

## **Fiscal Decentralisation and Empowerment: Evolving Concepts and Alternative Measures\***

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### **Abstract**

Decentralisation reforms are among the most common and significant public sector reforms, particularly in developing and transitional countries around the world. Despite the importance of the topic to policy practitioners and academic researchers alike and the extensive empirical research on the topic, there is consensus in the literature that the measures of decentralisation that are currently used are unsatisfactory. In response, we propose an alternative measure of fiscal decentralisation based on the notion that decentralisation is more than simply the inverse of centralisation. Following Bahl (2005), we consider fiscal decentralisation as ‘the empowerment of people by the [fiscal] empowerment of their local governments’. Accordingly, we develop a measure of fiscal empowerment that allows us to quantify fiscal decentralisation as the gain in empowerment due to devolution and we analyse the proposed measures of empowerment and decentralisation for a cross-section of developing, transitional and industrialised countries.

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## **I. Introduction: background and purpose**

Fiscal decentralisation reforms are among the most common and significant fiscal policy reforms engaged in by developing, transitional and industrialised countries around the world. This assertion is based not only on the scope of reform that fiscal decentralisation implies for the structure of public finances and public service delivery in a country, but also on the number of countries around the world that engage in decentralisation reform: over the last quarter-century, more than 75 countries have attempted to transfer fiscal responsibilities of the state to lower tiers of government (Ahmad et al., 2005).

Despite the importance of fiscal decentralisation to policy practitioners (particularly in developing and transitional countries) as well as academic researchers in economics, public administration and political science alike, the concept has proven extremely difficult to capture quantitatively. Although there are a number of commonly-used measures of (fiscal) decentralisation, there seems to be wide consensus in the literature regarding the inadequacy of these measures. Indeed, the current state of knowledge on fiscal decentralisation – as well as our current understanding of how different degrees of decentralisation interact with economic outcomes – is limited by our inability to properly quantify the phenomenon. For instance, empirical studies on the determinants of decentralisation (as summarised by Bahl and Linn (1992), for example) could yield substantially different results depending on which measure of fiscal decentralisation is used. Likewise, exploring the impact of decentralisation on economic growth (e.g. Davoodi and Zou, 1998; Martinez-Vazquez and McNab, 2005), budget balance (de Mello, 2000) or the relationships between decentralisation and the size of the public sector (Oates, 1985) all critically depend on whether the chosen measure of decentralisation captures ‘the right thing’. In fact, Ebel and Yilmaz (2002) demonstrate that substantially different results are achieved when different measures of decentralisation are used for the purpose of such empirical analyses.

In this paper, we provide a brief review of the most common measures of fiscal decentralisation. In the process, we note the conceptual and empirical weaknesses of these prevailing decentralisation measures and recognise that a number of researchers are exploring alternative approaches to the measurement of decentralisation. These more recent approaches generally seek to capture variations in the degree of subnational control over subnational fiscal resources. Building on these recent explorations, we consider the importance of political institutions and the proximity to the populace with which fiscal decisions are made as additional factors in determining the effective degree of fiscal decentralisation (rather than treating political decentralisation as a separate dimension of the

decentralisation phenomenon), and accordingly propose an alternative measure of fiscal decentralisation that incorporates information on political responsiveness and a country's subnational government structure.

There are an increasing number of empirical studies that consider the impact of subnational fiscal autonomy, political decentralisation or local governance variables (as independent variables) on different aspects of fiscal decentralisation or outcomes of decentralised service delivery (as the dependent variable).<sup>1</sup> In contrast to these empirical efforts, what we seek to accomplish in the current paper is to arrive at a single variable that quantifies the overall degree of empowerment that is achieved through fiscal decentralisation, thereby facilitating direct comparisons of the degree of fiscal empowerment and decentralisation between different countries and over time. Furthermore, consolidating fiscal, political and institutional factors into a single measure of fiscal decentralisation allows the proposed measure to be used in simultaneous-equation models without losing the impact of the interaction of fiscal, political and institutional factors. As such, our proposed measure of decentralisation might be used in future research to replicate existing empirical models of decentralisation, as, in line with the findings by Ebel and Yilmaz (2002), empirical studies on the determinants and impacts of decentralisation have been shown to yield substantially different results depending on which measure of fiscal decentralisation is used. The alternative measure of decentralisation developed here, when used alongside existing measures, could thus help to enhance our understanding of fiscal decentralisation, both as a fiscal policy issue and as a governance phenomenon.

## **II. The shortcomings of the current measures of fiscal decentralisation**

The two most commonly-used measures of fiscal decentralisation are the expenditure decentralisation ratio (EDR) and the revenue decentralisation ratio, which measure the share of subnational governments in consolidated public expenditures and public revenues, respectively. A third common measure of fiscal decentralisation is the degree of local revenue autonomy, which is typically measured as the aggregate level of own subnational revenue collections expressed as a share of total subnational resources. Since the preponderance of the public finance research focuses on the impact of decentralised public spending on public service quality and economic growth, the EDR is arguably the most common measure of fiscal decentralisation in the empirical literature. The measure's relatively limited

<sup>1</sup>For instance, see Asfaw et al. (2007), Bardhan and Mookherjee (2006b) and de Mello (2000).

data requirements and easy interpretation have made it a favourite in comparing decentralisation across countries and over time.

Despite the measure's common usage in empirical studies, the EDR is widely acknowledged to be an inadequate measure of fiscal decentralisation. Perhaps its biggest shortcoming is that it treats all local spending as equal regardless of the degree of discretion that subnational governments are given over subnational expenditures, thereby typically overstating the degree of subnational control over fiscal resources. For instance, the EDR fails to distinguish between local spending on exclusive (fully devolved) local functions over which local governments typically have substantial control and spending on concurrent or delegated functions over which local governments may have relatively little or no control. Being able to identify the degree of subnational discretion or autonomy over subnational spending is particularly relevant for empirical analyses that study the impact of decentralisation on the size and composition of subnational spending, since many of the presumed benefits of decentralisation (optimal size of the public sector, allocative efficiency of public spending, and increased local accountability leading to technical efficiency in the delivery of locally-provided goods) are only able to arise if local governments have control over their financial resources.

The conceptual disconnect between the total level of subnational spending (or the EDR) on one hand and the varying degrees of subnational control over these financial resources on the other hand is not a recent realisation. Rather than relying on a single measure of vertical resource allocation, Hunter (1977) proposed quantifying the degree of fiscal decentralisation through a series of vertical fiscal imbalance measures based on the progressive degree of control that subnational governments have over their financial resources (ranging from earmarked grants to unconditional grants to own-source revenues). More recently, the OECD (1999) pursued the argument that the percentage of own-source revenues collected by each level of government (defined as subnational revenue sources over which the subnational level has some degree of control) provides a more suitable indicator of the relative fiscal autonomy of each level of government.<sup>2</sup> Ebel and Yilmaz (2002) built upon this work by treating general-purpose grants

<sup>2</sup>Although there is a clear consensus in the literature that decentralisation depends on the resources over which subnational officials have discretion or control (rather than merely the resources spent at the subnational level), the empirical challenge to quantify revenue or expenditure control is as yet largely unresolved. In practice, it is virtually impossible to accurately determine the true degree of expenditure discretion enjoyed by different government levels. Even when functional responsibilities are clearly assigned to different government levels in law, major gaps frequently arise between the *de jure* control assigned to subnational governments and their (often much more limited) *de facto* control. However, we should acknowledge that the approach used in the recent literature to circumvent this problem – by focusing predominantly or exclusively on the degree of revenue autonomy – quite possibly produces a bias in the opposite direction.

with objective criteria and unconditional specific grants as own-source revenues.

In fact, Ebel and Yilmaz (2002, p. 19) further reignited the discussion of the shortcomings of the EDR as a measure of (fiscal) decentralisation by noting that ‘empirical estimations are sensitive to variable selection, and the implications of making the wrong choice [in measuring fiscal decentralisation] may be far-reaching in policy design’. As such, Ebel and Yilmaz have set the stage for a renewed effort to develop and compute alternative measures of decentralisation that specifically take into account the degree of subnational autonomy over subnational finances. The collection of quantitative and qualitative fiscal data necessary to estimate such more comprehensive measures of decentralisation (e.g. Stegarescu, 2005; Bell et al., 2006), as well as the use of such measures in empirical decentralisation models, is now being pursued by a number of researchers (e.g. Meloche, Vaillancourt and Yilmaz, 2004).

To the extent that the new measures being proposed and estimated focus on classifying or quantifying the degree of subnational fiscal autonomy (over revenues as well as expenditures), this direction of study addresses only part of the problem. While the degree of subnational fiscal autonomy is a valid and important concern to incorporate in a measure of fiscal decentralisation, focusing exclusively on this issue does not address some of the other major weaknesses of the expenditure decentralisation ratio measure. Two issues that we consider of particular relevance are the size (and diversity) of subnational jurisdictions and the empowerment of the community over the subnational level as a result of subnational political systems. In fact, Oates (1972) already recognised that it is *a priori* unclear whether a country that places fiscal powers with large regional governments should be considered more or less decentralised than a similarly-situated country that assigns a somewhat smaller fiscal responsibility to the subnational level but places this responsibility with smaller, local governments.

The EDR simply does not take jurisdiction size and (subnational) political responsiveness into account. For instance, subnational government spending in many industrialised countries (particularly in Western Europe and North America) takes place in relatively small municipalities which are close to the local community. In accordance with Tiebout’s assumptions (1956), this allows for greater community control over subnational public spending and greater responsiveness to differences in local preferences, and therefore has the potential to achieve greater allocative efficiency. This intergovernmental fiscal architecture stands in stark contrast to that of a country such as India, where most subnational public spending decisions take place at the regional level, with States and Union Territories having an average population of 30 million. This fact notwithstanding, the EDR considers India to be much more ‘decentralised’ than an average OECD

country, since 52.0 per cent of public spending in India occurs at the subnational level, compared with 31.8 per cent in an average industrialised country.

### **III. Foundations for an alternative measure of fiscal decentralisation**

There is little doubt that alternative measures of fiscal decentralisation are needed, not only to measure the quantitative aspects of decentralisation but also to capture some of the more qualitative aspects of intergovernmental fiscal systems and fiscal decentralisation reforms (such as the degree of subnational fiscal autonomy). At the foundation of the alternative measures that we propose here is not only the practical failing of the current measures, but perhaps more fundamentally the observation that a paradigm shift has taken place in the definition of decentralisation.

During the 1980s and early 1990s, decentralisation reforms in developing economies were often pursued in the context of civil service reforms, where the main goal was to deal with an unwieldy and overly centralised public service (Pritchett and Woolcock, 2002). In other countries, (fiscal) decentralisation reforms were politically motivated in response to centrifugal forces or as a result of dramatic shifts in political systems and power relations within a country. For instance, to a considerable degree, decentralisation in the transition economies of the former Soviet bloc was generally pursued with the specific intent of decreasing the power of the centralised state (Bird, Ebel and Wallich, 1996; Martinez-Vazquez and Boex, 2001). Likewise, many of the major decentralisation reforms of the 1980s and (early) 1990s – including the transitions in Indonesia, South Africa and Uganda – sought to reduce the power of previously highly centralised and often totalitarian regimes. Decentralisation allowed these countries to achieve a vertical distribution of power across different government levels, while at the same time dealing with ethnic, linguistic and other geographically diverse demands on the public sector. Broadly speaking, similar political factors were behind recent decentralisation reforms in a number of developed countries, including Belgium, Italy and Spain.

It could be argued that in these situations, the primary aim was to devolve fiscal power away from the central government, with perhaps less consideration given to which level of government should be given this fiscal power.<sup>3</sup> This *modus operandi* is reflective of the traditional definition of

<sup>3</sup>The excessive fragmentation of the subnational government structure that took place in many decentralising countries during the early 1990s, and the subsequent reconsolidation of local government jurisdictions in many countries during the late 1990s and early 2000s, are indicative of this trend of ‘anti-centralisation’ (Boex, Martinez-Vazquez and Timofeev, 2004).

decentralisation, where the act of shifting resources away from the centre is paramount, while the recipient of the fiscal authority and responsibility that are being decentralised is somewhat secondary. Decentralisation was traditionally defined broadly not just to include finances that were shifted away from the centre to subnational governments but also to include resources moved to 'subordinate or quasi-independent government organizations or the private sector' (Litvack and Seddon, 1999). Whereas under these decentralisation reforms financial resources were shifted to budgets at the subnational level, central government officials often indirectly retained control over these newly 'decentralised' expenditures either through grant conditionalities or through administrative regulations and 'guidelines' over subnational spending.

However, the notion of (fiscal) decentralisation is not a static concept. We believe that the consensus-definition of fiscal decentralisation has evolved over the past decade, including a clear recognition that fiscal decentralisation is about more than just shifting power and money away from the centre. In his assessment of the traditional (so-called 'first-generation') approach to fiscal decentralisation, Weingast (2006) notes that the previous approach was deficient because the assumptions postulated in the traditional model of fiscal federalism were insufficiently congruent with reality. Accordingly, Weingast argues that policy changes predicated on the first-generation models of fiscal federalism were incapable of producing the desired benefits of a fiscally decentralised system, because traditional models of fiscal federalism and fiscal decentralisation ignored many of the preconditions for successful decentralisation reforms.

In contrast, the current 'consensus view' of fiscal decentralisation (or the emerging second-generation approach to fiscal federalism) is much more deliberate in recognising the constraints imposed by political economy and the institutional environment on intergovernmental fiscal systems. For instance, whereas political and administrative decentralisation previously received relatively little attention in the realm of fiscal decentralisation, the idea that 'institutions matter' in order for the benefits of fiscal decentralisation to arise (in addition to the mere devolution of financial resources) now seems to be widely accepted. Furthermore, most observers would now agree that in addition to the devolution of financial resources and decision-making authority, achieving the benefits of decentralisation reform further requires substantive public participation in subnational fiscal decisions and appropriate mechanisms for subnational accountability. For instance, Bardhan and Mookherjee (2006a) present a careful theoretical analysis of the impact of (decentralised) accountability on service delivery patterns. A number of recent contributions to the public economics literature also provide empirical evidence to suggest how and to what extent different institutional dimensions (such as political influence over the distribution of

intergovernmental transfers at the central level, local accountability mechanisms, and local political institutions or ‘elite capture’ at the local level) impact the intergovernmental flow of funds and service delivery outcomes under a decentralised system (Bardhan and Mookherjee, 2006b; Asfaw et al., 2007; Olken, 2007).

This deeper understanding of fiscal decentralisation is captured well by Bahl (2005), who offers that, as a working definition, (fiscal) decentralisation can be defined as ‘the empowerment of people by the [fiscal] empowerment of their local governments’. Whereas the traditional definition of decentralisation emphasises the shifting of power away from the centre, in Bahl’s definition decentralisation revolves around two issues: first, assuring the fiscal empowerment of subnational governments – among others, to deliver public services and infrastructure; and second, the empowerment of people and communities, to direct their subnational government officials to use their financial resources in accordance with local needs and preferences.

This alternative definition of decentralisation provides important guidance for the measurement of fiscal decentralisation, as the new definition implies that quantifying decentralisation is not necessarily just a matter of determining ‘how much’ is decentralised in terms of public expenditures or revenues, nor is it necessarily only a matter of assessing how much control subnational governments have over their fiscal resources. In addition, we argue that a critical factor in the measurement of decentralisation should be the degree to which households and communities are empowered by (and over) the decentralised provision of public services, including the proximity of the people to the subnational officials responsible for delivering their services.

#### **IV. Deriving measures of fiscal empowerment and fiscal decentralisation**

In arriving at measures of fiscal empowerment and decentralisation in line with Bahl’s definition, these measures should (as opposed to the existing measures of fiscal decentralisation) capture both the degree of fiscal empowerment of subnational governments and the degree of empowerment of the citizen over his or her subnational government(s), based on the notion that the closer public resources are spent to the citizen, the more empowered the populace is. Our formulation is consistent with Raich (2005), who hypothesises that in the context of decentralised local governance, empowerment is most likely to occur when three conditions prevail: low costs of participation; large subnational budgets; and a high degree of



subnational fiscal autonomy (for instance, resulting from a high proportion of tax revenues collected locally).

In order to capture these conditions in a systematic framework, we start by defining fiscal empowerment,  $E$ , where  $E_i$  is a representative individual's degree of empowerment over public spending in his or her jurisdiction at government level  $i$ :

$$(1) \quad E_i = V_i F_i \quad \text{and} \quad E = \sum_i V_i F_i$$

so that  $E_i$  at each level of government is equal to an individual's 'voice' over public spending at the relevant government level,  $V_i$ , multiplied by the degree of fiscal control or autonomy exercised by the government unit at that level of government,  $F_i$ . The relationship between  $V_i$  and  $F_i$  is multiplicative because fiscal empowerment requires not only that citizens have control over their public officials but also that governments at each level of government have control over the fiscal resources under their management. In turn,  $E$  is defined as the sum of the representative individual's empowerments over fiscal decisions across all government levels.

### 1. The fiscal role of subnational governments

In our attempt to develop an appropriate measure of fiscal decentralisation based on Bahl's definition, we first consider the degree of fiscal control of government units at different levels of the public sector (i.e. the degree to which government jurisdictions themselves are fiscally 'empowered'). In its most basic form, the fiscal power,  $F$ , of a representative or average government unit at government level  $i$  in a country could be represented as

$$(2) \quad F_i = \frac{1}{N_i} \alpha_i G$$

where  $N_i$  reflects the number of government jurisdictions at government level  $i$ ,  $\alpha_i$  reflects the share of public spending that is controlled at government level  $i$  (so that  $0 \leq \alpha_i \leq 1$  and  $\sum \alpha_i = 1$ ) and  $G$  equals total public spending across all levels of government.<sup>4</sup> If we consider that an amount equal to  $g$  dollars per person is spent by the public sector as a whole, then we could substitute  $G = gP$  at our convenience, where  $P$  equals the total national population.

<sup>4</sup>It should be noted that equation (2) defines fiscal empowerment for an *average* jurisdiction at each government level. While it would be preferable to exactly measure fiscal empowerment (and voice) for every subnational jurisdiction, this would require a level of disaggregated subnational data across countries that is generally not available.

Similarly to the alternative measures proposed by the OECD (1999 and 2001), Ebel and Yilmaz (2002) and Bell et al. (2006), our conceptual formulation of fiscal empowerment relies on the share of public spending over which each government level  $i$  has control or discretion (i.e. excluding earmarked or conditional resources that it receives from other government levels) rather than simply quantifying the share of public spending that takes place at each government level. Thus, if a subnational government level is denied substantial autonomy over its budgetary resources, this would be reflected in a lower degree of fiscal empowerment,  $F_i$ .

## 2. A generalised measure of a citizen's voice over public decisions

Despite the depth and breadth of the public choice literature, there is no agreed indicator for the concept of 'voice', either in theory or in the empirical literature (Keefer, 2004; Alsop, Bertelsen and Holland, 2006). As the basis for our generalised measure of a citizen's voice over public decisions, we posit that although we expect elected officials to make decisions in a self-interested manner whenever possible, an elected official at any government level is nonetheless interested in maximising the number of supporters or votes in his or her respective jurisdiction, and therefore will be equally open to representing the interests of all constituents: an average individual's voice in public decision-making processes will be inversely related to the number of constituents in a jurisdiction, so that the higher the population of the jurisdiction, the smaller the relative voice of each individual.

In addition to the relative loss of the individual's voice to other constituents as the number of constituents in the jurisdiction increases, additional losses to constituents' voice over public spending decisions occur as the size (in terms of population and geography) and diversity (whether socio-economic, ethnic, linguistic or religious) of a government jurisdiction increase. For instance, the information asymmetries and transaction cost for making collective decisions increase as a jurisdiction's population size and diversity increase; not only will it be harder to achieve some form of consensus in a larger, more diverse jurisdiction, but it is also likely that the degree of downward accountability is reduced as a jurisdiction's size increases. These factors create fiscal space for public officials to deviate from the preferences of the electorate: the larger the jurisdiction, the less voice each individual (and the community as a whole) has to assure that his or her interests are served and the more beholden public decision-making can become to special interests or the politician's self-interest. Therefore, as jurisdiction size increases and the distance between the electorate and public officials grows, we expect the relative loss of voice to result in an increasing

gap between the individual's preferred set of public services and the basket of public services ultimately made available.

Of course, jurisdiction size (in terms of population and diversity) is only one set of determinants of empowerment and voice; another critical determinant of voice is how receptive and responsive political decision-makers are to the preferences of the communities that they serve. The presence of (directly or indirectly) elected officials at a government level may be considered a necessary condition for assuring a minimum level of responsiveness; politicians would have little or no incentive to serve their constituents' needs in the absence of a minimally participatory governance mechanism. Therefore, we should expect the degree of political responsiveness of public officials to be a function of the political institutions that are in place in different countries and at different government levels within a country.<sup>5</sup>

Based on these considerations, we suggest that the voice of an individual constituent over public spending in an average government jurisdiction at government level  $i$ ,  $V_i$ , could be represented as

$$(3) \quad V_i = \frac{1}{J_i^{1+\gamma_i}} \pi_i \quad \text{so that} \quad E_i = \frac{1}{J_i^{1+\gamma_i}} \pi_i F_i$$

where  $J_i$  is the number of residents of an average jurisdiction at government level  $i$  (equal to  $P/N_i$ ),  $\gamma_i$  is a variable that captures the relative loss of voice as jurisdiction size increases and  $\pi_i$  is a measure of the political system's receptiveness and responsiveness to feedback from below.

Given the many institutional factors influencing variations in political responsiveness across different government levels as well as across different countries, it may prove difficult to objectively capture the degree of a political system's receptiveness and responsiveness in a single measure. Conceptually, however, it suffices for us to assume that  $\pi_i$  is bounded between 0 and 1, where  $\pi_i = 1$  represents a highly participatory political system in which policymakers at government level  $i$  are fully responsive to voter feedback, whereas  $\pi_i = 0$  indicates the absence of any participatory processes, so that policymakers are free to ignore any demands or requests from the population. Similarly,  $\gamma_i$ , which captures the rate of voice-loss due to increases in jurisdiction size, could be a function of several factors, including the degree of population heterogeneity. If  $\gamma_i = 0$ , then an individual's voice would be strictly inversely proportional to the number of residents in the jurisdiction. This would reflect a situation in which politicians and public managers are perfectly responsive to residents' needs

<sup>5</sup>Political institutions may in fact vary not only between countries but also between different government levels within a country and even between different states or regions (especially within federal and asymmetric systems).

in aggregate, while no inefficiencies occur either due to information asymmetries or due to decreases in the level of accountability as a jurisdiction's size increases. However, if  $\gamma_i > 0$  (as we would expect), then as a jurisdiction's population size increases, an individual's voice would be reduced by a more-than-proportional amount as information asymmetries arise and politicians become less accountable to their constituents as a whole.

### 3. Decentralisation as empowerment over fiscal resources

Building on equations (1) to (3), the degree of fiscal empowerment – as reflected by an individual's overall degree of empowerment over the allocation of public resources – should simultaneously take into account his or her voice over public spending at the various levels of government and the fiscal empowerment of each government level, so that

$$(4) \quad E = \sum_i V_i F_i = \sum_i \frac{1}{J_i^{1+\gamma_i}} \pi_i \frac{\alpha_i g P}{N_i}.$$

$E$  could be understood as the monetary value of the benefits received by the representative citizen from public spending at all government levels. If all public spending were to take place at a subnational government level extremely close to the people (with the average jurisdiction size tending towards one resident) or if government jurisdictions were perfectly homogeneous and fully responsive to their electorate regardless of jurisdiction size, then individuals would be highly empowered to direct public sector spending and could – theoretically, at least – achieve perfect allocative efficiency ( $E = g$ ). In contrast, if all public spending (especially in a highly heterogeneous country) were to take place at the central government level – the government level furthest from the people – then an individual's degree of empowerment over public spending would tend towards zero, as an individual's voice over national spending decisions is exponentially and inversely related to the size of the national population. Fiscal empowerment – thus defined – ranges in the limit from 0 (in which case citizens are not empowered at all) to  $g$  (in which case individuals have full control over the spending of their financial contribution to the public sector).

After some straightforward mathematical manipulation, we arrive at the proposed measure of fiscal empowerment in its final form as

$$(5) \quad \frac{E}{g} = \sum_i \frac{1}{J_i^{\gamma_i}} \pi_i \alpha_i$$

where the left-hand side ( $E/g$ ) represents a representative individual's empowerment over each dollar of per-capita public spending.

As the most comprehensive measure of fiscal empowerment, equation (5) quantifies the degree of an individual's empowerment over each per-capita dollar of public spending at all levels of government, which equals the sum of his or her relative voice at each government level weighted by the share of public spending that is controlled at each government level. As a normalised version of empowerment,  $E$ , in equation (4), this measure of fiscal empowerment ranges in the limit from zero (no fiscal empowerment) to hypothetical unity – which would indicate complete individual empowerment over public sector resources. The measure of fiscal empowerment can be interpreted as the total 'value-for-money' that an average citizen receives from the public sector at the different government levels.

In fact, the expenditure decentralisation ratio (EDR) represents a single restricted case of our more general formulation of fiscal empowerment, notably under the limiting assumptions that (i) each level of government has control over all spending managed at that government level (as noted repeatedly, an assumption widely challenged in the literature); (ii)  $\pi_{CG} = 0$  and  $\pi_i = 1$  for all subnational government levels (i.e. central officials are not responsive, whereas subnational officials are fully responsive); and (iii)  $\gamma$  must equal 0 (such that voice-loss does not increase either with jurisdiction size or with jurisdiction diversity).

To the extent that we are interested in measuring the increase in fiscal empowerment that results from the devolution of fiscal responsibility to subnational government levels, the current formulation of fiscal empowerment allows us to compute the gain in empowerment due to fiscal decentralisation (devolution) by taking the difference between the most centralised (least empowering) scenario possible for a country (in which  $\alpha_{CG} = 1$ ) and the actual degree of fiscal empowerment as defined by the measure of fiscal empowerment defined above. This formulation comes the closest to Bahl's (2005) definition that fiscal decentralisation is the increase in the empowerment of citizens that results from the devolution of fiscal decision-making powers and the fiscal empowerment of subnational governments.

## V. Quantification of the proposed measures

In order for the proposed measures to be relevant for international comparisons and empirical analyses (including the replication of existing research on decentralisation that relied on the EDR as an imperfect measure of decentralisation), we have to be able to meaningfully compute these newly-defined measures across a broad variety of countries in the world. With this in mind, in this section we compute the proposed measures of

fiscal empowerment and decentralisation for a cross-section of industrialised, transitional and developing countries. This allows us to engage in an initial analysis and comparison of the proposed alternative measures. It further enables us to uncover the practical limitations associated with computing the proposed measures with real-world data.

In fact, the computation of the alternative measures of decentralisation for a cross-section of countries underscores the scarcity of international comparable data when it comes to decentralised finance and governance. As a starting point, while expenditure patterns, population size and subnational government structures may change and evolve over time, data limitations lead us to compute the proposed measures only for the latest year for which data are available. Furthermore, whereas subnational fiscal and governance data are generally available for individual countries (or even groups of countries in a specific region), consistent and comparable data on fiscal discretion, political responsiveness and subnational institutional structures are seldom available internationally across different regions.

While we recognise that expanding the number of countries included in the analysis will increase the impact of data limitations on the computation of the proposed measures, we believe that substantial insights can be gained from comparing the proposed measures of fiscal empowerment and decentralisation with the EDR and other existing measures of decentralisation in the context of a broad cross-country analysis. At the same time, we submit that additional insights with regard to the dynamics of decentralisation will surely be gained by computing the measures of fiscal empowerment and decentralisation for specific country groups (such as OECD countries or groups of countries within a single geographical region) where more specific fiscal, political and institutional indicators are often available and for which the unit of observation is more comparable.<sup>6</sup>

### 1. Practical issues in the computation of the proposed measure

A number of data sources were used for the computation of the proposed measures. First, the necessary public expenditure data for different government levels and population data were taken from the IMF's *Government Finance Statistics* (GFS) for the latest year available. Although this data source is commonly used for international comparisons of subnational finances, a major drawback of the GFS is that these data reflect expenditures made at different government levels without regard for whether subnational governments actually had control or discretion over the resources at their level. Regrettably, this is currently the best estimate of

<sup>6</sup>It would similarly be fruitful to apply and analyse the proposed measures of fiscal empowerment and decentralisation to state–local fiscal relations within a federal system, such as the United States. Such explorations are left for future research.

subnational expenditure control, as there is no consistent international data source available at this time that allows us to make more accurate cross-regional comparisons of subnational expenditure discretion.

Furthermore, the GFS expenditure data generally limit us to considering only one regional level and one local government level in each country.<sup>7</sup> While considering regional and local government levels separately is an improvement over the EDR (which lumps together all subnational spending), it would be even more desirable to have detailed fiscal data for every regional and local government level or tier in a country's subnational government structure.

Information on the territorial-administrative structure of countries was generally extracted from *Administrative Subdivisions of Countries* (Law, 2006), combined with secondary sources describing systems of intergovernmental finance (e.g. OECD, 1997 and 2001; Kandeva, 2001; Munteanu and Popa, 2001). We should recognise that the current data sources do not necessarily allow us to fully capture the complexities of subnational government structures in all countries, which include the possible concurrent or asymmetric assignment of expenditure responsibilities, the presence of autonomous regions, the existence of single-purpose or special-purpose districts (such as school districts), and other anomalies or idiosyncrasies in countries' subnational government structures.

In contrast to the computation of the EDR, detailed information on the degree of political responsiveness in each country (and, when available, at each level or tier of government) is quintessential for the accurate computation of fiscal decentralisation and empowerment. A practical challenge in computing the proposed measures is how to capture the receptiveness and responsiveness of political systems across different countries and different government levels ( $\pi$ ).

## 2. Defining and measuring political receptiveness and responsiveness, $\pi$

Little theoretical or empirical guidance exists on how to quantify the receptiveness and responsiveness of an officeholder at government level  $i$ ,  $\pi_i$ , as differences in political institutions and political systems across (and even within) countries impact political responsiveness in a variety of different ways. For example, a constituency-based electoral system might be more responsive to the needs of individual voters than a political system based on

<sup>7</sup>A closely related limitation of the IMF's *Government Finance Statistics* is that references to subnational government levels are often vague and/or the statistics combine public spending for different subnational government levels. For instance, in the case of Russia, all local government finances are simply attributed to the regional (*oblast*) level, thereby ignoring the intricacies of the assignment of expenditure responsibilities and accountability between the regional and local government levels. See Dabla-Norris (2006) for a detailed discussion of the complexities of the subnational government structures, expenditure assignments and intergovernmental fiscal relations in transition economies.

proportional ('party-list') representation, while the direct election of executive officials (in addition to the election of legislators and councillors) may further improve the responsiveness and accountability of public decision-making. Countless other details of a country's political system impact the responsiveness of public officeholders at different levels of government, including – but not limited to – the selection mechanism of party candidates (whether through internal party selection or through open primary elections); the participatory nature of public decision-making processes; the separation of power among the executive and legislative bodies at each government level; the existence (or absence) of avenues for recalling elected officials between elections; and the possibility for direct citizen involvement in public decision-making on key issues through referenda or plebiscites. Furthermore, a strong argument could be made that political systems that operate in more advanced economic environments tend to be more responsive, as they generally benefit from greater transparency, stronger accountability mechanisms, and lower cost for accessing information and participation.

Since the presence of elected representatives at different government levels is an important factor in assuring receptive and responsive governance, we originally considered setting  $\pi$  equal to 1 if some form of elected government was present at a government level and setting  $\pi$  equal to 0 otherwise. There are two reasons why we did not pursue that approach. First, conceptually, we felt that the mere presence or absence of elections at any given government level in a country provided only a weak indicator of the democratic and participatory processes associated with political responsiveness. Second, empirically, this approach was essentially made irrelevant by the high level of aggregation of the available subnational fiscal data: since expenditure data are generally not reported separately for deconcentrated tiers of government, essentially all government levels for which fiscal data are available end up having some form of elected representation.<sup>8</sup>

For the purposes of the current discussion, an ideal measure of political responsiveness would distinguish between differences in political responsiveness across a broad set of countries as well as capture differences in political responsiveness within these countries at different government levels. Although several indices of democracy and civil liberties were considered, we ultimately chose to use the voter turnout rate as the most suitable, available indicator of political responsiveness in each country ( $\pi$ ).<sup>9</sup>

<sup>8</sup>In this case, we would have had little choice but to set  $\pi$  equal to unity for essentially all countries and all government levels contained in our data set.

<sup>9</sup>See Munck and Verkuilen (2002) and O'Donnell, Iazetta and Vargas (2003) for discussions on available measures of the participatory or democratic nature of government. For the purpose at hand, a conceptual weakness of such measures is that they are perhaps as much measures of voice as of political



Data on voter turnout for parliamentary elections for each country were drawn from the International Institute for Democracy and Electoral Assistance (IIDEA).<sup>10</sup> Although the level of voter turnout provides more information on the degree of public participation than the mere presence of elections alone, we recognise that this is an imperfect measure of political responsiveness as well. In particular, the use of the voter turnout rate in parliamentary elections is potentially biased for countries with obligatory voting requirements or in state-controlled (non-democratic) elections.

### 3. Defining and measuring voice-loss, $\gamma$

Another practical issue to be addressed is the selection of a value of  $\gamma$ , which quantifies the link between voice and jurisdiction size, in the computation of the proposed decentralisation measures. If all residents in a jurisdiction are identical and have identical preferences, little voice-loss might occur even as the jurisdiction's size increases; in this case,  $\gamma$  would tend closer to zero. In contrast, in the presence of a highly diverse and heterogeneous population, the voice of any individual would dissipate more rapidly as population size increased (in which case  $\gamma$  would be larger).<sup>11</sup>

Again, the empirical and theoretical literature provides limited guidance here; how little or much loss of voice occurs as a jurisdiction's population size increases or becomes more heterogeneous is difficult to measure, and it is likely to vary from country to country and even within a country (Borck, 2002). While it is likely that factors such as geographic size, political culture and the degree of development of transportation and communication networks matter in determining the exact value of  $\gamma$  in a country, unfortunately the character of population heterogeneity differs significantly between different countries. For instance, whereas racial heterogeneity or income heterogeneity would be the main factors impeding voice and

responsiveness, while by construction they are unable to distinguish between political responsiveness at different government levels. Nonetheless, the inclusion of more sophisticated measures of  $\pi$ , perhaps in the context of a regional analysis of decentralisation, would be an interesting future extension of the current analysis.

<sup>10</sup>Voter turnout data for subnational elections were generally not consistently available. The only country for which we do not have information on direct parliamentary election turnout is the People's Republic of China; our estimate of voter turnout for China's indirect elections is based on Guan and Green (2006).

<sup>11</sup>Whereas the proposed formulation relies on an average level of heterogeneity within a country or at a level of government, in reality population heterogeneity is seldom constant across subnational jurisdictions in a country. It should therefore be recognised that the formulation developed here is not well-suited to capture asymmetries caused by a spatially concentrated, heterogeneous population. For instance, consider a situation in which an ethnic or linguistic minority perceives no voice-loss, regardless of jurisdiction size, as long as the subnational jurisdiction is led by the same ethnic or linguistic group. In order to consistently model such asymmetries and spatial heterogeneity, detailed data on the degree of fiscal empowerment as well as data on the size and demographic composition of every subnational jurisdiction would have to be available. We thank François Vaillancourt for pointing out this issue.

subnational decision-making in the United States (even leading to the fragmentation of local government structures – see Nelson (1990)), linguistic differences would most likely serve as the distinguishing demographic factor in determining heterogeneity in Canada. Likewise, different ethnic, cultural or religious distinctions most likely serve as the predominant causes of population heterogeneity in other countries around the world. While it might be possible to measure population heterogeneity in a comparable manner for selected groups of countries (for instance, within a single region), the international scope of the analysis pursued here makes it virtually impossible to isolate the impact of population heterogeneity on the attrition rate of voice,  $\gamma$ . Therefore, we are forced in the current analysis to treat  $\gamma$  as a constant, rather than as a variable that varies with population heterogeneity.

In exploring the appropriate value for  $\gamma$ , the conceptual framework considers ‘voice’ to be closely related to the degree to which a voter is able to assure that he or she gets value-for-money from each level of government for every dollar contributed to the public sector. Based on the functional form of equation (3), we are therefore able to simulate the impact of different values of  $\gamma$  (the rate of attrition of voice as jurisdiction size increases) on the benefit that households perceive from public spending in jurisdictions of different sizes (assuming  $\pi_i = 1$ ). Unless we believe that the public sector is so inefficient or unresponsive as to provide a value-for-money ratio of less than 50 per cent (at relevant ranges of jurisdiction size), the range of simulated options presented in Table 1 suggests that  $\gamma$  most likely falls within the narrow range from 0 to 0.05.

Although it would be interesting to determine the appropriate value of  $\gamma$  more precisely, the choice of  $\gamma$  within this range is not of tremendous importance for determining the relative voice at each government level, as the correlation of  $E(i|\gamma=0.01)$  and  $E(i|\gamma=0.10)$  over relevant ranges of jurisdiction sizes consistently results in a correlation coefficient

TABLE 1  
*Relationship between voice (dollars) and jurisdiction size (J)  
under various assumptions for parameter  $\gamma$*

<i>Jurisdiction size</i>	$\gamma = 0.01$	$\gamma = 0.025$	$\gamma = 0.05$	$\gamma = 0.1$	$\gamma = 0.2$	$\gamma = 0.5$
5,000	0.91835	0.80821	0.65321	0.42668	0.18206	0.01414
10,000	0.91201	0.79433	0.63096	0.39811	0.15849	0.01000
50,000	0.89745	0.76300	0.58217	0.33892	0.11487	0.00447
100,000	0.89125	0.74989	0.56234	0.31623	0.10000	0.00316
500,000	0.87702	0.72032	0.51886	0.26922	0.07248	0.00141
1,000,000	0.87096	0.70795	0.50119	0.25119	0.06310	0.00100
5,000,000	0.85706	0.68003	0.46244	0.21385	0.04573	0.00045
10,000,000	0.85114	0.66834	0.44668	0.19953	0.03981	0.00032
50,000,000	0.83755	0.64199	0.41215	0.16986	0.02885	0.00014

exceeding 0.99. For the purpose of computing our measure of decentralisation, therefore, we settle on a mid-range value of  $\gamma = 0.025$ .

A final concern that should be kept in mind in interpreting the proposed measures of fiscal decentralisation and empowerment is that, in reality, empowerment is not always enhanced when public functions are performed 'closer to the people'. The subsidiarity principle suggests that the benefits of proximity should be balanced against certain efficiency concerns. For instance, recipients of local public services would not be effectively empowered if the public services were delivered by excessively small jurisdictions that failed to meet the necessary minimum efficient scale. As another example, residents of poor subnational jurisdictions would not be empowered if – in violation of the subsidiarity principle – the responsibility for financing redistributive poverty reduction activities were devolved to the local government level. We should recognise that the proposed measure of decentralisation measures the benefits of decentralisation while assuming that – consistent with the subsidiarity principle – no additional costs are associated with decentralisation. Of course, in practice, fiscal decentralisation reforms should always be subject to the evaluation of the qualitative design aspects of the system of intergovernmental fiscal relations.

## VI. An initial analysis of the proposed measures

The results of our computations for the measures of fiscal empowerment and fiscal decentralisation are summarised in Table 2, which presents the relevant descriptive statistics as well as the correlation matrix. These statistics are analysed and discussed in some detail in this section, while details used for the computation of the measures of fiscal decentralisation and empowerment are contained in the appendix for the full set of countries included in the analysis.

While it is difficult to make any pronouncements with respect to the absolute values of the fiscal empowerment measure (particularly since the nominal values of the empowerment measure are sensitive to the exact selection and measurement of  $\alpha$ ,  $\pi$  and  $\gamma$ ), our measure of fiscal empowerment suggests that the benefit (or 'empowerment') felt from every dollar of public spending ranges from 19 to 67 cents, with an average of 48 cents per dollar. Subject to the same caveats noted above, the descriptive statistics suggest that the empowerment gains achieved through decentralisation (such as the gains in allocative efficiency) are relatively small, falling in the range from 0 to 8 cents per dollar of public spending. Furthermore, it should be kept in mind that the descriptive statistics and correlation coefficients included in the table are a function of the exact sample of countries included in the initial analysis.

TABLE 2  
*Alternative measures of fiscal decentralisation and empowerment:  
 descriptive statistics and correlations*

	<i>EDR</i>	<i>Fiscal empowerment</i>	<i>Gain in empowerment</i>	<i>Population (million)</i>
Mean	0.2679	0.4791	0.0171	75.99
Standard deviation	0.1654	0.1045	0.0136	215.79
Minimum	0.0330	0.1930	0.0013	0.29
Maximum	0.7866	0.6711	0.0787	1,288.40
<i>Correlations</i>				
EDR	1.0000			
Fiscal empowerment	0.2432	1.0000		
Gain in empowerment	0.8159	0.3835	1.0000	
Population	0.4869	-0.0694	0.4925	1.0000

### 1. Analysis of overall fiscal empowerment

In the existing empirical literature, it is not uncommon for studies to incorporate the expenditure decentralisation ratio in an empirical model either implicitly or explicitly as a measure of the degree of empowerment that people have over public spending or as a measure of the proximity of the public sector to the people, rather than as a measure of the degree of expenditure decentralisation per se. In such instances, the proposed measure of fiscal empowerment (as defined in equation (5)) is a much more direct measure of this proximity or empowerment. Table 2 shows that only a relatively weak (but positive) correlation exists between the overall fiscal empowerment measure and the EDR.

The weak correlation of the proposed fiscal empowerment measure with the traditional measure of decentralisation ( $r = 0.24$ ) suggests that the two measures have substantially different patterns across countries. Closer inspection of the data shows that the measure of fiscal empowerment indicates that two types of countries generally tend to be more empowered vis-à-vis the EDR. First, the citizens of smaller (less populous) countries tend to be more empowered since they are closer to their central decision-makers; and second, countries that devolve substantial expenditure responsibility to relatively small subnational jurisdictions are considered to be more highly empowered (for instance, South Africa). While large and federal countries tend to be considered highly 'decentralised' or 'empowered' by the EDR, the proposed measure of fiscal empowerment identifies Luxembourg, Belgium and Iceland as countries where the citizenry is highly empowered over public spending. In contrast, large countries

(including federal countries such as Canada, India and the United States) show a large drop in their degree of fiscal empowerment vis-à-vis the EDR.

In fact, when considering the proposed formulation of fiscal empowerment, India falls from being one of the most decentralised countries in the world based on its EDR (ranked number 6) to one of the least fiscally empowered nations when considering the proposed overall fiscal empowerment measure (ranked 54 out of 60 countries). The alternative formulation thus resolves our earlier concern that the EDR inappropriately equates the benefits resulting from 'decentralised' public spending at the state level in India (with 10 states in excess of 50 million people) with the benefits of decentralisation reform in other countries which devolve spending to government levels much closer to the people.

Based on the formulation of the measures, we expect neither the degree of fiscal empowerment nor the gain from fiscal decentralisation to be independent of the population size of a country. Indeed, whereas Table 2 shows that the EDR suffers from a positive population bias as expected (more populous countries tend to have a higher EDR), the table further shows that, also as expected, the proposed measure of fiscal empowerment is negatively correlated with population (albeit only slightly), since – all else equal – the degree of public empowerment over central government spending decreases as the national population increases.

## 2. Analysis of the gain in fiscal empowerment due to decentralisation

As noted in Section IV, we believe that the gain in fiscal empowerment due to decentralised public spending represents a conceptually superior measure of fiscal decentralisation compared with the EDR. This alternative measure of fiscal decentralisation shows a positive and relatively strong correlation with the EDR ( $r = 0.82$ ), thereby giving some support to the use of the EDR as an appropriate measure of fiscal decentralisation. However, squaring the Pearson's correlation coefficient suggests that the EDR is only able to explain about two-thirds of the variation in the gain in empowerment due to decentralisation ( $r^2 = 0.67$ ). Thus, even if we set aside the fact that we are unable in the current analysis to properly measure the degree of control or discretion that subnational governments have over the subnational expenditures, we can unequivocally say that one-third of the variation in the gains from fiscal decentralisation cannot be explained by the mere scope of fiscal devolution (as measured by the EDR), and is determined by political and institutional factors instead. Given this divergence between the new measure of fiscal decentralisation and the EDR, it would be a fruitful exercise to pursue re-estimating existing empirical models of fiscal decentralisation based on the newly-proposed decentralisation measure

rather than the EDR, as this might lead to different outcomes and conclusions from those previously reached in the empirical literature.

Based on the chosen value for  $\gamma$ , the descriptive statistics presented in Table 2 suggest that the average gain in empowerment due to fiscal decentralisation in the selected sample is close to 0.02 (ranging from almost 0 to approximately 0.08), which constitutes about 3.5 per cent increase in the average degree of fiscal empowerment. This amount could be thought of as an indication of the 'empowerment gain' of decentralised public service provision as a result of gains in allocative efficiency as well as increased technical efficiency due to improved accountability. While the total estimated gains from decentralisation could amount to a substantial improvement in the efficient allocation of public resources in a country, to be fair this gain would have to be balanced against any potential costs and inefficiencies associated with decentralisation reforms. Furthermore, it is unclear whether the average estimated gain in empowerment of 2 cents per dollar of public spending is biased either up or down, as the exact size of the gain in empowerment due to decentralisation depends on the selection of  $\gamma$ , with smaller values of  $\gamma$  resulting in smaller gains in empowerment from decentralisation. Although the selection of  $\gamma = 0.025$  is sufficient to indicate the relative degree of empowerment among different countries in the current analysis, more careful consideration should be given in future work to quantifying the exact relationship between jurisdiction size, voice, heterogeneity and empowerment, as well as to the functional form of the relationship between these variables.

Similarly to the positive correlation between national population and the EDR, Table 2 suggests that the gains that are achieved from decentralisation are systematically and positively correlated with the population size of a country. This is consistent with the notion that more populous countries decentralise more, as they have a bigger potential for receiving gains from devolving expenditures, whereas there is less of a benefit for smaller countries from decentralising expenditure functions to the local government level.

### **3. Fiscal empowerment and decentralisation by type of country**

A final consideration in the analysis of the proposed measures of decentralisation and empowerment is how these measures break down by type of country. Descriptive statistics for the various measures are presented in Table 3 for selected OECD countries, transition countries and developing countries.

There is both theoretical and empirical evidence to suggest that the level of economic development in a country and the quality of governance are

TABLE 3  
*Alternative measures of fiscal decentralisation and empowerment:  
 descriptive statistics and correlations by type of country*

	EDR	Fiscal empowerment	Gain in empowerment	Population (million)
<b>OECD countries</b>				
Mean	0.3179	0.5284	0.0233	33.97
Standard deviation	0.1671	0.0946	0.0122	62.62
Minimum	0.0371	0.3279	0.0046	0.29
Maximum	0.6209	0.6711	0.0515	293.66
<i>Correlations</i>				
EDR	1.0000			
Fiscal empowerment	-0.0958	1.0000		
Gain in empowerment	0.7823	0.1117	1.0000	
Population	0.2646	-0.2634	0.3908	1.0000
<b>Transition countries</b>				
Mean	0.2228	0.4267	0.0114	17.89
Standard deviation	0.0905	0.0753	0.0060	32.94
Minimum	0.0670	0.2717	0.0048	1.36
Maximum	0.3971	0.6134	0.0267	143.85
<i>Correlations</i>				
EDR	1.0000			
Fiscal empowerment	0.3444	1.0000		
Gain in empowerment	0.4093	0.3601	1.0000	
Population	0.5046	-0.2433	0.1703	1.0000
<b>Developing countries</b>				
Mean	0.2552	0.4744	0.0156	182.75
Standard deviation	0.2087	0.1174	0.0176	359.47
Minimum	0.0330	0.1930	0.0013	4.25
Maximum	0.7866	0.6641	0.0787	1,288.40
<i>Correlations</i>				
EDR	1.0000			
Fiscal empowerment	0.3115	1.0000		
Gain in empowerment	0.8841	0.3739	1.0000	
Population	0.7129	-0.0677	0.7087	1.0000

important determinants of the degree of fiscal decentralisation (e.g. Panizza, 1999). Among other reasons, developed economies tend to have a lower minimum efficient scale for delivering public services and often have a stronger tradition of democratic governance; they are therefore able to efficiently deliver more public services 'closer to the people'. The numbers for the EDR in Table 3 confirm this trend: OECD countries are the most

decentralised (typically around 30 per cent), while transition countries and developing countries are typically less decentralised (20–25 per cent). Of course, as already noted, the exact statistics will fluctuate depending on the composition of the countries included in the sample. Sample selection issues may explain the fact that Table 3 indicates that developing countries have a slightly higher EDR than transition countries.<sup>12</sup>

Consistent with the higher-than-expected EDR for developing economies in the current sample, it is interesting to note that the newly-proposed measures follow the same pattern between decentralisation and development: all proposed measures of decentralisation and empowerment concur that developed economies are consistently among the most fiscally decentralised and empowered, while – in the current sample, at least – transition economies are among the least fiscally empowered and decentralised.

Two explanations may be offered for this pattern. First, transition economies have a decidedly lower voter turnout rate (62 per cent) than the industrialised and developing countries in the sample (76 per cent and 72 per cent respectively). Therefore, in addition to a relatively low level of fiscal devolution, a lower level of political responsiveness seems to result in a lower degree of fiscal empowerment in transition economies. Second, as suggested by the population statistics, many transition countries are relatively small, and therefore there is relatively little to gain from decentralisation reforms, explaining the absence of substantial gains in fiscal empowerment as a result of decentralisation.

In contrast, the developing economies included in the sample tend to be relatively populous (compared with industrialised economies, but especially when compared with transition economies), seem to have relatively substantive political participation, and spend a reasonable share of their public resources at the subnational level. For those developing countries included in the sample, the level of fiscal empowerment and the gains from decentralisation exceed those in transition countries and approach the levels realised in industrialised economies.

## **VII. Concluding considerations and remarks**

What we sought to accomplish in the current paper was to arrive at a single variable that quantifies the overall degree of fiscal empowerment that is achieved through fiscal and political decentralisation, thereby facilitating direct comparisons of the degree of fiscal empowerment and decentralisation between different countries and over time.

<sup>12</sup>Developing countries that were shown to be fully centralised (with an EDR of 0) were excluded from the current sample. As a result, the developing countries included in the sample tend to be more populous and/or more decentralised than an ‘average’ developing country (for example, compare with Bahl and Wallace (2003)).



The initial computation and empirical analysis of the proposed measures underscore the constraints in fulfilling this ambitious purpose. Nonetheless, based on an evolving and deeper understanding of fiscal decentralisation and empowerment, the alternative measures of fiscal decentralisation and empowerment proposed in this paper are a relevant and valuable addition to the analysis and measurement of fiscal decentralisation. The proposed measures of fiscal decentralisation are empirically relevant in a number of different ways, and complement existing discussions of the topic (e.g. Ebel and Yilmaz, 2002; Treisman, 2002) as well as adding to ongoing efforts to improve the measurement and understanding of fiscal decentralisation (Stegarescu, 2005; Bell et al., 2006).

To the extent that the expenditure decentralisation ratio (EDR) is currently used as a proxy for the degree of empowerment that individuals have over public finances decisions in their country, we believe that the proposed measures of fiscal empowerment and decentralisation offer conceptually superior measures. However, the adequacy of the different decentralisation measures depends on the specific purpose of investigation. For instance, if one is interested in quantifying the amount of public goods consumed at each level of government, then the EDR may provide a fairly good approximation. On the other hand, if one is interested in the benefits of decentralisation in terms of improved allocative efficiency, greater fiscal competition and stronger public sector accountability, then the newly-proposed measures of decentralisation accounting for subnational fiscal autonomy, jurisdiction size and political responsiveness are much more relevant.

However, quantifying fiscal empowerment and decentralisation in accordance with Bahl's (2005) definition of fiscal decentralisation as done in this paper should only be considered as the first step in exploring the relationship between voice, fiscal empowerment and the structure of the public sector. At least three logical avenues for further exploration should be pursued based on the measures proposed in the current paper.

The first issue left for future work is the more careful consideration of the measurement and determinants of political responsiveness ( $\pi$ ) as well as a more in-depth analysis of the relationship between voice and jurisdiction size, including the voice-loss parameter used in the proposed measures ( $\gamma$ ). For instance, how does voice-loss differ from country to country based on different aspects of population heterogeneity?

Second, one of the main shortcomings identified in the initial empirical analysis is the absence of data on subnational expenditure discretion at each government level ( $\alpha_i$ ). Instead, we were forced to use the IMF's *Government Finance Statistics* (GFS) expenditure data, which do not reflect the degree of control or discretion that each government level has over its resources. As more detailed data on intergovernmental finances become available, the

estimates should be updated to properly reflect the share of public spending controlled by each government level rather than relying on the share of total spending that occurs at each level of government.

Finally, the initial empirical analysis indicates that at a minimum, one-third of the variation in fiscal empowerment is determined by variations in political responsiveness and subnational government structures. Given the different patterns of fiscal empowerment and decentralisation revealed by the new measures, a final logical next step would be to replicate and re-estimate selected existing empirical models of decentralisation using the new measures of fiscal decentralisation. Such empirical analysis could shed additional light on the determinants of fiscal decentralisation and empowerment, as well as on the relationships between fiscal decentralisation and empowerment on one hand and economic processes (such as economic growth, the size of the public sector and the efficiency of public service delivery) on the other hand.

## Appendix

### *Notes to Table A1*

$N_i$  is the number of jurisdictions, whereas  $\alpha_i$  is the share of public expenditure at government level  $i$ ; C = central; R = regional; L = local. Data sources and variables are defined in the text; fiscal empowerment is defined in equation (5). When  $\alpha_R = 0$ , regional jurisdictions are administrative tiers of the central government.

### *Notes to Table A2*

<sup>a</sup>Country-specific fiscal data were relied on rather than IMF's *Government Finance Statistics*.

Notes:  $N_i$  is the number of jurisdictions, whereas  $\alpha_i$  is the share of public expenditure at government level  $i$ ; C = central; R = regional; L = local. Data sources and variables are defined in the text; fiscal empowerment is defined in equation (5). When  $N_R = N_L$ , we presume that the highest subnational government level has the greatest degree of control over subnational spending. When  $\alpha_R = 0$ , regional jurisdictions are administrative tiers of the central government.

### *Notes to Table A3*

<sup>a</sup>Country-specific fiscal data were relied on rather than IMF's *Government Finance Statistics*.

Notes:  $N_i$  is the number of jurisdictions, whereas  $\alpha_i$  is the share of public expenditure at government level  $i$ ; C = central; R = regional; L = local. Data sources and variables are defined in the text; fiscal empowerment is defined in equation (5). When  $\alpha_R = 0$ , regional jurisdictions are generally administrative tiers of the central government.

TABLE A1

*Alternative measures of fiscal decentralisation and empowerment: selected OECD countries*

<i>Country</i>	<i>Year</i>	<i>Pop. (m)</i>	<i>Voter turnout</i>	$N_R$	$N_L$	$\alpha_C$	$\alpha_R$	$\alpha_L$	<i>EDR</i>	<i>Fiscal empow.</i>	<i>Gain in empow.</i>	<i>Rank EDR</i>	<i>Rank FE</i>	<i>Rank gain</i>
Australia	2004	20.11	0.94	8	664	0.5536	0.3850	0.0615	0.4464	0.6388	0.0194	8	5	23
Austria	2003	8.12	0.84	9	2,359	0.7011	0.1611	0.1378	0.2989	0.5882	0.0219	20	10	16
Belgium	2003	10.38	0.96	11	589	0.6458	0.2243	0.1299	0.3542	0.6664	0.0234	18	2	15
Canada	2004	31.97	0.61	13	4,565	0.3791	0.4564	0.1645	0.6209	0.4226	0.0272	2	44	11
Denmark	2004	5.40	0.85	13	270	0.4022	0.0000	0.5978	0.5978	0.6250	0.0515	3	6	2
Finland	2004	5.23	0.67	6	430	0.6261	0.0000	0.3739	0.3739	0.4808	0.0277	14	28	10
France	2004	60.38	0.60	96	36,772	0.8147	0.0000	0.1853	0.1853	0.4068	0.0215	41	48	17
Germany	2004	82.52	0.78	16	16,095	0.6274	0.2215	0.1510	0.3726	0.5208	0.0282	15	20	9
Greece	2000	10.92	0.77	52	5,828	0.9629	0.0000	0.0371	0.0371	0.5154	0.0046	58	22	56
Iceland	2002	0.29	0.88	8	105	0.7318	0.0000	0.2682	0.2682	0.6617	0.0212	26	4	18
Israel	2004	6.80	0.68	6	268	0.8926	0.0000	0.1074	0.1074	0.4649	0.0074	50	35	43
Italy	2003	57.65	0.84	107	8,101	0.7053	0.0000	0.2947	0.2947	0.5746	0.0398	22	12	4
Luxembourg	2004	0.45	0.92	3	118	0.8932	0.0000	0.1068	0.1068	0.6711	0.0090	51	1	39
Netherlands	2004	16.28	0.80	12	504	0.6528	0.0000	0.3472	0.3472	0.5591	0.0309	19	14	7
New Zealand	2004	4.06	0.80	17	74	0.9140	0.0000	0.0860	0.0860	0.5543	0.0054	54	15	53
Norway	2004	4.59	0.77	19	434	0.7037	0.0000	0.2963	0.2963	0.5531	0.0256	21	16	13
Portugal	2002	10.37	0.64	20	308	0.8769	0.0000	0.1231	0.1231	0.4375	0.0081	45	41	42
Spain	2003	42.00	0.76	17	8,108	0.7086	0.1825	0.1089	0.2914	0.5081	0.0200	23	24	21
Sweden	2003	8.96	0.80	21	290	0.5581	0.0000	0.4419	0.4419	0.5729	0.0361	9	13	5
Switzerland	2002	7.28	0.45	26	2,869	0.4452	0.3358	0.2190	0.5548	0.3279	0.0234	5	55	14
UK	2004	59.87	0.61	4	434	0.7214	0.0000	0.2786	0.2786	0.4103	0.0179	25	46	25
United States	2002	293.66	0.69	51	38,967	0.4896	0.2716	0.2388	0.5104	0.4643	0.0423	7	36	3

TABLE A2

*Alternative measures of fiscal decentralisation and empowerment: selected transition countries  
(Commonwealth of Independent States & Eastern Europe)*

<i>Country</i>	<i>Year</i>	<i>Pop. (m)</i>	<i>Voter turnout</i>	$N_R$	$N_L$	$\alpha_C$	$\alpha_R$	$\alpha_L$	<i>EDR</i>	<i>Fiscal empow.</i>	<i>Gain in empow.</i>	<i>Rank EDR</i>	<i>Rank FE</i>	<i>Rank gain</i>
Armenia	2004	3.03	0.55	11	972	0.9330	0.0000	0.0670	0.0670	0.3849	0.0048	55	50	55
Belarus	2004	9.82	0.90	7	7	0.6355	0.0000	0.3645	0.3645	0.6134	0.0109	17	7	34
Bulgaria	2004	7.76	0.56	45	345	0.8508	0.0000	0.1492	0.1492	0.3841	0.0088	44	51	40
Croatia	2004	4.44	0.62	144	426	0.9090	0.0000	0.0910	0.0910	0.4271	0.0063	53	43	50
Czech Rep.	2004	10.22	0.58	77	6,200	0.7784	0.0000	0.2216	0.2216	0.4077	0.0209	36	47	19
Estonia	2001	1.36	0.58	15	247	0.7570	0.0000	0.2430	0.2430	0.4191	0.0145	33	45	30
Georgia <sup>a</sup>	2004	4.52	0.64	12	966	0.8841	0.0000	0.1159	0.1159	0.4451	0.0095	48	39	37
Hungary	2003	10.13	0.74	42	3,177	0.7562	0.0000	0.2438	0.2438	0.5178	0.0267	31	21	12
Kazakhstan	2004	14.99	0.68	16	16	0.6029	0.0000	0.3971	0.3971	0.4654	0.0129	12	34	32
Kyrgyz Rep.	2001	4.95	0.64	8	8	0.7563	0.0000	0.2437	0.2437	0.4437	0.0057	32	40	52
Latvia	2004	2.31	0.71	33	545	0.7519	0.0000	0.2481	0.2481	0.5145	0.0209	30	23	20
Lithuania	2004	3.44	0.46	10	60	0.7937	0.0000	0.2063	0.2063	0.3235	0.0070	37	56	46
Moldova	2004	4.22	0.65	12	12	0.7639	0.0000	0.2361	0.2361	0.4492	0.0067	34	38	49
Poland	2003	38.20	0.41	16	373	0.7781	0.0000	0.2219	0.2219	0.2717	0.0093	35	58	38
Romania	2002	21.80	0.59	42	42	0.8139	0.0000	0.1861	0.1861	0.3904	0.0070	40	49	47
Russian Fed.	2004	143.85	0.56	89	89	0.6084	0.0000	0.3916	0.3916	0.3645	0.0162	13	53	28
Slovak Rep.	2003	5.38	0.55	8	79	0.8308	0.0000	0.1692	0.1692	0.3785	0.0073	43	52	44
Slovenia	2004	2.00	0.61	12	193	0.8216	0.0000	0.1784	0.1784	0.4322	0.0106	42	42	35
Ukraine	2004	47.45	0.72	27	27	0.7409	0.0000	0.2591	0.2591	0.4745	0.0103	29	31	36

TABLE A3

*Alternative measures of fiscal decentralisation and empowerment: selected developing countries*

<i>Country</i>	<i>Year</i>	<i>Pop. (m)</i>	<i>Voter turnout</i>	$N_R$	$N_L$	$\alpha_C$	$\alpha_R$	$\alpha_L$	<i>EDR</i>	<i>Fiscal empow.</i>	<i>Gain in empow.</i>	<i>Rank EDR</i>	<i>Rank FE</i>	<i>Rank gain</i>
Nigeria <sup>a</sup>	1999	111.26	0.49	37	774	0.8120	0.1400	0.0480	0.1880	0.3170	0.0068	39	57	48
South Africa	2004	45.51	0.98	9	284	0.4447	0.3716	0.1837	0.5553	0.6641	0.0309	4	3	6
Tanzania <sup>a</sup>	2004	34.57	0.73	21	122	0.8818	0.0000	0.1182	0.1182	0.4768	0.0071	47	30	45
Uganda	2003	26.87	0.68	70	160	0.7354	0.0000	0.2646	0.2646	0.4593	0.0159	28	37	29
Argentina	2004	38.37	0.71	24	1,617	0.5915	0.3301	0.0784	0.4085	0.4780	0.0198	11	29	22
Bolivia	2004	9.01	0.85	9	314	0.7200	0.1983	0.0817	0.2800	0.5797	0.0135	24	11	31
Brazil	1998	173.86	0.83	27	5,563	0.5835	0.2775	0.1390	0.4165	0.5481	0.0297	10	17	8
Chile	2004	16.12	0.88	51	345	0.8787	0.0000	0.1213	0.1213	0.5902	0.0110	46	9	33
Costa Rica	2004	4.25	0.69	7	81	0.9670	0.0000	0.0330	0.0330	0.4716	0.0018	60	33	59
El Salvador	2004	6.76	0.28	14	262	0.9551	0.0000	0.0449	0.0449	0.1930	0.0013	56	60	60
Mexico	2000	97.97	0.42	32	2,454	0.8090	0.1485	0.0425	0.1910	0.2692	0.0059	38	59	51
Peru	2004	27.56	0.89	26	1,821	0.7341	0.1819	0.0841	0.2659	0.5969	0.0190	27	8	24
Bangladesh <sup>a</sup>	2004	139.21	0.75	64	4,900	0.9600	0.0000	0.0400	0.0400	0.4738	0.0044	57	32	57
China, mainland	2003	1,288.40	0.76	31	3,143	0.2134	0.0000	0.7866	0.7866	0.5274	0.0787	1	19	1
India <sup>a</sup>	2004	1,079.72	0.58	35	585	0.4798	0.5202	0.0000	0.5202	0.3596	0.0166	6	54	27
Indonesia <sup>a</sup>	2004	217.59	0.84	33	440	0.6323	0.3677	0.0000	0.3677	0.5379	0.0175	16	18	26
Iran, Islam. Rep.	2004	67.01	0.77	30	314	0.9634	0.0000	0.0366	0.0366	0.4948	0.0028	59	25	58
Malaysia	2003	24.44	0.74	16	141	0.8898	0.0711	0.0391	0.1102	0.4879	0.0050	49	27	54
Thailand	2004	63.69	0.75	76	876	0.9006	0.0000	0.0994	0.0994	0.4880	0.0088	52	26	41

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