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BEYOND GAPS AND IMBALANCES: RE-STRUCTURING THE DEBATE ON INTERGOVERNMENTAL FISCAL RELATIONS

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How do we know whether a country suffers from vertical fiscal imbalance (VFI)? What should be done about it? Academic appreciation of these issues in general, and the nature of political behaviour in particular, both have major implications for the way federations are fiscally structured. While the latter clearly is a problem of political negotiations, our focus is on the former, that is, conceptual clarity, which precedes meaningful negotiations. Thus, the paper aims to clarify the multiple usages of the symbolically loaded terms VFI and VFG (vertical fiscal gap) by critically engaging the fundamental assumptions and premises underlying these ostensibly similar notions. It proposes an alternative conceptual framework and introduces the concepts of vertical fiscal asymmetry (VFA) and vertical fiscal difference (VFD) that have the potential to better structure public debate on issues of vertical fiscal relations and stimulate a sensible appreciation of the problem and possible remedies. </abs>

<A>INTRODUCTION

This article examines the concept of vertical fiscal imbalance (VFI), which remains under debate because there is neither a universally accepted definition of VFI in the fiscal federalism literature **<table 1>**(table 1) nor a commonly accepted approach to measuring it (Bird 2000) **<table 2>**(table 2). Estimates of VFI are derived, much like accounting or deficit measurements, by comparing the revenues and expenditures of two levels of government. VFI is, however, too nuanced an issue to be described by this kind of national accounting procedure.

The problem we address is substantive, but also has an important terminological dimension. Terms such as VFI and VFG (vertical fiscal gap) are often used to structure political debate in federations, but different authors use them with different meanings and thus cause ambiguity in the policy solutions to the assumed problems. The imprecise usage of VFI (table 1) and VFG **<table 3>**(table 3) for different ideas in different contexts not only makes it difficult to combine the results of papers, which might employ the same concept for different ideas or different concepts for the same idea; it can also cause the fiscal policy debate to deteriorate into a tug-of-war between federal and regional interests (for example, the Canadian example in the section that follows). Thus, this paper attempts to resolve the terminological ambiguity that obscures these substantive issues in policy.

One of the substantive issues in the debate on vertical fiscal relations is the question of the existence or absence of fiscal gaps and imbalances. Another issue is the rhetorical emphasis on either of two remedies, that is, federal transfers and subnational tax autonomy. This paper presents a conceptual framework that goes beyond the ‘rhetoric’ on either side of intergovernmental debates about vertical fiscal relations and promotes a nuanced understanding of the problems of fiscal gaps and imbalances and their potential solutions.

In the section that follows, we begin by formulating the problem and subsequently place it in an international context. To establish the need to re-evaluate VFI, we then critically examine the conventional approach to VFI and show why it is not useful for evaluating fiscal policies in the public sector. This is followed by a review of scholarly attempts to ‘refine’ the conventional definition of VFI by placing it in a dynamic framework. The penultimate section proposes an alternative conceptual framework to evaluate VFI and VFG more precisely. This section introduces a new concept of vertical fiscal difference (VFD) that is rooted in a coherent and logically sustainable conceptual framework. The final section applies the proposed conceptual framework to the problem of VFI and its resolution.

<A> **‘DEFINING’ THE PROBLEM**

<B>The problem of conceptual ambiguity

Why should we be concerned that VFI, a key concept in fiscal federalism literature, is often defined in different ways? The different usages of VFI have major implications for the ways that federations are organized, for the levels of public services that are provided and for the taxes that are imposed to finance these services. Nevertheless, there have been few attempts to clarify the definition of VFI. Instead, the imprecise definition of VFI as ‘a mismatch between revenues and expenditures at different levels of government’ has been adopted as the standard because it measures VFI within the familiar dimensions of fiscal structures.

We argue that ease of measurement should always take second place to the appropriateness of the economic concepts used; it makes no sense to adopt a definition that is convenient for measurement if it does not have a sound theoretical basis. The conventional definition of VFI however, falls into this trap, and the *ad hoc* definition was adopted for its expedience. This measure does not reflect whether taxes and expenditures across the various levels of government are too high, too low or about right. Unfortunately, the sacrifice of rigour for tractability has seriously harmed the quality of public policy debate on the issue.

The essential problem that we would like to highlight is the use of VFI as though it were merely an accounting principle lacking conceptual underpinnings. This paper resolves this problem by treating the underlying conceptual issues as a significant concern.

<B>The problem of VFI-VFG synonymy

A common characteristic of multi-level fiscal systems is that the central government has access to more revenues as compared to the subnational governments (SNGs), while the SNGs are assigned more expenditure responsibilities as compared to the central government. We describe this state with the term, vertical fiscal asymmetry (VFA).

This state has been described in mainstream literature as VFI. Boadway and Flatters (1982, p. 2) and Boadway and Hobson (1993, p. 28) used the term 'vertical fiscal gap' to indicate this very phenomenon (of VFA). Ahmad and Craig (1997) provided statistics and measures of the 'fiscal gap'. These authors, however, did not explicitly state the *reason* for preferring the term 'fiscal gap' over 'fiscal imbalance'. Thus, not surprisingly, the two terms came to be used interchangeably (see, for example, Bird 2003), which we call the problem of VFI-VFG synonymy. This however, is more than a semantic problem; at stake are substantial fiscal issues, which have serious policy implications.

We argue that the problem lies in a general lack of awareness that VFI and VFG are not only different terms used to describe the same phenomenon (VFA) but are also different conceptual perspectives on VFA **<table 4>**(table 4). These perspectives differ in terms of the solutions that they prescribe for VFA. When expenditure responsibilities are taken as a given, VFAs can be addressed either through a reallocation of revenue powers (excluding borrowing powers) or a system of intergovernmental transfers (excluding loans). It is seldom made explicit that the term 'gap' was chosen over 'imbalance' to emphasize the primacy of the latter over the former. This terminology implies that VFA is not an 'imbalance' to be 'restored' through reassignments, but a 'gap' to be 'filled' with intergovernmental transfers.

The use of the term VFG, in this case, rests on the assumption that transfers are useful in their own right because they reflect 'federal spending priorities' (Boadway 2005, p. 72). 'The counterpart to the VFG is a *system of transfers* from the federal government to the provinces, which itself serves a useful purpose' (Boadway 2005, p. 53; **?original or added italics**). In fact, the originators of the term 'fiscal gap' (Boadway and Flatters 1982, p. 6) clearly stated that from an economic perspective the ideal form of government – that is, the one that is most conducive to efficiency and equity – is the single-tier system of government. In their view, in a multi-tier system, a 'fiscal gap' is desired to enable the central government 'to replicate the efficiency and equity outcomes of a unitary state, through the application of intergovernmental transfers' (p. 6). Thus, transfers, in this view, are determined not by the asymmetry between revenue and expenditure, but by the federal government's need to achieve a second-best unitary outcome in a decentralized setting (see Boadway and Tremblay 2006).

The term VFG is used, in this perspective, to avoid using the word imbalance; in other words, VFA should not be called VFI because is a desirable state of affairs (see, for example, Winer and Maslove 1996, p. 52; Breton 1998, pp. 197–8). It should instead be called VFG, which implies that there is not an imbalance to be resolved with reassignments, but only a gap to be filled by transfers (Boadway 2004a, p. 2; Dahlby 2005, p. 3; Lee 2006, p. 14). In this view, there can be 'any size of VFG without VFI' (Boadway 2004a, p. 7) because VFI = VFG – Intergovernmental transfers. Thus, 'the term VFI implies that *the gap* is not being adequately *filled*. The existence of a VFG need not necessarily mean that there is an imbalance (VFI)' (Boadway 2005, p. 53; **?added or original italics**).

Conventionally, VFA is called VFI. Viewing VFA as VFI supports the proposals that favour strengthening SNGs' tax regimes instead of increasing their financial reliance on intergovernmental transfers (see Bird 2000). Subnational revenue autonomy then becomes a necessity for restoring balance (King 1984, p. 137). The unequivocal policy prescription states, 'Local units should tax and spend independently' (Brennan and Buchanan 1980, p. 185). This view regards transfers as an indicator of imbalance and encourages the federal government to avoid using them (Ruggeri *et al*. 1993; Smart 2005).

This perspective contrasts directly with the view that favours transfers because it argues, 'VFI arises when the *gap* is filled by using federal transfers from centralized tax revenues' (Singh and Plekhanov 2006, p. 429). VFA, which is called VFI in this view, 'strains federal-provincial relations and undermines the stability of a federation' (Ruggeri *et al*. 1993, p. 194). It is clear that VFI and VFG reflect different value judgments on VFA. Nevertheless, these terms are often used interchangeably. The conceptual framework in the penultimate section resolves this problem.

<B>The problem of unstated premises and assumptions

The existing literature has yet to adequately identify the terms VFI and VFG with the two different conceptual perspectives (see table 4, above). The essential question at the root of the issue is, 'Why should governments decentralize?' The two perspectives offer two answers: to bring the government closer to the people *or* to split sovereignty between the various levels of government (see Sharma 2009). The answer depends on our beliefs about the extent to which governments act in society's interests, as opposed to their own.

In the fiscal federalism literature, these contrasting visions of states have produced two theories: the theory of public finance and the theory of public choice. James Buchanan, the founder of the field of public choice, and Richard Musgrave, the father of modern public finance, elucidated the scope of their views during a series of public discussions at the University of Munich in March 1998 (transcribed in Buchanan and Musgrave 1999). Although Musgrave supported an activist view of government, Buchanan's message was one of combating government intervention in the market. Both believe in constitutional rules, but for different roles. For Buchanan, their role is to restrain revenue-maximizing governments; for Musgrave, it is 'not only to restrain, but to enable' benevolent governments (p. 51). Similarly, both believe in collective action, but Musgrave places considerably more relative weight on the 'good' that collective action can do; whereas Buchanan places more relative weight on the 'bad' that unconstrained collective action might do (p. 108).

From a public finance perspective, decentralization serves to help central governments implement redistributive programmes that ostensibly seek to maximize social welfare. This perspective sees decentralization as a way to enhance the government’s efficiency and accountability. From a public choice perspective, decentralization serves to disarm huge central governments with monopolistic power to extract rents for themselves. This perspective views decentralization as a way of protecting liberty and curbing government’s natural tendency toward excess.

When the presumption is that governments act in their constituents’ interests, intergovernmental transfers are considered coordinating devices that governments can use to deal with decentralization’s failures, such as fiscal externalities and inequities (Boadway and Hobson 1993). Governments also can use these transfers to ensure national minimum standards of key public services (Boadway 2007). In this perspective, the design of decentralization will exhibit characteristics such as intergovernmental cooperation, revenue sharing, and local governmental accountability to higher levels of government. This view sees transfers’ adequacy or inadequacy as the main issue. This is the VFG perspective.

When the presumption is that government is a self-interested, Leviathan-like entity, intergovernmental transfers are considered collusive devices that lead to the public sector’s excessive expansion. They create perverse incentives for governments to increase their size wastefully (Brennan and Buchanan 1980). In this perspective, the design of decentralization will exhibit characteristics such as intergovernmental competition, tax separation (independent subnational taxation), and local governmental accountability to local constituents. This viewpoint sees subnational ‘own-source’ revenue’s adequacy or inadequacy as the main issue. This is the VFI perspective.

These different perspectives lead directly to differences in the instruments policy-makers select to enact fiscal decentralization. The VFG approach to fiscal adjustment prefers intergovernmental transfers (tax sharing and grants), but the VFI approach prefers transferring independent tax-raising power to SNGs.

Essentially, fiscal federalism involves a form of political conflict between the two levels of government, which have different interests at stake in the principles of fiscal organization and the design of fiscal federal institutions. Thus, the VFG perspective is more attractive to those who favour a national orientation in the organization of fiscal structures, but the VFI perspective is more attractive to the advocates of subnational autonomy.

<A>RELEVANCE AND CONTEXT

The concerns that we address in this paper are relevant for all multi-level fiscal systems. Researchers and practitioners may find our study valuable because it aims to clarify terminology and communication and re-evaluate the efficacy of policies that rely on the conventional understanding of VFI.

Changes in taxation practice and a faster growth rate of subnational expenditure *vis-à-vis* federal expenditure, particularly in the context of globalization, are stimulating debates on the reassignment of revenue-raising powers and spending responsibilities and the redesign of intergovernmental transfers. Policy-makers and analysts in countries such as Canada, Australia, the United States, Switzerland and Germany are grappling with these issues, which are related to VFI. Transitional economies adjusting to fiscal decentralization are discussing similar issues. In Canada, the political debate on VFI has become a prominent issue for politicians, analysts and bureaucrats. It continues to remain a central issue in Canadian public finance given the pending renewal of the Fiscal Arrangements Act in 2014.

The provinces and the federal government in Canada have used the concept of VFI in different ways, depending on their interests. Québec’s Seguin Commission (2002) measured VFI by comparing federal and provincial spending and tax revenues and projecting their future growth. The Commission found that the rate of growth of financial needs in sectors for which the provinces are responsible is much higher than the sectors for which the federal government is responsible, a problem originally identified by Ruggeri *et al*. (1993). The Commission’s findings confirmed the existence of VFI as a dynamic imbalance between the growth of federal and provincial revenues on one hand and federal and provincial expenditure responsibilities on the other.

The Federal Department of Finance (2002), however, claimed that there is no VFI because there are no formal constraints on the provinces’ ability to raise revenue internally. The debate has deteriorated as an increasing number of influential policy analysts have joined either side of the argument (for example, compare the analyses of Ruggeri and Howard 2001 and Matier *et al*. 2001; see also the review section below).

While, Stephen Harper’s Conservative Party, which replaced Paul Martin’s Liberal government on 23 January 2006, accepts the existence of VFI, yet sharp differences remain over how to fix it. For instance, Boadway (2004a, p. 10) argues, ‘Federation should be rebalanced by increasing the size of transfers, protecting and possibly enhancing the vertical fiscal gap, safeguarding the federal share of tax room’. Smart (2005), on the other hand, emphasizes transferring ‘enhanced tax room and taxing powers’ to the provinces to rebalance the federation.

<A>VFI IN **(?ADD ‘THE’)** CONVENTIONAL FRAMEWORK: WHAT’S WRONG WITH THE OBSERVABLES?

The conventional perspective on VFI measures the imbalance between ‘revenue authority’ and ‘spending responsibilities’ by looking at the data on sub-national governments’ revenues and expenditures. Such an analysis, far from being able to prescribe appropriate remedial measures, fails even to identify the situation in which fiscal relations are in need of corrective measures. Before discussing the reasons for this failure, we will examine how measures of VFI vary within the conventional approach.

<B>Multiple measures of VFI

The conventional approach to VFI is complicated by multiple and contradictory measures. One of the most widely used methods of measuring VFI is to calculate the share of the SNGs' expenditures that are financed from their independent sources of revenue. However, there are disagreements within the conventional approach on the scope of variables to be used in this formula. For instance, there is widespread disagreement on how to define independent sources of revenue.

There are three views regarding independent sources of revenue. One view considers only own-source revenues as independent sources of revenue. Collins (2002) and Ebel and Yilmaz (2002), for instance, measure the VFI ratios (that is, the ratio of own-source revenues to own-purpose expenditures) for each level of government. A variant of this method is to measure the ratio of a government's own-source revenue to its total outlays. This method produces a slightly different estimate because the denominator includes transfer payments to other governments and public enterprises.

The second view includes shared taxes as an independent source and the third view includes unconditional grants in this category. Hunter (1974) proposed three alternative measures of the 'coefficient of vertical balance' that depend on the three different concepts of the *independent revenue sources* of SNGs: own-source revenues only, own-source revenues and shared taxes, and own-source revenues, shared taxes, and unconditional grants.

There is also no consensus on how to define 'own-source tax revenue'. One view is that tax revenue can be called own-source only if SNGs have the power to define the tax base and set the tax rate. Others argue that tax revenue may be *own- source* even if the tax base is centrally defined and the proceeds are centrally collected; the only condition is that SNGs set the rate and collect the revenues.

A third view goes beyond the definition of own-source revenue to analyse whether the revenue is narrow-based or broad-based. In this view, subnational revenues must come from broad-based taxes for VFI to be qualitatively reduced. The problem of VFI is not resolved if SNGs increase their revenues by utilizing narrow and inefficient tax bases (for example, taxes on financial and capital transactions, immovable property, and the use of goods and services). A qualitative reduction in VFI can only occur when SNGs have access to broad-based taxes (for example, personal income taxes, general taxes on goods and services, and pay-roll taxes) (see Grewal 1995).

Another widely used indicator of transfer dependence and, hence, VFI (measured either as transfers / SNGs' revenues or as transfers / SNGs' expenditures) is the share of transfers in subnational finances. In this method, increased transfers imply increased VFI (see Rodden and Wibbels 2002, p. 505; McLean 2004, p. 26). However, in this measure, in addition to the problem of qualitative aspect of SNGs' own-source revenues and expenditures, disagreements on qualitative aspect of transfers (conditional or unconditional) also emerge. Some have argued that researchers must isolate the influence of unconditional transfers to produce a qualitative analysis of VFI (see, for example, Nice 1987; Ahmad 1997) because unconditional transfers have less impact on fiscal imbalance.

In contrast, Hunter (1977) clearly equated transfers, whether conditional or unconditional, with vertical imbalance. Transfers, in his view, are an indicator of VFI because they are determined by the federal government and are outside subnational control. In Hunter's view, a lack of subnational control over revenue sources is synonymous with VFI.

<B>Inadequacy of the conventional approach as a guide for fiscal policies in the public sector

Our presentation of the various measures of VFI demonstrates that the conventional approach is often employed without proper attention to detail and context. It tells us nothing about the type of fiscal policy a government is pursuing. Furthermore, it does not tell us the extent to which revenue powers (that is, taxes and user charges) should be devolved for accountability and the extent to which federal spending powers should be maintained for efficiency and equity. The inadequacies of the conventional approach to VFI can be summarized as follows.

<C>Cognitive bias in policy recommendations

In the most widely used measures of VFI, the very existence of transfers is evidence of VFI. This approach creates a bias in policy recommendations because it supports the 'public choice' perspective, which argues that the lower levels of government are almost always better at providing services and that they must raise the revenue to support that spending. This perspective echoes K.C. Wheare's classic statement that 'each order of government must have under its independent control financial resources sufficient to perform its exclusive function' (Wheare 1963 [1946], p. 93). However, scholars have rejected Wheare's argument as anachronistic (see, for example, Riker 1975, p. 103). Others, at best, have modified his theory by dropping the condition of independence and stressing coordination (see, for example, Birch 1955, p. 306).

<C>Conventional estimates of VFI conceal the distortions created by central government's active role

It is not useful to measure VFI with data on own-source revenues when SNGs do not control the base or rate of their own-source taxes and when national regulations determine the scope and level of user charges. For instance, in China, Vietnam and Indonesia, the SNGs collect taxes that have centrally determined rates and bases. In the Philippines, the SNGs set property tax rates, but these rates are limited by a maximum ceiling. Similarly, in China, the SNGs can set the rates for urban land use taxes below a certain ceiling (Taliercio 2005, p. 110). Subnational taxing powers are also restricted in countries such as Austria, Germany, Mexico and Norway. Likewise, the scope and level of user charges in the education sector are often restricted in Italy, Mexico and Norway (Joumard and Kongsrud 2003, p. 12).

The data on own-purpose expenditures cannot be used to measure VFI when the central government sets the standards for subnational expenditures. For instance, the central government closely manages the subnational implementation of various sectoral policies in Germany, Norway, Italy and Portugal (Joumard and Kongsrud 2003, p. 25). Similarly, the practice of setting regulations for subnational expenditures is prevalent in Denmark, Spain and Mexico. In India, the constitution assigns expenditure responsibilities based on theoretical principles; however, in practice, the central government exercises substantial control over development expenditures through the Planning Commission, an executive body without a constitutional status. Discretionary transfers by government ministries further increase the influence of the central government.

Thus, central government policies can overshadow subnational revenue authority and spending responsibilities and blur the distinction between perceived and actual subnational *financial control*. In such cases, relations are unhealthy to the extent to which SNGs are effectively prevented from restoring balance in their finances, whether by raising more own-source revenues or by reducing low priority spending.

<C>Conventional estimates of VFI conceal the distortions created by subnational governments' strategic behaviour

Even if we assume that there is no blurring of roles between the central and subnational governments, actual figures will still fail to reflect *de jure* revenue authority or expenditure responsibilities. The power to legislate a tax rate does not imply setting rates at the top of the Laffer curve. In fact, incentive problems with some tax bases lead SNGs to behave strategically and set the rates that will fall on either side of the Laffer curve.

For instance, an SNG might set tax rates that are inefficiently high (that is, that fall on the right of the Laffer curve) to reduce its revenue-raising capacity and entitle it to more equalization grants. SNGs may also set tax rates too high because of vertical tax competition, a phenomena known as vertical fiscal externality (Keen 1998). This happens when SNGs co-occupy tax base and perceive that increase in tax rate by either level, will reduce the co-occupied tax base. This means part of the cost of rise in subnational tax rate will fall on the federal government. Thus SNGs, acting on behalf of their own residents, fail to take into account the full cost of increase in tax rate, to the nation as a whole. Thus, tax rates are set too high (Boadway and Tremblay 2006). Finally, when taxes imposed by the producing states are borne by residents in the consuming states, the former has an incentive to overtax. This is called tax exportation, a phenomenon known as direct or negative horizontal fiscal externality (Lockwood 2001).

On the other hand, SNGs may set tax rates too low because of horizontal tax competition, a phenomena known as indirect or positive horizontal fiscal externality. This happens when SNGs competing for more capital try to increase their mobile tax bases by setting inefficiently low rates (that is, that fall on the left of the Laffer curve). An SNG may also under-exploit its capacity to raise user charges. For instance, the subnational governments in Finland, Korea, Norway and

Spain have *de jure* autonomy to set tax bases and rates but rarely use this power (Joumard and Kongsrud 2003, p. 12).

Similarly, SNGs are not bound to reflect voter preferences to meet the constitutional obligation to provide services. For instance, an SNG might strategically under-provide services (for empirical evidence, see Cai and Treisman 2004) or overspend (that is, soft budget constraint), as occurred in Brazil (Montero 2001), Argentina (Gibson and Calvo 2000) and India (Rao and Singh 2002).

<C>Conventional estimates of VFI fail to distinguish between self-inflicted and structural imbalances

Another risk of relying on actual data is that this method can produce estimates that ‘no VFI’ exists when in fact there is a fundamental structural mismatch between revenue power and expenditure responsibility. For example, analysts might find a perfect match if an SNG under-provides public services. Analysts found this kind of perfect match between local governments’ own revenues and local spending in some South African municipalities, but the match was achieved at the cost of low levels of services for the local residents (Schroeder and Smoke 2002, p. 35). Under the conventional approach to fiscal adjustment, such SNGs are not entitled to grants even though they really need them.

Similarly, the conventional method might diagnose VFI when no structural problem exists. For instance, mismanagement and waste at the subnational level can cause a low ratio of revenue to current expenditure. Likewise, when the federal government practices better fiscal management than an SNG, the same ratio results. Subnational governments with a high VFI – in the conventional sense of the term – can blame the central government for subnational budget deficits or failure to repay subnational debt.

In terms of policy, this approach allows SNGs to demand more tax room or bailouts for fiscal mismanagement, poor tax efforts and excess spending. In the Indian fiscal transfer system, for instance, the weakest fiscal performers of the SNGs receive bailouts (Rao and Singh 2002). Clearly, the figures can be misleading and may not be a useful guide for public policy. Therefore, the conventional method for estimating VFI reveals nothing about the type of fiscal policy a government is pursuing.

<A>VFI IN A DYNAMIC FRAMEWORK: CONTRASTING INTERPRETATIONS

Ruggeri and Howard (2001) and Matier *et al*. (2001) have attempted to refine the conventional definition of VFI by focusing on structural rather than actual budget balances, that is, the balances inherent in current expenditure and tax policies at each level of government. Ruggeri and Howard (2001) go beyond the conventional definition of revenue-expenditure mismatch and put it in a dynamic framework by comparing the tendencies towards surpluses or deficits built into the existing fiscal structures of different levels of governments. In their words, ‘Vertical fiscal imbalances are the potential result of the dynamics of fiscal structures within a federation. They arise when there is a relative mismatch between the revenue growth and spending pressures of different orders of government’ (Ruggeri and Howard 2001, p. 5). Thus they look at the dynamics of fiscal structures, that is, more than the current state of affairs, they are concerned with the revenue growth and expenditure growth, and assume that none is static.

In this framework, a fiscal system will be said to be ‘structurally balanced’ if, in the absence of debt, growth rates of revenue and expenditure are equal. That is, the built-in growth of spending and taxation is maintained at a constant level through time. In the presence of debt and deficit financing, a fiscal system will be said to have achieved structural balance when the deficit and debt to GDP ratio are maintained at a constant level through time. The focus of their analysis is on comparing the *structural imbalances* of each order of government which result from an ‘ongoing mismatch’ between the growth rates in revenue and expenditure. In a parallel study, Québec’s Seguin Commission (2002) also linked the imbalance problem to the different dynamics of revenues and expenditures at the federal and provincial levels while arguing at the same time that imbalance can also be caused by an inappropriate use of federal spending power (p. 25).

Matier *et al*. (2001) also extend the conventional ‘mismatching’ definition of VFI into a dynamic framework. In this framework, VFI is said to exist if one level of government has the ‘*fiscal room’* available to reduce taxes or increase programme spending – while the other level of government must increase taxes or reduce spending in order to achieve fiscal sustainability. In this view, there is no VFI if SNGs have sufficient funds to finance their expenditures in a fiscally sustainable manner. Thus, they develop an indicator of VFI that is directly linked with the notion of fiscal sustainability. They claim that their framework allows for the direct measurement of the degree of VFI and of the adjustment required to eliminate VFI.

These papers from Ruggeri and Howard and from Matier *et al*. contribute meaningfully to the conventional debate. It may however be noted that both measures when applied to the Canadian context, yield strikingly opposite results. The former finds a tendency towards increasing VFI in Canada while the latter finds no case for VFI in Canada.

Note that there is no conflict between Ruggeri and Howard and Matier *et al*. regarding the *actual fiscal position*. Both agree that there is a differential between the structural fiscal positions of the two levels of government, with the federal government enjoying a larger surplus as compared to the provinces and territories combined. The conflict emerges in the interpretation. For Ruggeri and Howard, the differential between the structural fiscal positions of the two levels of government is an indication of imbalance. However, for Matier *et al*., this is not a sign of imbalance, because the provinces and territories will have sufficient funds to finance their expenditures in a fiscally sustainable manner. Furthermore, Ruggeri and Howard find that the fiscal differential between the two levels of government is moving towards more VFI whereas Matier *et al*. find that both levels will continue to meet their projected spending pressures in a fiscally sustainable manner.

The conflict with respect to the *projected fiscal positions* (that is, the direction in which the said differential is moving) is a product of different model specifications and empirical assumptions (see Lazar *et al*. 2004, pp. 167–71). For instance, in Ruggeri and Howard, the fiscal projections (revenue and expenditure growth patterns) are based on population growth. In Matier *et al*., the fiscal projections are based on population growth, as well as population ageing. The addition of ageing factor results in a considerably lower projection of the growth rates in the case of education spending, which offsets the projected rise in the health spending of the provinces/territories.

Secondly, Ruggeri and Howard assume that starting in 2004–05, all federal revenues will be used to pay interest on the debt and to finance program spending. This assumption reduces the growth of federal transfers. Thus, Ruggeri and Howard assume no growth, freezing the Canada Health and Social Transfer (CHST) cash at $21.0 billion base beyond 2005/06 whereas Matier *et al*. assume that CHST cash payments will continue to increase at a constant annual rate of 3.5 per cent.

Thirdly, Ruggeri and Howard assume a higher average annual growth rate of nominal GDP, which means that the tax revenues (calculated as $\textit{tax rate} \times \textit{nominal GDP}$) of the federal government will grow faster for those tax sources in which the federal government occupies a larger share (for example, PIT).

<A>BEYOND GAPS AND IMBALANCES: A CONCEPTUAL PERSPECTIVE ON VERTICAL FISCAL DIFFERENCE (VFD)

In this section, we propose an alternative conceptual framework to evaluate vertical fiscal relations. This alternative framework clearly distinguishes between VFI and VFG and defines them in terms of their respective conceptual premises. Thus, it harnesses the ability of these concepts to evaluate and guide fiscal policies in the public sector. Whilst we recognize that the conceptual perspectives behind VFI and VFG raise important points for consideration, the proposed conceptual framework offers an impartial solution that avoids taking a side with either perspective.

<B>Integrating VFI and VFG in a unified framework

As discussed above, there are two contrasting ways to evaluate and guide fiscal policy in multi-tiered systems. The drawback of the VFG perspective is that it views even a large vertical fiscal asymmetry (VFA) − termed VFG − as optimal. This approach can rationalize the intrusive actions by the federal government that lead to coercive fiscal relations characterized by federal pre-emption of state and local authority (see Kincaid 1990). However, the VFI perspective is equally flawed in that it goes to the other extreme and argues that transfers are weak policy instruments that sever the connection between spending and taxing authority.

In fact, the revenue-expenditure asymmetry between the two levels of a government does not always clearly indicate the extent to which the revenue-raising powers should be matched to spending responsibilities and the extent to which a restructuring of intergovernmental transfers is required. Thus, instead of claiming that this state is either VFI or VFG, we should call it VFA.

It should be noted that VFA has two components: VFI – the undesirable part (to be addressed by reallocation of fiscal instruments), and VFG – the desirable part (to be addressed by transfers). The concept of VFG, as originally conceived, states that the federal transfers must bridge the vertical fiscal gap, implying that, unless addressed, a fiscal gap will remain. When transfers are adequate, there is no gap. Thus, a state can be reached where there is *no imbalance and no gap*. We propose the term 'vertical fiscal difference' (VFD) for this state, a state of vertical fiscal asymmetry where there is no imbalance and no gap. The literature lacks a systematic way to refer to this state.

From the above it is clear that VFI and VFG both represent the situations that need correction, albeit by applying different fiscal instruments. Interestingly, when Seguin Commission (2002) argued for a radical rebalancing of the federation to virtually close all but a small amount of the fiscal gap, they clearly understood the two distinct problems of fiscal arrangements in a federation (that is, inappropriate allocation and inadequate transfers) and even attempted to empirically estimate their value. On one hand, the Commission argued that the federal government had undesirably large revenue-raising powers, often used for federal-provincial transfers, beyond the legitimate need to fulfil equalization commitments. It argued that the transfers should not be used as conditional grants in areas of provincial jurisdiction. Thus, it recommended that the social component of existing transfers should be replaced with a substantial reallocation of revenue-raising authority from the federal government to the provinces.

At the same time, the Commission also held unilateral reduction in federal transfers as a factor responsible for shifting the federal deficit problem to the provinces during the deficit reduction years of the Paul Martin Finance Ministry. The Commission observed that federal reductions in federal cash grants were much larger in percentage terms as compared to the reductions in conditional grants for federal spending programmes in areas of provincial jurisdiction.

Thus, VFI and VFG in the perspective proposed in this study may be understood as follows Bird 2000 **<table 5; figure 1>**(see table 5 and figure 1). VFI is a result of inappropriate assignments. Thus, it is a *structural* problem. If there is excessive revenue centralization then a positive VFI will emerge. If there is excessive revenue decentralization then a negative VFI will emerge. In extreme cases of negative VFI, the SNGs finance national government expenditures (for example, India 1919–35 and USA 1781–88). This is summarized as:

<ext>

VFI = Actual Vertical Fiscal Asymmetry — Desired or Optimal Vertical Fiscal Asymmetry

VFI = +ve when Actual Asymmetry > Desired Asymmetry

VFI = -ve when Actual Asymmetry < Desired Asymmetry

VFI = 0 when actual asymmetry is optimal. </ext>

<FL>The proposed conceptual framework is based on the understanding that some revenue-expenditure asymmetry is inevitable and desirable. In this perspective, the absence of asymmetry should not be defined as the *standard,* relative to which the state of VFI exists, because restoring balance by eliminating asymmetry is not a realistic possibility. We say this for the reasons detailed in the penultimate section, which introduces a new concept of vertical fiscal difference (VFD). The standard of reference for estimating VFI is ‘optimal asymmetry’. The issue of determining optimality is discussed in the final section.

VFG implies that there is no problem with assignments as such. The only remaining issue is of closing the gap. If the federal government focuses too much on federal transfers, the gap will be over-filled and a negative VFG will emerge. It will create the soft budget constraint problem (SBC). With a SBC, subnational governments have perverse incentives to indulge in inefficient project spending (see Wildasin 1997). However, if − at the extreme end of the spectrum − the emphasis is placed on eliminating federal transfers, VFG will not be bridged. Thus, a positive VFG will emerge. It will create an inefficiently inflexible hard budget constraint (HBC) that can discourage investments that are socially efficient (see Besfamille and Lockwood 2008). This is summarized as:

<ext>

VFG = Desirable Asymmetry—Federal Transfers

VFG = +ve when Federal Transfers < Desirable Asymmetry

VFG = -ve when Federal Transfers > Desirable Asymmetry

VFG = 0 when Federal Transfers = Desirable Asymmetry

(that is, when transfers are optimal) </ext>

<FL>The above discussion leads to a clear choice of remedies. To the extent that the actual revenue-expenditure asymmetry deviates from the optimal, that is, when there is VFI, the system will require rebalancing by reassignments (for example, by devolving more revenue-raising powers to SNGs). To the extent that there is VFG, the 'gap' should be 'filled' by using the transfer scheme (see figure 1, above)**.** Thus, both policy instruments have separate and complementary functions. Although both can supplement subnational funds, neither can compensate for the lack of the other. Thus, neither is superior to the other. This perspective eliminates the possibility of favouring one policy over the other for rhetorical reasons.

Federal transfers refer to:

<list>

- Formula based grants, basically lump sum (unconditional) but also conditional for specific programmes of national significance;
- Need-capacity based revenue-sharing (under special circumstances). This system works like block grants with the limitation that it cannot be targeted to specific SNGs;
- We exclude loans because they are not transfers in the strict sense of the term. Loans only become transfers when they have interest subsidies or are written off. </list>

<FL>Subnational own-source revenues refer to:

<list>

- Tax and non-tax revenue from own sources. These include (a) tax revenue from the tax bases either exclusively assigned to SNGs or jointly occupied with the national government; and (b) non tax revenues from user charges;
- Origin-based revenue sharing (under special circumstances). This system works as a substitute for devolution of tax powers when subnational capacity to administer taxes is severely lacking;
- We exclude subnational borrowing because it is not an alternative to taxation and tax revenues must subsequently repay it. </list>

<FL>Our approach does not overemphasize the case for own-source revenues and it does not allow transfers to cause dependency because they are used to fill optimal VFA, rather than actual VFA. The latter approach (filling actual VFA at subnational level) has been used in the past with unwelcome results in China, India, Malaysia, Pakistan, South Africa, and Sri Lanka (Shah 2007, p. 19). In our approach, transfers do not lead to accountability problems because SNGs control their own revenues at the margin (for example, by choosing tax rates).

This method not only prevents the use of transfers to accommodate 'extra' spending but also restricts SNGs from borrowing to finance current expenditures. Together, these conditions require SNGs to raise taxes to finance their marginal expenditures (that is, above what is covered by the federal transfer), and leaves them accountable to voters for their tax and spending decisions. These restrictions preserve accountability without recourse to strict separation of tax-raising powers.

<B>What is VFD? Why is it needed?

The extant literature advocates a high degree of subnational tax autonomy (Weingast 2006) and insists that SNGs should finance their actions with their own-source tax revenues (Warren 2006, p. 49). This literature universally assumes that institutional mechanisms designed to grant independent revenue-raising authority to SNGs are always desirable as they will harden the budget constraint for SNGs (Rodden *et al*. 2003). It is the purpose of this section to take issue with this presupposition.

Without a doubt, matching revenue-raising powers to spending responsibilities is a commendable objective that allows SNGs to tailor the supply of public goods to citizens' buying preferences and, hence, to be held accountable by local constituents. However, in the imperfect world of spatial inequalities, majority voting procedures, and constraints on SNGs' revenue-raising due their open economies and tax base mobility, transfers turn out to be important policy instruments for ensuring macroeconomic stability, harmonization of taxes, internalization of fiscal externalities, redistribution, equalization, inter-regional insurance, allocational efficiency, and public service delivery.

Thus, in the real world, some revenue-expenditure asymmetry along with a well designed transfer system is inevitable. In fact, 'the vertical externalities in the use of tax bases, the harmonization of some taxes and the economies of scale in their administration may make it advisable to have even the wealthiest SNG partly financed by central transfers' (Martinez-Vazquez 2008, p. 32).

Indeed, a large VFA can lead to transfer 'dependency', which severs the Wicksellian connection between public services and tax prices. However, a perfect match between revenue and expenditure (that is, no VFA) is not a realistic possibility, as it is contingent on at least one of several conditions: spatial equality that does not require redistribution; a central planner authorized to make coordinated decisions on behalf of the regions and the nation; a voting system based on *unanimity* (that is, the combination of public services and tax prices receives *unanimous* consent); or an absolute lack of mobility, which precludes inefficient inter-regional migration. None of these conditions is possible in reality, which is why we need VFD.

Thus, the concept of VFD recognizes the standard fiscal federalism principle that there is a *prima facie* case for higher levels of government to collect more revenues than they need for their own expenditure requirements and transfer funds to lower levels (Musgrave 1959; Oates 1972). Thus, the 'optimal asymmetry' is typically positive. The question is how much positive asymmetry is optimal?

The conceptual perspective on VFD implies that when implemented beyond a certain limit, either policy instrument (subnational tax autonomy or transfers) can cause tensions in the federal system and result in reduced efficiency. An excess of both can create incentives for SNGs to behave irresponsibly. Weingast *et al*. (1981) and Wildasin (1997) studied the irresponsible behaviour associated with intergovernmental transfers, and Dillinger and Webb (2001) and Prud'homme (1995) highlighted the irresponsible behavioural patterns typically associated with subnational tax autonomy. SNGs with fiscal autonomy may rationally decide to under-tax and under-provide market-promoting public goods and services and to ignore positive externalities. However, SNGs' excessive reliance on federal transfers can cause negative externalities, including overborrowing and overspending on rent seeking and corruption.

Thus, the most desirable system of allocations avoids efficiency losses, resulting from either financial dependency, or subnational fiscal operations; this system is VFD. This system represents a balanced policy environment that combines subnational revenue control with fiscal equalization system. In fact, the recent literature has begun to focus on combining subnational tax autonomy with a fiscal equalization system especially for enhancing welfare in markets of tax competition (see, for example, Köthenbürger 2005; Bucovetsky and Smart 2007). The simple logic of such a system can be understood as follows: A particular region lowers its tax rate on mobile tax bases. This leads to an inflow of capital into that region, which alleviates the revenue loss due to reduction in tax rate. However, this attempt by a region to improve its own mobile tax base causes a corresponding tax base loss from neighbouring regions. Thus, tax revenues of neighbouring regions deteriorate. The net outcome is an inefficient supply of public goods. The equalization scheme then responds by lower entitlements of the tax-lowering region and higher entitlements of the other regions. Thus, an equalization system reduces pressures of tax competition and allows SNGs to set higher rates.

From the above, it is clear that an intermediate system, that avoids the extremes, sets the incentives right for tax policy at SNG level. In such a system, federal transfers will counter the harmful effects of tax competition. In what follows, we spell out the factors that generate the need to create VFD, that is, an optimal asymmetry along with a properly designed transfer system.

<B>Limited scope for subnational revenue autonomy

The majority of fiscal federalism literature favours increasing subnational revenue autonomy, that is, the autonomy to levy and appropriate taxes and user charges (Bird 2000). Some even argue for assigning broad-based taxes to SNGs (Grewal 1995). However, such proposals are not relevant to policy because the scope for subnational revenue autonomy is quite limited. Few taxing powers can be decentralized without provoking concerns for efficiency and/or distribution (see Tanzi 1996). Furthermore, decentralized finance can be overly expansive when the burden of local taxation can be shifted to the residents of other jurisdictions (tax-exporting) (McLure 1967).

Although the assignment of broad-based taxes to SNGs is considered problematic (McLure 1994), the revenue from the narrow-based taxes typically assigned to SNGs is insufficient, especially for countries with a significant devolution of expenditure powers. A greater reliance on user fees can improve efficiency but may also raise equity issues, especially when these fees are applied to core goods and services, such as education, health care, and social assistance (Joumard and Kongsrud 2003, p. 30).

In fact, as alternatives to more general taxes based on broad measures of each taxpayer's economic capacity, benefit taxes and user fees are advocated by some (Bird 1976; Wagner 1991; McLure 2001) and condemned by others (Simons 1938; Seligman 1969). Duff (2004) examined theoretical arguments for and against reliance on benefit taxes and user fees. However, the issue here is not inferiority or superiority of the benefit taxation but rather their revenue potential. As McLure (2001, p. 343) points out, 'the taxes that closely reflect benefits of public services generally would not be adequate to finance governments at any level'.

<C>Incentive problems associated with subnational revenue autonomy

The mainstream literature identifies three major incentive problems with the transfer system: the bailout problem, the fiscal illusion problem, and the common pool problem (Smart 2005). These problems are used to recommend a high level of subnational revenue autonomy. To support the same recommendation, the second-generation theory of fiscal federalism focuses on the significance of hard budget constraints for SNGs (Weingast 2006). However, the question whether granting substantial tax-raising autonomy to SNGs will solve the incentive problems still remains. The view supported by this study is that it will not; rather, it will create another set of incentive problems that are equally, if not more, concerning. In the discussion below, we present the **(?add 'two')** factors that create 'moral hazards' for SNGs with fiscal autonomy.

<list>

1. *Presence of a federal government:* SNGs with fiscal autonomy may rely on the option of being bailed out by the central government (Pisauro 2001). In fact, the very concept of a federal government ensures that this option is available in the event of a fiscal shock. As Keen (1998, p. 471) stressed, this presence is what distinguishes the issues of fiscal federalism from those of international taxation. This observation contradicts the view that minimizing transfers and increasing subnational fiscal autonomy will correct incentives.

2. *Majority voting procedures and inter-jurisdictional mobility:* majority voting procedures and inter-jurisdictional mobility create a variety of ‘moral hazards’ for SNGs. The average voter under majority rule is, *comparatively speaking*, less willing to accept high subnational taxes *vis-à-vis* federal taxes. For the United States, Gruber and Saez (2002) found that the elasticity of taxable income with respect to a tax rate increase was 50 per cent higher at state level than at federal level. This sensitivity to taxes in the subnational tax base increases in direct proportion to the mobility of the tax base. Tax sensitivity is higher at the subnational level because interregional migration tends to cost less than international migration. Thus, the mobile subnational tax base may find it easy to escape taxes by moving out (that is, voting by feet). For Canada, Mintz and Smart (2004) found that the tax sensitivity to the Corporate Income Tax was substantially higher at the provincial level than at the federal level. </list>

<FL>It should also be noted that when a government tries to raise an additional unit of tax revenue, economic agents respond with efficiency-reducing changes in consumption, investments, and savings. As long as these efficiency losses are offset by the government’s intended redistribution gains, no corrective policy measure is required. However, the revenue and redistribution gains at the subnational level turn into losses when the tax increases cause wealthy residents and desirable factors of production to leave the jurisdiction. In this case, the redistribution policy ends up attracting the poor to the jurisdiction. Thus, given the high cost of increasing revenue with additional taxation at the subnational level, federal grants are essential (see Dahlby and Wilson 1994). This is another reason why we need VFD, that is, a desirable level of VFA with a concomitant transfer system.

Empirical evidence also suggests that SNGs respond to the high tax sensitivity of mobile tax bases by competing to offer the lowest tax rate (see Cai and Treisman 2004). Brake (1967) found that inter-jurisdictional competition in the United States resulted in a state-local tax structure with strong regressive features. In India, the West Bengal Finance Minister proclaimed that his new package of investment incentives was intended to win the sales tax rate war with other states (Mitra 1999). The existence of a 'downward pressure on tax rates' is accepted, even by those who are not wholly convinced by the evidence for a 'pure' race to the bottom (Baldwin and Krugman 2000; Krogstrup 2002).

On the expenditure side of the 'moral hazard', SNGs may respond to average voter demand by rationally deciding not to provide regionally financed public services even though they have the fiscal autonomy to finance their own expenditures. Hettich and Winer (1986) showed that this situation occurs because an average voter under majority rule rationally assumes that the marginal tax cost of federal public services, to some extent, can be shifted onto others in society. The resulting drop in the relative tax price of federal public services induces the average voter to demand more federal goods. This demand, however, produces an inefficient mix of federal and subnational public sectors. In this mix, the quantity of non-federal goods and services relative to federal ones will drop below efficient levels. Thus, federal grants are required to increase the availability of non-federal goods and to reduce the perceived tax price of goods at the subnational level.

SNGs may also resort to the strategic use of public services to attract desirable factors of production and to repel undesirable ones. This strategy, when coupled with tax rate competition among SNGs for mobile tax bases, may cause SNGs to provide welfare benefits that are too low for society. Cai and Treisman (2004) presented such cases from China, Russia, and the United States. Thus, constitutionally mandated federal grants are necessary to encourage SNGs to provide an adequate level of subnational goods and services.

<C>Horizontal fiscal imbalances and inefficient migration

A horizontal fiscal imbalance (HFI) emerges when SNGs have different abilities to raise funds from their tax bases and to provide services. Such an imbalance creates horizontal fiscal disparities that generate the need for equalization grants. In fact, prominent among the objectives commonly attributed to intergovernmental fiscal transfers is ‘equalization’ of fiscal capacities (Boadway 2000). Equalization transfers also serve to insure regions against external shocks (see von Hagen 2007 for a survey) and achieve redistribution goals (Persson and Tabellini 1996).

Following Buchanan (1950), a large body of literature developed on the use of equalization transfers to correct the equity and efficiency distortions (for a survey, see Boadway 2004). Musgrave (1959) postulated that inter-government transfers should be determined by equity and efficiency considerations, to support local governments in providing differentiated public goods to heterogeneous populations, while ensuring an even distribution of basic services across all regions (see also Oates 1972 and Gramlich 1977).

Transfers equalize the fiscal ‘capacities’ across SNGs and, hence, prevent the inefficient inter-regional migration caused by differences in ‘net fiscal benefits’, which are a combination of levels of taxation and public services (for various arguments on the sources of so-called ‘net fiscal benefits’ induced migrations, see Boadway 2000). In fact, the differences in the *fiscal capacities* of different regions to deliver public services induces individuals and businesses to choose places of residence partly on the basis of the relative *fiscal benefits* that the regions provide rather than on productivity considerations. Thus, the transfer system can promote efficiency in the public sector and can level the field for intergovernmental competition (Breton 1998).

<A>RISE AND RESOLUTION OF VFI: APPLICATION OF THE CONCEPTUAL FRAMEWORK

In conventional measures, VFI is simply a measure of the comparative deficits and surpluses of the two levels of a government. But, this measure is not substantially related to a rigorous definition of VFI, which is intended to represent systemic imbalances or misallocations (that is, inappropriate assignments). A government's budget deficits or shortfall in surpluses can be judged without reference to VFI if there is a desired level of asymmetry and without reference to VFG if the transfer system addresses the desired level of asymmetry, which is specific to time, country, and context. It may be noted that not all deficits are bad, but deficits on revenues and current accounts can be linked to a government's strategic behaviour, for example, choosing not to levy taxes at an 'average' rate despite having the authority to do so or indulging in fiscal profligacy to fulfil costly election promises. Thus, estimating VFI requires a method not dependant on flawed and misleading data.

In our conceptual framework, VFI rises when allocations deviate from a desirable level of asymmetry. But how do we determine the desirable level of VFA? The extent of desirable asymmetry is variable and cannot be definitively specified for all countries, or even a particular country at all times. One country at different times and different countries at one time have different levels of 'desirable VFA'. In fact, determining an 'optimal distribution' of taxing authority and spending responsibility is not a technical exercise because it cannot be based on some fixed universal standards of optimality. The notion of 'optimal' – better than any other distribution – is a relative and context-dependent concept; it is determined to a large extent by the nature of federal polity and the political consensus on policy goals.

The political consensus takes shape within specific discursive frameworks (Tversky and Kahneman's 1986) that vary from country to county due to distinct historical experiences (Schmidt 2006), especially in the area of centralization, power-sharing and attitudes toward federalism (Mitin 2009, p. 3). Furthermore, within a particular country, the consensus on policy goals and, hence, on the desired level of asymmetry can change in response to the changing interactions between exogenous and endogenous factors and the balance of political forces. For instance, Canada (1867) began with federal control of taxation but gradually drifted towards a decentralized taxation. On the other hand, Australia (1901) began with concurrent taxation but gradually drifted towards a centralized taxation.

However, the concept of optimality implies almost axiomatically that it bars the extremes on either side. **<figure 2>**Figure 2 shows that VFI arises when VFA shifts to either extreme of the spectrum (‘A-B’ or ‘D-E’). Both these extreme cases create incentive problems. Combining subnational tax autonomy with a well designed transfer system can mitigate some of these problems. However, as we have already said, determining optimality is a political, rather than technical exercise. Yet, it cannot be the product of *ad hoc* political bargaining either. Thus, the need is to put in place collaborative intergovernmental processes and institutions for sustained interactions. These can provide formal channels for political negotiations. The continued political interactions among political actors at both levels of government can produce desirable outcomes by revealing to them their shared long-term interests. A well-guided rationale can even reveal to more affluent SNGs that it is in their long-term interests to make voluntary transfers to their financially unstable counterparts. Myers (1990), for instance, demonstrated that such contributions can benefit rich SNGs’ economies by discouraging inefficient regional migration.

The range of optimality (VFD) will lie either within ‘B-C’ or ‘C-D’ depending on the predominant nature of federal polity. The most frequent distinction regarding the predominant nature of federal polity is between a cooperative and integrated model and competitive and dual or separation model (Scharpf 1995; Simeon 1998). In former case, ‘B-C’ is not likely to be politically desirable, so ‘C-D’ will represent the range of optimality. In latter case, ‘C-D’ is not likely to be politically desirable, so ‘B-C’ will represent the range of optimality **<table 6>**(table 6).

VFD is a dynamic concept that responds to changing socio-economic and political realities. Many factors must be taken into account to determine the optimality for a country during a particular period. These factors, detailed below, give a broad sense of the zone (see figure 2 and table 5, above) within which VFD should lie.

The extent of ‘desirable asymmetry’ (VFD) at the time a federation is formed depends on the historic mode of its formation. When a federation is an aggregation of pre-existing units, a smaller VFA may be optimal because the federation’s main goal is to fulfil local aspirations and to ensure the SNG’s accountability to local voters. On the other hand, when a federation results from the disaggregation of an existing unit, a larger VFA is optimal as the federation’s main goal is to motivate the SNGs to design and deliver social programmes based on central preferences.

The extent of ‘desirable asymmetry’ is also determined by the regional disparities that exist between the SNGs. In a federation with large HFIs and a ‘national concern’ for regional equality, larger VFA may be optimal. Federations all over the world, with the exception of the United States, make transfers to resolve HFIs that vary widely in extent and design.

Within a country, changing economic and political realities determine the optimal levels of asymmetry for different periods. The desired level of asymmetry changes with the consensus on policy objectives as a result of exogenous shocks − such as a major international crisis (for example, the two World Wars), major changes in taxation practices, or technological advances (for example, in tax enforcement); and endogenous factors − demographic changes, economic disparity, urban concentration, or ethnic, religious and cultural diversity.

Certain circumstances may legitimately compel the federal government to increase VFA. In Australia and Canada, for example, in the years between World War I and World War II, the optimal level of VFA increased due to the increased demand for defence-related goods. The governments responded by increasing the level of VFA. In 1942, the Australian Commonwealth passed temporary wartime legislation that led to the loss of over 45 per cent of states’ taxation revenues (Walsh 1990). Similarly, in Canada, the provinces rented their tax fields to the federal government in order to finance the war effort in exchange for annual sums that were fixed for a five-year term (Burns 1980). Thus, when more federal spending is required, it becomes desirable to increase centralized taxation. Thus, the optimality shifts towards a larger VFA.

The federal government may also be legitimately compelled to reduce VFA in response to a sustained decline in the demand for federally provided goods and/or a sustained increase in the demand for regionally provided public goods. Following from the example above, in Australia and Canada, in the period immediately following World War II, the demand for federally provided defence-related goods declined, and the demand for provincial public goods, such as social welfare services, rapidly increased (see Hettich and Winer 1986). Thus, as the need for federal spending declined and the need for provincial spending increased, it became desirable to devolve more tax powers to subnational governments. Thus, the optimality shifted towards a smaller VFA.

The Canadian government responded to such a shift by allowing the provinces to progressively re-occupy progressively the Personal Income Tax (PIT) field they had leased to Ottawa during World War II (see Burns 1980 for a detailed description of these changes). The Australian Commonwealth, on the other hand, retained the assignments (McLean 2004, p. 25), and the states have been struggling for access to the field of income tax since the 1950s (Grewal 1995). Scholars have thus argued that inadequate State tax powers in Australia’s system of intergovernmental financial arrangements have resulted in a very high vertical fiscal imbalance (Grewal 1995; Warren 2006).

From above it is clear that VFI is a result of a sustained shift in the factors that determine the desired level of federal or provincial spending and the desired level of revenue collection by each level of government. In fact, the dynamic nature of optimality always precludes the definitive absence of VFI. The governments must adjust their fiscal structure – along the centralization-decentralization continuum during transition periods (for example, when a country is moving from one political balance to another).

A country will remain in a state of VFI as long as the government does not adequately adjust the fiscal structure to cope with such changes. The actual adjustments, however, will be determined by the politics of the period and various endogenous factors. In fact, endogenous factors explain the different post-1945 taxing approaches of Canada and Australia. In Canada, the deciding factors were: ethnic disparities, the degree of population dispersal, and regional variations (Winer and Maslov 1996). Quebec's actions further prompted the reinstatement of provincial income tax sharing rights in 1957 (James 1997). In contrast, very small differences in per capita income between the states (Mathews 1980) and the fact that political decisions, even in Senate, are dependent on governing party, not state (Uhr 1989), were the important factors in Australia. Thus, the internal differences in 'governmental traditions' (Wanna and Weller 2003) between the two countries created different types of political equilibrium on the continuum between centralization and decentralization.

According to the political equilibrium approach, the level of state taxation in any particular country is simply determined by the political 'equilibrium' of that country (Diaz-Cayeros 2006). The problem with this approach is that it tends to justify any existing level of federal transfers or subnational taxation, even if they are a product of factors, such as the relative strength of the federal government *vis-à-vis* SNGs, the relative bargaining power of wealthier SNGs compared to poor SNGs, and the secession threats by SNGs that aspire to sovereignty. Such equilibrium, based on pure political bargaining, can distort the welfare enhancing and efficiency rationale of a fiscal federal structure.

Furthermore, the power politics and the logic of political behaviour in a federation can preclude the rationalization of the fiscal structure and can cause the allocations to lean excessively to either side of the continuum. For example, in Russia, the government typically grants preferential fiscal agreements to the regions with the most serious separatist claims (Treisman 1999). In fact, weakening of the central government can potentially trigger the demand for more revenue authority to SNGs. This happened in Indonesia after the historic fall of the **Soeharto**

Regime (1966–1998) in May 1998 and in Russia after ‘August 1998 meltdown’ (economic paralysis and consequent devaluation of the Rouble on 17 August 1998). This kind of decentralization is unlikely to promote a governance agenda based on transparency and accountability as is largely assumed in the neo-institutionalist perspective (for a critique of neo-institutionalist perspective, see Hadiz 2004). Hadiz (2004) draws on Indonesian experience to illustrate the way in which decentralization processes and institutions can be hijacked by a wide range of interests.

An important question to be addressed here is how to ascertain that a VFI exists, that is, the allocations in a particular country deviate from the desired level? One view is that a fiscal imbalance exists if the observed combination of non-federal and federal goods diverges from the combination that would result if the expenditure and taxing decisions of all jurisdictions were subject to national vote. Voting can be based on the majority rule (Hartle 1971, p. 103) or on the unanimity rule (Hettich and Winer 1986, pp. 749–50).

Hettich and Winer advocated the unanimity rule because it prevents special interest groups from influencing fiscal outcomes. However, since unanimous voting is not a realistic possibility, the authors recommended a requirement to make decisions by pluralities larger than 50 per cent. Lazar *et al*. (2004) and Dahlby (2005) argue that VFI exists when a particular level of government complains about insufficient funding and/or tax room and a wide majority of the public supports its cause. Though a public opinion poll is a significant factor, yet it is not sufficient because political leaders can always manipulate the voters by appealing to their prejudices, their parochial feelings, and their desire for short-term gains, even at the cost of long-term gains (Chelliah 2010, p. 22).

The quantification of optimal asymmetry, relative to which a state of VFI can be defined, will require feedback on several variables including the expenditure requirements and expected revenues of the federal government as well as the SNGs, and the extent to which transfers are required to achieve equalization and national objectives. This feedback can be obtained from election results, public opinion polls, and political debates. This is further supplemented by a constant flow of information, provided by the financial markets, on the relative prices of federal and provincial goods in a particular period (Hettich and Winer 1986). This information is an important indicator of the spending needs of the two levels of government.

The task of gathering such feedback and information can be entrusted to an independent agency. Countries like Australia, India, and South Africa have such independent agencies to work out the distribution of resources between the various levels of government. However, risk-averse political officials can always avoid difficult decisions by taking the agency's recommendations as optional propositions.

Clearly, the problem of determining optimality and resolving VFI is a political one. To be consistent with a political economy approach, the solution must be based on incentives and self-interest. This leads us to the next level dilemma – the dilemma of finding political economy solutions to the optimal distribution of taxing and spending authority. An optimal distribution is easier said than done. There can be different perspectives on the issue based on values, party politics, regional politics, and views on the nature of the federation and the economic role of government (that is, the *side* one takes in intergovernmental disagreements on vertical fiscal relations). This dilemma does pose certain problems yet it should not be projected as a reasonable ground for inaction pending further study. More case studies are necessary to clarify the precise mechanisms that can make institutions of shared decision-making and collaboration self-enforcing and, thus, politically effective.

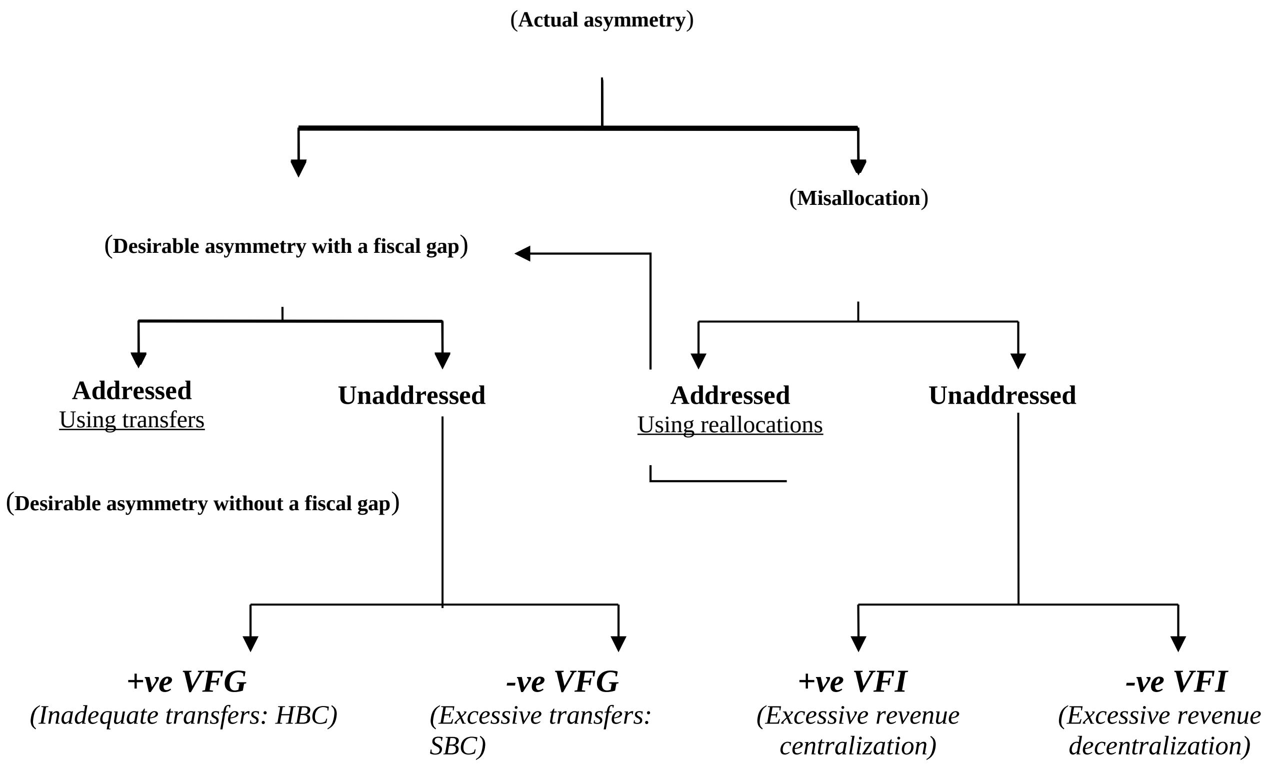

FIGURE 1 *A schematic view of the alternative conceptual perspective*

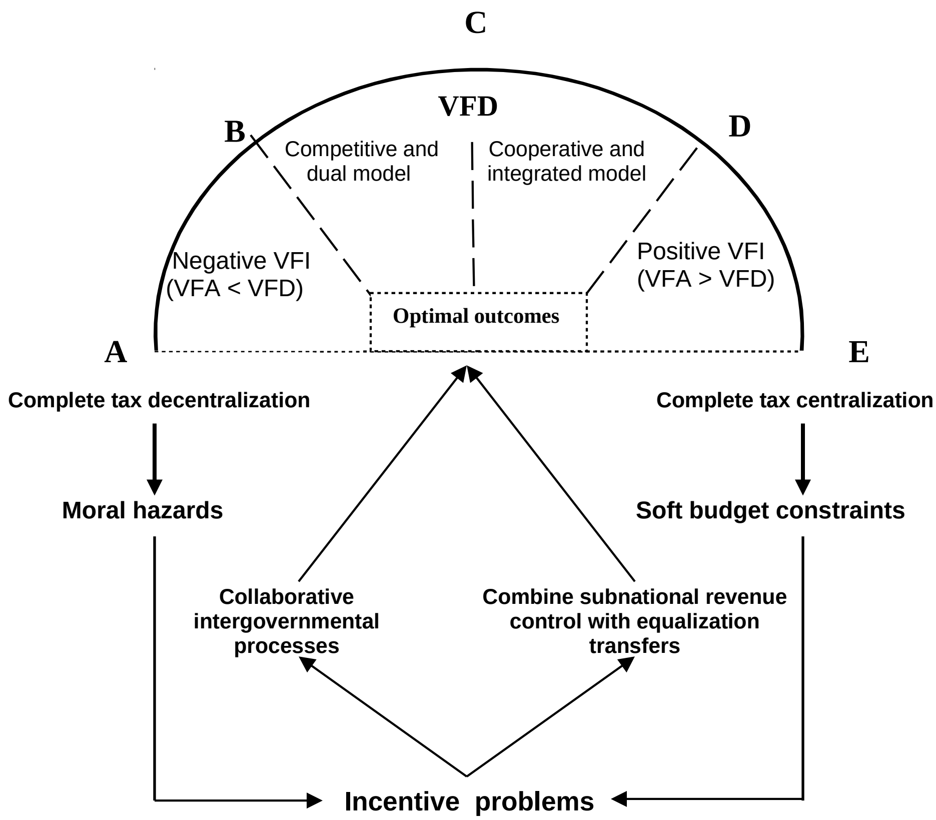

FIGURE 2 *The vertical fiscal difference (VFD): a schematic view*

TABLE 1	*Vertical fiscal imbalance: various definitions*
Author	**Definition of vertical fiscal imbalance (VFI)**
Bird (2003, p. 8)	'Vertical fiscal balance is achieved – when expenditure and revenues (including transfers) are balanced for the richest local government, measured in terms of its capacity to raise resources on its own.'
Bird and Tarasov (2004, p. 80)	'The concept of vertical fiscal imbalance (VFI) – the "fiscal gap" as it has been called (Boadway and Hobson, 1993) – is often discussed as though in an ideal government structure the "own-source" revenues of each level of government should be sufficient to finance the expenditure for which it is responsible without recourse to intergovernmental fiscal transfers.'
Boadway and Tremblay (2006, p.3)	'Vertical fiscal imbalance is a situation in which the size of transfers made by the federal government to the provinces falls well short of the amount of federal tax revenues relative to their expenditure responsibilities, that is, what one might think of as the optimal vertical fiscal gap.'
Breton (1998, p. 197)	VFI is 'the mismatch of own revenues and expenditures of governments located at various jurisdictional tiers – and the consequent flow of funds among governments.'
Collins (2002, p. 26)	'The term vertical fiscal imbalance (VFI) relates to a mismatch for an individual level of government (federal, state or local) between its revenue-raising powers and expenditure responsibilities. To be more specific, VFI implies a mismatch between a particular level of government's own-source revenues (not including grants from other levels of government) and own-purpose expenditures (not including grants to other levels of government).'
Hallwood and MacDonald (2005, p. 96)	'The phenomenon of central government having greater power to obtain income than it actually needs for the exercise of its authority, while the sub-central level has less power to raise income than it needs is referred to in the fiscal federalism literature as vertical imbalance.'
Hunter (1977, cited in Mathews 1980, p. 10)	Vertical balance can be said to exist to the extent to which the basic allocation of revenues and expenditures was such that 'governments at each level can command the financial resources necessary for them to carry out their expenditure responsibilities and to be held accountable for both spending and taxing decisions.'
Matier *et al*. (2001, p. 2)	VFI exists 'if one level of government has fiscal room available to reduce taxes or increase program spending – and satisfy its intertemporal constraint – while the other level of government must increase taxes or reduce spending in order to satisfy its intertemporal budget constraint.'
McLure (1994, p. 154)	'VFI arises when (1) the center collects taxes more easily and at lower economic cost than subnational governments; (2) the central government preempts revenue sources that subnational governments might use.'
Rodden and Wibbels (2002, p. 505)	VFI is 'the degree to which subnational spending is financed by revenue transfers from the center (as opposed to locally raised taxes, fees, and so on).'
Ruggeri and Howard (2001, p. 5)	'Vertical fiscal imbalances are the potential result of the dynamics of fiscal structures within a federation. They arise when there is a relative mismatch between the revenue growth and spending pressures of different orders of government.'
Shah (2006, p. 28)	'Vertical fiscal imbalance = Need for transfers.'
Shah (2007, p. 17)	'A vertical fiscal imbalance occurs when the vertical fiscal gap is not adequately addressed by the reassignment of responsibilities or by fiscal transfers and other means.'
Wagner (1973, p. 42)	'VFI exists when the national government has an excess supply of revenue while state and local governments have an excess supply of needs.'
Walter (2004, p. 3)	VFI is 'the inability of one level of government…to fund its own responsibilities from its own revenue streams without monies from elsewhere, in this case by Borrowing.'
Webb (2002, p. 1)	'The difference between the relative revenue and spending responsibilities of the Commonwealth and States is known as vertical fiscal imbalance.'

TABLE 2	*Various formulae for measuring VFI*
Author	**Measure of vertical fiscal imbalance (VFI)**
Ahmad and Craig (1997)	$1 - \frac{Subnational\ resources\ not\ under\ subnational\ control}{Total\ Subnational\ Expenditures}$
Bird and Tarasov (2004)	$CVI_1 = (\text{Net Intergovernmental Grants})_{SNG} / (\text{Expenditure + Lending})^{NT}_{SNG}$ $CVI_2 = (\text{Net Intergovernmental Grants})_{SNG} + (IGNB)_{SNG} / (\text{Expenditure + Lending})^{NT}_{SNG}$ $CVI_3 = 1 —$ $\left[\frac{(\text{Revenue Grants})_{SNG} - (\text{Net Intergovernmental Grants})_{SNG} - (IGNB)_{SNG}}{\text{Expenditure} + \text{Lending}^{NT}_{SNG}}\right]$ NT: Net of intergovernmental transfers. IGNB: Intergovernmental Net Borrowing
Collins (2002) Ebel and Yilmaz (2002)	Own Source Revenue / Own Purpose Expenditures [for each level of government]
Hunter (1977)	CVI_1= 1—Revenue sharing + Untied and Other Transfers / Total SNGs' Expenditures. CVI_2= 1 — Untied (Equalizing) and Other Transfers / Total SNGs' Expenditures. CVI_3= 1 — Other Transfers / Total SNGs' Expenditures.
Khemani (2006)	Total intergovernmental Grants / Total SNG revenues.
Muddipi (1991)	$V = \frac{\left(\frac{OwnTax\ \text{Revenue}_{SNG} + Non\ Tax\ \text{Revenue}_{SNG}}{Combined\ \text{Revenues}}\right)}{\frac{\text{Revenue}\ Expenditure_{SNG}}{Combined\ \text{Revenue}\ Expenditure}}$ V: Coefficient of Vertical Balance ; V = 1 indicates perfect balance
Osterkamp and Eller (2003)	Intergovernmental Transfers / SNGs' Expenditures
Rao and Singh (2002)	1. Per cent of States' Own Current revenue to Total Current Revenue 2. Per cent of States' Current Expenditure to Total Current Expenditure 3. Per cent of States' Own Current Revenue to States' Current Expenditure 4. Per cent of States' Expenditure* to Total Expenditure* * Current + Capital
Rodden and Wibbels (2002)	Grants +Revenue sharing / Total SNG Revenues.

TABLE 3	*Vertical fiscal gap: various definitions*
Author	**Definition of vertical fiscal gap (VFG)**
Boadway (2004, p. 7)	'The VFG refers to the desired asymmetry in revenue-raising between the federal and provincial governments.'
Courchene (2006, p. 47)	'A "vertical fiscal gap" exists when the federal or central government collects more in revenues than it needs for its own constitutional purposes.'
Dahlby (2009, p. 7)	'A vertical fiscal gap can be defined as the proportion of subnational government spending that is financed by transfers from the central government.'
Dahlby *et al.* (2009, p. 1)	'A vertical fiscal gap is the difference between a subnational government's expenditures and its own source tax revenues.'
Joumard and Kongsrud (2003, p. 167)	'A "fiscal gap" is defined as the difference between subnational government spending responsibilities and their revenue-raising powers.'
Lewis (2002, p. 154)	'The fiscal gap is defined as the difference between expenditure needs (EN) and fiscal capacity (FC). That is: $FG_i = EN_i — FC_i$'
Shah (2006, p. 7)	'Fiscal Gap is a structural imbalance (produced) as a result of a mismatch between revenue means and expenditure needs.'
Shah (2007, p. 17)	'A vertical fiscal gap is defined as the revenue deficiency arising from a mismatch between revenue means and expenditure needs, typically of lower orders of government.'
Smart (2005, p. 2)	'(There is a) commonly held notion that in a federation revenue-raising authority should be more centralized than expenditure authority. The result is typically a vertical fiscal gap (VFG) between revenue and expenditure on own account at the central and local levels, which must be closed through transfers.'
Wilson (1996, p. 9)	'The fiscal gap refers to the gap between the expenditure needs and the revenues available to various levels of government.'

TABLE 4	*Vertical fiscal asymmetry: major approaches*	
Views on VFA	**VFA is VFG**	**VFA is VFI**
	In this perspective, revenue-expenditure asymmetry (called VFG) emerges from the application of the guiding principles of Public Economics. VFA (termed VFG) is desirable because it reflects federal spending priorities (Boadway 2005, pp. 53, 72)	In this perspective, revenue-expenditure asymmetry (called VFI) results not from close adherence to the dictates of theory, but rather from the simple exercise of political power (Bird 2000, p. 2072). VFA (termed VFI) is seen as economically and politically unsustainable (Bird 2000, p. 2072)
	Emphasize desirability of VFA	**Emphasize undesirability of VFA**
	The national government is seen as the only government capable of addressing national goals of redistribution (Persson and Tabellini 1996; Boadway 2005), correcting equity and efficiency distortions (Boadway 2004b), insuring regions against shocks (Lockwood 1999) and facilitating equal treatment in the public sector (Boadway 1998)	The SNGs are seen as the only governments efficient at providing services. The higher level of government is seen as an intermediary between the consumer (taxpayer) and service provider (local government). VFA thus undermines the autonomy and vitality of decentralized decision-making (Oates 1993, p. 241). It adversely impacts the SNGs' accountability to local residents (Bird 2000, 2003) and creates fiscal illusion (Rodden and Wibbels 2002, p. 520) and common pool problems (Weingast *et al*. 1981). It has *crowding in* effect on (inefficient) local spending, known as the flypaper effect [Gramlich (1977) and Fisher (1982)]
Views on mobility	Mobility induces inefficient allocations (Wellich 2000)	Mobility enhances public sector efficiency (Tiebout 1956)
Views on preferred policy instrument	Emphasize utility of federal transfers	Emphasize matching of revenue powers with expenditure responsibilities
Views on ntergovernmental competition	Tax separation encourages welfare-deteriorating competition among governments to offer less generous levels of redistribution (Boadway 2005, p. 64) and to use the tax system for 'beggar thy neighbour' policies (Cai and Treisman 2004)	Tax separation encourages welfare-enhancing competition (Janeba and Schjeldrup 2002) and discourages welfare-deteriorating collusions (Brennan and Buchanan 1980, p. 183)

<table>
<tr><td>TABLE 5</td><td colspan="4">Towards resolution of terminological confusion</td></tr>
<tr><td>State of fiscal arrangement</td><td>Terms in vogue</td><td colspan="3">Terminology proposed</td></tr>
<tr><td>A given revenue-expenditure asymmetry</td><td>VFI (vertical fiscal imbalance), VFG (vertical fiscal gap)</td><td colspan="3">VFA (vertical fiscal asymmetry)</td></tr>
<tr><td rowspan="3">Inappropriate allocation of revenue powers and spending responsibilities</td><td rowspan="3">VFI, VFG</td><td colspan="2">VFI</td><td>Remedial measure</td></tr>
<tr><td>Positive VFI</td><td>Negative VFI</td><td rowspan="2">Reassignment of revenue raising powers</td></tr>
<tr><td>Extreme centralization of revenue powers</td><td>Extreme decentralization of revenue powers</td></tr>
<tr><td rowspan="3">Desirable revenue-expenditure asymmetry with a fiscal gap to be closed</td><td rowspan="3">Optimal VFG, VFG, VFI</td><td colspan="2">VFG</td><td>Remedial measure</td></tr>
<tr><td>Positive VFG</td><td>Negative VFG</td><td rowspan="2">Recalibration of federal transfers</td></tr>
<tr><td>Inadequate federal transfers relative to the desired asymmetry</td><td>Excess federal transfers relative to the desired asymmetry</td></tr>
<tr><td>Desirable revenue-expenditure asymmetry without a fiscal gap (i.e. gap is closed)</td><td>–</td><td colspan="3">Vertical fiscal difference (VFD)*</td></tr>
<tr><td colspan="5">* In this paper we use the term VFD to refer to the optimal or desirable VFA because the term VFG is symbolically 'loaded' and implies that there is a ‘fiscal gap’ to be closed.</td></tr>
</table>

TABLE 6 *Nature of federation and the extent of desirable asymmetry (VFD)*

Nature of federation	**Nature of VFA (see fig 2)**			
	A-B	**B-C**	**C-D**	**D-E**
Cooperative and integrated model (for example, Germany, Austria)	n/a	Misallocation (politically undesirable)	VFD	Misallocation (financial chaos)
Competitive and dual model (for example, USA, Switzerland)	Misallocation (financial chaos)	VFD	Misallocation (politically undesirable)	n/a
[n/a: not applicable]				

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