8 A Better Way for Government to Save

Increasing national saving requires everyone to pitch in, including the government. Traditionally, policies to boost public saving have focused on either raising taxes or cutting spending—or both. However, in Latin America and the Caribbean today, that two-pronged strategy is largely a nonstarter. Plummeting commodity prices, rising interest rates, and a prolonged global recession have translated into deteriorating fiscal and external accounts and low, or no, growth for much of the region. To ask people and firms to contribute more in taxes and receive less in public services would be salt in the wounds of these ailing economies. There are, however, other ways for government to save. Essentially, the idea is for government to spend better in order to save more.

Governments, like individuals, save by postponing consumption. Public saving is the part of national saving that is under the direct control of governments. The contribution of public saving to total saving varies by country and by region. In Latin America and the Caribbean, the public sector contributes about 15 percent to total national saving—approximately 3 percentage points of GDP—on average. This is roughly midway between Emerging Asia, where public saving is about 23 percent of national saving (8 percent of GDP), and Advanced Economies, where public saving is approximately 7 percent of national saving (1.5 percent of GDP) (see Chapter 2).

Public saving is total government revenue minus its consumption. Importantly, not all government spending is consumption. Government expenditures can be divided into current expenditures and capital expenditures. Current expenditures include the wage bill of public employees, current transfers made by the government (for example, to pay for social programs and subsidies), and government

spending to provide public services such as education, health, and security. Current expenditures are government consumption. Instead, capital expenditures (public investment) are the real resources that governments use to build up the stock of capital in a country: for example, investments in infrastructure. Capital expenditures are part of a country's investment, rather than a country's consumption. Therefore, they are part of public saving (government revenue that is not used for current consumption).

Increasing public saving in the region is necessary to strengthen fiscal sustainability and to support long-term growth. Lower growth in industrial countries and falling commodity prices have dealt a blow to economic performance in the region, causing structural fiscal deficits to rise since 2009. In many countries, public saving must be increased to guarantee fiscal solvency.

There are three ways of generating public saving: by increasing government revenue, by reducing current expenditures, or by increasing capital expenditures. When it comes to increasing government revenue, the policy options are limited, especially in Latin America and the Caribbean. Governments everywhere derive most of their revenue from taxes. In Latin America, raising taxes to increase public saving is not an easy option in many countries, either because tax pressure is already high or because many countries have already undertaken tax reforms, making it politically difficult to increase taxes.[1]

In addition to the practical difficulties of raising taxes, tax policies can have significant implications for saving that go beyond increasing government revenue (see Box 8.1). In particular, taxes can distort private saving incentives. Thus, while they may add to government coffers, they may have little effect on total saving if they depress household and firm saving. The guiding principle for tax policy as it relates to saving is to design a tax system that avoids harming the saving incentives of individuals and firms, which are the largest sources of saving in the economy (see Chapter 1).

Actions to control government spending offer more space to increase public saving. Of course, cutting expenditures is not easy or popular in most contexts. However, this chapter focuses on two powerful levers that governments have at their disposal to increase public saving without necessarily cutting expenditures across the board. The first is to switch expenditures from current to capital expenditures. The second is to increase the efficiency of current spending.

BOX 8.1. THE EFFECT OF TAXES ON SAVING

Taxes have a direct negative impact on private saving because they reduce the disposable income of households and firms that pay taxes. At the same time, taxes have a direct positive impact on public saving because they are the main source of government revenue. Compared to other regions, Latin America and the Caribbean has a relatively high average tax burden on complying taxpayers, but relatively low average tax revenue (as a share of GDP).[a] This is the worst possible combination for saving: a tax system that imposes very high tax rates (thereby distorting private saving decisions) and collects very little revenue (thereby adding little to public revenues and potentially not adding to public saving). This anomaly is compounded by the types of taxes paid and who pays those taxes in the region.

Taxes affect private saving decisions and the composition of savings through a variety of channels. Income taxes discourage private saving by taxing both the income from which saving is derived, as well as the return to accumulated savings (interest and dividends). By contrast, indirect taxes (for example, the Value-Added-Tax) are less damaging to personal saving because they do not distort the rate of return to saving—provided tax rates remain constant over time.

The Latin American and Caribbean region derives a higher share of its tax revenue from "saving friendly" indirect taxes than from "saving foe" direct taxes on income. The contribution of indirect taxes to total revenues in Latin America and the Caribbean (46 percent of total revenue) and Emerging Asia (49 percent of total revenue) is higher than in Advanced Economies (35.5 percent of total revenue). The contribution of pure direct taxes in Latin America (29 percent of revenue) is lower than in both Emerging Asia and Advanced Economies (39 and 37 percent of total revenue, respectively) (Figure B8.1).

However, in practice who pays income taxes, and hence the structure of direct taxes, matters for saving. On this aspect, Latin America penalizes saving more than other regions. Latin America and the Caribbean and Emerging Asia derive a relatively high share of revenues from corporate income taxes (CIT) rather than from personal income taxes (PIT) (Figure B8.2). The higher reliance on corporate income taxes penalizes saving. Firms generate the largest share of private saving in the economy (see Chapter 2); thus, taxing firms' profits is taxing the main source of savings directly. There is more robust empirical evidence that changes in corporate taxes affect business saving than there is that personal income taxes hurt household saving.[b] In Chile, for example, reforms that lowered corporate income taxation in the mid-1980s triggered a 12 percentage point increase in private saving between 1985 and 2012 (see Cerda et al., 2015).

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[a] The "average" country hides diversity among countries. Some countries, such as Guatemala and Mexico, have a low tax effort, while others, like Argentina, Brazil and Uruguay have a high tax effort close to Advanced Economies.

[b] See Callen and Thimann (1997); Djankov et al. (2010); Corbacho, Fretes Cibils, and Lora (2013); Cerda et al. (2015).

BOX 8.1. *(continued)*

Figure B8.1 **Tax Revenue as Percentage of GDP by Indirect, Direct and Other Direct Taxes, 2012**
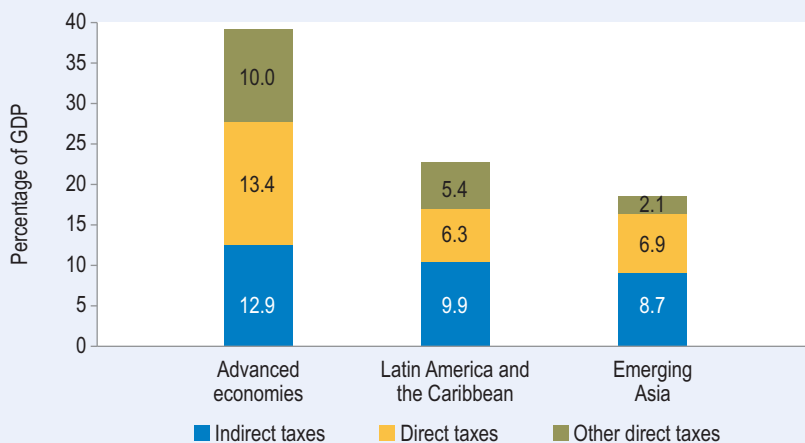
Source: IDB-CIAT Tax Database and WEO, IMF.
Note: Other direct taxes includes payroll taxes, trade taxes, property taxes and financial transactions taxes.

Moreover, CIT tax rates in Latin America and the Caribbean (at about 26 percent) are higher than in Emerging Asia (21 percent) and Advanced Economies (about 24 percent). However, CIT tax revenue, as a share of GDP, is lower in Latin America than in the other two regions (Figure B8.2). This reflects high tax evasion (high informality and weak enforcement) and a smaller tax base (more tax exemptions and large tax expenditures) in Latin America compared to other regions.[c] The combination of high CIT tax rates, with high evasion and a small tax base, results in a higher tax burden for tax compliers. Therefore, the effective corporate tax rate in Latin America and the Caribbean (18.3 percent of profits) is higher than in both Emerging Asia (14.1 percent) and Advanced Economies (15.5 percent) (World Bank and PwC, 2015). When considering all taxes on profits (turnover taxes, financial transaction taxes, and payroll taxes on employers), the burden of taxation for a typical *formal* firm in Latin America reaches about 51 percent of profits, compared to 28 percent in Emerging Asia and about 41 percent in Advanced Economies.[d]

Hence, while the ratio of revenue derived from direct taxes to GDP in Latin America is low by international standards, effective rates for compliers are

[c] Tax expenditures from the corporate income tax amount to about 0.9 percent of GDP on average, more than one-quarter of actual corporate tax collection, but they have been quite ineffective in incentivizing investment. Tax evasion on average, amounts to about 52 percent of potential tax collection in Latin America. (Corbacho, Fretes Cibils, and Lora, 2013).

[d] This effective tax rate is for one type of firm described in the Doing Business database (World Bank and PwC, 2015).

Figure B8.2 **Income Tax Revenue by Corporate Income Tax and Personal Income Tax, 2012**
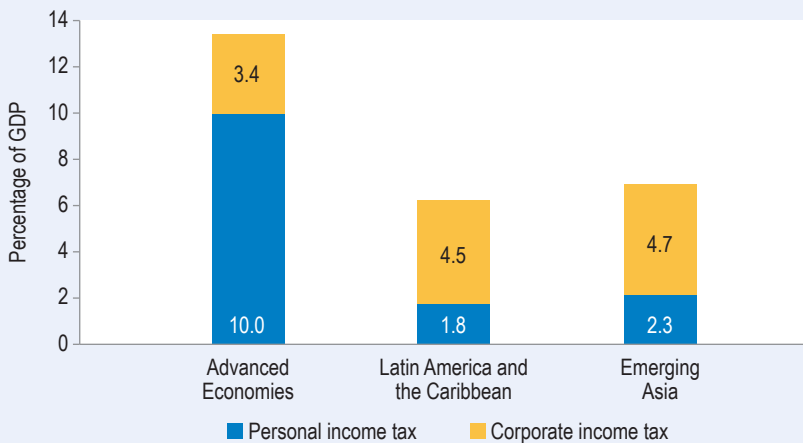
Source: IDB-CIAT Tax database and IMF (2015).

high. This has significant negative implications for private saving for two reasons. First, the relatively high tax burden on compliers (formal firms) reduces their saving capacity. Second, the tax structure that penalizes formal firms encourages informality (as firms try to evade high tax burdens) and thereby distorts the efficient allocation of economic resources, lowers productivity growth, and reduces the returns to saving and investment.[e]

Finally, tax systems can affect not only how much people and firms save, but also how they save. The structure of incentives embedded in tax systems across the region generates distortions. For example, the effective capital gains tax rate on housing is 23.3 percent in Emerging Asia, 17.9 percent in Advanced Economies, and only 12.2 percent in Latin America.[f] And while most Latin American countries tax dividends and financial returns (interest), they do not tax the imputed rents of owner-occupied housing. Hence, financial savings end up paying the highest effective tax rate.[g] This may discourage financial savings in favor of alternative saving vehicles such as housing—thereby reinforcing other distortions that increase the already high propensity of some people in Latin American and the Caribbean to save through housing, to the detriment of financial saving instruments.[h]

[e] See Pagés (2010).

[f] Authors' elaboration on the basis of Global Property Guide Research, Contributing Accounting Firms. http://www.globalpropertyguide.com/faq/guide-taxes.

[g] See IMF (2009).

[h] See Cruces (2016) and Piazzesi and Schneider (2012).

Current vs. Capital Expenditures: Fix the Mix

Starting from very low levels, Latin America slowly but surely increased public savings from as little as 1 percent of GDP in 1989 to almost 6 percent of GDP in 2007 as policymakers recognized the urgent need for fiscal consolidation (see Figure 8.1). Since 2009, public saving has been on a declining path, reaching 2.8 percent of GDP in 2014.

Total government expenditure from 2007 to 2014 jumped 3.7 percentage points of GDP. More than 90 percent of that increase went into current expenditure, and only 8 percent was devoted to public investment (Figure 8.2). Thus, public investment—a fundamental component of public saving—was the big loser in terms of expenditure allocation.[2]

As a consequence of these policies, public investment in the region has paled in comparison to other emerging markets such as Emerging

Figure 8.1 Public Saving in Latin America and the Caribbean
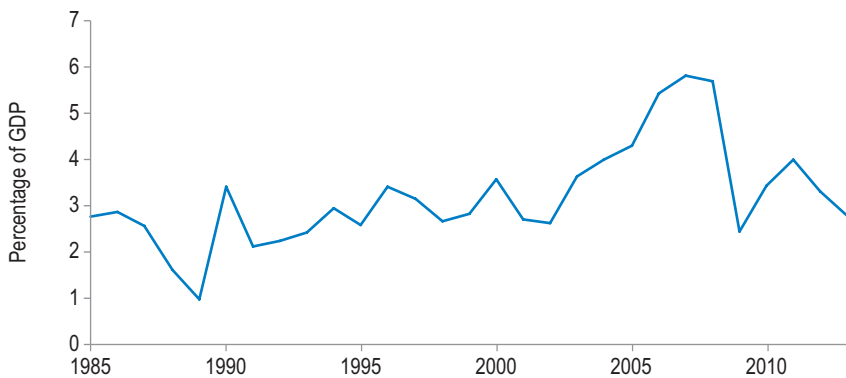
Source: Authors' calculations based on World Economic Outlook database (IMF, 2015).

Figure 8.2 Composition of Average Increase in Primary Public Spending, 2007–14 (percentage of GDP)
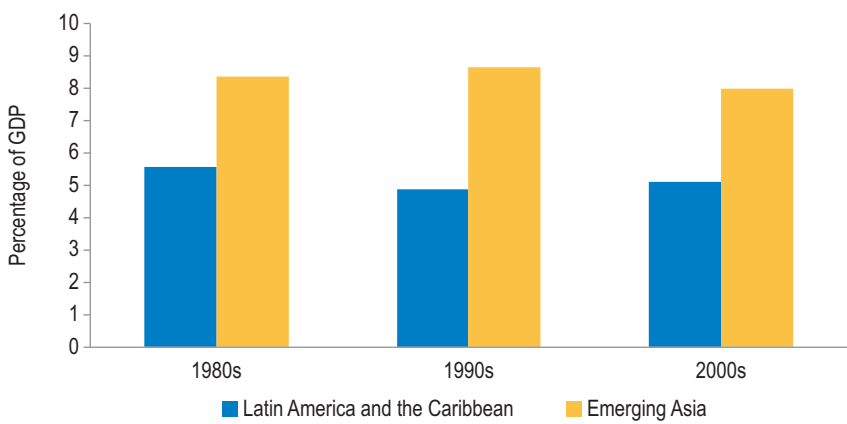

Source: Authors' calculations based on national budget data.

Asia. Despite a slight uptick in public investment as a share of GDP in the 2000s, public investment in Latin America and the Caribbean represents only 60 percent of the level of public investment in Emerging Asian economies (Figure 8.3).

Public investment is not only relatively low, but its share in total government expenditure has been declining. Figure 8.4 shows the evolution of current expenditure vis-à-vis capital expenditure from 1995 to 2014. Current expenditure has climbed steadily, while capital expenditure

Figure 8.3 Public Investment Behavior in Latin America and the Caribbean vs. Emerging Asia

Source: Authors' calculations based on national budget data.

Figure 8.4 Evolution of Current and Capital Expenditure, Latin America and the Caribbean Average
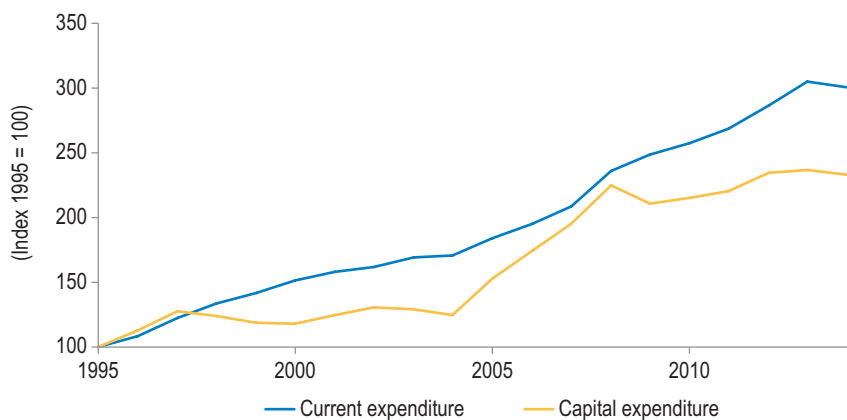
Source: Authors' calculations based on national budget data.

has had its ups and downs, increasing sharply from 2004 to 2008, but leveling off thereafter. While current expenditure has almost tripled throughout this period, capital expenditure has only doubled. As a result, public investment decreased to only 17 percent of primary government expenditure by 2014, down from almost 23 percent in 1995. Fiscal belt tightening in the region in 2015 and 2016 as a result of worsening external conditions has accentuated the trend as several governments chose to cut back on capital expenditures (saving) instead of current expenditures (consumption).[3]

Several factors may account for the low level of investment compared to current spending in Latin America and the Caribbean. First, many countries may have mistakenly viewed the favorable external factors of the early 2000s as permanent, and thus channeled a larger share of windfall revenues to consumption (by increasing current expenditures) than to saving.

But low investment levels may also reflect a political economy problem. Using a probabilistic voting model, Izquierdo and Kawamura (2015) show that, to the extent that current generations (the "old," in their model) have more voting power than future generations (or the "young"), then current spending may prevail over public investment, even if low investment hurts long-term growth. The stronger the electoral power of the old, the weaker will be the incentives for public investment, in favor of generous current-period spending (transfers). In other words, since future generations do not vote today on their preferred spending allocation, current generations that need resources now—or do not give priority to the needs of their offspring—may shift expenditure allocation away from capital expenditure.[4] This description reflects the situation in Latin America and the Caribbean, where surveys show that people do not save enough for retirement because they expect somebody else (or the government) to provide for their retirement needs (see Chapter 6).

Another reason for the bias toward current expenditure over investment lies in government's response to the economic cycle. Best practice would suggest increasing capital expenditure in bad times and reducing it in good times: that is, using capital expenditure to spend countercyclically. However, if governments must adjust their budgets in bad times—thereby precluding countercyclical policies and forcing expenditure cuts—they may find it easier to cut public investment than salaries or transfers that might risk political turmoil. But once capital expenditure has been reduced in a downturn, governments should remember to

increase public investment in good times. Typically, this has not been the case in Latin America and the Caribbean.

Ardánaz and Izquierdo (2016) evaluate the procyclicality of current and capital expenditures in Latin America and test whether the two types of spending respond differently to changes in the business cycle.[5] If real expenditure were to grow at a constant rate—say, the long-term growth rate of real output—it should not be affected by cyclical fluctuations. However, the authors find that current and capital expenditures react to the business cycle in different ways. Current expenditures grow in good times, but do not fall back in bad times. The opposite holds for real capital expenditures, which shrink in bad times, but do not rebound in good times. These estimated impacts and their relevance are described in Figure 8.5, panel a, which clearly illustrates this asymmetric response. The implications are serious: current expenditures tend to increase as a share of total expenditure, confirming the bias in favor of current expenditure and against capital expenditure—and, by extension, against public saving.

Figure 8.5 Sensitivity of Spending to Output Gaps

a. Latin America and the Caribbean

b. Emerging Asia and Advanced Economies
Capital expenditures
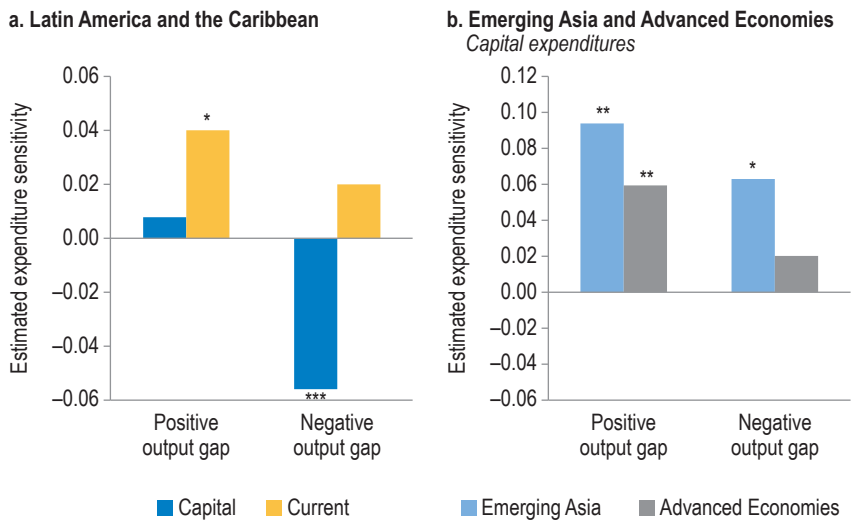
Source: Authors' calculations based on national budget data.
Note: Authors' estimates based on Ardánaz and Izquierdo (2016). Ardánaz and Izquierdo run regressions of the type $\Delta g = a + b*\text{Positive Cycle} + c*\text{Negative Cycle} + \varepsilon$, where Δg is the change in real expenditure, Positive Cycle is the value of the cyclical component of output when it is positive, and Negative Cycle is the value of the cyclical component of output when it is negative. The value reported on the y-axis is the estimated coefficient measuring expenditure sensitivity to cyclical component. Label y-axis: ***p<0.01, **p<0.05, * p<0.1.

Latin America contrasts starkly to Emerging Asia and Advanced Economies (Figure 8.5, panel b), where capital expenditures do not react negatively at all in bad times; if anything, East Asian countries expand their capital spending during trying times. Thus, the bias against capital spending is more marked in Latin America and the Caribbean than in other regions. Governments in the region should adjust their spending policies to remedy this bias. The key is to design and implement fiscal policy rules that reduce discretion in the allocation of public spending over the business cycle and help overcome the bias against capital expenditures that is currently built into spending behaviors. Mending the mix between current and capital expenditures can increase saving without affecting the overall level of spending.

Efficiency: A Path to Saving

Governments can also boost public saving by increasing capital expenditures directly. In fact, increasing public investment enhances productivity in the private sector and, therefore, propels growth in the region (see Chapter 4). How can governments make room in their budgets to increase capital expenditures? One way is by switching expenditures, as described above. Another way is to borrow from abroad. However, this option is restricted, particularly in a less favorable external environment. Moreover, external borrowing carries its own set of risks (see Chapter 5). Another way is to adjust current expenditures.

Adjusting current expenditures can be a painful process; however, understanding their composition and identifying inefficiencies in public expenditure can be very useful to reduce the burden. This process is known as "smart" adjustment. Instead of cutting expenditures across the board—as has been done many times in the past—it is better to dissect the budget sector by sector and sort out inefficiencies. But how can inefficiencies be identified?

A key tool for reducing inefficiencies is appropriate targeting of current expenditure. Typically, expenditures will target a particular group, be it energy subsidies for low-income families or social programs for the poor. However, in practice many recipients of these subsidies are not part of the targeted population. For example, an electricity subsidy for consumption on the first 150 KWh for the entire population in a country may very well reach low-income households that consume less than 150 KWh, but will also subsidize higher-income households on those first 150

KWh. The receipt of the subsidy by the higher-income household would be considered leakage, and an inefficiency because people outside the target group are receiving the subsidy. Or consider an exemption on the value added tax on food, also called a tax expenditure. Typically, this measure aims to make food more affordable to low-income households. However, this tax expenditure also benefits higher-income households that should not be receiving the benefit and, thus, constitutes an inefficiency. Or think of a conditional cash transfer program focused on poor families: in many cases, beneficiaries of these programs may include families that are sufficiently well-off to finance whatever the transfer is supporting; in such case the transfer would be poorly targeted and a source of inefficiency.

A key element to define up front when identifying leakage is the population to be targeted. In this discussion, the targeted population is the poor, defined as those individuals whose income lies below the national poverty line.[6]

The leakage concept can be easily applied to sectors in the public budget that work with targeted populations, as is the case of electricity subsidies, social programs, or tax expenditures. However, two key areas of government expenditure that account for a significant portion of the budget—health and education—aim at universal coverage. For these areas of expenditure, leakage is not an issue. Therefore, defining inefficiency in those sectors is much more challenging.

For these sectors, benchmarking provides a means of determining inefficiency. Countries that are good at providing those services—that is, that achieve good results with the lowest amount of inputs—serve as benchmarks against which other countries can be compared.[7] However, this approach inevitably raises caveats because other factors—many of them difficult to measure consistently—may affect the results.[8]

Inefficiencies in expenditure stem not only from input numbers (i.e. the number of teachers or doctors), but also from their cost. For example, if for a given job qualification, wages are much higher in the public sector than the private sector, then there is room for improvement. Both the usage of inputs and wage differentials in the public and private sectors provide indications of inefficiency in universal coverage sectors such as education and health.

The next section analyses five sectors for inefficiencies: energy, social programs, tax expenditures, education, and health. These five sectors amount to roughly half of primary expenditure for the average Latin

American country. Admirably, the region has worked hard to boost welfare by increasing the provision of these important services. However, the efficiency and targeting of these services is important if they are to realize their full potential.

Energy

In the case of energy subsidies for low-income families, governments often set prices at a level that does not cover operating costs. Bolivia's Tarifa Dignidad and Brazil's Tarifa Social Baixa Renda provide good examples. Using household expenditure surveys, it is possible to assess how many beneficiaries of the subsidy were initially targeted by the program. For instance, in the case of price subsidies to low-income households for the use of electricity below 150 KWh, any household consuming more than that amount, or whose income is above the poverty line, should not receive the subsidy. Figure 8.6, based on household survey micro data for a representative country, illustrates this point clearly: all points below the poverty line and to the left of the 150 KWh line are households that should be targeted by the subsidy policy. However, many households that are not poor, but that consume less than 150 KWh, receive the subsidy. This group constitutes what is typically called "inclusion error," or leakage. Aggregating subsidies provided to these households yields a measure of the leakage in electricity subsidies.

When policies are generalized so that all households receive a subsidy—such as fixing the retail price of gasoline below the cost of producing it—then leakage can be estimated as the cost of this policy to the public institution covering the shortfall. However, the entire shortfall does not constitute leakage, as part of it will reach poor households. Expenditure surveys can help estimate the share of a fuel subsidy (on gasoline, for example) that goes to households above the poverty line. The size of the leakage is the product of this share and the total amount of the shortfall spent by the government agency.[9] A similar approach can be applied to other energy subsidies, including those for fuel oil, natural gas, and liquefied petroleum gas.[10]

Table 8.1 shows government subsidies to the energy sector in each of 18 Latin American countries with available information as of 2013 (no data is available for Venezuela, which is the largest energy producer in the region and offers large subsidies to domestic consumption of gasoline). Although they vary widely across countries, on average, energy

subsidies eat up close to 1 percent of GDP, ranging from countries with high subsidies, such as Bolivia (3.3 percent of GDP) and Argentina (2.1 percent of GDP), to countries with no subsidies, such as Chile and Peru. The point is that more than two-thirds of these subsidies leak out to nonpoor households that are not part of the targeted population. The magnitude of this inefficiency—and therefore the margin for improvement—is huge.

Figure 8.6 Example of Leakage (Inclusion Error) in Electricity Subsidies in Nicaragua
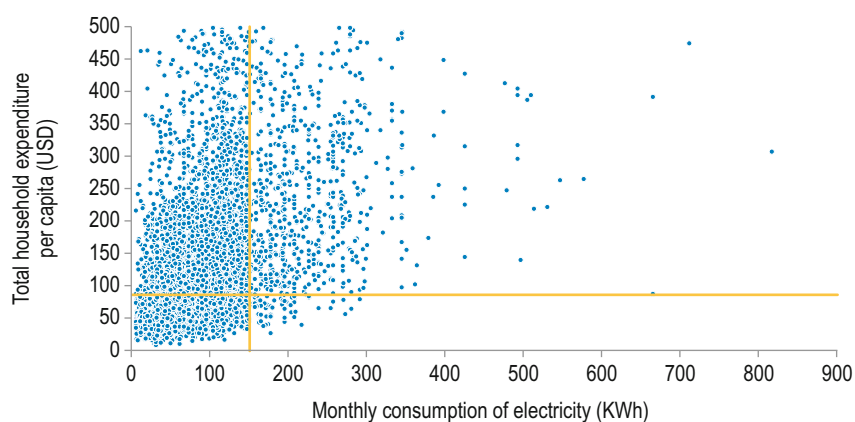
Subsidy Targeting: Inclusion and Exclusion Errors (percentage)

Fee intervals (kWh)	Households in each interval (percentage)	Interval consumption (MWh annual)	Deciles 1–4 (percentage)	Deciles 5–10 (percentage)
0–25	5%	0.8	0.5	0.3
26–50	23%	8.8	5.3	3.5
51–100	33%	23.9	10.7	13.2
101–150	26%	32.1	7.6	24.5
151–500	12%	27.7	1.6	26.0
501–1000	1%	4.7	0.0	4.7
+1000	0%	2.0	0.0	2.0
Total	100%	100	25.7	74.3
Inclusion error (MWh)		63.3%		
Exclusion error (MWh)		2.5%		

Source: Authors' calculations based on Izquierdo, Loo-Kung, and Navajas (2013).

Table 8.1 Energy Subsidies and Leakages, 2013 (percentage of GDP)

Country	Total subsidies	Residential subsidies	Rest of subsidies	Residential leakages[a]	Rest of leakages[a]	Total leakages[a]
Bolivia	3.29	0.91	2.37	0.76	1.92	2.68
Argentina	2.06	0.85	1.21	0.79	1.15	1.94
Honduras	1.85	0.90	0.95	0.55	0.71	1.25
El Salvador	1.75	1.39	0.36	0.91	0.30	1.21
Domican Republic	1.38	0.65	0.73	0.43	0.62	1.05
Mexico	1.29	0.53	0.77	0.33	0.49	0.82
Nicaragua	1.11	0.86	0.25	0.60	0.21	0.81
Panama	0.81	0.51	0.30	0.47	0.30	0.77
Brazil	0.80	0.24	0.56	0.21	0.50	0.71
Colombia	0.37	0.27	0.10	0.19	0.08	0.27
Guatemala	0.33	0.33	0.00	0.22	0.00	0.22
Uruguay	0.12	0.02	0.09	0.02	0.09	0.11
Paraguay	0.05	0.04	0.01	0.02	0.01	0.04
Peru	0.00	0.00	0.00	0.00	0.00	0.00
Belize	0.00	0.00	0.00	0.00	0.00	0.00
Costa Rica	0.00	0.00	0.00	0.00	0.00	0.00
Chile	0.00	0.00	0.00	0.00	0.00	0.00
Jamaica	0.00	0.00	0.00	0.00	0.00	0.00
Average	0.85	0.42	0.43	0.31	0.35	0.66

Source: FIEL and IDB based on official fiscal, energy, and household survey data.
[a] Leakages to non-poor households.

This analysis was carried out with information up to year-end 2013. With energy prices plummeting (and the structure of subsidies largely unchanged), the size of subsidies across the different energy subsectors (gasoline, fuel oil, natural gas, and liquefied petroleum gas) may be lower. The sensitivity of prices in these subsectors with respect to international oil prices varies country by country, and may or may not be large depending on the specific case. The price of oil has fallen by as much as 50 percent on average between 2013 and 2015; thus, the total cost of leakage may have declined. However, this decline does not make waste in energy subsidies any less important: since energy prices may

go up again, leakage is likely to catch up with previous levels if the current subsidy structure remains intact.

Social Programs

Expenditures on social programs, defined as spending to guarantee a basic level of economic and social welfare, can be analyzed in a similar way. Unlike contributory pension payments, transfers for social programs do not require individuals to contribute anything to receive benefits (hence, these transfers are "noncontributory"). The target population typically consists of individuals, families, communities, or groups that are considered vulnerable and require special attention, such as the poor, children, or the elderly.[11]

The two main social program expenditures are conditional cash transfers (CCTs) and noncontributory pensions (NCPs). Both are considered monetary transfer programs. The major objective of CCTs is to reduce the intergenerational transmission of poverty by investing in human capital. They provide transfers to families with children below 18 years of age and/or pregnant women—usually on a monthly basis—subject to their compliance with particular requirements, such as school enrollment and health checkups. These programs, pioneered in the early 1990s by Progresa in Mexico and Bolsa Escola in Brazil, have become popular throughout Latin America.

Noncontributory pensions are a more recent phenomenon that has grown significantly in several Latin American countries since 2000 to deal with the many individuals who reach retirement age without enough formal contributions to any pension system (see Chapter 7). This situation weighs heavily in the decisions of younger individuals to participate in formal labor markets and save long term, because noncontributory pensions can provide incentives for informality and may lower saving. This chapter will examine only the targeting aspect of NCPs.

Table 8.2 shows the evolution of social program expenditures from 2003 to 2013. Spending increased continuously in most countries and in some countries, it more than tripled. Overall, this trend has been a positive development because it has helped reduce poverty and inequality in the region.

However, not all spending on social programs has been properly targeted to the poor. Table 8.3 shows the estimated leakage for

Table 8.2 Social Programs Expenditure (percentage of GDP)

Country	2003–06	2007–10	2011–13
Argentina	1.1	2.3	3.6
Paraguay	0.1	1.1	1.9
Uruguay	0.9	1.8	1.7
Bolivia	1.3	1.6	1.6
Costa Rica	0.9	1.1	1.4
Brazil	0.8	1.0	1.2
Honduras	0.6	0.9	1.1
Chile	0.5	0.7	1.1
Belize	n.a.	n.a.	1.0
Colombia	0.7	0.9	1.0
El Salvador	0.4	0.5	0.8
Guatemala	0.5	0.7	0.7
Dominican Republic	1.3	1.1	0.7
Mexico	0.3	0.7	0.7
Nicaragua	0.9	0.7	0.6
Jamaica	0.3	0.5	0.5
Panama	0.0	0.2	0.5
Peru	0.6	0.5	0.5
Average	0.7	1.0	1.1

Source: FIEL and IDB based on national budget data.
n.a. = Data not available.

monetary transfer programs—conditional cash transfers and noncon-
tributory pensions—as well as other social programs as a share of GDP.
Although on average they represent only one-half of 1 percent of GDP,
countries vary substantially. Leakage tends to be smaller in Central
American countries, averaging 0.3 percent of GDP. For these countries,
social spending is lower and populations are relatively poorer, leaving
less margin for error. However, leakage is much higher for South Amer-
ican countries, averaging 0.8 percent of GDP. Once again, the striking
feature about expenditures on social programs is how high leakage is
as a share of total expenditures: 45 percent, on average, for the region
(52 percent in South American countries, and 35 percent in Central
America). Although leakage is high, its share of total subsidies is not as
high as in other sectors, such as energy or tax expenditures, which lack
a clear targeting strategy and are, therefore, more prone to leakage.

Table 8.3 **Indicators of Leakages in Social Programs (percentage of GDP)**

Country	In monetary transfer programs	In other programs	Total leakages	Leakages as percentage of social program expenditures
Argentina	1.9	0.1	2.0	56.2
Paraguay	0.2	0.9	1.1	58.2
Uruguay	0.7	0.4	1.1	62.4
Bolivia	0.7	0.1	0.8	50.9
Chile	0.6	0.1	0.7	65.2
Brazil	0.4	0.2	0.6	51.8
Costa Rica	0.3	0.3	0.6	42.1
Colombia	0.1	0.4	0.5	50.6
Belize	0.0	0.4	0.4	39.0
El Salvador	0.1	0.3	0.4	46.3
Jamaica	0.2	0.2	0.4	66.6
Dominican Republic	0.1	0.2	0.3	44.3
Panama	0.2	0.1	0.2	48.0
Mexico	0.1	0.1	0.2	28.9
Nicaragua	0.0	0.2	0.2	31.7
Guatemala	0.1	0.1	0.2	24.3
Peru	0.1	0.0	0.2	35.1
Honduras	0.1	0.0	0.1	8.2
Average	0.3	0.2	0.6	45.0

Source: FIEL and IDB based on household surveys and national budget data.

Tax Expenditures

Instead of transferring resources directly to needy households through budgetary spending, governments often offer tax relief, and thus transfer resources indirectly through tax exemptions. With the aim of protecting the poor, many goods and services that weigh heavily in the consumption basket of the poor—including foodstuffs, medicines, and rents—are exempted from taxes. This policy is one of the most prone to leakage, as most of the foregone tax collection goes to better-off individuals, who typically spend more in the aggregate than do the poor.

The value added tax (VAT) is the main tax used for this purpose. Most countries in Latin America offer either VAT reductions or exemptions for food, medicine, and rent, irrespective of income. Most countries

also produce estimates of tax expenditures, which serve as a benchmark to calculate leakage.[12] Household surveys and specific studies on tax expenditures in the region are then used to estimate how much the nonpoor consume in food, medicine, and rent. These two pieces of information allow for estimating the leakage in tax expenditures.[13]

On average, total tax expenditures amount to 2.3 percent of GDP (see Table 8.4). Of this total, tax spending on food, medicine, and housing account for almost 1 percent of GDP. Nearly three-quarters of tax expenditure on these items benefits nonpoor households: equivalent to 0.73 percent of GDP. In some countries, leakage is as high as 1.8 percent of GDP. Overall, tax expenditures are probably the most regressive item in the subsidy agenda.

Table 8.4 Tax Expenditure in VAT on Food, Medicine and Housing, and Associated Leakages (percentage of GDP)

Country	Total tax expenditure on VAT	Tax expenditure on food, medicine, and housing	Leakage	Leakage (share of tax expenditure)
Nicaragua	4.5	2.3	1.8	75.3
Dominican Republic	3.2	2.2	1.5	65.6
Costa Rica	3.4	2.0	1.8	87.2
Colombia	4.9	1.3	1.1	84.6
Mexico	1.5	1.2	0.6	52.7
Uruguay	2.2	1.1	0.9	82.5
Panama	2.3	0.8	0.7	81.2
Guatemala	1.4	0.8	0.4	52.0
Jamaica	3.5	0.8	0.7	88.8
Brazil	3.0	0.7	0.6	91.7
Peru	1.3	0.4	0.4	85.2
Argentina	1.0	0.4	0.4	90.1
El Salvador	1.0	0.5	0.3	65.3
Chile	0.8	0.2	0.2	78.3
Bolivia	0.0	0.0	0.0	n.a.
Belize	n.a.	n.a.	n.a.	n.a.
Honduras	3.6	n.a.	n.a.	n.a.
Paraguay	n.a.	n.a.	n.a.	n.a.
Average	2.3	1.0	0.7	77.2

Source: FIEL and IDB estimates based on national data and other studies.
n.a. = Data not available.

Education and Health

Estimating spending inefficiencies in areas that offer universal cover-age such as health and education call for a different methodology and raises several questions. For example, should the focus be on searching for best practice countries that provide the best possible education with the lowest number of teachers per student? Or should inefficiencies be estimated in relation to each country's success in achieving the desired results for the sector? The latter may be more appealing, but requires an in-depth knowledge at the country level about the particular strat-egy for the sector—and even then, the strategy may be loosely defined in many countries, or may not be ambitious enough. Moreover, coun-try comparisons may be very difficult. For these reasons, this analysis uses the first approach, in which all countries are compared against a benchmark considered the best performer in each sector. Of course, this methodology has its own drawbacks. It assumes that the technology used by the best performer is replicable by other countries—an issue up for debate among practitioners in this area.

The first step is to identify a benchmark country. A tool often used to obtain this benchmark is Data Envelopment Analysis (DEA), which assumes a production frontier based on cross-country data on inputs and their corresponding outputs.[14] With this frontier as reference, the country that produces the best results with the lowest amount of asso-ciated input is identified.

The discussion that follows assumes that workers in the sector—whether teachers in the education sector or doctors and nurses in the health sector—are the main production factor generating the results in that sector: say, test scores in education or life expectancy in health. Of course, other factors may affect results, such as diet or smoking, in the case of health. However, studies in health care, for example, indicate that expenditure in the sector is a main factor driving results in terms of life expectancy.[15] Since the wage bill comprises the largest share of expen-diture, the analysis will focus on both components of the wage bill—the number of workers and wages—to identify inefficiencies.

Despite the support provided by DEA studies to follow this route, the inefficiency analyses below represent only a first pass at the extremely difficult exercise of capturing inefficiencies in sectors with universal cov-erage. A full analysis should control for other idiosyncratic factors that affect outcome variables which, given the scope of this study and data

availability restrictions, will not be taken into account. However, these caveats do not make the analysis any less relevant: to date, no comparative analysis of inefficiencies in these sectors is available for Latin American countries. Estimations below should be useful to start a discussion about efficiency management in two important sectors, including the production of additional performance and quality indicators to allow a more detailed estimate of outstanding inefficiencies.

Education

International benchmarks are often used in education. A common benchmark is PISA (the Program for International Student Assessment), a triennial international survey that aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students. Figure 8.7 shows the secondary-students-per-teacher ratio contrasted against average PISA scores for a group of OECD countries.[16]

In this high performing group of countries, the Republic of Korea stands out as the country with the highest score for one of the lowest input (teachers). With Korea as the benchmark country, student to teacher ratios, at both the primary and secondary school level, are contrasted with those of Latin American countries with available data to determine a roadmap for improving the efficiency of spending on education. In the typical

Figure 8.7 Average Math, Reading, and Science PISA Performance vs. Students per Teacher Ratio, OECD Countries, 2012
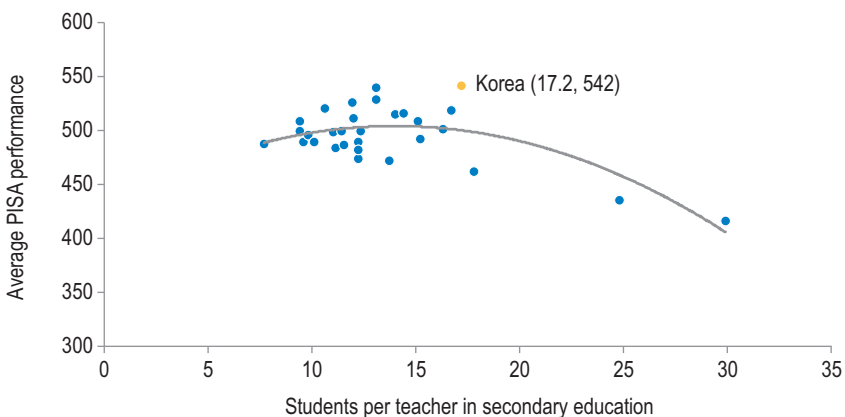
Source: Authors' calculations based on OECD.
Note: PISA = Programme for international student assessment.

case, this entails reducing the number of teachers while investing heavily in teacher training to reach OECD standards: a major undertaking.[17]

The second factor affecting efficiency in this sector is the teacher wage bill. This is a thorny issue since salaries should reflect productivity, which is difficult to measure. A shortcut is to compare teacher wages in public schools against those in private schools to determine their competitiveness. Another option is to fit a curve depicting the relationship between public teacher wages relative to per capita GDP in that country against GDP per capita levels. Large deviations from this relationship can be viewed as evidence of excessive pay (when above the curve) or insufficient pay (when below the curve). Figure 8.8 displays the behavior of this relationship for a group of OECD and Latin American countries. Countries well above fitted values (outliers) indicate countries where savings could be achieved.

Considering both the worker and wage tools defined above provides an approximation to assess the current wage bill against a hypothetical efficient wage bill. The efficient wage bill covers a workforce of teachers consistent with the students per teacher ratios defined by the benchmark, and wages that fall within acceptable levels of the wage to GDP per capita ratio. Differences between the current wage bill and the efficient wage bill are considered a proxy for inefficiency, and thus an indication of potential savings in expenditures of the sector.[18]

This analysis is based on data for 13 countries in the region: Belize, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador,

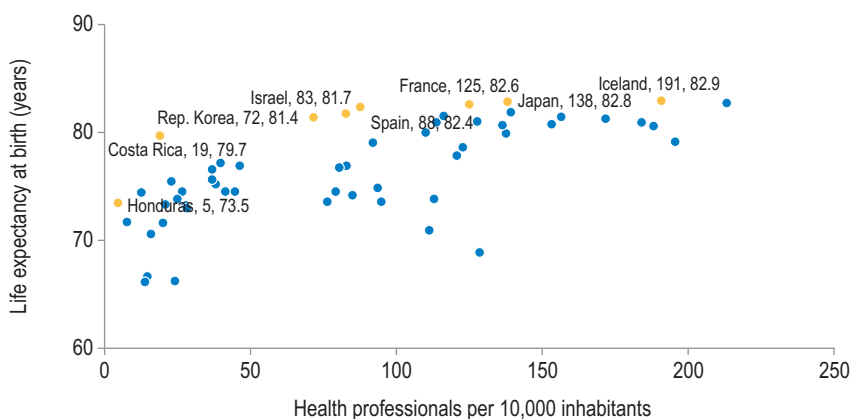**Figure 8.8 Relative Primary Teacher Wages vs. GDP per Capita, 2011**
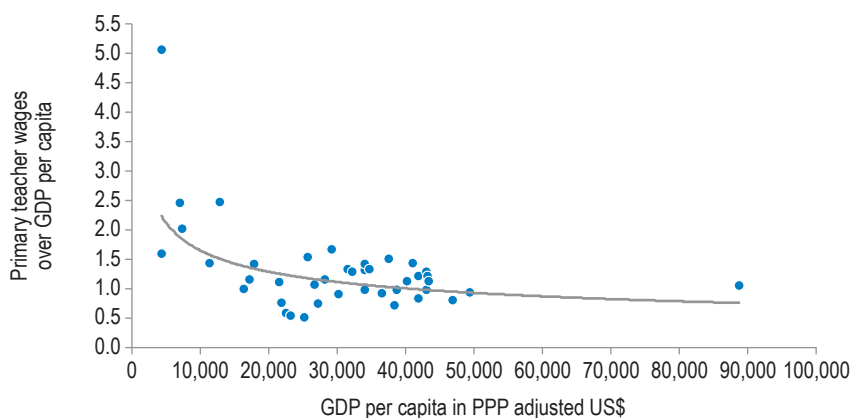
Source: OECD (2011) for OECD countries, and IDB for Latin American countries.

Guatemala, Honduras, Nicaragua, Panama, Peru, and Uruguay. Within this group, the average savings from bringing the wage bill in education down to efficient levels amount to 0.7 percent of GDP. However, countries vary considerably. Most of these savings stem from wage differentials rather than inefficiencies in student per teacher ratios. The numbers are only indicative, given the caveats of the methodologies used to generate them, and the importance of preserving incentives to attract qualified teachers and reward performance. Nevertheless, the discrepancies point to the need to evaluate the wage bill in education.

Health

The health sector is assessed in a similar fashion. Figure 8.9 shows the Data Envelopment Analysis (DEA) and the associated frontier obtained by comparing life expectancy against the number of health professionals employed by the sector. The efficiency frontier is shown by countries that have a red data point. Most countries in the upper part of the frontier have a life expectancy in the neighborhood of 80 years. However, many more health professionals are needed to obtain only marginal increases in life expectancy beyond 80 years. Studies by the World Health Organization (WHO) recommend a figure of 22.8 health staff (doctors and nurses) per 10,000 inhabitants for public sector systems (WHO, 2006).

Figure 8.9 Health Professionals per 10,000 Inhabitants vs. Life Expectancy at Birth

Source: Authors' elaboration based on World Health Organization.

Figure 8.10 Health Professionals Relative Wage vs GDP per Capita, 2011

a. Physicians

Physician wage/GDP per capita (US$ PPP)

$y = 936.56x^{-0.59}$

GDP per capita in thousands of US$, PPP adjusted

b. Nurses

Nurse wage/GDP per capita (US$ PPP)

$y = 372.1x^{-0.556}$

GDP per Capita in thousands of US$, PPP adjusted
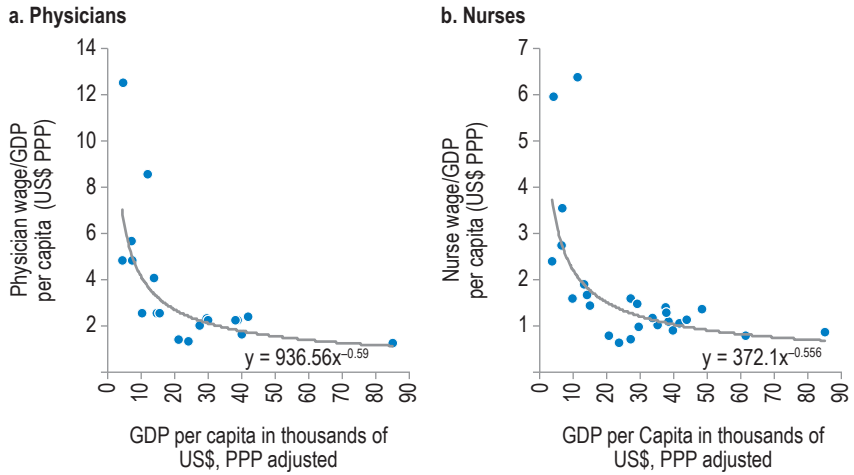
Source: OECD (2011) for OECD countries and IDB for Latin American countries.

This level is in line with the lowest number of health professionals asso-ciated with a life expectancy around 80 years of age shown in the efficiency frontier of Figure 8.9. Thus, the WHO figure was taken as the benchmark for the number of workers.

Regarding salaries, the same approach used in education is fol-lowed. Figures 8.10 panels a and b show the relationship between wages relative to GDP per capita in a country against GDP per capita levels for both physicians and nurses. Fitted values are used as a benchmark to contrast existing wages to determine wage savings.

Putting both worker and wage components together helps deter-mine the efficient wage bill proxy, which can be compared against the actual wage bill to determine total potential savings in the health sector for each Latin American country. The same countries were used in this analysis as in the analysis for education, except for Belize, for which no data were available. Potential savings are smaller than in other sectors, averaging 0.2 percent of GDP. In some countries, however, the savings could be as large as 0.9 percent of GDP.

It All Adds Up

The numbers speak for themselves. Smart adjustments can yield big payoffs. In the targeted areas of energy, social programs, and tax expenditures, overall savings could amount to up to 2 percent of GDP

Figure 8.11 Potential Savings in Targeted Expenditure (Social Programs, Energy, and Tax Expenditure)
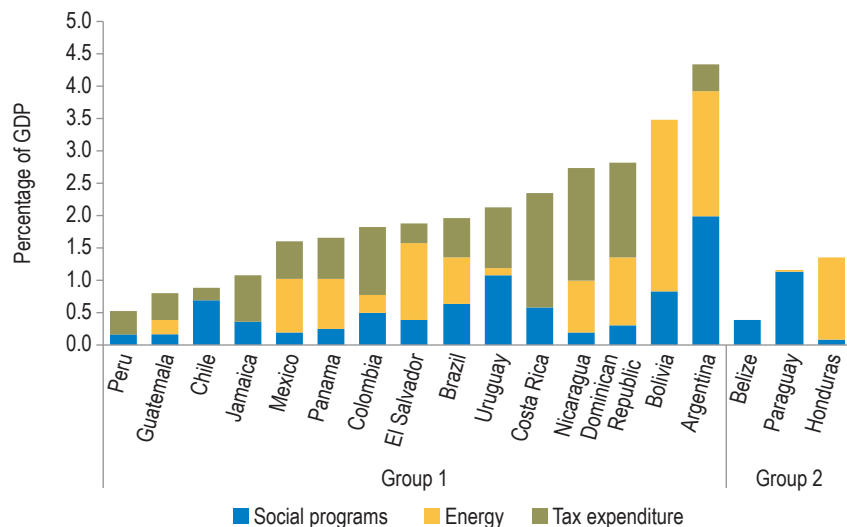

Source: Authors' elaboration based on their own estimates.
Note: For comparability purposes, countries have been split into two groups. Group 1 contains estimates of leakages for countries with data on all three sectors, while Group 2 does not include estimates on tax expenditure leakages.

for the average country—and as high as 4.3 percent of GDP in the most acute cases. Figure 8.11 shows total savings in targeted sectors and their breakdown by sector for the 18 Latin American and Caribbean countries in the sample. Not surprisingly, leakage is somewhat less in social programs than in energy and tax expenditure, since social programs are targeted by design and thus should be less prone to leakage. Thus, savings from leakage in energy and tax expenditures may be larger and easier to fix when choosing among saving opportunities. The challenge for governments is that eliminating leakage will have to be done in ways that do not leave the poor unprotected. This is not an easy task, as governments need to know who the poor are and where they live, and allocate transfers to them directly in order to switch from price subsidies (which are prone to leakage) to income transfers targeted specifically to the poor.

Figure 8.12 presents a breakdown for select countries in the region on potential savings in education and health. Together, these inefficiencies average about 1 percent of GDP—but can be as large as 2.8 percent of GDP for some countries. Estimated inefficiencies average 0.7 percent of

Figure 8.12 Potential Savings in Education and Health
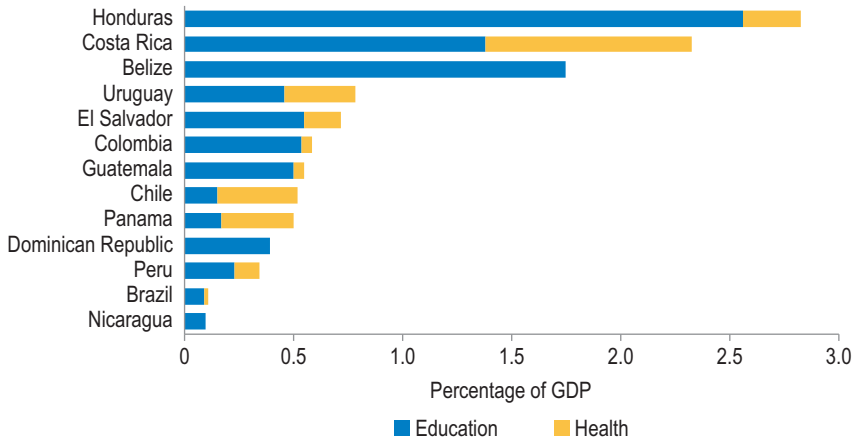
Source: Authors' estimates.
Note: Belize does not include estimates on health leakages.

GDP for education, and about 0.2 percent of GDP for health. Again, there is substantial variation across countries: inefficiencies can be as high as 2.6 percent of GDP in education, and 0.9 percent of GDP in health.

Estimating inefficiencies in spending in sectors with universal coverage is a very difficult task. A complete assessment would ideally control for all the factors that affect outcome variables, such as international assessment scores in education or life expectancy in health. However, given the scope of this study and the restrictions on data availability, only the wage bill was considered in each case, and here too care must be taken to assure efficiency without comprising incentives that attract quality personnel to teaching and health care. The caveats are important but do not make the analysis any less relevant: this is the first comparative analysis of inefficiencies in these sectors for Latin American countries. These estimates are a useful proxy for potential savings in these sectors based on large personnel or wage deviations from selected benchmarks.

The estimates presented in this chapter are a useful starting point for a policy debate on improving the efficiency of both management and public spending in important sectors such as education and health. From here the discussion should be expanded to include additional performance and quality indicators that will allow a more detailed assessment of existing inefficiencies.

Reducing inefficiencies in the five sectors analyzed here could amount, on average, to potential savings in the neighborhood of 3 percent of GDP. Particularly in economies that need to ensure fiscal solvency and make productive investments, these potential savings are significant indeed.

Saving, from the Top Down

Increasing public saving is no easy task, and doing so by raising taxes or slashing expenditures is not only politically unpopular but may be counterproductive as well. For example, increasing taxes may discourage private saving, while across-the-board spending cuts may reduce much-needed public investment and jeopardize the social progress of recent years. But governments do have other options. The first alternative is to correct the entrenched bias in public spending against capital expenditures (which is saving) and in favor of current expenditures (which is consumption). Various political economy and budgeting distortions produce this bias. Acknowledging them and building mechanisms into fiscal rules to overcome the bias can help boost public saving through expenditure switching rather than expenditure reduction.[19]

In addition, the government can save more by spending better. Public saving rates in Latin America and the Caribbean are on average 5 percentage points of GDP lower than in East Asia. The analysis in this chapter suggests that approximately half that gap can be overcome by targeting public expenditures better in areas like energy, social programs, and tax expenditures and by improving efficiency in health and education. Doing so requires analyzing leakages in the budget, dissecting spending by sectors, and searching for potential efficiency gains.

Public saving is not the largest contributor to national saving; however, it is an important one. Governments that want to encourage more saving by the private sector should set the example by using the tools available to them. After two decades of fiscal reforms in Latin America and the Caribbean that have significantly improved fiscal sustainability across the region, it is time to delve into the budgetary reforms that can yield a permanent increase in public saving rates. Saving for development is everyone's responsibility, starting with the government.

Notes

1   For a complete assessment of tax policy in Latin America and the Caribbean, see Corbacho, Fretes Cibils, and Lora (2013).

2   Roughly half of the increase was allocated to subsidies and transfers, and a quarter to wages and salaries. This points to larger inflexibilities in government expenditure, as salaries, subsidies and transfers are much more difficult to reverse, if needed, relative to public investment.

3   The fact that public investment is low and current expenditure is gaining as a share of the budget also has pernicious implications for fiscal sustainability, for at least two reasons. First, any needed adjustment will be increasingly difficult to implement, given the inflexible nature of much of current expenditure. Second, lower public investment may lead to lower growth, thus raising the bar of required primary surpluses in the future.

4   As societies age, this effect may become stronger.

5   Ardánaz and Izquierdo (2016) follow a framework similar to the one used by Balassone and Kumar (2007) to analyze the cyclicality of total public expenditure. They run separate regressions for changes in real current expenditure and changes in real capital expenditure against a constant and the cyclical component of output performance. A key part of their analysis is that they estimate separate coefficients for the impact of the cyclical component of output, taking into account good times (periods when the cyclical component is positive) compared to bad times (periods when the cyclical component is negative.

6   The level of individual income used to define the poor is net of any subsidy they may be receiving from the government. Another popular measure—consistent with several existing studies—is individuals ranked in the lowest 40 percent of the expenditure distribution.

7   Such is the case of Data Envelopment Analysis, a concept that will be used in this report.

8   For example, idiosyncratic factors may cause a population to assign more importance to education than other countries, as might be the case in some Asian countries.

9   The implicit assumption is that expenditure patterns captured in expenditure surveys do not misrepresent or overrepresent the expenditure of the poor relative to that of the nonpoor.

10   Yet another case is that of subsidies to nonresidential clients in other sectors, which cover a wide range of consumers and firms. For those cases, shares in total consumption of individuals above the poverty line are used to determine leakage. This approach constitutes a lower bound, as only the share of the subsidy to nonresidential sectors that is consumed by the nonpoor is considered leakage. Alternatively, the entire subsidy could be considered a leakage. Even more detailed analysis could use the supply and utilization tables from national accounts data to identify the impact of subsidies on intermediate energy inputs at the sectoral level. However, this approach exceeds the scope of this analysis.

11   Although some health and education expenditure can be considered social assistance, they are not included in the category of social assistance expenditure.

12   However, not all of them publish these estimates in a disaggregated form that allows identifying exemptions by type of tax and expenditure; thus, other sources are also used.

13   These estimates do not consider whether consumers would cut back on these goods and services if they were taxed. Thus they constitute partial equilibrium estimates about additional tax collection that would be obtained once exemptions are eliminated.

14   DEA analysis was first used by Farrell (1957). For a good introduction to the DEA methodology, see Coelli, Rao, and Battese (1998) and Thanassoulis (2001).

15   See Joumard, André, and Nic (2010).

16   This figure updates work by Afonso and Aubyn (2004). Data on the students per teacher ratio are for 2008, four years before students took their exam in 2012, corresponding to the prevailing secondary students per teacher ratio at the time primary students were finishing primary school and before they entered high school.

17   As such, savings computed here may not be that big because savings in terms of personnel may need to be partly offset by expenditures in training and other activities that could raise teacher productivity to the benchmark level.

18   Yet another potential source of inefficiency is an excessive number of administrative staff in public education. A similar approach could be used to obtain differences between current expenditure in administrative staff and efficient expenditure in administrative staff.

[19] Peru provides a good example for the region. It established a simple fiscal rule that combines deficit and current expenditure ceilings that created fiscal space to boost public investment. See Carranza, Daude, and Melguizo (2014).