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# FISCAL DISPARITIES IN EAST ASIA: HOW LARGE AND DO THEY MATTER?

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The decentralization of revenue sources and expenditure responsibilities to subnational levels of government can increase the efficiency of spending, and increase participation in decision making by local constituents. It is also true, however, that decentralization can result in inequities in service delivery among citizens of the same country depending on where they live. While decentralization need not cause these inequities, devolution of revenue sources, combined with disparities in endowments of regions, is likely to lead to disparities in fiscal resources at the subnational level.

If left alone, these disparities could lead to either lower levels of services in fiscally poor regions or higher tax rates for similar levels of government services in those regions. In turn, disparities in service delivery could thwart poverty alleviation efforts, as public services that are usually provided at the subnational level, such as primary health and education, are critical in empowering the poor. Disparities in the level and quality of these services could therefore eventually perpetuate inequalities in income levels, or at least delay conversion of incomes across regions. Large fiscal disparities could also induce migration to regions that have higher revenues and better services, even though the migrants could have been employed more productively elsewhere.[1] Finally, large disparities in public service delivery may cause social unrest in regions that are left behind, and could undermine the sense of unity in a country. Such diversity, coupled with growing disparities across regions, may constitute the basis for regional insurrections such as in the Muslim regions of Mindanao in the Philippines, and in West Papua in Indonesia (Hill 2000).

Most governments take an interest in the level and distribution of public services provided to their citizens, even in a decentralized system. For some countries, this is reason enough not to decentralize the financing or provision of services deemed critical to national goals. Indeed, income redistribution is seen primarily as a central function because central governments are regarded as better able to manage one of the key instruments of this goal: a progressive income tax.[2] Yet, at the same time, services that are likely to affect income distribution, poverty alleviation, or similar national goals *are* decentralized. Moreover, many governments have entered into commitments on the outcomes of services that are routinely at least partially decentralized to subnational levels of government.[3]

So they should be concerned about the level and distribution of fiscal resources among levels of governments, as those resources enable subnational governments to deliver services.

Even if governments care about the distribution of services, they may not take policy action to correct the distribution of fiscal resources among subnational governments—known as horizontal fiscal imbalances. This could occur for two reasons. First, policy makers may count on market adjustments. Thus, for some countries, migration is considered a countervailing, equalizing force, driving people to the constituency that delivers the most beneficial level of public services at tax rates deemed appropriate by the constituents. Second, legitimate policy tradeoffs need to be weighed: an aggressive transfer policy may be seen as dampening needed incentives for increasing own-revenue mobilization by subnational governments. Such a short-term tradeoff deemphasizes equalization to provide for an own-revenue foundation for a future of reduced fiscal disparities and transfer dependency.[4]

Similarly, an equalization-only policy (perhaps just in the early stages of decentralization) may compete with broader considerations of efficiency and growth on the nation's agenda. In China, for instance, the coastal development strategy of the 1980s and 1990s deliberately left more resources in regions with stronger growth prospects. Using data from the 1985 to 1998 period of fiscal decentralization in China, Qiao et al. found that inequality in the distribution of fiscal resources across provinces was positively related to higher economic growth, and that that higher growth, in turn, led to greater inequality (Qiao et al. 2003). Yan found a similar tradeoff between growth and equity in China, and further showed that the fiscal reforms in 1985 and 1994 did not contribute to increased equalization (Yan 2003).

In other countries, governments compensate for horizontal fiscal imbalances not through redistribution, but by centrally providing certain services in poor regions while leaving rich regions to fend for themselves. This approach may indeed also be beneficial from an efficiency point of view, as some evidence suggests that the center is better at some services critical for poverty alleviation, including the targeting of a social safety net (Ravaillion 1998). Finally, redistribution of fiscal resources may remain limited for political reasons: rich regions also tend to be powerful regions, and taking resources away from them to give to poorer regions may simply be politically unfeasible.

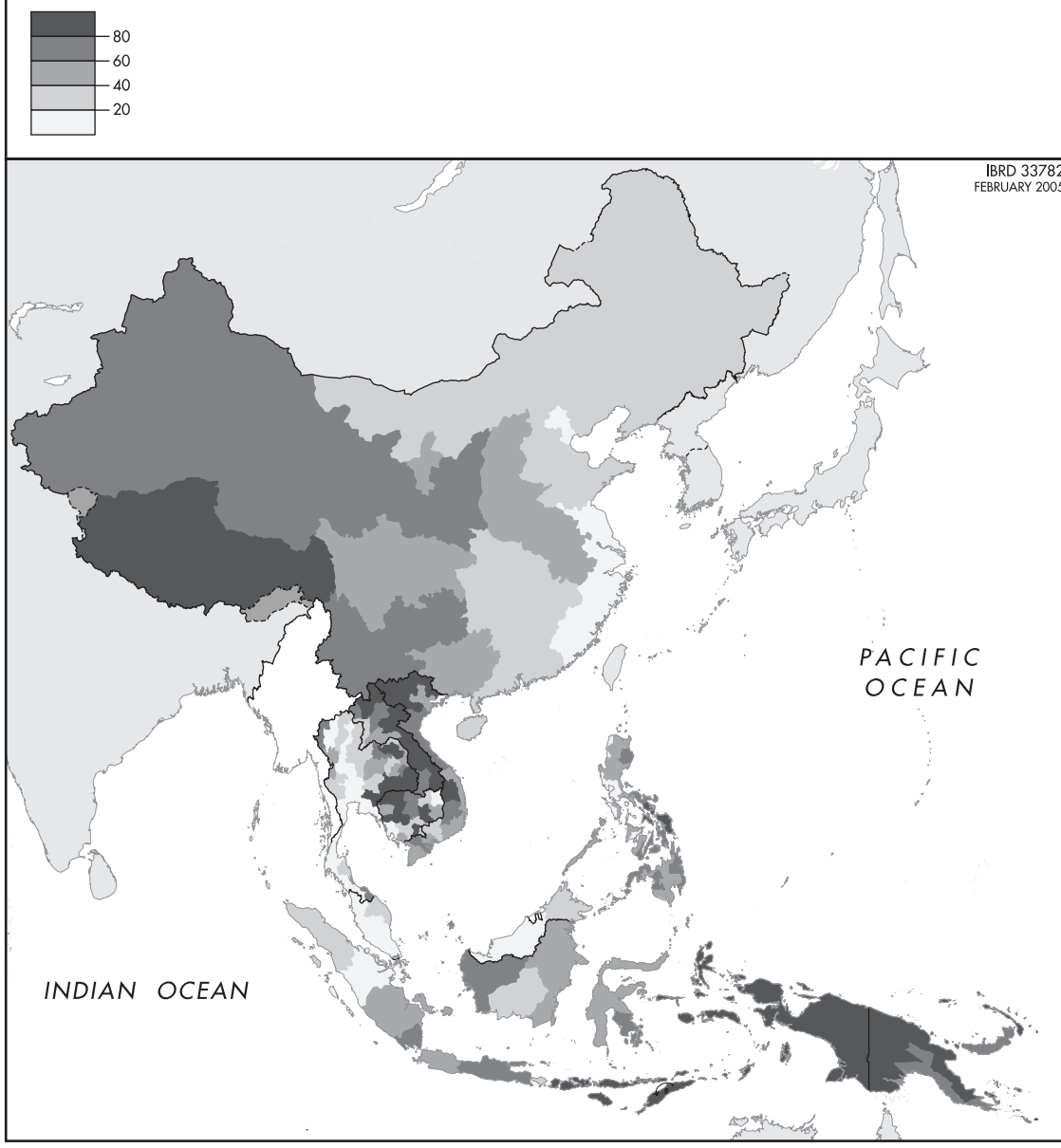
Most East Asian governments care about equitable services to their people, and thus take an interest in the distribution of fiscal resources among subnational governments, which deliver many of these services. Countries such as Indonesia have included subnational fiscal equity as an explicit goal in their Constitution.[5] Other countries, such as China and the Philippines, include strong commitments on equal access to services in their Constitution, whereas the delivery of many of these services is devolved to subnational governments.[6] Similarly, international commitments to public service outcomes, such as the Millennium Development Goals, often relate to services delivered at the subnational level. These commitments imply that the state should care about whether subnational governments are capable of delivering such services, and thus a concern about subnational fiscal capacity and its distribution over subnational entities. In fact, most East Asian countries show that they care to some extent by having some form of fiscal equalization mechanism in place.

This chapter reviews the causes and consequences of fiscal inequities among subnational governments in East Asia. It shows that endowments and fiscal capacities among subnational entities are large, and that these inequities translate into large fiscal inequities before equalization. The transfer systems now in place in East Asian countries are only mildly equalizing, so that even after equalization the remaining fiscal disparities are still large. The chapter discusses the possible consequences of these disparities for service delivery inputs, outputs, and outcomes. It concludes with some guidelines on how to increase transparency on inequalities at the subnational level, and how to make transfer systems more equalizing without undermining the incentives for local governments to raise their own revenues and spend their resources efficiently.

## Fiscal Disparities in East Asia

East Asian countries show a wide variety of natural endowments, economic opportunities, levels of development, and poverty (see figure 4.1). Indeed, the richest province in Indonesia has 17 times the

**FIGURE 4.1 Percentage of Population Living below PPP$2 a Day in 2002, East Asia and Pacific**




gross domestic product (GDP) per capita as the poorest province; in China that figure is 11, and in Vietnam it is 9.5.[7] These disparities in per capita income have been relatively stable (Hill 2000; Garcia-Garcia and Soehstianingsih 1998). In such an environment, devolving expenditure responsibilities and revenue sources could lead to inequities because of regional disparities in revenue potential and the cost of delivering services.

Indeed, East Asian countries reveal large disparities in subnational revenue-generating capacity (table 4.1). In fact, disparities in own-revenues are larger than disparities in income per capita. In China, for instance, own-revenues per capita of the richest province are 15 times those of the poorest region. These disparities are even higher in Indonesia, the Philippines, and Vietnam.[8] In the latter three countries, natural resource revenues collected

**TABLE 4.1 Disparities in Provincial Revenues before Grants, per Capita**
*(US$, latest available year)*

| | China | Indonesia | Philippines | Vietnam |
|---|---|---|---|---|
| Maximum | 283.2 | 59.5 | 7.6 | 343.4 |
| Minimum | 18.1 | 3.8 | 0.2 | 6.5 |
| Average | 55.7 | 12.1 | 1.5 | 36.9 |
| Max./min.[a] | 15.7 | 15.7 | 35.4 | 53.0 |
| Standard deviation | 54.8 | 11.6 | 1.4 | 61.1 |
| Coefficient of variation[b] | 0.98 | 0.96 | 0.97 | 0.79 |

*Sources:* SABER Database; Indonesia Regional Fiscal Information System.
*Note:* The table presents consolidated province-level data. Because of the different nature of the grant systems (see text), the absolute dollar amounts are not comparable. The figures for Indonesia include own-revenues and shared revenues. Since the Internal Revenue Allotment in the Philippines is an equalizing transfer, it is excluded from revenues. A breakdown of revenue for Thailand was not available at a comparable subnational level.
a. The figures represent the ratio in revenues between the province with the highest revenues and the province with the lowest revenues.
b. The coefficient of variation is the standard deviation divided by the average.

**TABLE 4.2 Disparities in China's Provincial Fiscal Outcomes, per Capita, 1979–2002**
*(yuan)*

| | Revenues | | Expenditures | |
|---|---|---|---|---|
| | 1979 | 2002 | 1979 | 2002 |
| Maximum | 1,525 | 4,363 | 274 | 5,307 |
| Minimum | −12 | 274 | 34 | 655 |
| Average | 143 | 806 | 98 | 1,621 |
| Max./min. | −127 | 16 | 8 | 8 |
| Standard deviation | 293.5 | 939.2 | 67.4 | 1,218.4 |
| Coefficient of variation | 2.0 | 1.2 | 0.7 | 0.8 |

*Source:* Qiao et al. 2003.
*Note:* The negative minimum value for China reflects the definition of revenues, which counts subsidies that cover losses from state enterprises as negative revenue.

or shared by the center with the regions exacerbates apparent inequalities. Below the provincial level, inequalities grow even larger. In Indonesia, for instance, the richest local government had 50 times the own-revenues of the poorest local government in 2001, and the richest county in Gansu province had 82 times the per capita revenues of the poorest province (World Bank 2003b and World Bank 2002a).[9]

These interregional fiscal disparities are not a recent phenomenon. In China, data show that large fiscal disparities have persisted over time (see table 4.2).[10] Expenditure disparities have risen slightly, with the interprovincial coefficient of variation rising from 0.7 to 0.8; revenue disparities have fallen from 2.0 to 1.2. Yet the latter continue to be large, with Shanghai having almost 16 times the per capita revenue of Tibet. Tibet's per capita expenditure was similarly 8 times that of Hainan in 1979, while Shanghai's is 8 times that of Henna today.

In Indonesia, disparity in total revenues after grants was nearly as large in 2002 as in 1994 (see table 4.3). Disparities in own-revenues across provinces were already rising before decentralization began in 1999. Disparities in own-revenues plus shared revenues have risen since decentralization,

**TABLE 4.3 Variation in Revenues across Provinces in Indonesia, 1994–2002[a]**

| | 1994 | 1999 | 2000 | 2002 |
|---|---|---|---|---|
| Own-revenues | 0.87 | 0.88 | 0.98 | 0.90 |
| Shared taxes | 0.73 | 0.70 | 1.28 | 0.86 |
| Shared nontaxes | 0.74 | 0.74 | 1.24 | 1.18 |
| SDO[b] | 0.79 | 0.51 | 0.64 | 0.61 |
| INPRES[c] | 0.69 | 0.51 | 0.68 | 0.64 |
| Total revenue disparity | 0.68 | 0.51 | 0.68 | 0.66 |

*Source:* SABER Database.
a. The figures represent coefficients of variation (see table 4.1).
b. SDO (*subsidi daerah otonom*), or Subsidy for Autonomous Region.
c. After 2001, INPRES (*instruksi presiden*), Presidential Instructions (Grant for Regional Development), was made equal to the DAU (*dana alokasi umum*), or General Allocation Grant.

especially because of shared revenues from natural resources.

## Equalization Mechanisms

China, Indonesia, the Philippines, Thailand, and Vietnam rely on grant systems to address fiscal disparities (see table 4.4). These systems rely on a formula to determine distribution, and three of the five use a formula to determine the resource pool. Three of the systems take into account both the revenue capacity and the expenditure needs of local governments, whereas the Filipino and Thai systems consider only expenditure needs.

The distribution pools vary greatly from country to country. In Indonesia and the Philippines, equalization grants account for the largest share of grants from the center to local governments, while earmarked grants dominate in Thailand and China. In some countries earmarked grants include equalizing elements, but in others they exert a counter-equalizing effect. Although numbers are hard to come by, the equalization system can also include central spending that exerts a regional impact.

In Indonesia, the equalization grant—*dana alokasi umum* (DAU)—is the mainstay of the intergovernmental fiscal system. DAU funding consists of 25 percent of central revenues after tax sharing with the regions.[11] Of this amount, 10 percent goes to the provincial level, which plays a relatively minor role in public services, while 90 percent goes to local governments. The DAU finances some 70 percent of local government spending and some 50 percent of provincial spending.

The central government distributes the DAU according to a formula that takes both revenue capacity and expenditure needs into account. Revenue capacity is defined as potential own-source revenues plus shared tax revenues, plus 75 percent of shared natural resource revenues.[12] The central government defines expenditure needs based on population, poverty rate, land area, and construction costs as an indicator of "geographical circumstances." Distribution of the DAU is based partly on past spending patterns—largely to accommodate the transitory impact of the 2001 decentralization. A lump sum per region also plays a role in the allocation. The new earmarked grant system (DAK) is still small compared with general grants—amounting to about 3 percent of total grants. However, it also includes an element of equalization. Regions with low fiscal capacity pay only 10 percent in matching funds, whereas those with high fiscal capacity pay up to 50 percent.

In China, the central government dedicates an ad hoc amount to transfers to the 16 poorest provinces. Although the 1994 Tax Sharing System introduced an equalization scheme based on variables such as provincial GDP, student-teacher ratios, number of civil servants, and population density, the scheme is still in "transitional" status.[13] The scheme also remains small: each beneficiary province receives only a fraction of its fiscal needs as determined by the formula, and in 2001 the scheme accounted for only 3 percent of total central transfers (World Bank 2004e). Although the reform marked the first time that the government explicitly budgeted an equalization grant, it may

**TABLE 4.4 Equalization in Intergovernmental Transfer Systems**

| | Indonesia | China | Philippines | Thailand | Vietnam |
|---|---|---|---|---|---|
| **Equalization grant principles** | All regions receive an equalizing general grant. | 16 regions receive a small equalizing grant, amounting to only 3% of all transfers in 2001. | All regions receive a fixed share of central government tax revenues known as the Internal Revenue Allotment (IRA). | Allocated based on discretion to Provincial Administrative Organization (PAO), municipalities, and Tambon Administrative Organization (TAO), and then further allocated to individual localities based on formula. | Allocated to jurisdictions where approved expenditure budgets exceed the sum of own-revenues and the 100% retention of all shared revenues. |
| **Formula-based source?** | Yes; 25% of actual central government revenues after revenue sharing. | No; level of funding decided by annual budget based on ad hoc principles. | Yes; central government sets IRA of local governments at 40% of average internal tax collections three years before the current year. | No; total amount of different types of grants varies annually. The system is moving to a formula-based system. | Partially; formula based on calculated budget transfer between the center and provinces. Expenditure needs are negotiated. |
| **Main features of formula** | Based on expenditure needs and revenue capacity, but 50% determined by transitional elements. Expenditure needs reflect population, poverty rate, land area, and construction cost index. Revenue capacity estimated as standardized own-revenues (based on average efforts), plus shared tax revenues, plus 75% of natural resource revenues. | Expenditure needs and revenue capacity based on formula derived from regression analysis on "standard budget." Relies on variables such as provincial GDP, student-teacher ratios, number of civil servants, and population density. | IRA divided among provinces (23%), cities (23%), municipalities (34%), and *barangays* (20%). IRA allocated based on population (50%), land area (25%), and equal sharing (25%). | 5% reserved for unfunded devolving functions and 95% for local authorities, including PAOs (7%), municipalities (52%), and TAOs (41%). Allocation across local authorities is based on equal share (25%), population (30%), area (5%), invert to local revenues, excluded grants (20%), and invert to specific grants received (20%). | Subnational (SNG) expenditure needs minus total revenue from taxes are shared 100 percent with SNGs. Total revenues shared between central and SNG budgets. |

| | Indonesia | China | Philippines | Thailand | Vietnam |
|---|---|---|---|---|---|
| **Equalizing properties (weak, medium, strong)** | Weak, owing to transitional elements and imperfections in formula. | Weak, owing to limited resources. | Medium; IRA equalizing effect is not enough to counteract disparities in tax base because it weakly compares expenditure needs and revenue capacity. | Weak; lack of transparency in allocation leads to self-interested politics. Delays in allocation decisions have undermined local planning and financial management. | Medium; improved from ad hoc negotiated transfers. Introduced clear objectives and stability by fixing formulas, decreasing the role of bargaining. |
| **Equalization through specific grants (ad hoc or conditional)?** | Yes; special allocations depend on fiscal capacity but are small. | No; special grants deequal-izing, such as tax rebates for state enterprise support. Lacks monitoring mechanisms. | No; matching grants from central agencies (augmentation funds) are proportionally small and usually subject to political interests. | Yes; other general grants include tax effort promotion, local good governance promotion, devolution of compensatory functions, train ticket compensation, local development, and education. Specific grants include educational (capital projects) and development projects allocated on a project basis. | No; absence of conditional grants, but targeted national programs function similarly (see below). |
| **Other equalizing elements of fiscal system** | Distribution of revenues from natural resources to regions bordering producing regions. | Transitory grants determined on ad hoc basis according to annual budgetary demands. | | | Targeted "national programs" channeled through provincial budgets in support of poorest communes, reforestation, and national health program. |

*Sources:* World Bank 2000, 2002a, 2003b; Manasan 2002; World Bank background papers on Vietnam and Thailand, 2003.

have only symbolic significance until the government allocates more funds (World Bank 2002a). Earmarked grants—which account for more than 95 percent of all grants—include no equalizing element. Two-thirds are "tax return grants," which amount to revenue sharing on a derivation basis.

In Vietnam, the tax sharing-cum-contracting system equalizes. The revised State Budget Law (2002) gives the equalization transfer to jurisdictions whose approved expenditure needs exceed the sum of own-revenues and 100 percent retention of all shared revenues (World Bank 2004e). According to the equalization formula, the local tax administration branch determines revenue potential based on collections from previous years, factoring in any changes in tax policy and expected economic growth (Martínez-Vázquez 2003). Expenditure needs are based on per capita expenditure norms rather than physical standards as prior to 1996, which were unaffordable. Regions may keep revenues in excess of agreed shares. Beyond the equalization transfer, Vietnam has no other conditional grants except a series of "national programs" aimed at the poorest communes and to fulfill reforestation and health goals. The government channels these programs to recipients through provincial budgets.

In Thailand, general grants include a fiscal equalization grant.[14] Fiscal equalization grants rely on a strict formula based on equal share (25 percent), population (30 percent), area (5 percent), invert to local revenues excluding grants (20 percent), and invert to specific grants received (20 percent). A second type of grant, known as specific grants, covers educational capital investment and development projects based on project criteria. Although grants were the largest source of intergovernmental transfers in 2003—accounting for 38 percent of local revenues—the central government does not determine allocations until well after the fiscal year begins. This leads to a lack of transparency and an extremely politicized system, and creates planning and budgeting difficulties for local governments. Grants do not alleviate the fiscal imbalance between the central and subnational governments.

Under the Local Government Code (LGC) in the Philippines, local governments receive a fixed share of central tax revenues, known as the Internal Revenue Allotment (IRA). The LGC sets the aggregate IRA share at 40 percent of subnational revenues three years before the current year.[15] Of this share, provinces and cities receive 23 percent, municipalities receive 34 percent, and *barangays* receive 20 percent. The share within each tier of government reflects three basic criteria: population (50 percent), land area (25 percent), and equal sharing across provinces (25 percent). Before the LGC, the relative weights of these criteria differed: population (70 percent), land area (20 percent), and equal sharing (10 percent). The greater emphasis on equal sharing (from 10 to 20 percent), coupled with the fall in population weight (from 70 to 50 percent), shows a shift in equity concerns.

## Do Grant Systems in East Asia Equalize?

Determining whether these grant systems equalize requires defining "equalization." Common use defines fiscal equality as "the capability of subnational governments to deliver similar levels of services at similar levels of taxes" (Searle 2002). While such a definition points to how an equalization grant might best be designed, determining whether it equalizes requires information on differences in the cost of services—which can be large—among subnational levels of government, and these data are not yet available.[16] This chapter therefore uses a simpler approach, asking whether disparities among subnational revenues drop as a result of intergovernmental grants. The answer is that indeed, for all the countries reviewed, the distribution of revenues per capita becomes more equal after transfers, although their equalizing effect varies significantly, being strongest in Vietnam and weakest in the Philippines (see figure 4.2 and tables 4.1 and 4.5).

Comparing revenues and expenditures per capita against income per capita provides further evidence of the equalization properties of transfer systems. If the income elasticity of expenditures is lower than the income elasticity of revenues, it can be argued that the transfer system is equalizing.[17] This is indeed the case for the East Asian countries for which enough data are available, suggesting that grant systems equalize (see table 4.6).

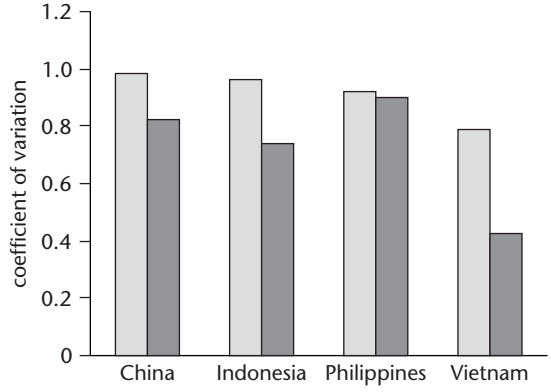
Even after transfers, though, per capita revenue disparities remain large. The richest province in the Philippines has 28 times more revenues per capita than the poorest one, while the numbers for China, Indonesia, and Vietnam are 8, 10, and 22, respectively. For comparison, in the United States, the

**TABLE 4.5 Disparities in Province-Level Revenues after Grants, per Capita**
(*US$, latest available year*)

| | China | Indonesia | Philippines | Vietnam |
|---|---|---|---|---|
| Maximum | 444.4 | 431.4 | 117.5 | 393.1 |
| Minimum | 42.8 | 39.8 | 4.2 | 25.1 |
| Average | 100.7 | 106.3 | 14.8 | 65.9 |
| Max./min. | 10.4 | 10.8 | 28.1 | 15.7 |
| Standard deviation | 83.1 | 78.9 | 13.3 | 65.2 |
| Coefficient of variation | 0.82 | 0.74 | 0.92 | 0.42 |

*Sources:* SABER Database; *Indonesia Statistical Yearbook, China Statistical Yearbook; Philippine Statistical Yearbook; Vietnam Statistical Yearbook;* Ministry of Finance (Vietnam); Indonesia Regional Fiscal Information System; Public Expenditure Reviews; Regional Expenditure Reviews; authors' calculations.
*Note:* The table presents consolidated province-level data. The revenue numbers include own- and shared revenues for Indonesia. A breakdown of revenue for Thailand was not available at a comparable subnational level.

**FIGURE 4.2 Disparity in Provincial per Capita Revenues before and after Transfers**




*Sources:* SABER Database; *China Statistical Yearbook; Finance Yearbook of China*; Indonesia Regional Fiscal Information System; *Philippine Statistical Yearbook*; *Vietnam Statistical Yearbook*; Vietnam Ministry of Finance; Public Expenditure Reviews; Regional Public Expenditure Reviews; authors' calculations.

**TABLE 4.6 Evidence of Equalization**

| | Income elasticity of revenue | Income elasticity of expenditures |
|---|---|---|
| China | 1.03 | 0.61 |
| Indonesia | 0.81 | 0.57 |
| Vietnam | 1.26 | 0.72 |

*Source:* Authors' calculations.
*Note:* The figures are the estimated parameters for the log of income per capita in a regression that regresses the log of revenues (expenditures) per capita against the log of income per capita and a constant. All the reported elasticities are significant at the 1 percent level.

poorest state has about 65 percent of the revenues of the average state. In Germany, the Finanzausgleich subsidizes any state falling below 95 percent of the average level (and taxes any state receiving more than 110 percent). In Brazil, the richest state has 2.3 times the revenues per capita of the poorest state. In Russia, disparities are larger: the richest of 89 regions has revenues per capita some 40 times higher than the poorest (World Bank 2002b; Martínez-Vázquez and Boex 1998). However, Russia's regions are smaller than the average East Asian province, and indications are that the smaller the subnational entity, the larger the measured inequality. In Indonesia, the richest local government had 30 times the revenue per capita of the poorest local government in 2002, while the comparable number for 2001 was more than 50. Within China's Gansu province, the per capita revenues of the richest county were 37 times those of the poorest in 1999 (Hofman et al. 2003; World Bank 2002a). Intraprovincial disparities thus appear to be larger than interprovincial ones.

A number of studies confirm the modest impact on equalization of intergovernmental fiscal systems. A recent study of the Philippines suggests that the IRA's equalizing effect has not countered disparities in tax base across local governments (Manasan 2002). The same study found that the IRA had a

counterequalizing effect in provinces from 1995 to 2000, and in municipalities from 1999 to 2000. In Indonesia, Lewis (2003) found the DAU distribution to be equalizing, but less than warranted by revenue capacity and expenditure needs alone, whereas Hofman et al. (2003) elaborated on the DAU's weak equalization performance.

Vietnam's fiscal system seems to be more equalizing: the country redistributes a substantial proportion of revenues collected in wealthier provinces to poorer ones (World Bank 2000). Rao (2001) uses cross-section estimates to show that elasticity is much lower for revenues than for expenditures. This implies a significant degree of equalization, in line with the steep drop in provincial inequality presented here. For China, Yan (2003) shows that fiscal reforms in 1985 and 1994 have not alleviated the unequal impact of market reform, and indeed appear to have exacerbated regional disparities. Indeed, evidence reveals that earmarked grants are mostly flowing to richer provinces (Ahmad et al. 2000; World Bank 1993). Disparities in per capita revenues after grants translate into disparities in per capita expenditures, although not on a one-to-one basis. These disparities may reflect differences in access to borrowing or in the use of reserves.

## Do Fiscal Disparities Matter?

Policy makers may focus on fiscal disparities for a number of reasons. However, they matter if they translate into large disparities in service delivery and outcomes. Indicators of service delivery at the subnational level are as scarce as fiscal data, but Human Development Indicators and information on persons per hospital bed, literacy, and life expectancy are available for most countries under review.[18] The first indicator—persons per hospital bed—measures service inputs, whereas the other indicators measure outcomes. These measures show large variation across and within countries, although less than the fiscal indicators reveal.[19] In terms of persons per hospital bed, Indonesia's lowest-ranking province is 7.6 times worse than the best-ranking province, while the same numbers for Vietnam, China, the Philippines, and Thailand—3.3, 3.4, 4.4, and 6.8, respectively—are better but still discouraging.[20] China's highest-ranking province is almost 3 times as literate as the lowest-ranking one, while Indonesia (1.34) and Vietnam (1.9) follow close behind. Human development and life expectancy indicators confirm this trend, with Vietnam's best province ranking nearly twice as high as the lowest province on both indicators. The figures for China and Indonesia are only slightly better (see tables 4.7 to 4.10).

To assess whether there is a systemic relation between fiscal disparities and disparities in service delivery indicators, we used a simple regression approach. We used two specifications (see table 4.11). Specification 1 is a regression of social outcome indicators—HDI, persons per hospital beds, life expectancy, and literacy rates—as a function of a constant and expenditures per capita. In specification 2, we also include per capita GDP as an explanatory variable, to control for potential correlations between provincial per capita income and

**TABLE 4.7 Disparities in Province-Level HDI Indices, 1997–2002[a]**

| | China | Indonesia | Philippines | Vietnam |
|---|---|---|---|---|
| Maximum | 0.85 | 0.73 | 0.65 | 0.84 |
| Minimum | 0.52 | 0.54 | 0.39 | 0.49 |
| Average | 0.70 | 0.64 | 0.56 | 0.74 |
| Max./min. | 1.64 | 1.34 | 1.65 | 1.72 |
| Standard deviation | 0.07 | 0.04 | 0.11 | 0.06 |
| Coefficient of variation | 0.10 | 0.06 | 0.19 | 0.08 |

*Sources:* United Nations Development Programme (UNDP) Human Development Indicators (HDI); Government of Indonesia 2002; National Statistical Coordination Board 2003; Republic of China, multiple years; Republic of Vietnam, multiple years.

a. Data are not available across all provinces for Thailand. Data for the Philippines are at the regional level.

**TABLE 4.8 Disparities in Province-Level Persons per Hospital Bed, 1997–2002[a]**

| | China | Indonesia | Philippines | Thailand | Vietnam |
|---|---|---|---|---|---|
| Maximum | 650.34 | 3,969.41 | 3,502.49 | 1,114.00 | 867.93 |
| Minimum | 189.73 | 524.30 | 796.71 | 165.00 | 261.20 |
| Average | 405.34 | 1,862.43 | 2,125.25 | 579.65 | 524.77 |
| Max./min. | 3.43 | 7.57 | 4.40 | 6.75 | 3.32 |
| Standard deviation | 105.35 | 903.95 | 1,536.92 | 494.75 | 152.94 |
| Coefficient of variation | 0.26 | 0.49 | 0.72 | 0.85 | 0.25 |

*Sources:* UNDP Human Development Indicators; Government of Indonesia 2002; National Statistical Coordination Board 2003; Republic of China, multiple years; Republic of Vietnam, multiple years.
a. Data are for the most recent year available. Data for the Philippines are from the regional level.

**TABLE 4.9 Disparities in Province-Level Life Expectancy, 1996–2002[a]**

| | China | Indonesia | Philippines | Thailand | Vietnam |
|---|---|---|---|---|---|
| Maximum | 78.14 | 71.10 | 73.70 | 79.80 | 95.00 |
| Minimum | 64.37 | 57.80 | 60.32 | 61.60 | 50.00 |
| Average | 71.24 | 66.21 | 70.79 | 72.34 | 81.66 |
| Max./min. | 1.21 | 1.23 | 1.22 | 1.30 | 1.90 |
| Standard deviation | 3.19 | 3.23 | 3.17 | 35.76 | 7.64 |
| Coefficient of variation | 0.04 | 0.05 | 0.05 | 0.49 | 0.09 |

*Sources:* UNDP Human Development Indicators; Government of Indonesia 2002; National Statistical Coordination Board 2003; Republic of China, multiple years; Republic of Vietnam, multiple years.
a. Data are for the most recent year available. Data for the Philippines are at the regional level and for males only. Data for Vietnam are for males only.

**TABLE 4.10 Disparities in Province-Level Literacy Rates, 1994–2002[a]**

| | China | Indonesia | Philippines | Vietnam |
|---|---|---|---|---|
| Maximum | 93.55 | 97.80 | 98.80 | 96.90 |
| Minimum | 33.82 | 72.80 | 73.50 | 51.30 |
| Average | 83.19 | 89.34 | 92.27 | 88.16 |
| Max./min. | 2.76 | 1.34 | 1.34 | 1.89 |
| Standard deviation | 11.04 | 6.57 | 5.92 | 8.32 |
| Coefficient of variation | 0.13 | 0.07 | 0.06 | 0.09 |

*Sources:* UNDP Human Development Indicators; Government of Indonesia 2002; National Statistical Coordination Board 2003; Republic of China, multiple years; Republic of Vietnam, multiple years.
a. Data are for the most recent year available. Data are not available across all provinces for Thailand. Data for the Philippines refer to the regional level.

expenditures, and their implications for service outcomes.[21]

Specification 1 suggests a modestly significant correlation between social indicators and subnational expenditures. In China and Vietnam, the indicators usually correlate significantly with expenditures. In China, the only exception is literacy rates: the correlation, although positive, is not significant. The reason may be that education financing still falls partly under the auspices of the central government, given recent efforts to recentralize education expenditures. In Vietnam, the only exception to the correlation between social indicators and subnational expenditures is persons per hospital bed. This

**TABLE 4.11 Expenditure Disparities and Service Outputs and Outcomes at the Subnational Level**

| Dependent variable and specification | China | Indonesia | Vietnam |
|---|---|---|---|
| HDI 1 | 0.10* | 0.01 | 0.10* |
| HDI 2 | −0.01 | 0.002 | −0.001 |
| Persons per hospital bed 1 | −0.48* | −0.29* | 0.04 |
| Persons per hospital bed 2 | −0.39* | −0.15 | −0.15 |
| Life expectancy 1 | 0.04* | 0.02* | 0.04* |
| Life expectancy 2 | −0.02* | 0.01 | −0.02 |
| Literacy 1 | 0.03 | 0.02 | 0.06** |
| Literacy 2 | −0.03 | 0.01 | −0.02 |

*Source:* Authors' calculations.

*Note:* The table presents the results of regression analysis with the output or outcome indicator as a dependent variable. Dependent variables are a constant and expenditures per capita in specification 1 ($y = \alpha + \beta$ * expenditure per capita), and a constant, expenditures per capita, and provincial GDP per capita in specification 2 ($y = \alpha + \beta$ * expenditure per capita + $\gamma$ * GPP per capita. The average number of observations for each specification: China (28), Indonesia (27), Vietnam (59). China results exclude Chongqing, Tibet, and Qinghai. Indonesia results exclude Aceh, Papua, and Maluku. Vietnam results exclude Ba Ria Vung Tau and Long An).
* indicates significance at the 5 percent level
** indicates significance at the 10 percent level.

reflects the relatively modest government role in financing health care.[22] Given the predominance of private funding for health services, subnational revenues would not make a tangible difference in outcomes. Infant mortality might therefore be a better outcome measure in this case because it relates directly to health services, unlike life expectancy, which may imply other variables such as food source.

In Indonesia, unlike in China and Vietnam, the results are significant only for persons per hospital bed and life expectancy. Such relatively modest results may reflect the fact that the decentralization process is just beginning in these countries.

In specification 2, per capita subnational expenditures do not correlate with service outputs and outcomes. A possible explanation for these ambiguous results may be multicollinearity,[23] which reduces the efficiency of the estimation, although the estimator remains unbiased.[24]

In addition, the outcome indicators used in this chapter are naturally limited in the power of their estimation. Most provinces score highly in literacy and life expectancy rates, for example. Unlike income, most of these outcome indicators are bounded, so convergence over time should be the norm, which presents difficulties with the estimation.

Another possible explanation for the weak correlation between fiscal disparities and service indicators is that the latter change slowly over time. Only China has data that allow for testing the hypothesis that indicators deteriorate in regions with persistently low spending, compared with regions that spend more. In this third set of regressions, we use a longer time series for provincial per capita expenditures (1985–2000) as the explanatory variable for service delivery indicators (see table 4.12). We also add a fifth social indicator—combined student enrollment for primary, secondary, and tertiary schools—to further test our hypothesis.[25] In this case, excluding life expectancy, both specifications 1 and 2 suggest a significant correlation between the four outcome indicators and subnational expenditures across time, suggesting that persistent fiscal inequities do matter.[26]

In sum, although the variation in outcome indicators is much less than the variation in revenues, there is some evidence that outcomes are affected by different levels of subnational revenues across provinces. In the short run, effects seem dominated by differences in income per capita, but evidence on China suggests that persistent fiscal inequalities result in inequalities in social indicators beyond those that can be explained by income per capita.

**TABLE 4.12 Fiscal Disparities and Public Services Outputs and Outcomes in China, 1985–2000**

| Variable and Specification | |
|---|---|
| HDI 1 | 0.11* |
| HDI 2 | 0.003 |
| Persons per hospital bed 1 | −0.50* |
| Persons per hospital beds 2 | −0.40* |
| Life expectancy 1 | 0.06* |
| Life expectancy 2 | −0.02 |
| Literacy 1 | 0.06* |
| Literacy 2 | 0.07* |
| Combined enrollment 1 | 0.13* |
| Combined enrollment 2 | 0.08* |

*Source:* Authors' calculations.
*Note:* The table presents the results of regression analyses with the output or outcome indicator as a dependent variable. Dependent variables are a constant and expenditures per capita over 15 years in specification 1 ($y = \alpha + \beta$ * expenditure per capita over 15 years), and a constant, expenditures per capita over 15 years, and provincial GDP per capita in specification 2 ($y = \alpha + \beta$ * expenditure per capita $+ \gamma$ * GPP per capita). Results exclude Chongqing, Tibet, and Qinghai.
* indicates significance at the 5 percent level;
** indicates significance at the 10 percent level.

Although public spending can be critical in improving health and education outcomes, there are many reasons why increased public spending does not necessarily translate into better services and better outcomes. How (effectiveness) and where (sector allocation, levels of government, geographical distribution) resources are used determines whether they lead to positive outcomes. For example, Thailand and Peru both increased public spending on primary schooling, yet completion rates fell in Thailand while they rose in Peru. Conversely, health spending in Mexico and Jordan diverged, but child mortality fell in both countries (World Bank 2004a). Indeed, effectiveness in the use of funds varies widely across countries. Studies show that the nonpoor typically receive a disproportionate share of public spending (Filmer 2003). Yet, even if spending is well targeted, it does not always reach frontline service providers (teachers, doctors), and when it does, providers must be both present and effective in their jobs (World Bank 2004a). Services can also fail poor people due to a lack of demand. In this case, the geographical distribution of resources matters because there may be insufficient demand for services in certain regions and locations. Ultimately, whether spending will materialize into better services and outcomes will depend if it is coupled with accountability systems (strong performance management and producer accountability) and appropriate policies (Pritchett 2004).

## Conclusions

This chapter shows that fiscal disparities among subnational governments in East Asia are considerable. Equalization mechanisms diminish subnational fiscal disparities, yet they remain large. We find considerable disparities in service outputs and outcomes as well, but data and methodological issues prevent us from establishing a strong link with large fiscal disparities. For the one country with enough data (China), we find that persistent fiscal disparities do seem to affect health and education outcomes.

The reasons why inequalities may persist are numerous. First, expenditure needs may vary significantly. Such variation could reflect differences in costs or the fact that some regions provide more services than others. Persistent inequalities may also reflect the central government's emphasis on revenue mobilization. Too much equalization—if not well designed—could reduce the incentives for subnational governments to mobilize own-revenues, undermining overall tax revenues. Inequalities among regions could also induce people to migrate to regions with better economic prospects. Poor regions may be less capable of handling funds than rich ones, or less concerned with poverty alleviation than the center. Rich regions are also powerful, and they do not like to lose out to poorer regions. Reasons for persisting inequalities in the East Asian context include the coastal development strategy in China, which allowed some provinces to get rich first, and Indonesia's policy of channeling revenues from natural resources to regions with separatist tendencies.

Based on these preliminary findings and the broader implications of interregional inequity, we offer recommendations to address such inequity in four areas: information management, transfer

systems, the role of the central government, and further research and analysis.

The policy debate on fiscal inequalities—and intergovernmental fiscal relations more generally—requires more data. Without better information on the size of inequalities and how they have evolved, informed debate over which are acceptable is impossible. Each East Asian country suffers from a dearth of data. Those analyzed here are far from perfect, and we could not include other countries because they lack fiscal data at the subnational level, especially below the first subnational tier. Data on differences in the cost of delivering services are also critical in assessing interregional disparities. Governments must set up monitoring systems—an undertaking that requires significant resources. Indonesia maintains a database that—supported by the legal requirement that regions report—includes fiscal information on most of 410 local governments. In China, subnational governments have fiscal data, but the central government has little of this information. Some countries also need to adjust their accounting and budget classification systems. China, for instance, classifies significant fiscal resources as "extrabudgetary" and information on those funds is even scarcer, even though they fundamentally alter conclusions on fiscal disparities.

More data analysis also needs to inform the policy debate. Countries should aim to regularly review the results of their intergovernmental fiscal systems, including fiscal and service disparities. For example, following the highly successful example of South Africa, Indonesia published the first of what will be a regular intergovernmental fiscal review in March 2004. Such reports will allow policy makers to evaluate the intergovernmental fiscal system.

Regardless of whether more or less fiscal equalization is desirable, countries have significant scope to improve the design of their intergovernmental systems. Central governments must determine their equalization goals and priorities regarding income levels, fiscal capacity, expenditure needs, and per capita revenues (Bahl 2000). The goals of equalization grants are often unclear: some grants embody features of earmarked grants, for example, usually based on temporary considerations. A more comprehensive goal would require each local government to deliver a minimum level of goods and services.

Country-specific recommendations include:

- China's transfer system could aim to reflect local revenue capacity and expenditure needs in a rules-based manner, rather than through ad hoc distribution. Besides a more transparent system, China should also aim for simpler equalization mechanisms—perhaps by combining various equalization grants into one overarching grant. To further enhance both transparency and simplicity, the country could systematically identify total equalization funds, based on tradeoffs between equalization, growth, and incentives for local revenue mobilization and expenditures.
- Although Indonesia's transfer system introduces the notion of expenditure needs and revenue capacity through its equalization grant, it should define a more equalizing DAU by phasing out the transitional elements and the "hold harmless" portion of the allocation. In terms of transparency and simplicity, Indonesia should focus on more consistent treatment of natural resource revenues in revenue sharing and the equalization formula. The country should introduce a selective system of specific grants combined with an onlending window to promote local financing of national priorities.
- In Vietnam, negotiation and discretion remain, primarily for "surplus" provinces and local governments. The central government may wish to consider introducing conditional grants or other transfer instruments—with or without matching provisions—to create incentives and provide financing for expenditures in priority areas such as health and education. Local governments could also use such funding for social assistance programs, along with grants for capital infrastructure.[27]

Our data show that although huge fiscal disparities exist across subnational governments, inequalities in health and education outcomes are relatively modest. Why? What are the countervailing forces within each country or groups of subnational provinces and municipalities? Do people tend to migrate from one region to another? Is there a push for asymmetrical decentralization? What are government preferences, and what role do they play in policy making? Debate regarding the center's role

and the impact of its programs is also critical. These and many other questions present challenging lines for further empirical analysis.

## Endnotes

1. Migration can be considered excessive in an economic sense, if the marginal productivity of a worker would be higher in his place of origin, or if the congestion costs in the region of destination are larger than the private benefits obtained from the better services; see Ahmad and Craig in Ter-Minassian, ed., 1997.
2. For an extensive discussion of this point, see Tanzi and Shuknecht 1995 and Prud'homme 1995.
3. A review, assessing constitutional rights to education and health care in 187 countries, concludes that of the 165 countries with written constitutions available, 116 made reference to a right to education and 73 to a right to health care (Gauri 2003).
4. In the Philippines, for example, IRA allocations have somewhat detracted from LGUs' incentive to improve the collection of own-source revenues (World Bank 2003a).
5. Art. XVIII (a), sub. 2, of the Indonesian Constitution states, "The relationship in finances, public services, utilization of natural resources and other resources . . . shall be regulated and executed fairly and equitably based on the law."
6. Art, II, sections 9 and 10, of the Philippine Constitution states, "The State shall promote a just and dynamic social order that will ensure the prosperity and independence of the nation and free the people from poverty through policies that provide adequate social services, promote full employment, a rising standard of living, and an improved quality of life for all. The State shall promote social justice in all phases of national development."
7. The figure for Vietnam excludes the oil-producing region of Ba-Ria Vung Tao.
8. Fiscal disparities can differ depending on the indicator of inequality. A future version of this study will also use the population-weighted Theil indicator to calculate fiscal disparities. This will better measure the impact of fiscal disparities from the individual's perspective.
9. The level of fiscal disparities is sensitive to cost differentials across provinces. However, data on provincial cost of living are not readily available for these countries.
10. Data limitations, along with changes in these countries' decentralization processes, make a similar analysis very difficult to perform for other countries in our sample.
11. In principle, the law prescribes this as 25 percent of actual revenues, but the DAU has so far been based on budgeted revenues.
12. For detail, see Hofman et al. 2003.
13. As a result of the 1994 Tax Sharing System, revenue-sharing arrangements changed from a negotiated, mildly equalizing system to one based on strict tax assignments (Wong 2002). For more detail, see Ahmad et al. 2000.
14. Besides fiscal equalization, general grants promote tax effort and local good governance, devolution of compulsory functions, train ticket compensation, local development, and education. Exceptions to the formula-based allocation criteria are local good governance, train ticket compensation, and local development.
15. Although the aggregate IRA share is fixed by law, the central government withheld 5 percent after the 1998 Asian financial crisis without any consultation. Despite a Supreme Court ruling in favor of local governments, disagreement remains on whether the formula should be subject to appropriation or decreased as part of the congressional appropriation process. See Manasan 2002.
16. The United States has seen some success in using these data for grant design. See Rafuse 1992.
17. This ignores the effect of borrowing. However, since richer regions are likely to have more access to borrowing, the conclusions on equalization are likely to hold.
18. This chapter adopts the UNDP procedure for computing HDI. Provincial HDI is based on three indicators: longevity, as measured by life expectancy at birth; education attainment, as measured by a combination of adult literacy (two-thirds weight) and combined primary, secondary, and tertiary enrollment ratios (one-third weight); and standard of living, as measured by real GDP per capita in terms of purchasing power parity (in dollars) (UNDP 1999). We broadly define persons per hospital bed in terms of public hospitals. (In Indonesia, the indicators include both special and general hospitals.) We define literacy rate as the percentage of people aged 15 and above who cannot read and write a short, simple statement about their everyday life (World Bank 2003c). We define life expectancy as the number of years a newborn infant would live if prevailing patterns of mortality remained the same throughout its life (World Bank 2003c).
19. Variation is measured through the coefficient of variation, which is the standard deviation divided by the average.
20. Although maximum-to-minimum ratios within countries capture the same trends as more sophisticated measures (such as the gini coefficient), those ratios are more responsive than other measures to the tail-end of the distribution across countries.
21. Specification 2 aims to address the problem of reverse causality between expenditures (revenues) and outcomes. Otherwise, reverse causality would suggest the possibility that our regression estimates may be upwardly biased. The third set of regressions, which examines a longer time series for China, will address the possible problem of multicollinearity (when two or more independent variables are approximately linearly related) in specification 2.
22. "In 1998, the public expenditure share in aggregate health spending was only about 20 percent, with households accounting for the remaining 80 percent" (World Bank 2000).
23. The problem of multicollinearity is when two or more independent variables are approximately linearly related in the sample data.
24. Indeed, expenditures are highly correlated with GDP for China (.67), Indonesia (.42), and Vietnam (.67) (with significance at the 1 percent level). It would be interesting to see if the same results hold at even lower levels of governments. The only exception to the rule is China.
25. As shown in the previous set of regressions, life expectancy yields ambiguous results, as it is affected by a broad range of factors for which we do not control. Infant or child mortality would therefore be a better indicator. Lacking those data, we have used combined gross enrollment as our fifth outcome indicator in this final set of regressions.
26. The only exception to the results is HDI in specification 2, yet this is understandable, as GDP is one of its components.
27. Martínez-Vázquez argues for the need to structure transfers at the subprovincial level (2004b).

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