central government and to tax and spend more effectively based on that understanding (Oates 1972). Proximity also supports the strengthening of horizontal accountability. Because citizens are physically closer to their subnational governments, they are better able to insist that their demands for more and better services be met. They may also be more encouraged to hold subnationals accountable when they are obliged to pay taxes and charges for services. In any case the increased demand-side accountability reinforces independent improvements to subnational service supply. In theory, the overall outcome is more efficient subnational public service delivery (Lewis 2017a; Lewis and Smoke 2017; Martinez-Vazquez and Vaillancourt 2011; Oates 1972; Smoke and Loffler 2013; Tiebout 1956).

Worldwide experience of developing and transition countries that are decentralizing their public sectors suggests, however, that the theoretical benefits of decentralization may not be so easily attained. For one thing, decentralization programs are in many, perhaps most, cases undertaken for purely political reasons and are not necessarily explicitly intended to achieve public service efficiency or horizontal accountability objectives (Eaton, Kaiser, and Smoke 2011). Even where such potential gains are recognized and sought out, practice shows that the increased physical proximity between subnational government decision-makers and their citizens, in and of itself, may be inadequate to generate expected improvements in subnational service delivery and related outcomes. A significant amount of quantitative and qualitative research on the impact of decentralization on services is particularly mixed, ranging from strongly positive to deeply negative and everything in between (Bardhan and Mookherjee 2006; Boadway and Shah 2007; Channa and Faguet 2016; Connerley, Eaton, and Smoke 2010; Faguet 2014; Martinez-Vazquez and Vaillancourt 2011; Lewis 2017a; Lewis and Smoke 2017; Smoke 2001, 2014).

The academic literature highlights a number of political economy factors that may cause decentralization's uneven service delivery. Perhaps the most well-known finding in this context is that subnationals in developing and transition countries often suffer from elite capture or clientelism (Bardhan and Mookherjee 2000, 2012; Smoke 2014). Under elite capture, fiscal resources are diverted away from the delivery of basic services demanded by most citizens and toward proscribed uses or beneficiaries, especially the rich and powerful. Under clientelism, some benefits may be susceptible to redirection to key political constituencies in the run-up to elections. Elite capture and clientelism may exist at both the central and subnational levels, of course, but they may be especially problematic subnationally because of the relatively greater cohesiveness of special interest groups and reduced voter awareness (Bardhan and Mookherjee 2000).¹ Other basic political economy and governance features, such as the establishment of subnational jurisdiction boundaries (and the creation of new subnational units), central government interference in subnational decision-making, subnational government form (directly versus indirectly elected subnational executives), the size and functioning of subnational legislatures, and formation and structure of executive-legislative coalitions, among many others, may also constrain successful decentralized service delivery (Lewis 2018, 2019; Lewis and Hendrawan 2019).

EXPENDITURE ASSIGNMENT

The guiding principle for assigning public service responsibilities across levels of government is Wallace Oates's decentralization theorem (Oates 1972). A closely related standard is subsidiarity, which is the recognized basis for assigning services in the European Union, among other places (McLure and Martinez-Vazquez 2000). Both imply that expenditures should be assigned to the lowest level of government compatible with the size and scope of the benefit area of delivered services (Bahl 2008). These principles argue for decentralizing most public service delivery to the lowest level of government—unless there are particularly good reasons for not doing so. Some of those “particularly good reasons” relate to macroeconomic stabilization, risk-pooling, economies of scale, and spatial externalities (Boadway and Eyraud 2018). These latter standards

may be thought of as mitigating criteria that imply at least some involvement of higher levels of government in service provision.

Government stabilization functions are designed to address common macroeconomic shocks, and these are most appropriately carried out at the central level. Services that require risk-pooling, such as those related to social insurance programs, are usually claimed to be more efficiently carried out centrally. Some services with especially strong economies of scale—major transportation systems, for example—can be more efficiently provided centrally. Finally, public services for which benefits (costs) spill over to a large extent across jurisdictional boundaries may warrant higher-level government provision, because lower levels may tend to under- (over-) supply them. Overall, these principles suggest that the central government should assume responsibility for national public goods and social insurance programs, while subnational governments should provide local public goods (Boadway and Eyraud 2018).

Expenditure assignments among subnationals at the same level need not be uniform; some asymmetry may be desirable given the different characteristics of subnationals (for example, urban versus rural) and uneven capacities. Finally, even in the case of subnational provision, central government should likely maintain at least some policy authority (Martinez-Vazquez and Vaillancourt 2011; Boadway and Eyraud 2018).

Although these principles provide broad guidance in expenditure assignment, in practice many different assignments may be consistent with the standards. Perhaps the most important point in this context is that any service assignment that is undertaken should be clear to all parties involved and rigorously enforced.

TAX ASSIGNMENT

It is usually argued that the assignment of authority over taxes should come after decisions have been made regarding the decentralization of expenditures across the various levels of government in a country. That is, in principle, finance should follow function. This suggests, among other things, that any revenues that are directly associated with the provision of services should be placed under the authority of the government providing those services. Beyond that, taxes may be assigned across levels of government based on two additional principles: efficiency in tax administration and fiscal needs (Bahl 2008; Bird 2011; Shah 1999). Mobile tax bases are more efficiently managed from the center, for example, in order to minimize tax competition. The fiscal needs criterion highlights again the importance of a prior assignment of service responsibilities, because the financial needs of a government cannot be accurately derived until expenditure assignments have been determined (Bird 2011). A final principle of tax assignment is that governments at all levels require sufficient tax base and rate authority “at the margin,” so that any rise in service demand can be financed out of marginal increases in own-tax revenues. Insufficient own-source revenues—vertical fiscal imbalances—reduce subnational government fiscal discipline and weaken horizontal accountability (Eyraud and Lusinyan 2013; Gadenne 2017).

In practice, the application of these principles implies that the central government should probably be assigned corporate and personal income taxes,

multistage sales taxes (value-added taxes—VAT), taxes on unequally distributed natural resources, and international trade taxes, among others. Second-tier governments might hold authority over single-stage sales taxes; taxes on alcohol, motor fuels, lotteries, and vehicles; provincial road congestion charges; and excises. Finally, property taxes should be assigned to lower government tiers, as should local road tolls, market taxes, and user charges of various kinds (Bahl 2008; Boadway and Eyraud 2018; Shah 1999).

Tax assignments across countries of the world vary significantly, even among those nations that have attempted to apply the broad principles outlined above. Those differences notwithstanding, a common result is that subnationals, especially those at the lowest tiers of government, will in all likelihood have an insufficient amount of revenue to finance the services they have been charged with delivering. That is, it is typical for countries to decentralize significant expenditures to subnationals while maintaining a relatively more substantial role for the central government in raising tax revenues. This internationally ubiquitous outcome highlights the unavoidable and essential role played by intergovernmental transfers in filling resource gaps (Bahl and Linn 1992).

INTERGOVERNMENTAL TRANSFERS

Transfer objectives

The four most commonly stated objectives for intergovernmental transfers are adequacy, equity, efficiency, and performance. These objectives are relevant for transfer systems in general and for transfers specific to education. For transfer systems in general, adequacy refers to addressing vertical imbalances between levels of government (assuring that each subnational level has sufficient funds to deliver on its responsibilities); equity refers to accommodating horizontal imbalances (equalizing net fiscal capacity across subnational governments at a particular level); efficiency is linked to the idea of preserving an “internal common market” (for example, guaranteeing that all subnational governments at a certain level have enough money to deliver a minimum standard of services, thereby encouraging the efficient flow of labor, capital, and goods across borders), addressing spatial spillovers and other externalities, and promoting the efficient use of inputs and the delivery of outputs demanded by citizens; and performance refers to transfers that encourage any of the many “results” that the central government would like to promote. Objectives are often mutually compatible. Meeting minimum service standards, for instance, discussed here as a means of achieving efficiency goals, may also promote adequacy, equity, and even performance objectives. On the other hand, transfer objectives may sometimes be in tension with one another. Intergovernmental transfers that focus purely on equalizing net fiscal capacity across subnational units, for example, may not do much to promote the efficient use of service delivery inputs or encourage subnational government service performance (Bahl and Linn 1992; Boadway and Shah 2007; Shah 1994).

For education, adequacy means that transfers are sufficient for schools to educate all students to desired levels; equity refers to equalizing the net fiscal capacity of schools or the provision of transfers for poor students to support their enrollment and learning; efficiency means that funding focuses on delivering a minimum level of education to all students, addresses benefit spillovers to neighboring jurisdictions, or is allocated to school activities that

promote the technical or cost-efficient use of inputs and resources by schools, or, at the margin, are most likely to lead to education outputs desired by the community; and performance means promoting education outputs or outcomes of various types through the transfer system.

Transfer types

There are many different ways to classify transfer types. A common one follows, based on Boadway and Shah (2007):

- General nonmatching
- Conditional input-based nonmatching
- Conditional input-based matching
 - Open-ended
 - Closed-ended
- Conditional output-based nonmatching

General grants are lump sum transfers to subnational governments that can be spent on any functions that the subnational government chooses. Conditional nonmatching transfers, sometimes referred to as “sectoral block grants,” are transfers to subnational governments that are targeted for use in particular sectors. Conditional matching grants are also meant to be spent on indicated functions and require some counterpart contribution by the recipient government. Such grants can be either open-ended, with no firm limit on the size of the grant or closed-ended, where grant magnitude is restricted. Conditional output-based nonmatching grants target, as the name implies, improvements in sector-specific outputs or outcomes.

The general idea is that individual types of grants, as classified above, should be matched with objectives. General nonmatching transfers are usually preferred for addressing adequacy concerns, for example. General nonmatching transfers are also typically viewed as the most appropriate mechanisms to tackle problems related to equity and horizontal imbalances. Conditional input-based nonmatching or conditional input-based matching grants are often used to encourage spending on particular types of activities or functions to enhance efficiency; the former are usually thought to be most appropriate to address minimum service standards and the latter to deal with spillovers and externalities. And conditional output-based grants are preferred for dealing with performance objectives. Again, these matches work for both the transfer system, in general, and as it relates to education, specifically. The links between grant objectives and grant types are summarized in table 2.1.

TABLE 2.1 Transfer type by objective

TRANSFER TYPE	TRANSFER OBJECTIVE			
	ADEQUACY	EQUITY	EFFICIENCY	PERFORMANCE
General	√	√	n.a.	n.a.
Conditional input-based nonmatching	n.a.	n.a.	√	n.a.
Conditional input-based matching	n.a.	n.a.	√	n.a.
Conditional output-based	n.a.	n.a.	n.a.	√

Source: World Bank.

Note: √ = applicable; n.a. = not applicable.

TABLE 2.2 Allocation of transfers

ALLOCATING THE POOL OF FUNDS	DETERMINING THE POOL OF FUNDS		
	SPECIFIED SHARE OF NATIONAL REVENUE	AD HOC	REIMBURSEMENT OF EXPENDITURE
Origin of collection	General nonmatching	n.a.	n.a.
Formula	General nonmatching or conditional input-based nonmatching (sectoral block grants)	General nonmatching or conditional input-based matching or nonmatching	n.a.
Cost reimbursement	Conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching or conditional output-based nonmatching
Performance-based	n.a.	Conditional output-based matching or nonmatching	n.a.
Ad hoc	General nonmatching, conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching	n.a.

Source: Adapted from Bahl and Linn 1992.

Note: n.a. = not applicable.

Transfer allocation mechanisms

The allocation of transfers has two components: determining the total pool of funds available for transfers and distributing that pool across individual units (such as governments and schools). There are three basic ways to determine the pool of funds: as a specified share of national government tax or nontax revenue; as a function of annual ad hoc decision-making; or based on the reimbursement of approved expenditures. The five principal means of allocating the pool of funds are: origin of tax or nontax revenue; formula; reimbursement of costs; performance-based; and ad hoc. A sixth means of allocating funds is based on subnational government proposals to the central government. This is not a typical method of distributing grant funds, although some countries, such as Indonesia, employ it to a limited extent.

Allocation mechanisms can also be matched to transfer types. One way of matching fiscal transfer types with distribution arrangements is shown in table 2.2.

EDUCATION SECTOR DECENTRALIZATION

The provision of education is among the most decentralized of all government functions. Benefit areas for education tend to be reasonably local for primary, secondary, and vocational schools. There may be some education benefit spill-over across neighboring jurisdictions (or even nationally), but where there is evidence that subnational governments underprovide schooling because of positive externalities they can be encouraged to increase supply through conditional input-based matching grants. Because macroeconomic stabilization and risk-sharing are not particularly noteworthy in the sector, there is no obvious need to centralize education responsibilities based on these standards.

Education functions of special note include teacher recruitment, promotion, and payment; school maintenance, rehabilitation, and construction; standard setting; curriculum design and teaching methods; textbook production and distribution; and student evaluation. Of these, teacher payment and school maintenance, rehabilitation, and construction are mostly assigned locally, while all other subfunctions tend to be shared among subnational governments and the central government, with the latter maintaining significant control over policy.

With respect to education finance, subnational governments typically employ various community funding schemes, such as school fees, contingencies, and ad hoc contributions. In addition, the central government often assigns a particular revenue source to be used by subnational governments to finance education; the property tax is especially important in this context. These two sources of finance are rarely sufficient to cover the costs associated with providing education, however. This deficiency suggests a strong role for intergovernmental transfers in financing education at the subnational level (Rondinelli 1999).

There is significant disagreement, however, about the types of intergovernmental transfers that should be employed to support the funding of local education. Public finance experts tend to view the use of general grants as optimal, on adequacy and equity grounds. Most seem to prefer a minimalist approach to the use of conditional grants in the sector, viewing their employment as necessary only to address specific efficiency concerns such as ensuring minimum standards in education or accommodating education benefit spillovers. Education sector specialists, on the other hand, appear to favor a much more pronounced role for conditional grants, in order to ensure sufficient levels and growth of funding in the sector, perhaps, or to address a broader range of efficiencies, such as the optimal use of teaching inputs. Interest in performance grants is apparent across both camps, but experience in the use of such mechanisms in the education sector is so far quite limited and approaches for advancing their employment in a more significant way are contentious. In sum, consensus on the use of intergovernmental transfers in the education sector remains elusive.

IMPACT OF FISCAL TRANSFERS IN EDUCATION: A LITERATURE REVIEW

Impact of transfers on education spending

The impact of intergovernmental fiscal transfers on subnational education spending depends, in theory, on the type of transfer. It is typically claimed, for example, that conditional transfers have a larger effect on education spending than general transfers because conditional transfers must be spent in the education sector; general transfers can be spent by subnationals on any function—education or others—according to their preferences (Gamkhar and Shah 2007; Gruber 2010; Shah 1994). Therefore, targeted conditional grants are more likely to induce increases in education spending.

Among conditional transfers, both open- and closed-ended, matching grants are thought to stimulate education spending the most. Such grants both provide additional funds to subnational governments—the income effect—and lower the cost of spending in education—the price or substitution effect. The two effects work together to increase spending by a potentially considerable

amount, sometimes by more than the amount of the grant itself. (In the case of closed-ended matching grants, the subsidy applies only until the maximum size of the grant is reached.) Conditional nonmatching grants may also be useful in increasing education spending, but their impact may not be as large as that of matching grants. The latter have only an income effect, which reduces the overall spending impact, typically to an amount that is less than the size of the transfer. Note that for conditional nonmatching transfers, if the amount of the grant is less than what subnational governments would have otherwise spent on education, the expected impact is indistinguishable from that of a general grant (Gamkhar and Shah 2007).

The available empirical evidence is quite mixed with regard to the theoretical propositions described in the previous paragraphs. Some research does, in fact, suggest that conditional grants are more stimulative of local education spending than general grants. Lewis (2013) shows, for example, that an extra rupiah of closed-ended matching capital grant in Indonesia leads to an increase in local government capital spending on education and health of 0.50 rupiah, whereas an additional rupiah of general purpose grant leads to a rise in education and health capital spending of only 0.01 rupiah. At the same time, a substantial amount of research implies that general grants may have a larger impact on spending, in general, than theory would predict. That is, the effect of a general transfer to subnational governments on spending should, in theory, be equivalent to the effect of a transfer directly to local community private income. Gamkhar and Shah (2007) review a large number of studies and find that an extra US\$1.00 of general grants leads to a nearly US\$0.60 increase in subnational spending. However, an additional US\$1.00 of private income results in an increase of only US\$0.10 in spending at most. The differential impact is often referred to as the flypaper effect—money sticks where it lands (Gramlich 1969; Henderson 1968; Inman 2008). Some evidence suggests that the impact of conditional closed-ended matching grants on subnational education spending may be significantly lower than anticipated. In a rare study on the topic, McGuire (1973) found that an extra US\$1.00 of federal matching education grants to local governments in the United States led to between a US\$0.82 and US\$0.98 increase in total local spending, but that 64–69 percent of that spending was allocated to noneducation sectors. On the other hand, substantial empirical evidence shows that nonmatching conditional grants in the education sector have broadly the expected impact. A wide-ranging survey by Fisher and Papke (2000) found that a US\$1.00 increase in nonmatching conditional grants to state governments in the United States resulted in a US\$0.30 to US\$0.70 increase in education spending.

Impact of spending on education outcomes

How does public spending, in turn, affect education outcomes? This key policy question has generated a significant amount of academic work over the years. As before, the empirical evidence is quite mixed. Some research indicates that spending has an insubstantial impact, if any, on education outcomes. Hanushek (1995) reviews the experience of many developing countries across major regions of the world and finds an unsystematic relationship between public spending and education outcomes of various kinds. Mingat and Tan (1992, 1998) also find little association between public expenditures and education outcomes across a large sample of developed and developing countries.

Other research on the impact of spending on education outcomes offers more ambiguous results. Incentive payments for teachers in Chile had positive effects on math and language test scores but had no significant impact on enrollment (Contreras and Rau 2012). The No Child Left Behind program in the United States had a positive effect on children's math test scores but had no impact on reading scores (Dee and Jacob 2011). In Jakarta, Indonesia, Al-Samarrai et al. (2018) show that the city's performance grant program led to improvements in test scores among students in junior secondary school but not among those in primary school. The analysis also suggests that any positive results may have been more a function of competition among schools to secure performance funding rather than an increase in the availability of resources per se.

Finally, other empirical work suggests more positive and robust effects related to the influence of public spending on education service delivery. Gupta, Verhoeven, and Tiongson (2002) find a strong correlation between public spending and education and health outcomes for a cross-section sample of 50 transition and developing countries. Jackson, Johnson, and Persico (2014) demonstrate the existence of a very significant relationship between public education spending and a variety of school outcomes in the United States for a nationally representative panel of children born between 1955 and 1985. Baldacci, Guin-Siu, and de Mello (2003) show for 94 transition and developing countries that public spending can be effective in improving education and health outcomes, as long as underlying problems related to income and gender inequality are resolved. Rajkumar and Swaroop (2008) examine a panel of 90 developed and developing countries and conclude that the effect of spending on education and health outcomes is significantly improved as the quality of governance rises. Litschig and Morrison (2013) demonstrate that a 20 percent increase in local government spending over a period of four years in Brazil led to a rise in enrollment of about 7 percent and an increase in literacy rates of approximately four percentage points. de Carvalho Filho and Litschig (2017) find that these positive effects endured, albeit at diminished levels, for up to 15 years after the initial increase in education spending. Lewis (2017b) shows that Indonesian local government spending positively affects education and other outcomes, especially when local governance conditions are accommodating.

Outstanding issues and policy questions

The technical issues related to the investigation of the impact of transfers on education spending and the effect of spending on education outcomes are summarized in the preceding sections. Among the most important, perhaps, is the potential endogeneity of explanatory variables. That is, it has been argued by many researchers that transfers should in many cases be treated as endogenous in the determination of spending and that spending should be taken as endogenous in the determination of outcomes (see, for example, Gamkhar and Shah 2007; Lewis 2013, 2016). Other technical problems with the estimation of transfer and spending effects include, among others, possible omitted explanatory factors, neglecting grant conditions when examining the impact of transfers on spending, and the disregard of plausible dynamic effects (Gamkhar and Shah 2007). If these technical issues are not handled well in model specification and estimation,

the empirical results will be biased. These difficulties may help explain both why the results diverge to such a large extent from what theory predicts and why the empirical results differ so much across individual studies.

For policy purposes, the definition of “spending” is critical to the examination of transfer impact on spending and spending impact on outcomes. In many, perhaps most, analyses researchers have focused on the effects of transfers on education spending and of education spending on education outcomes. However, this ignores the fact that spending on other functions may also have an impact on education outcomes. For example, expenditure on health and social protection (health insurance and subsidies to the poor), the environment (protecting clean water from pollutants), infrastructure and low-income housing (clean water and sanitation access), security and law and order (provision of a safe environment for the delivery of subnational public services), and even administration (which includes supply of back office functions for subnational government and its service delivery units) may well positively influence education outcomes. If so, a narrow focus on education spending may miss an important part of the story (Lewis 2017b).

NOTE

1. On the other hand, capture and clientelism may be comparatively stronger at the central level when electoral competition for higher office is negligible or national electoral outcomes are highly uncertain (Bardhan and Mookherjee 2000).

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2 Key Principles of Fiscal Decentralization

BLANE LEWIS

Chapter 2 outlines key principles of fiscal decentralization, as drawn from the academic literature, including: (1) the rationale for devolving service provision and financing responsibilities to subnational governments; (2) guidelines for assigning particular expenditures and revenues across levels of government; and (3) a framework for designing and allocating intergovernmental transfers. Implications for education sector decentralization are discussed. Finally, the literature on the impact of transfers on education spending and the impact of spending on education outcomes is briefly reviewed and some outstanding issues and policy questions are highlighted.

RATIONALE FOR FISCAL DECENTRALIZATION

The decentralization of responsibility for the provision and financing of services from central governments to subnational governments is a pervasive phenomenon in developing and transition countries (Martinez-Vazquez and Vaillancourt 2011; Smoke and Loffler 2013). In theory, decentralization results in a better match between subnational public service delivery and diverse citizen preferences. The expected benefits are a function of the relative physical proximity of subnationals to their respective constituents. Greater proximity allows subnationals to determine citizen demand for services more accurately than the central government and to tax and spend more effectively based on that understanding (Oates 1972). Proximity also supports the strengthening of horizontal accountability. Because citizens are physically closer to their subnational governments, they are better able to insist that their demands for more and better services be met. They may also be more encouraged to hold subnationals accountable when they are obliged to pay taxes and charges for services. In any case the increased demand-side accountability reinforces independent improvements to subnational service supply. In theory, the overall outcome is more efficient subnational public service delivery (Lewis 2017a; Lewis and Smoke 2017; Martinez-Vazquez and Vaillancourt 2011; Oates 1972; Smoke and Loffler 2013; Tiebout 1956).

Worldwide experience of developing and transition countries that are decentralizing their public sectors suggests, however, that the theoretical benefits of decentralization may not be so easily attained. For one thing, decentralization programs are in many, perhaps most, cases undertaken for purely political reasons and are not necessarily explicitly intended to achieve public service efficiency or horizontal accountability objectives (Eaton, Kaiser, and Smoke 2011). Even where such potential gains are recognized and sought out, practice shows that the increased physical proximity between subnational government decision-makers and their citizens, in and of itself, may be inadequate to generate expected improvements in subnational service delivery and related outcomes. A significant amount of quantitative and qualitative research on the impact of decentralization on services is particularly mixed, ranging from strongly positive to deeply negative and everything in between (Bardhan and Mookherjee 2006; Boadway and Shah 2007; Channa and Faguet 2016; Connerley, Eaton, and Smoke 2010; Faguet 2014; Martinez-Vazquez and Vaillancourt 2011; Lewis 2017a; Lewis and Smoke 2017; Smoke 2001, 2014).

The academic literature highlights a number of political economy factors that may cause decentralization's uneven service delivery. Perhaps the most well-known finding in this context is that subnationals in developing and transition countries often suffer from elite capture or clientelism (Bardhan and Mookherjee 2000, 2012; Smoke 2014). Under elite capture, fiscal resources are diverted away from the delivery of basic services demanded by most citizens and toward proscribed uses or beneficiaries, especially the rich and powerful. Under clientelism, some benefits may be susceptible to redirection to key political constituencies in the run-up to elections. Elite capture and clientelism may exist at both the central and subnational levels, of course, but they may be especially problematic subnationally because of the relatively greater cohesiveness of special interest groups and reduced voter awareness (Bardhan and Mookherjee 2000).¹ Other basic political economy and governance features, such as the establishment of subnational jurisdiction boundaries (and the creation of new subnational units), central government interference in subnational decision-making, subnational government form (directly versus indirectly elected subnational executives), the size and functioning of subnational legislatures, and formation and structure of executive-legislative coalitions, among many others, may also constrain successful decentralized service delivery (Lewis 2018, 2019; Lewis and Hendrawan 2019).

EXPENDITURE ASSIGNMENT

The guiding principle for assigning public service responsibilities across levels of government is Wallace Oates's decentralization theorem (Oates 1972). A closely related standard is subsidiarity, which is the recognized basis for assigning services in the European Union, among other places (McLure and Martinez-Vazquez 2000). Both imply that expenditures should be assigned to the lowest level of government compatible with the size and scope of the benefit area of delivered services (Bahl 2008). These principles argue for decentralizing most public service delivery to the lowest level of government—unless there are particularly good reasons for not doing so. Some of those “particularly good reasons” relate to macroeconomic stabilization, risk-pooling, economies of scale, and spatial externalities (Boadway and Eyraud 2018). These latter standards

may be thought of as mitigating criteria that imply at least some involvement of higher levels of government in service provision.

Government stabilization functions are designed to address common macroeconomic shocks, and these are most appropriately carried out at the central level. Services that require risk-pooling, such as those related to social insurance programs, are usually claimed to be more efficiently carried out centrally. Some services with especially strong economies of scale—major transportation systems, for example—can be more efficiently provided centrally. Finally, public services for which benefits (costs) spill over to a large extent across jurisdictional boundaries may warrant higher-level government provision, because lower levels may tend to under- (over-) supply them. Overall, these principles suggest that the central government should assume responsibility for national public goods and social insurance programs, while subnational governments should provide local public goods (Boadway and Eyraud 2018).

Expenditure assignments among subnationals at the same level need not be uniform; some asymmetry may be desirable given the different characteristics of subnationals (for example, urban versus rural) and uneven capacities. Finally, even in the case of subnational provision, central government should likely maintain at least some policy authority (Martinez-Vazquez and Vaillancourt 2011; Boadway and Eyraud 2018).

Although these principles provide broad guidance in expenditure assignment, in practice many different assignments may be consistent with the standards. Perhaps the most important point in this context is that any service assignment that is undertaken should be clear to all parties involved and rigorously enforced.

TAX ASSIGNMENT

It is usually argued that the assignment of authority over taxes should come after decisions have been made regarding the decentralization of expenditures across the various levels of government in a country. That is, in principle, finance should follow function. This suggests, among other things, that any revenues that are directly associated with the provision of services should be placed under the authority of the government providing those services. Beyond that, taxes may be assigned across levels of government based on two additional principles: efficiency in tax administration and fiscal needs (Bahl 2008; Bird 2011; Shah 1999). Mobile tax bases are more efficiently managed from the center, for example, in order to minimize tax competition. The fiscal needs criterion highlights again the importance of a prior assignment of service responsibilities, because the financial needs of a government cannot be accurately derived until expenditure assignments have been determined (Bird 2011). A final principle of tax assignment is that governments at all levels require sufficient tax base and rate authority “at the margin,” so that any rise in service demand can be financed out of marginal increases in own-tax revenues. Insufficient own-source revenues—vertical fiscal imbalances—reduce subnational government fiscal discipline and weaken horizontal accountability (Eyraud and Lusinyan 2013; Gadenne 2017).

In practice, the application of these principles implies that the central government should probably be assigned corporate and personal income taxes,

multistage sales taxes (value-added taxes—VAT), taxes on unequally distributed natural resources, and international trade taxes, among others. Second-tier governments might hold authority over single-stage sales taxes; taxes on alcohol, motor fuels, lotteries, and vehicles; provincial road congestion charges; and excises. Finally, property taxes should be assigned to lower government tiers, as should local road tolls, market taxes, and user charges of various kinds (Bahl 2008; Boadway and Eyraud 2018; Shah 1999).

Tax assignments across countries of the world vary significantly, even among those nations that have attempted to apply the broad principles outlined above. Those differences notwithstanding, a common result is that subnationals, especially those at the lowest tiers of government, will in all likelihood have an insufficient amount of revenue to finance the services they have been charged with delivering. That is, it is typical for countries to decentralize significant expenditures to subnationals while maintaining a relatively more substantial role for the central government in raising tax revenues. This internationally ubiquitous outcome highlights the unavoidable and essential role played by intergovernmental transfers in filling resource gaps (Bahl and Linn 1992).

INTERGOVERNMENTAL TRANSFERS

Transfer objectives

The four most commonly stated objectives for intergovernmental transfers are adequacy, equity, efficiency, and performance. These objectives are relevant for transfer systems in general and for transfers specific to education. For transfer systems in general, adequacy refers to addressing vertical imbalances between levels of government (assuring that each subnational level has sufficient funds to deliver on its responsibilities); equity refers to accommodating horizontal imbalances (equalizing net fiscal capacity across subnational governments at a particular level); efficiency is linked to the idea of preserving an “internal common market” (for example, guaranteeing that all subnational governments at a certain level have enough money to deliver a minimum standard of services, thereby encouraging the efficient flow of labor, capital, and goods across borders), addressing spatial spillovers and other externalities, and promoting the efficient use of inputs and the delivery of outputs demanded by citizens; and performance refers to transfers that encourage any of the many “results” that the central government would like to promote. Objectives are often mutually compatible. Meeting minimum service standards, for instance, discussed here as a means of achieving efficiency goals, may also promote adequacy, equity, and even performance objectives. On the other hand, transfer objectives may sometimes be in tension with one another. Intergovernmental transfers that focus purely on equalizing net fiscal capacity across subnational units, for example, may not do much to promote the efficient use of service delivery inputs or encourage subnational government service performance (Bahl and Linn 1992; Boadway and Shah 2007; Shah 1994).

For education, adequacy means that transfers are sufficient for schools to educate all students to desired levels; equity refers to equalizing the net fiscal capacity of schools or the provision of transfers for poor students to support their enrollment and learning; efficiency means that funding focuses on delivering a minimum level of education to all students, addresses benefit spillovers to neighboring jurisdictions, or is allocated to school activities that

promote the technical or cost-efficient use of inputs and resources by schools, or, at the margin, are most likely to lead to education outputs desired by the community; and performance means promoting education outputs or outcomes of various types through the transfer system.

Transfer types

There are many different ways to classify transfer types. A common one follows, based on Boadway and Shah (2007):

- General nonmatching
- Conditional input-based nonmatching
- Conditional input-based matching
 - Open-ended
 - Closed-ended
- Conditional output-based nonmatching

General grants are lump sum transfers to subnational governments that can be spent on any functions that the subnational government chooses. Conditional nonmatching transfers, sometimes referred to as “sectoral block grants,” are transfers to subnational governments that are targeted for use in particular sectors. Conditional matching grants are also meant to be spent on indicated functions and require some counterpart contribution by the recipient government. Such grants can be either open-ended, with no firm limit on the size of the grant or closed-ended, where grant magnitude is restricted. Conditional output-based nonmatching grants target, as the name implies, improvements in sector-specific outputs or outcomes.

The general idea is that individual types of grants, as classified above, should be matched with objectives. General nonmatching transfers are usually preferred for addressing adequacy concerns, for example. General nonmatching transfers are also typically viewed as the most appropriate mechanisms to tackle problems related to equity and horizontal imbalances. Conditional input-based nonmatching or conditional input-based matching grants are often used to encourage spending on particular types of activities or functions to enhance efficiency; the former are usually thought to be most appropriate to address minimum service standards and the latter to deal with spillovers and externalities. And conditional output-based grants are preferred for dealing with performance objectives. Again, these matches work for both the transfer system, in general, and as it relates to education, specifically. The links between grant objectives and grant types are summarized in table 2.1.

TABLE 2.1 Transfer type by objective

TRANSFER TYPE	TRANSFER OBJECTIVE			
	ADEQUACY	EQUITY	EFFICIENCY	PERFORMANCE
General	√	√	n.a.	n.a.
Conditional input-based nonmatching	n.a.	n.a.	√	n.a.
Conditional input-based matching	n.a.	n.a.	√	n.a.
Conditional output-based	n.a.	n.a.	n.a.	√

Source: World Bank.

Note: √ = applicable; n.a. = not applicable.

TABLE 2.2 Allocation of transfers

ALLOCATING THE POOL OF FUNDS	DETERMINING THE POOL OF FUNDS		
	SPECIFIED SHARE OF NATIONAL REVENUE	AD HOC	REIMBURSEMENT OF EXPENDITURE
Origin of collection	General nonmatching	n.a.	n.a.
Formula	General nonmatching or conditional input-based nonmatching (sectoral block grants)	General nonmatching or conditional input-based matching or nonmatching	n.a.
Cost reimbursement	Conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching or conditional output-based nonmatching
Performance-based	n.a.	Conditional output-based matching or nonmatching	n.a.
Ad hoc	General nonmatching, conditional input-based matching or nonmatching	General nonmatching or conditional input-based matching or nonmatching	n.a.

Source: Adapted from Bahl and Linn 1992.

Note: n.a. = not applicable.

Transfer allocation mechanisms

The allocation of transfers has two components: determining the total pool of funds available for transfers and distributing that pool across individual units (such as governments and schools). There are three basic ways to determine the pool of funds: as a specified share of national government tax or nontax revenue; as a function of annual ad hoc decision-making; or based on the reimbursement of approved expenditures. The five principal means of allocating the pool of funds are: origin of tax or nontax revenue; formula; reimbursement of costs; performance-based; and ad hoc. A sixth means of allocating funds is based on subnational government proposals to the central government. This is not a typical method of distributing grant funds, although some countries, such as Indonesia, employ it to a limited extent.

Allocation mechanisms can also be matched to transfer types. One way of matching fiscal transfer types with distribution arrangements is shown in table 2.2.

EDUCATION SECTOR DECENTRALIZATION

The provision of education is among the most decentralized of all government functions. Benefit areas for education tend to be reasonably local for primary, secondary, and vocational schools. There may be some education benefit spill-over across neighboring jurisdictions (or even nationally), but where there is evidence that subnational governments underprovide schooling because of positive externalities they can be encouraged to increase supply through conditional input-based matching grants. Because macroeconomic stabilization and risk-sharing are not particularly noteworthy in the sector, there is no obvious need to centralize education responsibilities based on these standards.

Education functions of special note include teacher recruitment, promotion, and payment; school maintenance, rehabilitation, and construction; standard setting; curriculum design and teaching methods; textbook production and distribution; and student evaluation. Of these, teacher payment and school maintenance, rehabilitation, and construction are mostly assigned locally, while all other subfunctions tend to be shared among subnational governments and the central government, with the latter maintaining significant control over policy.

With respect to education finance, subnational governments typically employ various community funding schemes, such as school fees, contingencies, and ad hoc contributions. In addition, the central government often assigns a particular revenue source to be used by subnational governments to finance education; the property tax is especially important in this context. These two sources of finance are rarely sufficient to cover the costs associated with providing education, however. This deficiency suggests a strong role for intergovernmental transfers in financing education at the subnational level (Rondinelli 1999).

There is significant disagreement, however, about the types of intergovernmental transfers that should be employed to support the funding of local education. Public finance experts tend to view the use of general grants as optimal, on adequacy and equity grounds. Most seem to prefer a minimalist approach to the use of conditional grants in the sector, viewing their employment as necessary only to address specific efficiency concerns such as ensuring minimum standards in education or accommodating education benefit spillovers. Education sector specialists, on the other hand, appear to favor a much more pronounced role for conditional grants, in order to ensure sufficient levels and growth of funding in the sector, perhaps, or to address a broader range of efficiencies, such as the optimal use of teaching inputs. Interest in performance grants is apparent across both camps, but experience in the use of such mechanisms in the education sector is so far quite limited and approaches for advancing their employment in a more significant way are contentious. In sum, consensus on the use of intergovernmental transfers in the education sector remains elusive.

IMPACT OF FISCAL TRANSFERS IN EDUCATION: A LITERATURE REVIEW

Impact of transfers on education spending

The impact of intergovernmental fiscal transfers on subnational education spending depends, in theory, on the type of transfer. It is typically claimed, for example, that conditional transfers have a larger effect on education spending than general transfers because conditional transfers must be spent in the education sector; general transfers can be spent by subnationals on any function—education or others—according to their preferences (Gamkhar and Shah 2007; Gruber 2010; Shah 1994). Therefore, targeted conditional grants are more likely to induce increases in education spending.

Among conditional transfers, both open- and closed-ended, matching grants are thought to stimulate education spending the most. Such grants both provide additional funds to subnational governments—the income effect—and lower the cost of spending in education—the price or substitution effect. The two effects work together to increase spending by a potentially considerable

amount, sometimes by more than the amount of the grant itself. (In the case of closed-ended matching grants, the subsidy applies only until the maximum size of the grant is reached.) Conditional nonmatching grants may also be useful in increasing education spending, but their impact may not be as large as that of matching grants. The latter have only an income effect, which reduces the overall spending impact, typically to an amount that is less than the size of the transfer. Note that for conditional nonmatching transfers, if the amount of the grant is less than what subnational governments would have otherwise spent on education, the expected impact is indistinguishable from that of a general grant (Gamkhar and Shah 2007).

The available empirical evidence is quite mixed with regard to the theoretical propositions described in the previous paragraphs. Some research does, in fact, suggest that conditional grants are more stimulative of local education spending than general grants. Lewis (2013) shows, for example, that an extra rupiah of closed-ended matching capital grant in Indonesia leads to an increase in local government capital spending on education and health of 0.50 rupiah, whereas an additional rupiah of general purpose grant leads to a rise in education and health capital spending of only 0.01 rupiah. At the same time, a substantial amount of research implies that general grants may have a larger impact on spending, in general, than theory would predict. That is, the effect of a general transfer to subnational governments on spending should, in theory, be equivalent to the effect of a transfer directly to local community private income. Gamkhar and Shah (2007) review a large number of studies and find that an extra US\$1.00 of general grants leads to a nearly US\$0.60 increase in subnational spending. However, an additional US\$1.00 of private income results in an increase of only US\$0.10 in spending at most. The differential impact is often referred to as the flypaper effect—money sticks where it lands (Gramlich 1969; Henderson 1968; Inman 2008). Some evidence suggests that the impact of conditional closed-ended matching grants on subnational education spending may be significantly lower than anticipated. In a rare study on the topic, McGuire (1973) found that an extra US\$1.00 of federal matching education grants to local governments in the United States led to between a US\$0.82 and US\$0.98 increase in total local spending, but that 64–69 percent of that spending was allocated to noneducation sectors. On the other hand, substantial empirical evidence shows that nonmatching conditional grants in the education sector have broadly the expected impact. A wide-ranging survey by Fisher and Papke (2000) found that a US\$1.00 increase in nonmatching conditional grants to state governments in the United States resulted in a US\$0.30 to US\$0.70 increase in education spending.

Impact of spending on education outcomes

How does public spending, in turn, affect education outcomes? This key policy question has generated a significant amount of academic work over the years. As before, the empirical evidence is quite mixed. Some research indicates that spending has an insubstantial impact, if any, on education outcomes. Hanushek (1995) reviews the experience of many developing countries across major regions of the world and finds an unsystematic relationship between public spending and education outcomes of various kinds. Mingat and Tan (1992, 1998) also find little association between public expenditures and education outcomes across a large sample of developed and developing countries.

Other research on the impact of spending on education outcomes offers more ambiguous results. Incentive payments for teachers in Chile had positive effects on math and language test scores but had no significant impact on enrollment (Contreras and Rau 2012). The No Child Left Behind program in the United States had a positive effect on children's math test scores but had no impact on reading scores (Dee and Jacob 2011). In Jakarta, Indonesia, Al-Samarrai et al. (2018) show that the city's performance grant program led to improvements in test scores among students in junior secondary school but not among those in primary school. The analysis also suggests that any positive results may have been more a function of competition among schools to secure performance funding rather than an increase in the availability of resources per se.

Finally, other empirical work suggests more positive and robust effects related to the influence of public spending on education service delivery. Gupta, Verhoeven, and Tiongson (2002) find a strong correlation between public spending and education and health outcomes for a cross-section sample of 50 transition and developing countries. Jackson, Johnson, and Persico (2014) demonstrate the existence of a very significant relationship between public education spending and a variety of school outcomes in the United States for a nationally representative panel of children born between 1955 and 1985. Baldacci, Guin-Siu, and de Mello (2003) show for 94 transition and developing countries that public spending can be effective in improving education and health outcomes, as long as underlying problems related to income and gender inequality are resolved. Rajkumar and Swaroop (2008) examine a panel of 90 developed and developing countries and conclude that the effect of spending on education and health outcomes is significantly improved as the quality of governance rises. Litschig and Morrison (2013) demonstrate that a 20 percent increase in local government spending over a period of four years in Brazil led to a rise in enrollment of about 7 percent and an increase in literacy rates of approximately four percentage points. de Carvalho Filho and Litschig (2017) find that these positive effects endured, albeit at diminished levels, for up to 15 years after the initial increase in education spending. Lewis (2017b) shows that Indonesian local government spending positively affects education and other outcomes, especially when local governance conditions are accommodating.

Outstanding issues and policy questions

The technical issues related to the investigation of the impact of transfers on education spending and the effect of spending on education outcomes are summarized in the preceding sections. Among the most important, perhaps, is the potential endogeneity of explanatory variables. That is, it has been argued by many researchers that transfers should in many cases be treated as endogenous in the determination of spending and that spending should be taken as endogenous in the determination of outcomes (see, for example, Gamkhar and Shah 2007; Lewis 2013, 2016). Other technical problems with the estimation of transfer and spending effects include, among others, possible omitted explanatory factors, neglecting grant conditions when examining the impact of transfers on spending, and the disregard of plausible dynamic effects (Gamkhar and Shah 2007). If these technical issues are not handled well in model specification and estimation,

the empirical results will be biased. These difficulties may help explain both why the results diverge to such a large extent from what theory predicts and why the empirical results differ so much across individual studies.

For policy purposes, the definition of “spending” is critical to the examination of transfer impact on spending and spending impact on outcomes. In many, perhaps most, analyses researchers have focused on the effects of transfers on education spending and of education spending on education outcomes. However, this ignores the fact that spending on other functions may also have an impact on education outcomes. For example, expenditure on health and social protection (health insurance and subsidies to the poor), the environment (protecting clean water from pollutants), infrastructure and low-income housing (clean water and sanitation access), security and law and order (provision of a safe environment for the delivery of subnational public services), and even administration (which includes supply of back office functions for subnational government and its service delivery units) may well positively influence education outcomes. If so, a narrow focus on education spending may miss an important part of the story (Lewis 2017b).

NOTE

1. On the other hand, capture and clientelism may be comparatively stronger at the central level when electoral competition for higher office is negligible or national electoral outcomes are highly uncertain (Bardhan and Mookherjee 2000).

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