

## 2. Taxing Our Way out of—or into?—Trouble

Taxation is rarely far from the news, but it has seldom been so central to public debate, in so many countries, as now. This section takes stock of developments on the revenue side since the onset of the global economic and financial crisis and explores whether and how tax reform can help strengthen public finances. It asks: Can countries tax more? Can they tax better? And what can they do to increase the legitimacy and sustainability of their tax systems?

### The revenue story until now: How (and what) are we doing?

#### Revenue developments

In *advanced economies*, revenues (relative to GDP) have rebounded to near precrisis levels—reflecting frequent recourse to tax measures to narrow fiscal deficits. Indeed, relative to initial plans in 2010, revenue increases have in many countries outpaced expenditure cuts by enough to shift the overall policy mix more toward the tax side (Figure 7). Ex ante, about 30 percent of large adjustment efforts were intended to come from the revenue side;<sup>13</sup> in the event, the increase in revenue was about twice as much as projected, so that ex post, this share has increased to about 40 percent.<sup>14</sup> In some cases (including France, Iceland, Slovenia, and the United Kingdom), tax measures made up for shortfalls or delays in expenditure measures. In only a handful of countries (for example, Japan, Spain, and the United States) have revenues underperformed relative to original plans, and there they were partly offset by a reduction in spending—except in Japan.<sup>15</sup>

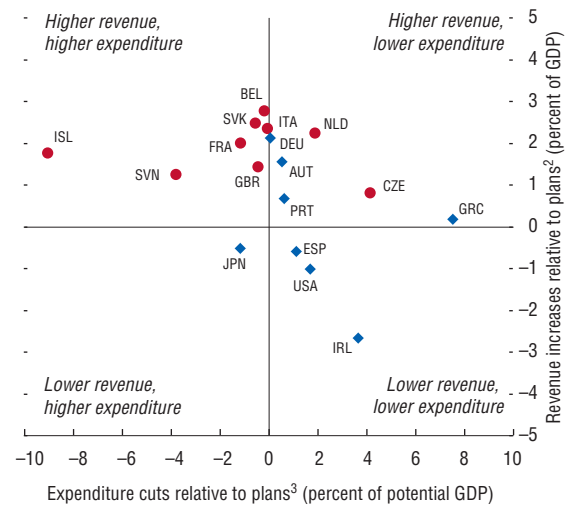
Revenues in *emerging market economies* and *low-income countries* have also increased more than originally expected, partly because of favorable cyclical conditions and, in some cases, a commodity-related revenue bonanza. But in many cases, spending has also grown more rapidly than planned, outpacing revenue increases (Figure 8). This poses a challenge, as buoy-

<sup>13</sup>This is the unweighted average for advanced economies with debt-to-GDP ratios above 60 percent or cumulative fiscal adjustment higher than 3 percent of GDP.

<sup>14</sup>Greater-than-planned reliance on revenue measures partly reflects spending rigidities; it is also a feature of previous consolidations (Mauro, 2011).

<sup>15</sup>Earthquake-related reconstruction outlays explain the absence of spending offset in Japan.

**Figure 7. Advanced Economies: Change in Planned Measures, 2009–13<sup>1</sup>**



Source: IMF staff estimates and projections.

Note: Countries depicted with red bullets are those for which the composition of adjustment has shifted more toward revenue.

<sup>1</sup>Estimates are calculated comparing the change in expenditure and revenue for the period 2009–13 in the October 2010 *Fiscal Monitor* with that in the October 2013 *Fiscal Monitor*.

<sup>2</sup>Change in revenue items assumes an elasticity of revenue to GDP of 1.

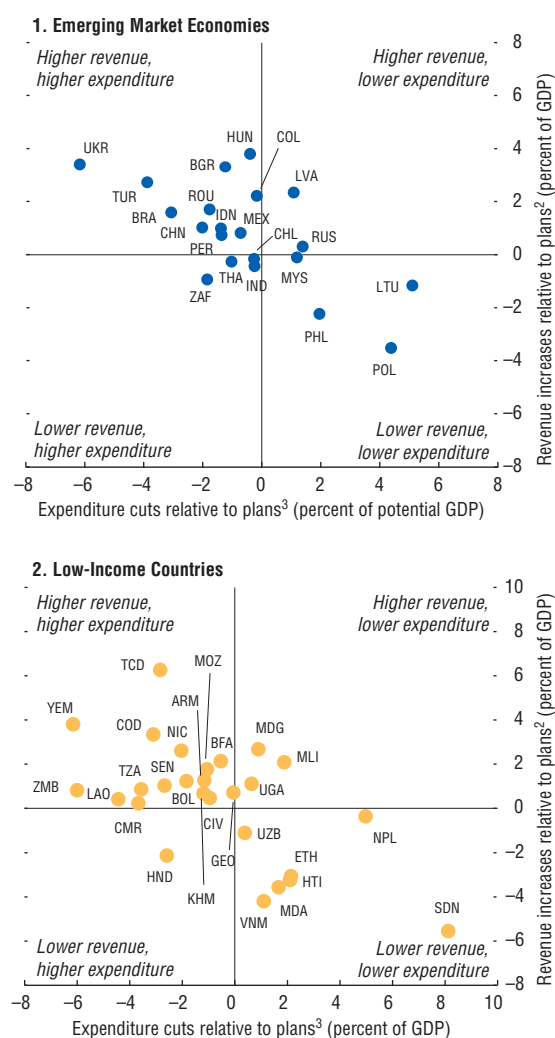
<sup>3</sup>Change in expenditure items assumes an elasticity of expenditure to GDP of 0. A positive value means cuts in expenditure were larger than originally planned.

ant revenues may well largely reflect temporary factors, which cannot meet continued spending pressures. For developing economies, strengthening domestic tax systems is made more urgent by the expected declines in development assistance and commodity prices highlighted in Section 1. These revenues seem unlikely to be fully recovered from domestic sources: recent work suggests that a one-dollar cut in grants is generally associated with only a 9- to 24-cent increase in own revenues (Benedek and others, 2013), though country experiences vary widely (Moss, Pettersson, and van de Walle, 2006). Similarly, a one-dollar loss of hydrocarbon revenues might be offset by only about 20 cents more from other nonresource domestic revenues (Bornhorst, Gupta, and Thornton, 2009).

#### **Fiscal consolidation: Tax reform or tax grab?**

In the aftermath of the Great Recession, a broad consensus emerged on a set of measures that could strengthen revenue while making tax structures both more efficient and fairer (Table 8). With due consideration for countries' differing circumstances, preference was to be given to minimizing distortions (through, for instance, broadening the tax base by eliminating

**Figure 8. Emerging Market Economies and Low-Income Countries: Change in Revenue and Expenditure, 2009–13<sup>1</sup>**



Source: IMF staff estimates and projections.

<sup>1</sup> Estimates are calculated comparing the change in expenditure and revenue for the period 2009–13 in the October 2010 *Fiscal Monitor* with that in the October 2013 *Fiscal Monitor*.

<sup>2</sup> Change in revenue items assumes an elasticity of revenue to GDP of 1.

<sup>3</sup> Change in expenditure items is estimated in percentage points of potential GDP (except in the case of low-income countries, for which reliable estimates of potential output are not available), which assumes an elasticity of expenditure to GDP of 0.

inappropriate exemptions or tax expenditures<sup>16</sup> before increasing the rate), targeting negative externalities, and strengthening tax compliance. Has this advice been taken?

<sup>16</sup> The concept and measurement of tax expenditures, and experience in their elimination, were discussed in the April 2011 *Fiscal Monitor*.

- Increases in *taxes on goods and services* have indeed been frequent in advanced and emerging market economies alike (Table 9). Excises, the first port of call for any cash-strapped government, were raised almost universally.<sup>17</sup> Value-added tax (VAT) increases have been both common and substantial—but with a noticeable inclination to raise rates (as in most EU countries since the crisis) rather than broaden the base.
- Many advanced economies have also looked for higher revenue from *personal income taxation*, often through increases in top marginal rates on labor income, and in some cases on capital income. In several countries, temporary surcharges or solidarity contributions have been introduced, particularly on high earners (though nothing, it has been noted, is as permanent as a temporary tax).<sup>18</sup> The focus on higher-income earners has stemmed or even reversed the precrisis trend of reducing the tax pressure at the top of the income distribution.<sup>19</sup> In emerging market economies, rate and base reduction have been quite common, in some cases along with increased progressivity (in China, for instance, the starting rate was reduced and the band over which the top rate applies widened).
- Many countries have increased *social contributions*—a surprising choice given pervasive unemployment challenges.<sup>20</sup> However, changes in rates of social contributions (especially those paid by employers) may not be very visible to workers, the increases have in any event generally been small, and in some cases they have been accompanied by targeted reductions intended to encourage the hiring of lower-skilled workers. Despite much discussion, no country has undertaken a substantial “fiscal devaluation” (a revenue-neutral shift from employers’ social contributions toward consumption taxation), perhaps out of concerns regarding potential risks to revenue (to have a meaningful impact, the change in rates would have to be large) and the distributional implications of increasing the VAT rate.
- Rates of *corporate income taxation*, on the other hand, have been reduced more often than increased,

<sup>17</sup> One would, of course, expect nominal increases simply to maintain the real value of excises levied as fixed monetary amounts.

<sup>18</sup> In Germany, for instance, the solidarity surcharge introduced in the wake of unification in 1991 is still in place.

<sup>19</sup> Some have expanded in-work tax credits, with effects similar to a rate cut on lower earnings.

<sup>20</sup> An important exception is Brazil, where the employers’ contribution has been converted to a low rate and a sectorally differentiated turnover tax.

**Table 8. Conventional Wisdom: Advice for the Revenue Side of Consolidation**

Recommendation	Rationale
Exploit <i>consumption taxes</i> more fully, expanding the base of the value-added tax (VAT) before raising standard rates (using the transfer system to protect the most vulnerable as needed), and reviewing excise levels.	Most rate differentiation under the VAT is rationalized by distributional concerns that could be better achieved by direct transfers; excises better handle environmental and other concerns requiring differentially high tax rates.
Look for opportunities to broaden the base of the <i>personal income tax</i> —a first step being to quantify all tax expenditures—and, while recognizing that increased inequality might call for increased progressivity, avoid very high marginal effective tax rates.	Exemptions and deductions remain significant in many countries, and their cost should be transparent; raising effective rates can have strongly adverse effects on incentives, in terms of both real and avoidance activities.
Resist increasing <i>social contributions</i> and consider combining a cut in the employers' contribution with an increase in consumption taxation—a <i>fiscal devaluation</i> .	Unless increased contributions are perceived as carrying matching increased benefit entitlement, they can have strong incentive and employment effects. With a fixed exchange rate, a fiscal devaluation can boost net exports—temporarily—by reducing the foreign currency price of exports and increasing the domestic relative consumer price of imports.
For the <i>corporate income tax</i> , quantify and review tax expenditures, resisting further inappropriate base erosion and pressure to cut statutory rates; reduce the tax bias toward debt finance.	Intense international tax competition is likely to continue, and addressing it will require strong international cooperation; tax distortions can jeopardize financial stability by encouraging excess leverage.
Increase <i>property taxes</i> , especially recurrent charges on residential properties; scale back <i>transaction taxes</i> .	Property taxes appear to be relatively growth-friendly and can serve equity and accountability aims; transaction taxes impede efficient trades.
Implement effective <i>carbon pricing</i> , either by carbon taxation or by full auctioning under cap-and-trade schemes; eliminate <i>fossil fuel subsidies</i> and review environmental taxes more generally.	Pricing measures are essential to encourage efficient mitigation and so are a particularly efficient source of revenue; fuel subsidies are very poorly targeted to distributional aims.
In the <i>financial sector</i> , adopt tax measures to discourage volatile financing as well as financing improved resolution mechanisms; counteract the VAT exemption for financial services by adopting a financial activities tax (FAT).	These measures would ensure a "fair and substantial contribution" of financial institutions to the fiscal costs of their potential distress and failure; as a tax on the sum of wages and profits of financial institutions, a FAT would provide a fix, albeit an imperfect one, for a major distortion in the VAT.
Strengthen tax compliance by identifying and acting on compliance gaps, aggressive tax planning, and offshore tax abuse.	Improving tax compliance would promote fairness and reduce distortions.

Sources: de Mooij and Keen (2013); and IMF (2010a, 2010b).

continuing their downward trend. Reductions in the base have also been frequent, often targeted to new investment or research and development. Surcharges or levies on larger companies have sometimes been introduced.

- Few countries have yet significantly raised *property taxes* as part of consolidation efforts, though improving their structure, their yields, or both remains a focus of reform in Greece, Ireland, and Portugal.
- *Carbon pricing* and more generally environmentally related taxes have made little progress, except in Australia (and even there the future of carbon pricing is now in some doubt). Energy subsidies may even have become more pervasive (Clements, Coady, Fabrizio, and others, 2013). While there is a natural reluctance to raise energy prices when activity is depressed, the impact of moving toward a carbon charge of about US\$35 per ton of CO<sub>2</sub><sup>21</sup> (equivalent to about 8 cents on a liter of gasoline) would be reasonably modest and cushioned by prospectively softened oil prices.<sup>22</sup>
- The taxation of the *financial sector* has attracted considerable attention. Significant progress has

<sup>21</sup> The central estimate of U.S. IAWG (2013) for the social cost of carbon.

<sup>22</sup> On climate policies in hard macroeconomic times more generally, see Jones and Keen (2011).

been made in developing *bank taxes* to reduce the tax bias toward debt finance that arises as a result of the deductibility of interest payments (but not the return to equity) against the corporate income tax.<sup>23</sup> But there is scope to do more (Box 3). *Financial transaction taxes* have been the focus of much discussion, particularly in the European Union, with variants adopted in France and Italy.<sup>24</sup> But few see the more general financial transaction taxes as greatly enhancing financial stability (market participants warn of significant disruption), and their incidence—who will really bear the burden?—is unclear (Matheson, 2012). The *financial activities tax* (similar to a value-added tax, but limited to financial activities) has been well received technically (Shaviro, 2012) but, beyond adoption of a variant in Iceland, has made little headway.

- Measures to *strengthen revenue administration* have been introduced in several countries, though in some cases revenue administrations themselves have suffered large cuts. Compliance took a hit in the

<sup>23</sup> This bias affects all types of company but is especially troubling in regard to financial institutions, given the great damage that their excess leverage can cause.

<sup>24</sup> Including novel taxes on high-frequency trades. These taxes have appeal if such trades are seen as socially costly, although it remains unclear whether regulatory measures would be superior.

**Table 9. Tax Measures in Selected Countries, 2010–13**

Country	Personal Income Taxation		Corporate Income Taxation		Value-Added Tax		Social Security Contributions		Excises		Property	
	Rate	Base	Rate	Base	Rate	Base	Rate	Base	Rate	Base	Rate	Base
<b>Advanced economies</b>												
Australia		↑		↓				↓		↑		
Austria		↑		↑		↑		↑		↑		
Belgium	↑	↑		↑		↑	↑				↑	↑
Canada	↑	↑	↓							↑		
Czech Republic	↑	↑		↑	↑		↓	↓		↑		
Denmark	↑	↑		↑		↑			↓	↑		
Finland	↑	↑	↓		↑				↑			
France	↑	↑	↑		↑	↑			↑			
Germany		↓					↓		↑			
Greece	↑	↑	↑		↑	↑	↑		↑		↑	
Hong Kong SAR												
Iceland		↑	↑			↑	↑		↑			
Ireland	↑	↓			↑	↓	↓	↑	↑		↑	
Israel	↑	↑		↓	↑		↑		↑			
Italy	↑			↓	↑				↑			↑
Japan			↓									
Korea	↑	↓	↑									
Netherlands	↑	↓	↓		↑						↓	
New Zealand	↓		↓		↑				↑			
Norway												↑
Portugal	↑	↑	↑		↑	↑	↑		↑		↑	
Singapore			↓						↑		↑	
Slovak Republic	↑	↑	↑		↑		↑	↑	↑		↑	
Slovenia	↑		↓						↑			
Spain	↑	↑		↑	↑	↑			↑		↑	
Sweden		↓	↓						↑			
Switzerland		↓			↑							
United Kingdom	↓	↑	↓	↓	↑		↑		↑		↑	
United States	↑	↑					↑					
<b>Emerging market economies</b>												
Brazil						↑	↓	↓	↓			
Bulgaria					↑	↑	↑		↑			
Chile	↓		↑	↑								
China	↓	↓			↓	↑		↑			↑	↑
Estonia									↑	↑	↑	
Hungary	↓	↓	↓		↑		↑		↑	↑	↑	
Latvia	↓	↓		↓	↑	↑	↑		↑	↑	↑	↑
Lithuania	↓		↓	↓		↓		↑	↑		↑	↑
Mexico	↓		↓						↑		↑	↑
Philippines						↓			↑			
Poland					↑	↑	↑		↑	↑		
Romania					↑				↑			
South Africa				↑					↑	↑		
Turkey									↑		↑	

Sources: European Commission; Organisation for Economic Co-operation and Development; and IMF staff.

Note: An upward (downward) arrow indicates a revenue-increasing (-decreasing) change.

crisis, as it usually does (Brondolo, 2009), but there are indications that it is rebounding.

Relative to the recommendations, the picture is thus mixed—though as discussed later in this section, if anything the weight of evidence in favor of these recommendations has increased since the beginning of the crisis.<sup>25</sup> Some of the options chosen may be storing up problems for the longer term, by magnifying distortions or condoning inefficiencies. Now that a large part of the adjustment lies behind for many

<sup>25</sup> See especially Boxes 3 and 4.

countries, there is less need to come up with quick revenue fixes, but looking for ways to restore growth remains urgent. So the focus needs to be placed on the quality of measures, with a view to addressing long-standing distortions in ways that may bring some extra revenue but, no less important, could help buoy potential growth.

Assessments of the effect of revenue measures on inequality are scarce. Past evidence suggests that the tilt toward revenue-based consolidation should imply a smaller adverse impact (Ball and others, 2013; October 2012 *Fiscal Monitor*). Close analysis of measures in

nine consolidating EU countries (Paulus and others, 2012) finds that restructurings of tax transfer systems have increased progressivity (or left it unchanged).<sup>26</sup> In Spain and the United Kingdom, this is mostly due to changes in personal income taxation and employees' social contributions, though increased standard VAT rates act in the opposite direction. In many countries, and in contrast to previous experience, some measures of overall inequality may have actually declined (as, for instance, in Greece) (ISER, 2013). But aggregate inequality measures can obscure important aspects of distributional change,<sup>27</sup> and they take no account of levels of income: inequality may be lower even though many experience considerable hardship.

### Finding, and minding, the gap

#### *Making an effort: Can more be done?*

Asking if more *can* be done is not the same as asking whether more *should* be done. The appropriate overall level of taxation in any country depends on its characteristics—economic (such as its level of development, revenue from other sources), political (including constitutional), and even geographical (revenue can be harder to raise when borders are long and porous). Unsurprisingly, we cannot rely on theory to identify an “optimal” size of government. It is useful, nonetheless, to have some broad sense of whether a country has some realistic possibility of doing more on the tax side. For this, two complementary approaches can be put to work (Appendix 2 elaborates on the technicalities and results).

The more common approach is to compare a country's tax receipts with the average of its peers, controlling for a range of characteristics likely to affect revenue raising (such as per capita income).<sup>28</sup> By construction, some countries will have revenue above this average, and others will have revenue below: the average revenue gap (what would be expected on the basis of the characteristics being controlled for, minus actual revenues) will be zero.

<sup>26</sup> Meaning here that the proportionate fall in disposable income is higher at higher income levels.

<sup>27</sup> In Greece, for instance, although the loss of disposable income as a result of consolidation measures increased with income over the top nine deciles, the lowest income decile experienced a particularly large reduction.

<sup>28</sup> Early examples include Tait and Heller (1982) and Tanzi (1992). See also Rodrik (1998) and Le, Moreno-Dodson, and Bayraktar (2012).

Figure 9 reports on one such exercise, extending previous work by identifying not only an overall gap, but its breakdown across instrument types.<sup>29</sup> In most advanced economies in Europe, actual tax receipts are larger than would be predicted (the gaps are negative), suggesting that their scope to raise revenues is limited—not surprisingly, as the tax ratio is already high in many of them (IMF, 2010a). But some advanced economies do show a positive revenue gap (Greece, Ireland, Japan, Korea, Switzerland, and the United States). Among low-income countries, the greatest scope for raising tax revenues seems to be in states in fragile situations—such as Haiti, Madagascar, and Yemen—and in the poorer African countries. Among emerging market economies, commodity producers (including Kazakhstan, Mexico, and Saudi Arabia) often have lower tax revenues than their peers, largely because commodity-related revenues tend to displace other revenue sources (Bornhorst, Gupta, and Thornton, 2009).

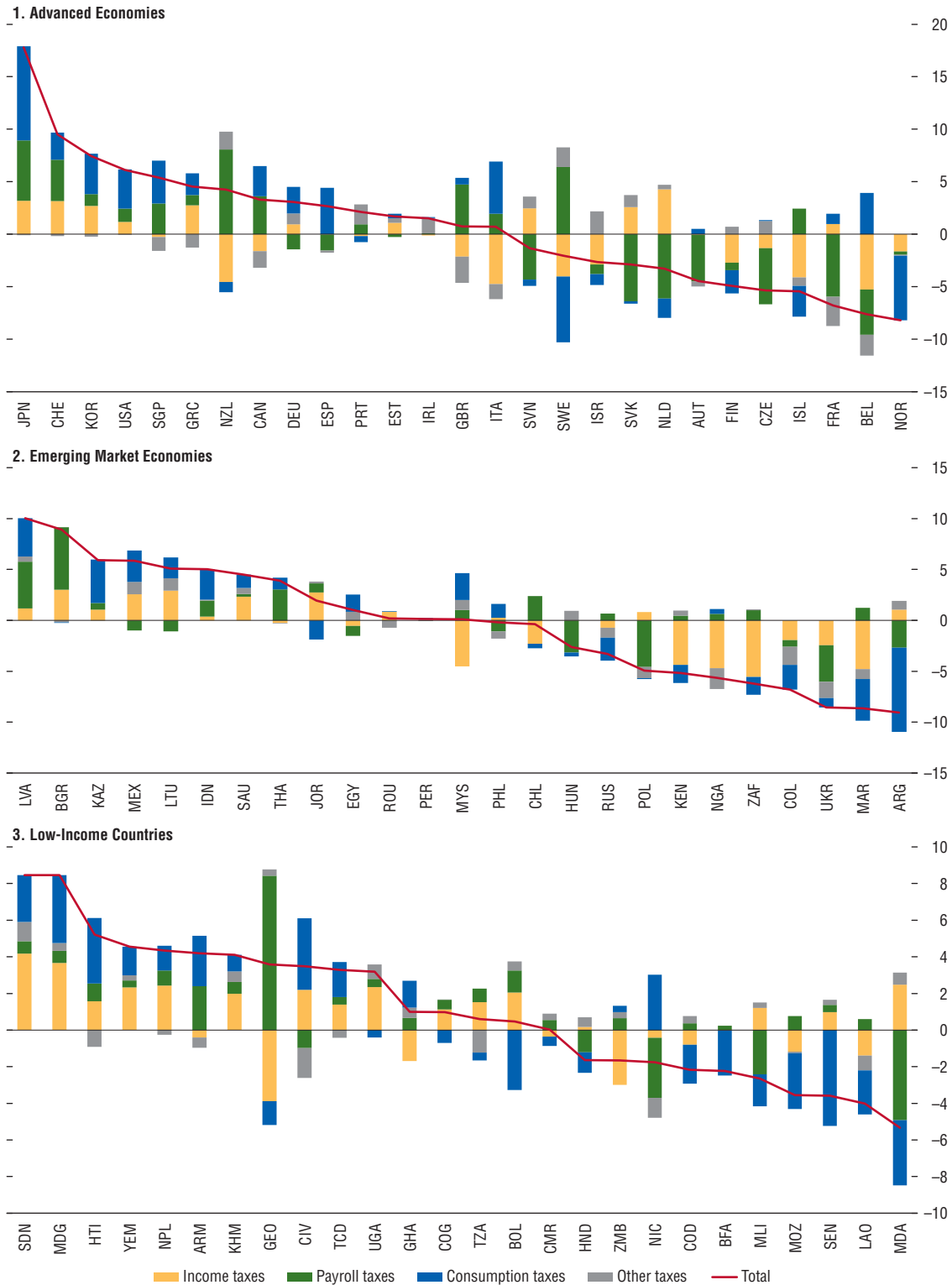
For most advanced economies the greatest potential lies in indirect taxes: among countries with revenue below that of their peers, these account for more than half of the overall gap (as, for example, in Ireland, Japan, Spain, Switzerland, and the United Kingdom). In contrast, in low-income countries, limited receipts from payroll and income taxes explain 70 percent of the revenue gaps. Emerging market economies lie somewhere in the middle.

A second way of benchmarking revenue performance—“stochastic frontier analysis”—compares a country's tax ratio not with the average, but with the maximum that others with similar characteristics have achieved. A country's revenue as a percentage of this maximum (lying between 0 and 100 percent) gives an indication of its “tax effort.” Although there is no natural metric with which to measure “how hard” it is to increase effort,<sup>30</sup> simple comparisons are indicative.

<sup>29</sup> The sample is a cross-section of 164 countries in 2012 (panel estimation would be preferable, but data limitations preclude it). Revenues exclude the proceeds from capital income, grants, natural resources, and taxes on international trade. Explanatory variables include per capita GDP, the old-age dependency ratio, population growth, net exports of oil and gas, and the political participation rate. For further details see Torres (2013).

<sup>30</sup> For instance, one cannot say that increasing effort from 30 percent to 40 percent is “easier” than increasing it from 80 percent to 90 percent, or that it would be equally easy for two countries with effort of 70 percent to raise it to 80 percent.

**Figure 9. Peer Comparison of Revenues<sup>1</sup>**  
(Percent of GDP)

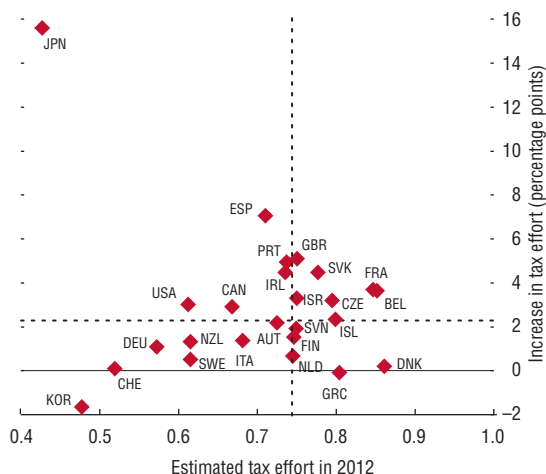


Source: Torres (2013).

<sup>1</sup> Numbers reported are the difference between the conditional average estimated by Torres (2013) and actual revenues. A positive value means a country's revenue collection is below that of its peers.



**Figure 10. Increase in Tax Effort and Fiscal Adjustment Needs**



Source: IMF staff estimates.

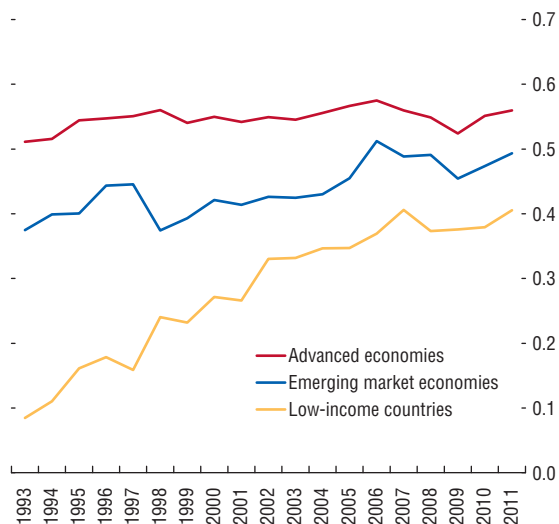
Note: The figure shows the increase in “tax effort” required for a country to meet half of its fiscal adjustment needs if it adjusts by 2020 to a prespecified structural medium-term budgetary objective. Tax effort is defined as the ratio of collected taxes to the notional maximum. Dashed lines represent median values.

- Figure 10 plots *advanced economies* according to both their current effort and the additional effort they would need to make to meet half the adjustment needs estimated in Section 1 (Statistical Table 13b).<sup>31</sup> Interestingly, those countries that would need the largest increase in effort are currently below the median, and those that score fairly high in terms of current effort generally need less of an increase. Nonetheless, the figure clearly suggests that pretty much every advanced economy would experience considerable difficulty if it looked for the bulk of the required adjustment to come on the revenue side.
- *Emerging market economies* and *low-income countries* seem to have more scope for revenue mobilization. For those low-income countries with effort below the median for their group, raising it to that level would generate about 3½ percent of GDP, a considerable amount relative to their needs.<sup>32</sup> And if low-income and emerging market economies were to raise their tax effort by 10 percentage points, their revenues would increase by 3 percent of GDP.

<sup>31</sup> The underlying assumptions about economic growth and interest rates follow *World Economic Outlook* projections until 2018 and are model determined thereafter. See Statistical Table 13b for more details.

<sup>32</sup> IMF (2011) discusses this potential in more detail.

**Figure 11. Trends in C-Efficiency, 1993–2011**  
(Unweighted averages)



Sources: IMF, Revenue Mobilization database; and IMF staff estimates.

Note: The C-efficiency ratio is defined as value-added tax (VAT) revenue divided by the product of the standard VAT rate and the VAT base (proxied by final consumption).

### Closing the gaps

How—if this is the course chosen—can revenue gaps be closed and effort increased? Most research in this area has focused on the VAT. This is partly because its potential base is relatively easy to quantify, but also because of its actual and potential importance: it accounts for about one-third of revenue on average in advanced economies (17 percent in emerging market economies). It was also just seen to be the main area of revenue shortfall in several advanced economies.

Revenue from the VAT depends on two factors that policymakers can hope to control: the standard rate (that applied to most items) and “C-efficiency” (the revenue from the VAT divided by the product of the standard rate and aggregate private consumption):<sup>33</sup> for a VAT with no exemptions, a single rate, and full compliance, C-efficiency would be 100 percent. In advanced economies, average C-efficiency has been flat over the last 20 years, at only about 60 percent (Figure 11). It has been increasing in emerging markets and low-income countries, in some cases quite substantially—in many respects an encouraging sign—but is still generally below 50 percent.

Table 10 offers some clues on how to increase C-efficiency. It reports, for a number of advanced and

<sup>33</sup> Issues in the measurement and interpretation of C-efficiency are discussed in Ebrill and others (2001), Keen (2013), and OECD (2008) (which refers to it as the “VAT revenue ratio”).

**Table 10. Measuring VAT Gaps**

Country	VAT Revenue, 2006 (percent of GDP)	C-Efficiency	Compliance Gap	Policy Gap	Revenue Gain (percent of GDP) from Closing Half of		
					Compliance gap	Policy gap	
<b>Advanced economies</b>							
Austria	7.6	59	14	31	0.6	1.7	
Belgium	7.2	52	11	42	0.4	2.6	
Denmark	10.3	64	4	33	0.2	2.5	
Finland	8.7	61	5	36	0.2	2.4	
France	7.3	51	7	45	0.3	3.0	
Germany	6.4	57	10	37	0.4	1.9	
Greece	7.1	47	30	33	1.5	1.7	
Ireland	7.6	66	2	33	0.1	1.9	
Italy	6.2	43	22	45	0.9	2.5	
Luxembourg	5.8	87	1	12	0.0	0.4	
Netherlands	7.4	60	3	38	0.1	2.3	
Portugal	8.6	53	4	45	0.2	3.5	
Spain	6.5	57	2	29	0.1	1.6	
Sweden	9.0	56	3	42	0.1	3.3	
United Kingdom	6.6	48	17	42	0.7	2.4	
<b>Emerging market economies</b>							
Argentina	...	60	35	8	...	...	
Colombia	4.5	45	46	16	1.9	0.4	
Chile	7.0	68	28	6	1.4	0.2	
Ecuador	0.0	74	9	19	0.0	0.0	
Guatemala	5.4	47	23	37	0.8	1.6	
Hungary	7.6	49	23	37	1.1	2.2	
Latvia	8.4	49	22	38	1.2	2.5	
Mexico	3.7	33	18	60	0.4	2.8	
Peru	5.7	55	36	14	1.6	0.5	
Dominican Republic	4.5	30	61	23	3.5	0.7	
Uruguay	9.9	56	33	17	2.4	1.0	

Sources: EU data as in Keen (2013), with policy gaps calculated as a residual from compliance gaps in Reckon LLP (2009) and C-efficiency from OECD (2008). Data for Latin American countries calculated using policy gaps and C-efficiency in Barreix and others (2013), with compliance as the residual; data for other emerging market economies from IMF (2010a). Data on VAT revenue are from the IMF's Revenue Mobilization database.

Note: C-efficiency ( $E^c$ ) is related to the policy gaps ( $P$ ) and compliance gaps ( $\Gamma$ ) as  $1 - E^c = (1 - P)/(1 - \Gamma)$ ; see IMF (2010a) and Keen (2013). VAT = value-added tax.

emerging market economies, their C-inefficiency (the inverse of C-efficiency) and then decomposes it into a “policy gap” (0 if the VAT is applied at a single rate to all [and only] consumption) and a “compliance gap” (0 if implementation of the VAT is perfect).

- In European *advanced economies*, policy imperfections are generally much more marked than compliance problems, reflecting extensive exemptions and frequent use of multiple rates.<sup>34</sup> Halving the policy gap, all else equal, would on average raise a very substantial 2.3 percent of GDP. Adjusting social transfers to protect the poorest from the subsequent price increases would reduce the revenue gain, but by no means eliminate it. For the United Kingdom, for instance, Crawford, Keen, and Smith (2010) show that the revenue gain from applying the standard VAT rate to food and other sensitive items would be about halved if transfers were put in place to compensate the poorest 40 percent.<sup>35</sup> The compliance gap is not trivial in advanced economies;

<sup>34</sup>As Cnossen (2003) argues, the EU VAT, nearly 50 years old, is showing its age.

<sup>35</sup>A cost of means-tested compensation of this kind is that its withdrawal, as income increases, leads to higher marginal effective tax rates over some income range—as Apps and Rees (2013) stress

halving it would raise an average of 0.4 percent of GDP for the advanced economies in Table 10. But realizing such compliance gains would likely require decisive and sustained policy action, and in that sense could be even harder than closing policy gaps.

- The picture in *emerging market economies* is different, with compliance gaps generally larger both absolutely and relative to policy gaps. Significant VAT design issues remain, however: in both India and Brazil, for instance, the challenges of implementing subnational VATs have led to significant inefficiencies as a consequence of “cascading”—the levying of tax on business inputs, which distorts production decisions—and complexity.<sup>36</sup>

The decompositions in Table 10 require cautious interpretation, but analyses of this kind have much potential.<sup>37</sup> They tend to confirm the sense from the previous section: there is scope in advanced economies

in the Australian context—so that equity gains need to be traded against efficiency losses.

<sup>36</sup>On India, see Cnossen (2013); on Brazil, see Afonso, Soares, and de Castro (2013); more generally, see Perry (2010).

<sup>37</sup>It is possible, for instance, to decompose the policy gap further into components related to rate differentiation and exemptions, as Keen (2013) does for the EU countries above.



to close gaps in relation to traditional tax instruments, but this is unlikely to be easy or meet more than a fairly limited part of consolidation needs.

### *Growth effects: Short and long term*

The effects of the tax mix on long-term growth have been widely studied. The literature suggests that corporate income taxes have the most negative effect, followed by labor income taxes, then consumption taxes, and finally property taxes.<sup>38</sup> In line with this “growth hierarchy,” recent IMF work finds, for a wide set of countries, that a revenue-neutral rebalancing that reduces income taxes while increasing consumption and property taxes is associated with faster long-term growth (Acosta-Ormaechea and Yoo, 2012). It differs, however, in not finding the corporate income tax to be more harmful for growth than the personal income tax. But this literature remains contentious: the ranking of instruments is not robust to different specifications (Xing, 2012), and it implicitly assumes that tax design does not matter, which it manifestly does. For example, a corporate tax that falls only on rents—returns to investors in excess of the minimum they require—(such as the allowance for corporate equity described in Box 3 aims to do) would have no effect on marginal incentives to invest and so would have quite a different growth effect than one falling on total (intramarginal) returns. Box 4 reports new evidence that for the VAT, too, structure matters for growth.

In terms of short-term growth effects, whereas there has been extensive and heated debate on the level of overall tax multipliers, little attention has been given to how these might vary across tax instruments. Unsurprisingly, macroeconomic models typically imply the same hierarchy as for the long term (European Commission, 2010; Anderson and others, 2013). Empirically, it is hard to identify robust differences, but the few available studies point to a ranking of instruments quite different from the standard hierarchy: they suggest that the personal income tax is associated with larger multipliers than the corporate income tax (Table 11) and that increases in the VAT are associated with sizable short-term output losses. Such differences imply a new set of trade-offs in designing consolidation: balancing, for instance, the short-term pain of a VAT-based consolidation against the long-term gain. But the short-term hierarchy of taxes is even less firmly established than that for

the long term. Much more is still to be learned before policy—in any event currently driven by the relatively long-term concerns that motivate consolidation itself—can reliably be shaped by the results of these studies.

### **Fixing international taxation**

One set of gaps that has received particular attention in the aftermath of the crisis—reinforced, as was the case with financial sector taxation earlier in the crisis, by a strong public sense of injustice<sup>39</sup>—are those in the international tax framework. There are broadly two sets of issues. One—discussed in the next subsection—is (illegal) evasion by individuals. The other is avoidance by multinationals—legal (or, cynics might say, not obviously illegal).

Google, Starbucks, and other household names have famously managed to pay very little corporate tax. But of course, they are far from alone in this. Importantly, the issue is not just one for advanced economies: indeed, it is likely an even greater concern for developing countries, typically more reliant on corporate tax receipts. Nor is the issue new: U.S. President John F. Kennedy argued for fundamental reform 50 years ago.<sup>40</sup> What is new is the attention.

Some of the strategies that multinationals use to reduce their tax liabilities—by base erosion and profit shifting, in the current jargon—are set out in Box 5, along with an example of how mind-bogglingly complex they can become. All this is symptomatic of an international tax order under stress—unsurprisingly, since it was built piecemeal on the basis of principles that have become increasingly outdated (as a result, among other things, of the increased importance of intrafirm trade, of services that can be delivered remotely, of the easing of capital movements, and of massively increased financial sophistication).

<sup>39</sup> The precise nature of the injustice in low tax rates on business income is rarely articulated. The implications for the distribution of income at the personal level are not as obvious as is often supposed: shareholders, including through pension funds, are not necessarily especially well off, the overall burden also depends on personal-level taxes on dividends and capital gains, and in some circumstances the benefits of low corporate tax rates may be passed on in part to workers—though this is less likely the more widely the low rates apply and the more they apply to profits in excess of normal, for reasons set out, for instance, in IMF (2010a). The implications of the devices now discussed for the distribution of tax revenue across countries are no less a concern, pointing to the deeper question of how rights to tax international activities should be allocated.

<sup>40</sup> In his “Special Message to the Congress on Taxation” on April 20, 1961; the text of the message is available at <http://millercenter.org/president/speeches/detail/5669>.

<sup>38</sup> The research has focused on advanced economies. See, in particular, Arnold and others (2011). OECD (2013b) uses this and a similar hierarchy on the spending side as a starting point to assess alternative compositions along consolidation paths.

**Table 11. Empirical Evidence on the Growth Effects of Different Taxes**

	Tax Instrument					Details
	PIT	SSC	CIT	CT	PT	
<b>Studies on long-term impact</b>						
Arnold and others (2011)	-1.1		-2.0	0.7	1.5	21 OECD countries, 1974–2004; error correction model, pooled mean group (PMG) estimator. The coefficients measure the effect on long-run GDP per capita of a 1 percent increase in income taxes (consumption and property taxes) which is offset by a decrease in consumption and property taxes (income taxes).
Xing (2012)	-2.7		-2.9	-1.6		17 OECD countries, 1970–2004; methodologies include PMG, mean group, pooled ordinary least squares, and fixed effects. Top row of data relates to specification with five-year dummies, second row to that with alternative five-year dummies (covering different years), and third row to that with linear trends (all using PMG estimates). The coefficients measure the long-run effect on income per capita of a 1 percent shift in tax revenue away from property taxes and toward income or consumption taxes. The fourth row measures the effect on long-run GDP per capita of a 1 percent shift away from income and consumption taxes toward property taxes.
Acosta-Ormaechea and Yoo (2012)	-0.1	-0.2	0 <sup>1</sup>	0 <sup>1</sup>	0.2	69 countries, 1970–2009; PMG. The coefficients measure the effect on the growth rate of long-run GDP per capita of a 1 percent increase in income taxes (consumption and property taxes) which is offset by a decrease in consumption and property taxes (income taxes).
Full sample	-0.2	-0.2	0	0.1	0.3	
High-income countries	-0.2	-0.2	-0.1	0 <sup>1</sup>	0.4	
Middle-income countries	0.1 <sup>1</sup>	0.2 <sup>1</sup>	0	0 <sup>1</sup>	0.1 <sup>1</sup>	
Low-income countries						
Gemmell, Kneller, and Sanz (2011)	"Distortionary"	"Nondistortionary"				17 OECD countries, early 1970s–2004; PMG. The coefficients measure the effect on long-run GDP per capita of a 1 percent decrease in the budget deficit financed by increases in distortionary or nondistortionary taxation.
	-0.1	0.2				
<b>Studies on short-term impact</b>						
Mertens and Ravn (2013)						Narrative data set on tax shocks, 1950–2006, structural vector autoregression (SVAR) estimation, quarterly data, United States. Impact of a 1 percent cut in the average tax rate on real GDP per capita.
Impact	1.4	0.4				
3–4 quarters	1.8	0.6				
Arim, Helles, and Reich (2010)						SVAR estimation, quarterly data, 1972–2008, United States. Impact of a 1 percent decrease in tax revenues on real GDP.
First year	0.2	0.05	0.2			
t + 40	0	0.04	-0.3			
Riera-Crichton, Veigh, and Vuitain (2012)						14 advanced economies, 1980–2009; quarterly database on value-added tax rate changes. Effect of a one-unit shock decrease in value-added tax revenue collection on output.
Impact			1.0			
Max effect (3 quarters)			2.7			

Note: CIT = corporate income taxes; CT = consumption taxes; PIT = personal income taxes; SSC = social security contributions; Distortionary = income taxes, social security contributions, and property taxes; nondistortionary = consumption taxes.

<sup>1</sup> Not significant at 5 percent level.

Assessing how much revenue is at stake is hard. For the United States (where the issue has been most closely studied), an upper estimate of the loss from tax planning by multinationals is about US\$60 billion each year—about one-quarter of all revenue from the corporate income tax (Gravelle, 2013). In some cases, the revenue at stake is very substantial: IMF technical assistance has come across cases in developing countries in which revenue lost through such devices is about 20 percent of all tax revenue.

With strong support from the Group of Eight (G8) and Group of Twenty (G20), the Organisation for Economic Co-operation and Development (OECD) has developed a two-year action plan (set out in OECD, 2013c) to address key aspects of base erosion and profit shifting. This is an important exercise—and a difficult one, both technically and politically.

The fundamental difficulty in this area is the lack of cooperation in setting tax policies—tax competition, in a broad sense. Many of the devices facilitating base erosion and profit shifting are not unintended loopholes; they are there to secure national advantage. (Examples would be invidious, since so many countries have something on offer.) The spillovers that arise from noncooperative tax setting mean that the gains to one country come at the expense of others—and the sum of the losses likely exceeds the gains.

Tax competition and spillover issues go far beyond the devices that are the focus of base erosion and profit shifting (IMF, 2013a). A number of advanced economies, for instance, have moved or have been urged to move away from a “residence-based” system for taxing active business income, under which they tax such income arising abroad but give a credit for foreign taxes paid, to a “territorial” one, under which they simply exempt such income from tax in the home country. Such a shift can have significant implications for host countries, since any tax they charge will now remain as a final burden for the investor rather than be offset by reduced taxation in the investor’s home country. As a result, these countries, anxious to attract investment, may face greater pressure to offer tax incentives, lower tax rates, and take other measures that erode their revenue bases (Perry, Matheson, and Veung, 2013; Mullins, 2006). Likewise, even if countries have doubts about the effectiveness of tax incentives in attracting foreign direct investment—the evidence is that other factors are much more important<sup>41</sup>—they will hesitate

<sup>41</sup> Klemm and van Parys (2009) find that tax measures have attracted foreign direct investment in lower-income countries, and

to eliminate them unless their neighbors do the same. In the event, closing off just some loopholes may make competition through other means more intense.

Tax competition can simply result in tax rates’ ending up too low. In the limit, all countries could be left with perfectly aligned tax rates and territorial base and no compliance problems. There would then be no revenue loss from base erosion or profit shifting and no distortion of real decisions—but there would still be a social loss suffered, since effective tax rates would be below the levels to which a collective decision would have led.

Achieving meaningful cooperation in identifying ways in which to beneficially constrain tax competition will not be easy, to put it mildly. National self-interest, of course, always looms very large. But deep technical issues need to be faced head on. For instance, a system in which countries can differentiate in their tax treatment between highly mobile and immobile activities—perhaps not far from the current situation—can lead to less-damaging outcomes than one in which they must treat all investments equally.<sup>42</sup> And formula apportionment of a multinational’s taxable profits across jurisdictions can lead to more aggressive tax competition than the current arm’s-length principle.<sup>43</sup> But the gains from closer cooperation may be considerable—strengthened corporate taxation, especially as it bears on rents, could be a much-needed efficient source of additional revenue. The chance to review international tax architecture seems to come about once a century; the fundamental issues should not be ducked.

van Parys and James (2010) find some effect in the Caribbean too. Kinda (2013), on the other hand, finds little impact on the foreign share of the capital stock, with other factors much more important.

<sup>42</sup> This is true even in terms of national self-interest: investment can be increased in high-tax countries if more-tax-sensitive firms can use low-tax jurisdictions to reduce their effective tax rate (Desai, Foley, and Hines, 2006).

<sup>43</sup> Instead of allocating a multinational’s taxable profits across jurisdictions by the use of arm’s-length (market-mimicking) prices, “formula apportionment” would allocate a multinational’s global profit by reference to indicators of its activity in each jurisdiction (such as sales, payroll, or workforce). This alternative approach, used at the subnational level in both Canada and the United States, has attracted considerable interest from civil society organizations, and the European Commission has proposed a system of this kind—a Common Consolidated Corporate Tax Base—for the European Union. These and other efficiency aspects of coordination are reviewed in Keen and Konrad (2013).

### Room at the top?

Tax systems around the world have become steadily less progressive since the early 1980s. They now rely more on indirect taxes, which are generally less progressive than direct taxes, and within the latter, the progressivity of the personal income tax has declined, reflecting most notably steep cuts in top marginal tax rates (Figure 12).<sup>44</sup>

Taxation at the top has emerged with renewed force as a major concern in the last few years. The overall fairness of the fiscal system should be assessed in terms of taxes and spending combined, and most redistribution takes place through the latter (Figure 13). However, transfers (as well as in-work credits and the like) matter much less at the top end of the distribution, where it is taxation—the focus of this issue of the *Fiscal Monitor*—that drives fiscal fairness.

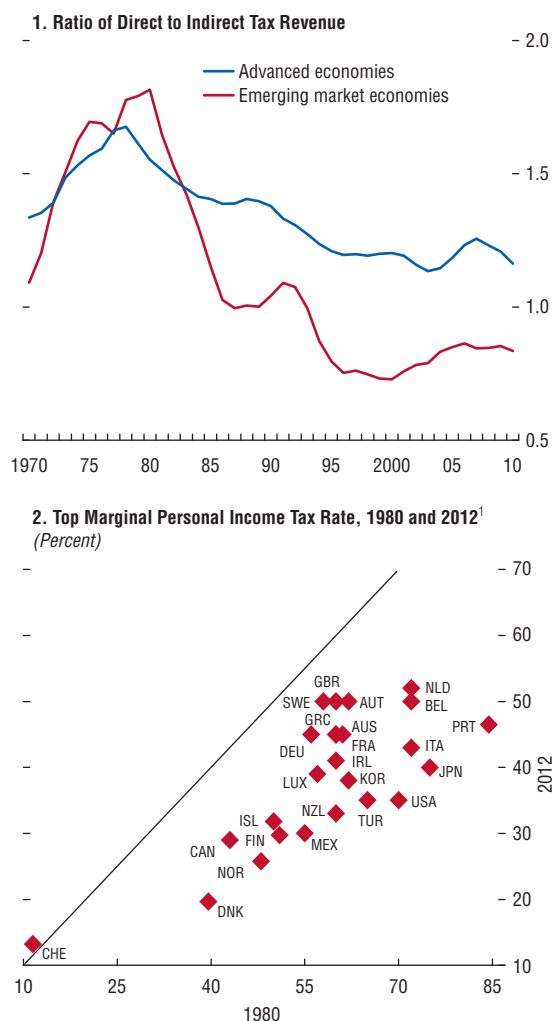
The backdrop to the debate is a marked increase in income inequality in many countries over the last few decades and a spectacular increase in the income share of the top 1 percent in particular, especially in the Anglo-Saxon world (Piketty and Saez, 2006; Atkinson, Piketty, and Saez, 2011). Whether the changes in tax rates have helped drive increases in underlying inequality remains unclear—though it is notable that those countries with the largest reductions in the top marginal income rate have experienced the greatest increase in inequality (Figure 14).<sup>45</sup> What has happened to the distribution of wealth is even less clear, but for the advanced economies that have been studied, there is more wealth around: ratios of private wealth to national income have more than doubled since about 1970 (Piketty and Zucman, 2013). Without entering into the question of whether the rich should pay more taxes—views on which will reflect ethical positions on which reasonable people can differ<sup>46</sup>—the aim here is to identify the trade-offs and practical issues that arise in taxing the rich. Is there room for those with

<sup>44</sup> Peter, Buttrick, and Duncan (2010) show that the trend toward lower top marginal personal income tax rates over the last 30 years has been worldwide and that the wider progressivity of the system—measured in terms of the distribution of tax liabilities over the full income range—has trended down in all but the lowest-income countries.

<sup>45</sup> Piketty, Saez, and Stantcheva (2011) note that the cuts in top marginal rates generally preceded increased income shares of the top 1 percent.

<sup>46</sup> The same is true of essentially all tax issues, of course, but is especially evident when, as here, the focus is explicitly on raising more from a particular group.

**Figure 12. Emblems of Lesser Progressivity**



Sources: OECD central government statutory top personal income tax rates; and IMF staff estimates.  
 Note: Panel 1 depicts unweighted averages.  
<sup>1</sup> Does not include taxation from state and local authorities. In countries with highly decentralized tax systems such as Switzerland, the combined top income tax rate can be significantly higher than shown in the figure.

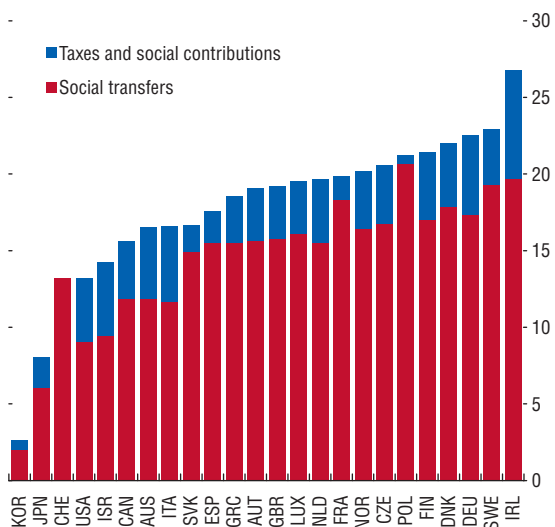
the highest incomes and wealth to pay more without undue damage to efficiency?

### Taxing high incomes

Figure 15 shows, for a range of advanced economies, that the richest 10 percent account for a strikingly large proportion, 30–50 percent, of all revenue from the personal income tax and social contributions, with the top 1 percent alone accounting, on average, for about 8 percent.<sup>47</sup> And

<sup>47</sup> The data underlying the figure are in the Statistical Appendix (Statistical Tables 15a and 15b).

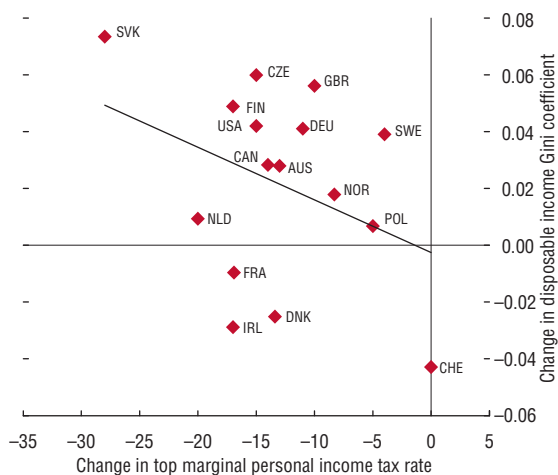
**Figure 13. Redistribution through Direct Taxes and Social Transfers**



Sources: IMF staff estimates using (equivalized) household-level data from the Luxembourg Income Study database.

Note: The figure breaks down, into effects due to direct taxes and social contributions paid and those due to social transfers received, the amount by which the Gini coefficient (a measure of inequality between 0 and 100, with higher values indicating more inequality) of market incomes exceeds that of final incomes. Non-means-tested transfers account for the bulk of redistribution on the spending side. (In-kind benefits, such as health care and education, are not included.)

**Figure 14. Changes in Top Marginal Personal Income Tax Rate and Disposable Income Inequality between the Mid-1980s and the Late 2000s**



Sources: Luxembourg Income Study database; OECD central government statutory top personal income tax rates; and IMF staff estimates.

Note: The figure does not include taxation from state and local authorities. In countries with highly decentralized tax systems, such as Switzerland, the combined top income tax rate can be significantly higher than is shown in the figure.

these are likely to be underestimates.<sup>48</sup> How these groups are taxed thus matters not just for perceived equity, but for sheer amounts of revenue. And increasingly so: in virtually all cases the proportions of all income taxes paid by these groups have increased over the last 20 years or so. The increase is noticeably greater where top marginal rates have been cut most (Figure 16).

In terms of their distributional impact, these tax systems have remained progressive in the minimal sense that the top 10 percent account for a larger proportion of taxes paid than they do of income received. The picture varies across countries, however, as to whether the increase in their tax share has exceeded that in their income share—which would mean an increase in progressivity of the personal income tax and social contributions at the very top of the income distribution—or not.

Whether those with the highest incomes could or should pay more has become a contentious political issue in many countries. Several, given large consolidation needs, have bucked the decades-long trend by increasing top personal income tax rates quite substantially: since 2008, Greece, Iceland, Ireland, Portugal, Spain, and the United Kingdom have all done so, on average by more than 8 percentage points.<sup>49</sup>

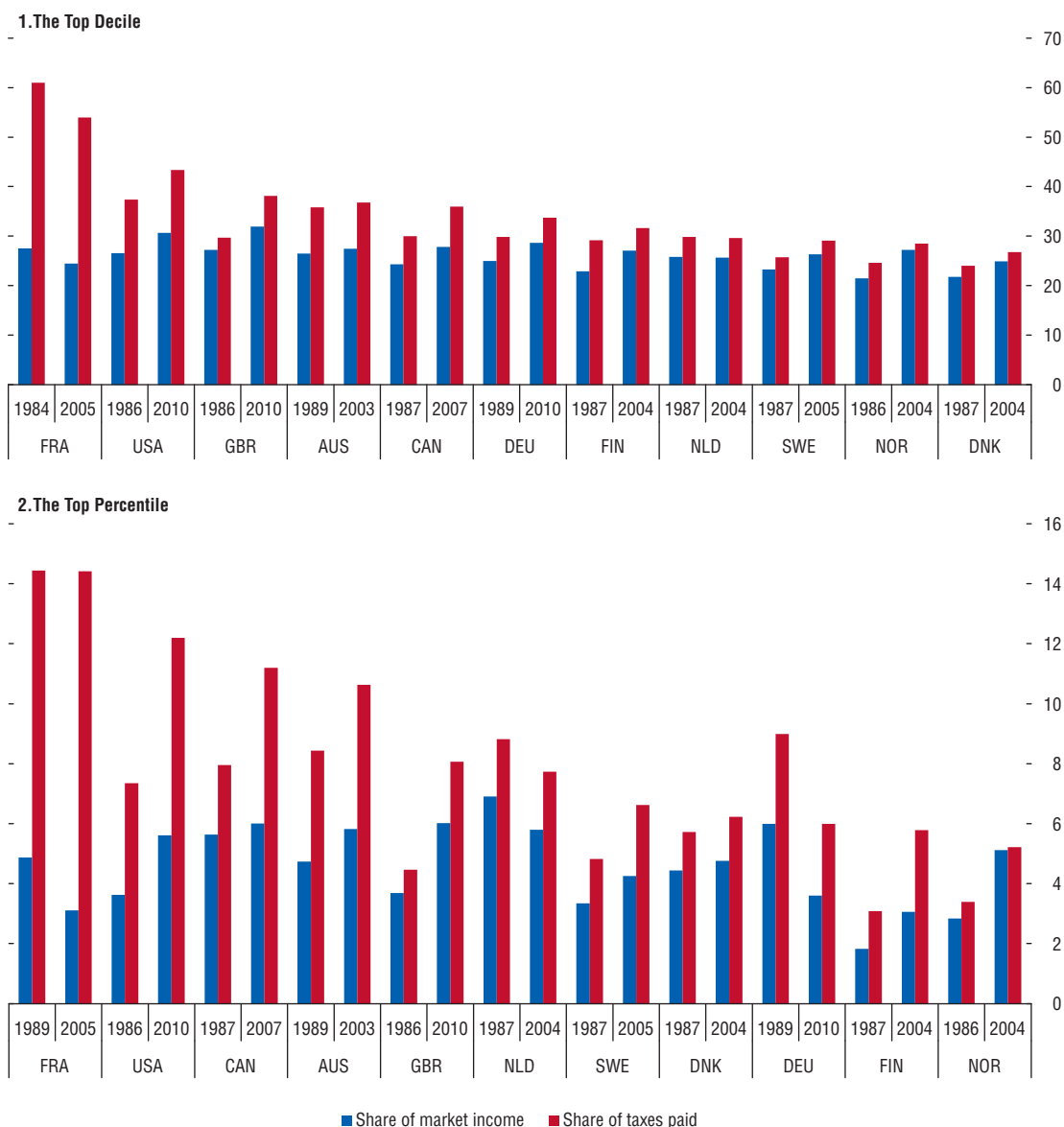
Assessing whether there is untapped revenue potential at the top of the income distribution requires comparing today's top marginal income tax rate with the marginal tax rate that would maximize the amount of tax paid by top income earners. The latter depends on two things: first, how responsive their taxable income is to that marginal rate—which in turn depends on both “real” decisions (on labor supply efforts and the like) and “paper” avoidance activities; and second, the distribution of income within that upper group. Ranges of revenue-maximizing top income tax rates can be calculated by combining existing estimates of the elasticity of taxable income with the data on income distribution used above. The average is about 60 percent. In several cases, current top marginal rates are toward the lower end of the range (Figure 17), implying that it might indeed be possible to raise more from those with the highest incomes.<sup>50</sup>

<sup>48</sup> Because the household surveys from which these figures are calculated underrepresent those with very high incomes.

<sup>49</sup> In April 2013 the United Kingdom reduced its top rate from 50 percent to 45 percent.

<sup>50</sup> The adoption of the “flat tax” in Russia in 2001 is a famous example of a reform that cut the top marginal rate (from 30 percent to 13 percent) and was followed by a large increase in personal income tax revenue. Close analysis has concluded, however, that this primarily reflected nontax developments (Ivanova, Keen, and Klemm, 2005; Gorodnichenko, Martinez-Vasquez, and Peter, 2009).

**Figure 15. Selected Advanced Economies: Shares of Pretax and Transfer Income and Taxes Paid**  
(Percent of total)



Source: IMF staff estimates using household-level data (equivalized) from the Luxembourg Income Study database.

How much more? The implied revenue gain if top rates on only the top 1 percent were returned to their levels in the 1980s averages about 0.20 percent of GDP (Figure 18), but the gain could in some cases, such as that of the United States, be more significant.

These analyses also concluded that the reform did improve compliance, suggesting that the revenue-maximizing top personal income tax rate is likely to be lower where compliance is weak.

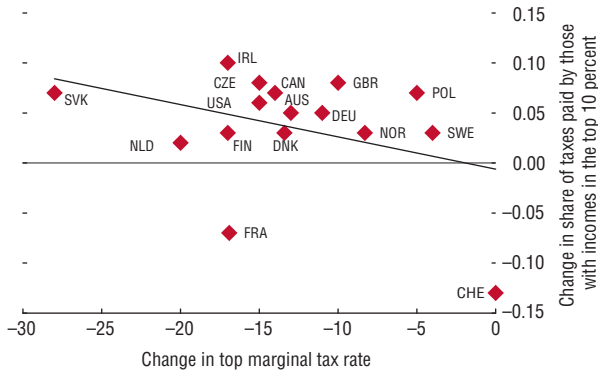
This would not make much of a dent in aggregate inequality,<sup>51</sup> for which, if that is the objective, more dramatic change would be needed.

There are limits to the scope for raising top marginal rates that are not fully captured in these calculations. The calculations ignore, for instance, the potential

<sup>51</sup> This change alone would reduce Gini coefficients by less than 0.01 on average.



**Figure 16. Changes in Top Marginal Personal Income Tax Rates and Shares of Taxes Paid by Top 10 Percent**



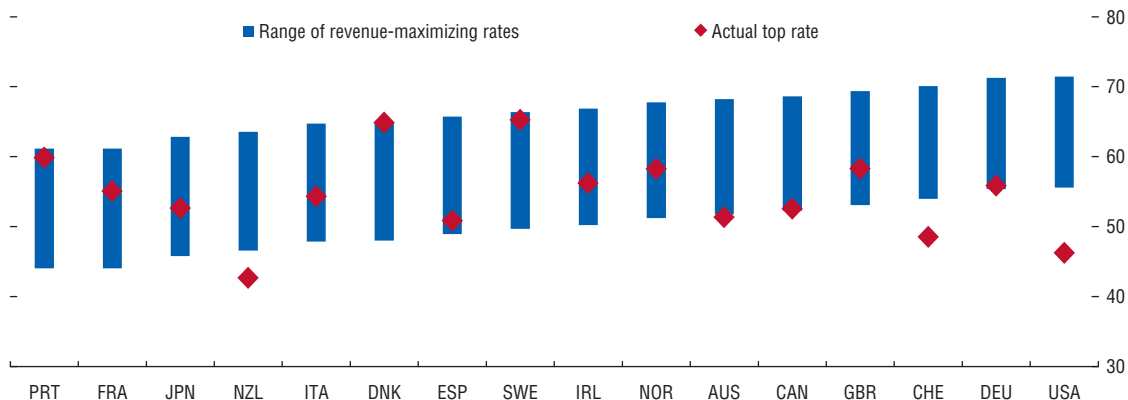
Sources: Luxembourg Income Study database ; OECD central government statutory top personal income tax rates; and IMF staff estimates.  
 Note: The figure does not include taxation from state and local authorities. In countries with highly decentralized tax systems, such as Switzerland, the combined top income tax rate can be significantly higher than is shown in the figure.

mobility of taxpayers across countries (although work on European soccer players—a mobile, highly paid group if ever there was one—suggests this may not be as great as one might suppose; Kleven, Landais, and Saez, 2010). Moreover, a revenue-maximizing approach to taxing the rich effectively puts a weight of zero on their well-being—contentious, to say the least.

What then if some weight is indeed attached to the well-being of the richest? Figure 19 provides a way to think about the trade-off between equity and efficiency considerations in setting the top marginal rate in that case. It shows (given the same behavioral assumptions as above) the relative social weight on the welfare of those with the highest income that is consistent with the current top rate.<sup>52</sup> Unsurprisingly, lower marginal rates are associated with a higher welfare weight on those with top incomes.<sup>53</sup> The figure provides a simple way of deciding whether one believes the top marginal rate should be higher or lower. If one attaches less weight to those with the highest incomes (relative to those with lower ones) than shown there, the vote would be to increase the top marginal rate; if more weight, the vote would be to cut the rate.

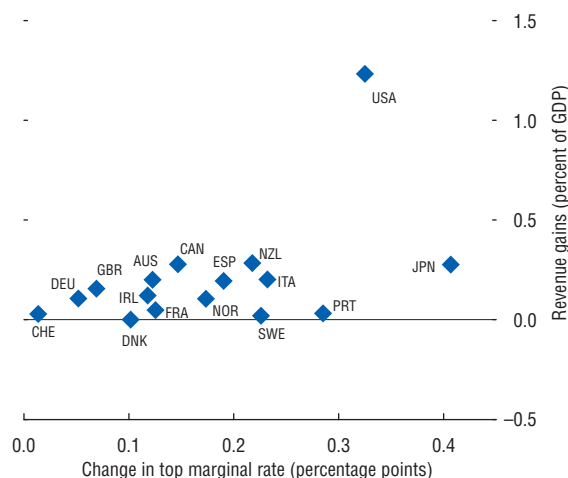
<sup>52</sup>More precisely, it shows what the weight attached to the welfare of those in the highest incomes (relative to that on those with lower incomes) must be if (given the assumption on behavioral responses in the figure) the current top marginal rate exactly balances the welfare loss to the richest (from a slight increase in the marginal rate they face) against the social value of the additional revenue they pay.  
<sup>53</sup>By the same token, the trend toward lower top rates over the last three decades is consistent with an increase in the valuation of the welfare of those with the highest incomes relative to those with lower ones. It remains an open question whether social preferences are now reverting to their earlier pattern.

**Figure 17. Top Marginal Rates and Revenue-Maximizing Rates, Late 2000s (Percent)**



Sources: OECD (2011); World Top Income Database (Alvaredo and others, 2013); and IMF staff estimates.  
 Note: Saez (2001) shows the optimal top marginal rate to be  $T = (1 - \omega)/(1 - \omega + ae)$ , where  $\omega$  is the weight attached to the welfare of those in the top income group,  $a$  is the parameter of the Pareto distribution assumed to characterize the distribution of income in this group, and  $e$  is the average elasticity of taxable income (with respect to unity minus the marginal tax rate). The calculations here set  $\omega$  equal to 0 (meaning that the changes in welfare of those with the top incomes are not valued by policymakers), set  $e$  to between 0.25 and 0.50 (based on the review of the evidence, which is mainly for the United States, in Saez, 2012; Mertens, 2013, using a narrative-based time series approach, finds higher values), and take  $a$  from the World Top Incomes Database. The actual marginal tax rate reflects the top combined federal and subnational statutory personal income tax rate, social contributions (taking account of any cap on the latter), and the value-added tax.

**Figure 18. Revenue Gains from Returning Marginal Tax Rate on Top 1 Percent to 1980s Level**



Sources: OECD (2011); World Top Incomes Database (Alvaredo and others, 2013); and IMF staff estimates.

Note: The revenue gains from a small tax reform are computed as  $z \cdot \Delta \tau \cdot [1/a - \epsilon \cdot \tau / (1 - \tau)]$ , where  $z$  is the average income of individuals in the top 1 percent,  $\tau$  is the top marginal rate,  $\Delta \tau$  is the change in the top marginal rate,  $a$  is the Pareto parameter of the income distribution, and  $\epsilon$  is the elasticity of taxable income. The Pareto parameters are taken from the World Top Incomes Database, and an elasticity of taxable income of 0.25 is assumed. Note that revenue gains will be lower if the elasticity is higher at higher tax rates. The change in the top marginal tax rate reflects changes in the top combined federal and subnational statutory personal income tax rate, changes in social contributions (taking account of any cap on the latter), and the value-added tax.

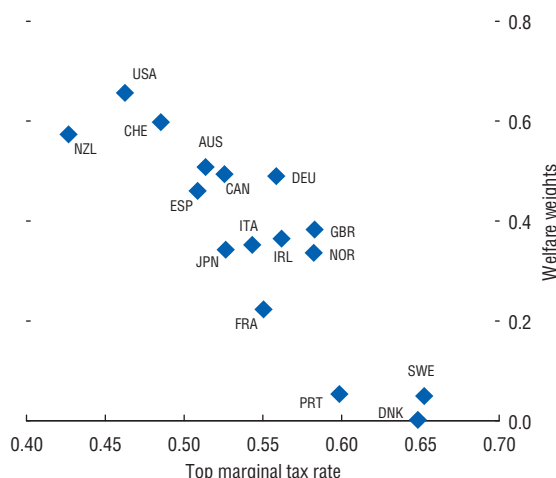
### Taxing property and transfers

Household wealth is very unequally distributed (Figure 20)—even more so than income: in advanced economies, the top 10 percent own, on average, more than half of the wealth (up to 75 percent in the United States). It is, arguably, a better indicator of ability to pay than annual income—and indeed taxes on wealth and transfers have historically been a major source of revenue. Now, however, they yield very little (Figure 21)—slightly under 2 percent of GDP on average in the OECD. Is this a revenue source that could be tapped more?

There are, in fact, several quite different types of taxes on property and transfers:

- *Recurrent taxes on residential property*, which account for about one-half the revenue totals above, are widely seen as an attractive and underexploited revenue source: the base is fairly immobile and hard to hide, the tax comes at the top of the hierarchy of long-run growth-friendliness mentioned earlier, and

**Figure 19. Implied Welfare Weights for Top Incomes and Top Marginal Rates, Late 2000s, Low Elasticity of Taxable Income**

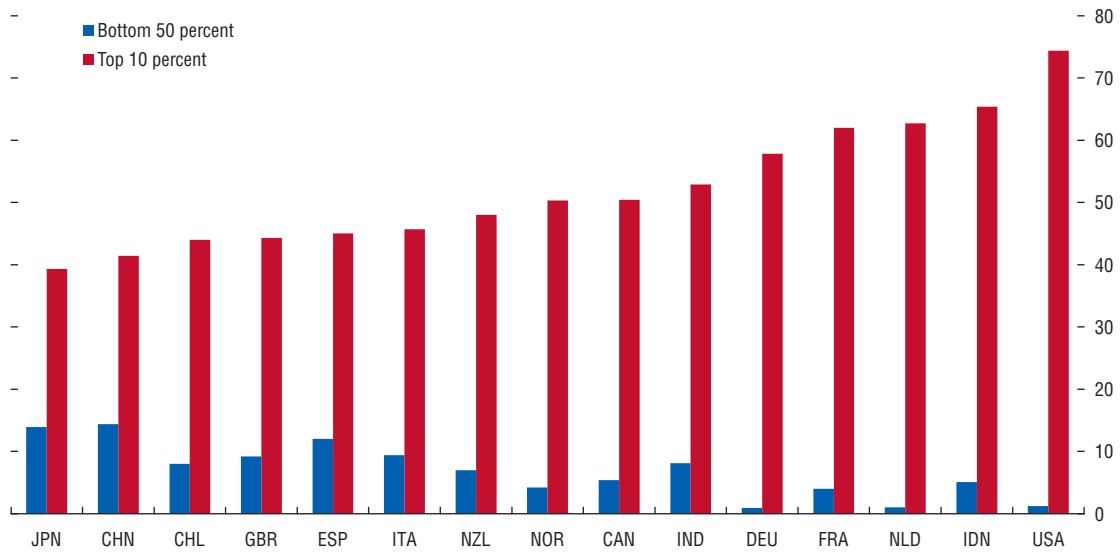


Sources: OECD (2011); World Top Incomes Database (Alvaredo and others, 2013); and IMF staff estimates.

Note: The welfare weight measures the dollar value to society of increasing by one dollar the consumption of the average person in the top income bracket. An alternative interpretation is the answer to the question "How much government revenue would you be willing to forgo for a one-dollar increase in the income of the average person in the top income bracket?" It is calculated by replacing  $T$  in the formula in Figure 17 with the actual top marginal rate and solving for  $\omega$ . Top marginal tax rates are calculated using the same parameters as in Figure 17.

it can be made progressive through a basic allowance or by varying the rate with the value of the property. It has particular appeal as a source of local-government finance, since property values will reflect the benefits of local public spending. Especially outside Anglo-Saxon countries, there is evident scope to raise more, though effective implementation of a property tax requires a sizable up-front investment in administrative infrastructure, particularly in emerging market economies (Appendix 3 provides a more detailed account of property tax issues).

- *Transaction taxes*—primarily on the sale of real estate, and financial instruments—typically account for one-quarter of the revenue above. They are administratively appealing, since transactions can often be fairly easily observed (stamp duty on the sale of shares in the United Kingdom, for instance, is one of the cheapest, per pound collected, of all taxes), and there are strong incentives for compliance when legal title is contingent on payment. But transaction taxes are inherently inefficient, in that they impede otherwise mutually beneficial trades; those on real estate transactions, for example, have been shown to adversely impact labor mobility (van Ommeren and

**Figure 20. Shares of Net Wealth Held by Bottom 50 Percent and Top 10 Percent**

Sources: Credit Suisse; Statistics Norway; Luxembourg Wealth Study database; and IMF staff estimates.

van Leuvensteijn, 2005). Though some argue that transaction taxes can help reduce asset price volatility, the effect is uncertain in both principle and practice (because the tax leads to a thinner market). In recent years they have in some cases been used deliberately to affect asset prices. But this risks further entrenching inefficiencies while pursuing purposes better served by macroprudential tools (IMF, 2013c).

- *Taxes on wealth transfers—on estates, inheritances, and gifts*<sup>54</sup>—raise very little: rates are low, and exemptions and special arrangements create multiple avoidance opportunities (Figure 22). Their distortionary cost is hard to assess,<sup>55</sup> as it depends partly on the donor's motive. There will be no impact, for instance, on the behavior of donors who accumulate wealth simply for their own enjoyment and, failing to annuitize it, die before they have spent it all, or on the accumula-

<sup>54</sup>An estate tax is one levied on the value of assets at death; an inheritance tax is levied on the recipients.

<sup>55</sup>Kopczuk (2013) reviews the evidence, which is more informative about shorter-term responses to incentives—one macabre distortion being to the timing of death (Kopczuk and Slemrod, 2003)—than it is about longer-term effects on capital accumulation. Theoretical results on optimal bequest taxation differ widely. Fahri and Werning (2010) find that it is optimal to subsidize bequests (because donors do not take full account of the social benefit to the recipients). In a different setting, Piketty and Saez (2012) find the optimal rate to be positive, and in some cases substantial. For general discussion, with an eye to practicalities of implementation, see Boadway, Chamberlain, and Emmerson (2010).

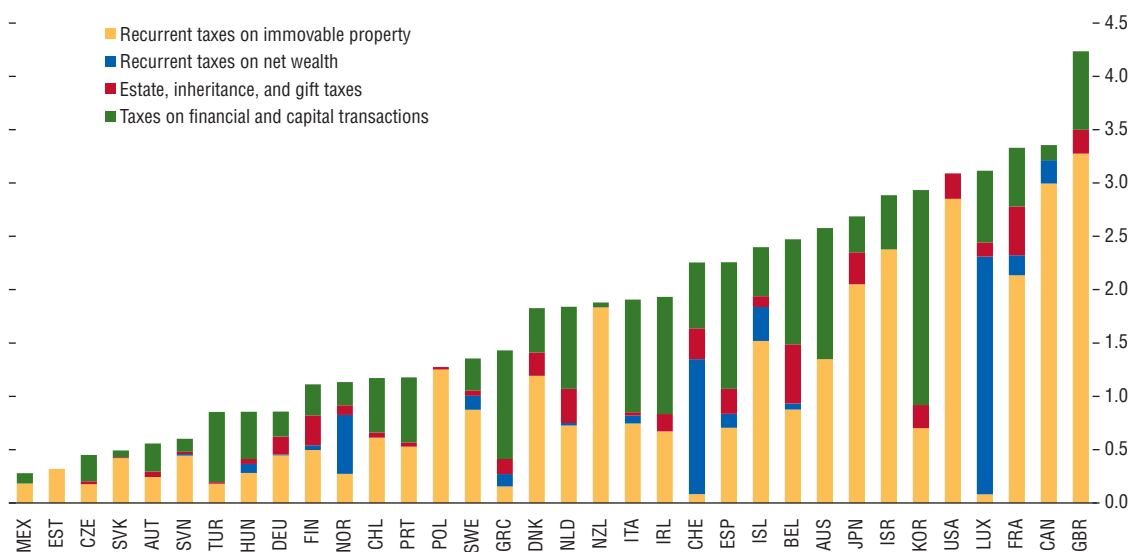
tion of wealth in excess of a normal rate of return.

The primary appeal of inheritance taxes is in limiting the intergenerational transmission of inequality and perhaps also in reducing the consequent distortion of recipients' work effort. In revenue terms, the yield in the countries with highest returns, about ½ percent of GDP, suggests some potential.

- *Recurrent taxes on net wealth* (assets less liabilities) have been declining in Europe over the last 15 years (repealers include Austria, Denmark, Finland, Germany, the Netherlands, and Sweden). But this may be changing: Iceland and Spain reintroduced the tax during the crisis, and it is now actively discussed elsewhere. (There has been interest, too, in the possibility of a one-off wealth tax to restore debt sustainability, taken up in Box 6.) The revenue potential is subject to considerable uncertainty (related, for instance, to the valuation of real estate) but is in principle sizable. Based on Luxembourg Wealth Study data, a 1 percent tax on the net wealth of the top 10 percent of households could, in principle, raise about 1 percent of GDP per year (Table 12); calculations for 15 euro area countries using more recent data<sup>56</sup> point to broadly similar numbers. Little hard evidence is available on the likely behavioral impact, a primary risk being that of discouraging capital accumulation: if wealth earns

<sup>56</sup>From the Eurosystem's Household Finance and Consumption Survey (Household Finance and Consumption Network, 2013).

**Figure 21. Average Property Taxes in OECD Economies, 2000–11**  
(Percent of GDP)



Source: Organisation for Economic Co-operation and Development (OECD) Revenue Statistics.

a real return of, say, 3 percent, then a 1 percent tax on wealth is equivalent to a 33 percent tax on that return. This will be less of a concern to the extent that wealth accumulation derives from returns in excess of normal (and a tax on high levels of wealth could usefully supplement taxes on capital income now often imposed at low effective rates or evaded).

The modern history of recurrent wealth taxes, however, is not encouraging. Relief and exemptions—for land, for instance, and family-owned businesses—creep in, creating avoidance opportunities, as do ferociously complex aspects of the legalities (in dealing with trusts, for instance). Financial wealth is mobile, and so, ultimately, are people—generating tax competition that largely explains the erosion of these taxes. There may be a case for taxing different forms of wealth differently according to their mobility—meaning a higher rate on nonfinancial wealth (largely real estate) than financial. In fact, it appears that both forms of wealth are quite large (Figure 23) and, perhaps surprisingly, that nonfinancial assets are very important for the very wealthy (Table 13).

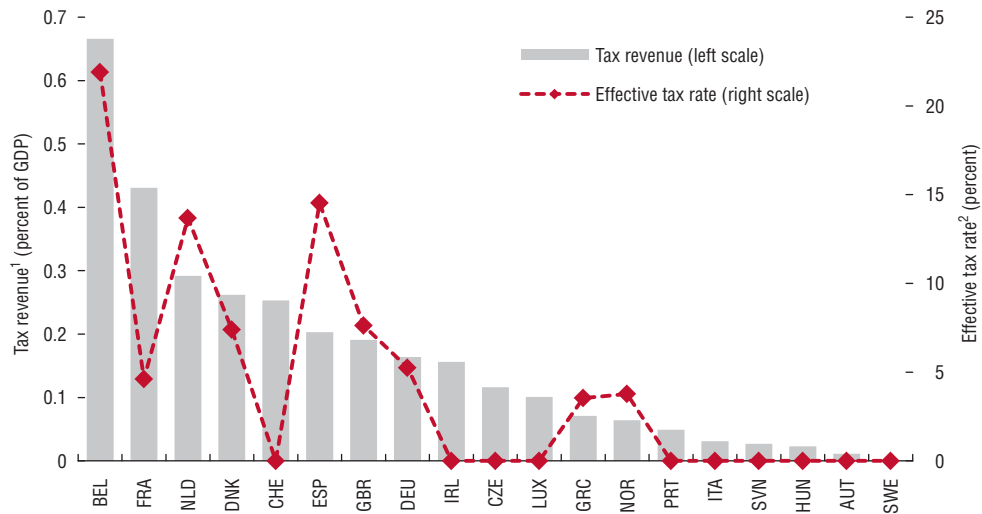
Substantial progress likely requires enhanced international cooperation to make it harder for the very well-off to evade taxation by placing funds elsewhere and simply failing to report as their own tax authorities in principle require. One careful estimate is that there is about US\$4.5 trillion in unrecorded household assets located in tax havens (Zucman, 2013). Curbing the practice of

relocating assets to avoid taxation requires that countries be able and willing to exchange information about the incomes and assets of one another's residents. There has been significant progress since the G20 reinvigorated efforts in this area, led by the OECD's Global Forum on Transparency and Information Exchange, to the point that 1,000 or so information exchange agreements are now in place, and with automatic exchange of information, rather than simply on request, now becoming the new global standard. Unilateral measures (offering reciprocal exchange of information) are also proceeding, notably the U.S. Foreign Account Tax Compliance Act (FATCA), with a similar EU measure expected: these, unlike work to date in the Global Forum, envisage penalties for noncompliance. Although these initiatives face difficulties that should not be underestimated,<sup>57</sup> over the longer term they have the potential to make much fairer tax systems.

### Making tax reform happen

There is, then, quite a bit of scope to tax better: to increase the legitimacy of the consolidation effort while doing more to promote growth and bring some additional revenues along the way. A significant body

<sup>57</sup> There is evidence, for instance, that when some jurisdictions commit to exchange of information, deposits partly move to those that do not (Johannesen and Zucman, 2013).

**Figure 22. Effective Inheritance Tax Rates in Europe, 2011**

Sources: Accessing Global Knowledge International (2011); Organisation for Economic Co-operation and Development; and IMF staff estimates.

<sup>1</sup> For Greece, the Netherlands, and Portugal, tax revenues refer to 2010 data.

<sup>2</sup> Effective tax rates are based on taxes paid by the estate of a married individual who died on January 1, 2011, leaving a spouse and two children. Total estate value is assumed to be €2.6 million.

of literature has explored how the scope, timing, and objectives of tax reforms are influenced by their economic, political, and institutional setting (Table 14). On timing, the conventional wisdom is that tax reforms are easiest to undertake in good times, when buoyant revenues can be used to compensate losers.<sup>58</sup> So the problem is how to make reform happen now, when there are no resources to spare.

A related issue of current importance is whether political constraints are amplified during crises relative to “normal” times, or whether crisis times offer an opportunity for reform as the urgency facilitates political agreement among different actors (IDB, 2013).

<sup>58</sup> For example, in the Slovak Republic poorer households were compensated for the effect of income tax reform in 2004; in Chile, tax reform in the early 1990s, including reform of the VAT, was accompanied by an increase in social spending (Brys, 2011).

The empirical evidence increasingly supports the view that during crises, market or other pressures may push authorities into measures that risk damaging long-term efficiency and equity.<sup>59</sup> Part of the reason, no doubt, is speed and ease. But there is more to it: some countries have managed to introduce wholly new taxes in the aftermath of the crisis, and it is not clear, for instance, that it is technically any easier or even quicker to increase VAT revenue by raising the standard rate than by widening the base.

Long-lasting structural reforms are more frequently observed in “good” times. For example, the growth-friendly tax reform agenda that sought to boost com-

<sup>59</sup> In Latin American and Caribbean countries, for instance, the focus of reforms has shifted from simplification and the reduction of distortions in the early 1990s to revenue mobilization in later years, largely in response to crises (IDB, 2013).

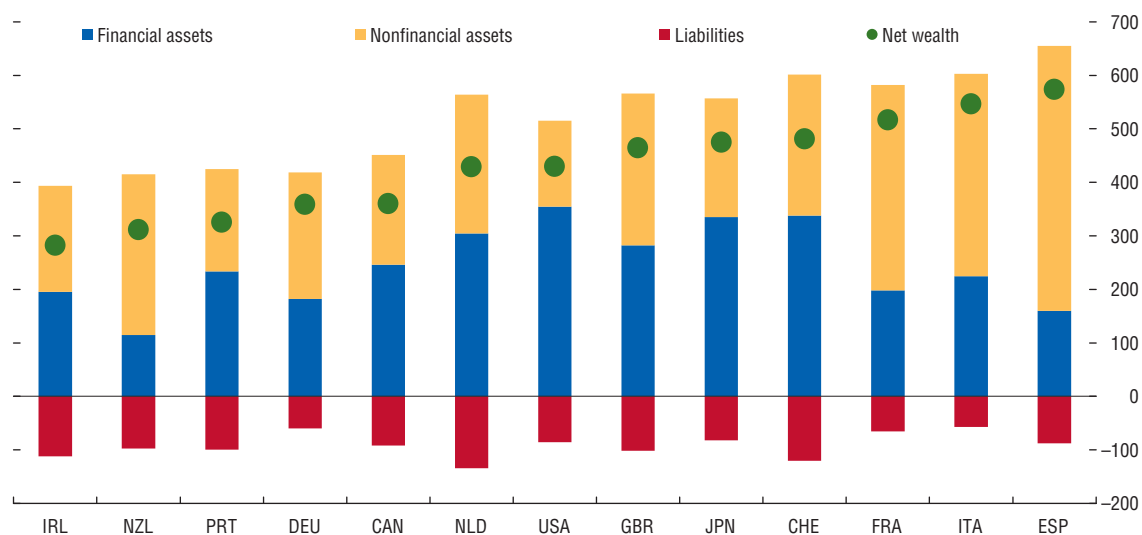
**Table 12. Potential Revenues from Recurrent Net Wealth Taxes**  
(Percent of GDP)

	Survey Year	1 Percent Tax on Wealthiest 10 Percent of Households <sup>1</sup>	Progressive Tax Rate Schedule: 1 Percent on Top 10 Percent and Additional 1 Percent on Top 5 Percent <sup>1</sup>
Canada	1999	0.6	1.1
Germany	2006	1.1	2.0
Italy	2004	1.0	1.7
Japan	2003	1.2	2.0
United Kingdom	2000	0.8	1.3
United States	2006	1.7	3.1
Unweighted average		1.1	1.9

Sources: Luxembourg Wealth Study database; Organisation for Economic Co-operation and Development; Eurostat; and IMF staff estimates.

<sup>1</sup> Tax applies only to the portion of wealth above the 90th percentile.

**Figure 23. Selected Advanced Economies: Composition of Net Wealth**  
(Percent of GDP)



Sources: National data; Organisation for Economic Co-operation and Development; and IMF staff estimates.  
Note: Figure shows latest data available for each country.

petitiveness in some European countries was delivered before the crisis. A 2001 Dutch reform reduced personal and corporate income tax rates while broadening their bases, as well as shifting the tax burden toward indirect taxation. Similarly, tax and social security insurance reforms implemented about a decade ago under the Agenda 2010 package in Germany played a large role in improving the German economy's competitiveness and the country's ability to weather recent economic crises. Good times are no guarantee of good tax reform—the persistence of inefficient tax arrangements remains something of a puzzle.<sup>60</sup> But they do seem to make it easier.

<sup>60</sup> If all tax reforms produced clear winners and losers, policymakers could, in principle, implement the most efficient reform in conjunction with a compensation mechanism for losers. Weingast,

In a few cases, however, crises have paved the way for the introduction of long-lasting structural reforms. For instance, Portugal introduced important structural changes in the midst of a severe fiscal crisis, including a base-broadening VAT reform and a comprehensive property tax revaluation (concluded in 1½ years once the crisis hit, after being inactive for almost a decade). And Mexico was able to implement a sizable and lasting increase in its main VAT rate (from 10 to 15 percent) during the Tequila Crisis in 1995 (though the narrow base of the tax remains a concern).

Shepsle, and Johnsen (1981) explain the persistence of inefficiency as a divergence between economic and political costs and benefits.

**Table 13. Average Composition of Gross Wealth Held by Top 10 Percent of Households**  
(Percent of gross wealth)

Country	Year	Financial Assets <sup>1</sup>	Nonfinancial Assets
Italy	2004	9.4	90.6
Finland	1998	20.2	79.8
United Kingdom	2000	23.4	76.6
Germany	2006	23.4	76.6
Japan	2003	24.1	75.9
United States	2006	42.4	57.6
Sweden	2002	46.1	53.9
Canada	1999	51.6	48.4
Norway	2002	67.8	32.2
Unweighted average		34.3	65.7

Sources: Luxembourg Wealth Study database; and IMF staff estimates.

<sup>1</sup> Pension claims are measured differently in countries with different pension systems, and in many cases these entitlements may not be counted as financial assets of households.



**Table 14. Thinking about the Political Economy of Tax Reform**

Effect of Political Economy on	Priors and Evidence from the Literature	Examples
Scope	Comprehensive reforms usually take longer to materialize and are very complex, leaving voters uncertain of how to evaluate them. Therefore, politicians tend to prefer highly visible ad hoc measures (Brys, 2011). Theory suggests that competition matters. In democracies, preelectoral competition could lead to preferences' being shaped by the median voter or swing voters. All things equal, higher electoral competition can result in targeting of reforms to specific groups. Moreover, the theory of yardstick competition posits that tax policies of other governments can induce tax reforms domestically, especially when voters can compare measures.	Martinez-Vazquez and McNab's (2000) review of experience of former transition economies suggests that yardstick competition was an important factor driving tax reform in countries such as the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, and Slovenia, which swiftly moved to implement comprehensive tax systems in line with those of other European countries prior to accession to the European Union.
Objective	Tax reforms differ and are shaped by their underlying objectives, depending on whether they aim at revenue mobilization or a revenue-neutral reform, or whether they have progrowth or efficiency goals or advance equity or distributional considerations. Meltzer and Richard (1981) argue that the median voter would tend to tilt policy toward redistribution given a skewed income distribution and require reforms to increase taxes for redistribution purposes. Empirical studies, however, do not entirely support this hypothesis. This could be explained by elites' blocking efforts to implement a redistributive tax policy (Acemoglu and Robinson, 2008).	De Souza (2013) argues that elite overrepresentation could explain why tax systems in Latin America have not become more progressive over time.
Timing and "quality"	The political business cycle literature (Rogoff and Sibert, 1988; Alesina, 2000) predicts that the timing and type of tax reforms is correlated with the electoral cycle and that politicians tend to wait until reelection to implement unpopular measures. Alesina and Drazen (1991) argue that stabilization with significant distributional implications—such as tax increases to reduce a budget deficit—may result in a "war of attrition" as competing socioeconomic groups attempt to shift the burden of stabilization onto one another. Stabilization finally occurs when one group concedes, typically in times of crisis, and bears a disproportionate share of the increased tax burden. Pursuing this line of reasoning, Brys (2011) argues that crises tend to be conducive for tax reforms because they can reduce opposition to such reforms.	IDB (2013) reviews the relationship between crisis and tax reform in Latin America. Various reforms in Argentina are explained as a reaction to multiple economic shocks. In the 1990s crisis, Colombia approved revenue-mobilizing reforms despite having a government without majority. In Brazil, crisis-related reforms were effective in boosting revenue but also reversed some efficiency-enhancing gains from previous reforms (Melo, Pereira, and Souza, 2010).
Timeframe for implementation	Dewatripont and Roland (1995) show that splitting reform and implementing the part with the highest expected payoff first may reduce opposition to subsequent measures. Martinelli and Tommasi (1997) argue, on the other hand, that this approach does not work well when many groups can veto the reform.	Russia's experience with its tax reforms in the 2000s is an example of the "big bang" approach, whereas China's experience with the property tax, which remains confined to Shanghai and Chongqing, appears to be more of a gradualist approach to reforms. So too is the slow elimination of mortgage interest deductibility in the United Kingdom.
Size of government	Theory suggests that presidential democracies tend to have lower taxes than parliamentary systems because the devolution of powers results in budget allocations' being made by different agents. Politically fragmented governments have a harder time pushing through reforms, which results in larger governments.	IDB (2013) provides supporting evidence on some of these hypotheses for Latin America.

Source: IMF staff compilation.

Although each reform process is country specific, successful cases of reforms, crisis related or otherwise, have often involved the following elements:

- *Building consensus and negotiating reforms.* Successful reforms have generally been supported by extensive political consultation and a clear and broad communication strategy. The 1986 tax reform in the United States—the classic base-broadening, rate-cutting exercise—was built on extensive consensus building, built around simple and clear objectives that enabled powerful lobbies to be subdued. The 1984 VAT reform in New Zealand and the personal income tax reforms in the Netherlands (2001) and Denmark (2010) all relied on ample consultations with the business community, labor unions, and other stakeholders; an extensive public relations program and broad use of public media; and the appointment of

a "champion" (OECD, 2010a, Annex A).<sup>61</sup> The risk, on the other hand, is that extensive consultation will simply give interest groups time to organize against the reform. Speed was seen as key, for instance, to passing the flat-tax reform in Russia. And opponents of reform can be effective communicators too, sometimes more so than governments, as with the failure, after both sides had spent millions of dollars, of the attempt to introduce a general tax on resource rents in Australia in 2010.

- *Adapting reforms to the institutional setting.* Reform efforts must also take into account the governmental structure in which a country operates, as well as its institutional capacity. The political system may

<sup>61</sup> On the other hand, as discussed in Table 14, sometimes a big-bang approach to implementation may be desirable to stem opposition.

generate strong status quo biases. Fiscal federalism can create obstacles to the implementation of tax reform, both through politics (given the large number of players with different interests at stake) and for technical reasons: the difficulty of operating subnational VATs (because it is hard to remove tax from interstate trades without border controls) has been a key obstacle to establishing coherent VATs in Brazil, India, and the United States. Constitutional constraints can reinforce the problems—restrictions dating back decades, and now making no economic sense, are key obstacles to developing the VAT in both India and Pakistan, for example. In developing countries, capacity constraints can be a major obstacle to revenue mobilization, and successful policy reforms need to go hand in hand with administrative modernization (as, for example, in Bangladesh and Tanzania). For all countries, the international implications of tax reform are an increasingly impor-

tant consideration. In many of the areas touched on previously—financial sector taxation, carbon pricing, and, these days, all corporate taxation—improving national tax systems will mean finding more effective ways for countries to cooperate in tax matters.

There are no universal truths as to how to make tax reform happen. Countries' peculiarities—the idiosyncrasies of their electoral politics, third rails that no politician can safely touch—loom large. What is clear, however, is that tax systems in many countries, and the wider international setting in which they operate and interact, have been going through difficult and trying—taxing—times. Reviewing the performance of those systems, and the objectives they are intended to serve, must be a critical part of formulating and fleshing out medium- and longer-term fiscal plans.<sup>62</sup>

<sup>62</sup>From that perspective, fiscal councils could be helpful in assessing the implications of alternative tax proposals. This is one of their responsibilities, for example, in Australia and Korea.

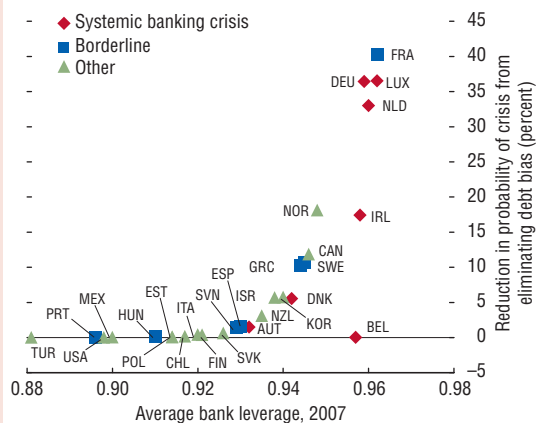
### Box 3. Learning from the Crisis? Taxation and Financial Stability

The global economic and financial crisis brought substantial rethinking of the tax treatment of the financial sector, following public outrage at the extensive public support it received and a growing perception that some features of the tax system may have played a role in encouraging the high levels of leverage at the root of the crisis.

By allowing interest payments, but not the return on equity, as a deduction against the corporate income tax, most tax systems encourage the use of debt finance. This “debt bias” has long been known to be empirically important for nonfinancial companies, but recent work shows the effect is just as strong for banks (de Mooij and Keen, 2012; Hemmelgarn and Teichmann, 2013). The effect is small for the largest banks, most critical to financial stability, but this does not mean it is unimportant: these banks also tend to be very highly leveraged, and since the probability of crisis is a strongly convex function of overall bank leverage, even small tax-induced changes in leverage can have a large effect on the probability of crisis. Starting from the high levels of bank leverage just before the crisis, results of de Mooij, Keen, and Orihara (2013) imply that eliminating the debt bias would have reduced the probability of crisis by 20 percent or more in several countries (Figure 3.1).

A dozen or so advanced economies have introduced “bank levies” that go some way toward addressing these concerns (OECD, 2013a). The core of the base is typically uninsured bank borrowing, but there are wide differences in the rate, the definition of the base, and whether the resulting revenue is earmarked for resolution purposes. There is emerging evidence that while raising relatively little revenue, such levies have indeed reduced bank leverage (Devereux, Johannesen, and Vella, 2013). Key issues are whether to strengthen

**Figure 3.1. Debt Bias and Probability of Crisis**



Sources: IMF staff calculations using results in de Mooij, Keen, and Orihara (2013) and identification of systemic banking crises of Laeven and Valencia (2010).

Note: Average bank leverage ratio is defined as the ratio of total leverage to total assets.

these taxes and whether to address problems of international coordination arising from differing structures and potential double taxation. A broader approach, in principle eliminating the debt bias entirely, would be to introduce an “allowance for corporate equity” (ACE) form of corporate tax, which provides a deduction for the notional cost of equity finance, along with that for interest—as Italy, for instance, has recently done.<sup>1</sup>

<sup>1</sup> de Mooij (2011) discusses ways in which debt bias might be addressed and assesses experience with the ACE.

### Box 4. Taxation and Growth: Details Matter

The empirical literature from which the hierarchy of “growth friendliness” is drawn presumes that the only thing that matters for growth is how much revenue is raised by a given tax, not the details of its design. Results such as those in column (1) of Table 4.1 suggest, for instance, that increasing the proportion of all tax revenue raised from the value-added tax (VAT) by 1 percentage point and decreasing that from income taxes (the omitted revenue category) correspondingly will increase the growth rate by 0.167 percentage points on average. But VAT revenue can be increased in several ways—by raising the standard rate, for instance, or by widening the base (increasing C-efficiency). A common mantra is that base broadening is better for growth than rate increases. Is that correct?

Preliminary results provide some tentative signs that it is, at least for the VAT (Acosta-Ormachea, Keen, and Yoo, 2013). Adding to the fairly standard specification in column (1) two of the three drivers of VAT revenue (C-efficiency and the share of consumption in GDP), in column (2), enables rejection of the

null hypothesis that only total VAT revenue matters, with the coefficient on C-efficiency indicating that it is significantly more associated with growth than is the third, omitted driver: the standard rate. Increasing the standard rate, moreover, may well reduce C-efficiency, by, for instance, encouraging evasion and avoidance (indeed, there is a strong negative correlation between the two). When allowance is made for this by removing C-efficiency from the estimating equation, in column (3), the impact of the standard rate on growth becomes nonsignificant. And columns (4) and (5) show that the standard rate remains nonsignificant when both other drivers are omitted, whereas C-efficiency retains a strongly positive impact on growth.

These results are preliminary. More needs to be done, for instance, to address potential endogeneity issues and to explore dynamics. Nonetheless, they provide a strong caution that looking only at broad categories of tax instruments is unlikely to be enough in thinking about taxation and growth: details matter.

**Table 4.1. VAT Decomposition and Growth**

Dependent variable: GDP per capita growth	(1)	(2)	(3)	(4)	(5)
Physical capital	0.290*** (0.039)	0.175*** (0.040)	0.178*** (0.041)	0.279*** (0.041)	0.224*** (0.041)
Population growth	-1.342*** (0.258)	-1.638*** (0.252)	-1.666*** (0.253)	-1.303*** (0.262)	-1.246*** (0.255)
Human capital	0.087*** (0.023)	0.100*** (0.022)	0.103*** (0.022)	0.087*** (0.023)	0.086*** (0.023)
Year	-0.002*** (0.000)	-0.003*** (0.000)	-0.003*** (0.000)	-0.002*** (0.000)	-0.002*** (0.000)
Total tax as a share of GDP	0.256*** (0.055)	0.292*** (0.057)	0.365*** (0.057)	0.277*** (0.059)	0.168*** (0.056)
Total tax excluding VAT and income taxes, as a share of total taxes	0.122*** (0.030)	0.157*** (0.030)	0.149*** (0.029)	0.125*** (0.031)	0.159*** (0.031)
VAT as a share of total taxes	0.167*** (0.038)	0.153*** (0.045)	0.225*** (0.039)	0.180*** (0.040)	0.048 (0.044)
log(C-efficiency ratio)		0.022** (0.011)			0.051*** (0.010)
log(Consumption as a share of GDP)		-0.202*** (0.028)	-0.225*** (0.026)		
log(VAT standard rate)			-0.014 (0.011)	-0.011 (0.012)	
Constant	4.333*** (0.661)	5.290*** (0.641)	5.180*** (0.656)	4.196*** (0.677)	4.419*** (0.650)
Number of observations	797	797	797	797	797
R <sup>2</sup>	0.17	0.25	0.25	0.17	0.20
Number of countries	49	49	49	49	49
Adjusted R <sup>2</sup>	0.11	0.20	0.19	0.11	0.14
F-test		27.85	27.47		
Prob. > F		0.00	0.00		

Source: IMF staff.

Note: Standard errors in parentheses. VAT = value-added tax.

\*\*\* $p < 0.01$ , \*\* $p < 0.05$ , \* $p < 0.1$ .

## Box 5. Tricks of the Trade

### How It Is Done

The precise design of tax planning schemes reflects specifics of national tax systems, but common strategies include

- *Shifting profits to low-tax jurisdictions*—abusive transfer pricing is prominent in public debate, but there are many other devices that can be used to the same effect, like the direct provision of services from, and location of intellectual property rights in, low-tax jurisdictions;
- *Taking deductions in high-tax countries* . . . by, for example, borrowing there to lend to affiliates in low-tax jurisdictions;
- . . . and as many times as possible—passing on, through conduit companies, funds raised through loans may enable companies to take interest deductions several times (without offsetting tax on receipts);
- *Exploiting mismatches*—tax arbitrage opportunities can arise if different countries view the same entity or financial instrument differently;
- *“Treaty shopping”*—networks of double tax agreements can be exploited to route income so as to reduce taxes;
- *Delay repatriating earnings*—multinationals based in countries operating worldwide systems can defer the

taxation of business income earned abroad until it is paid to the parent.

A wide range of countermeasures are also deployed by tax authorities. “Controlled foreign corporation” (CFC) rules, for instance, enable them to tax “passive” income retained abroad; general antiavoidance/abuse rules can be adopted; and “limitation of benefit” provisions aim to constrain treaty shopping. But these and other measures have not proved fully effective.

### Food for Thought

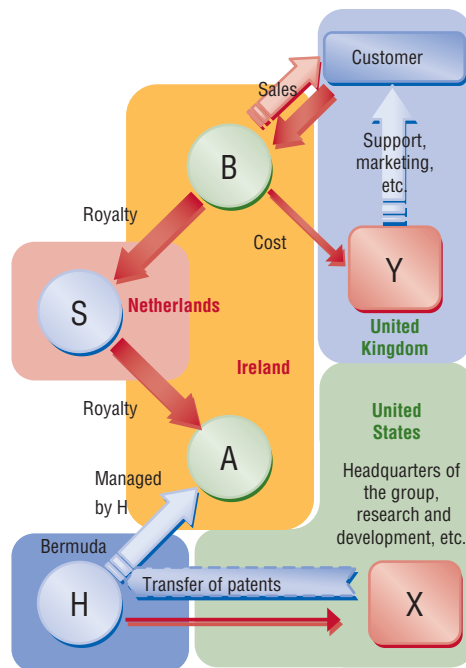
So many companies exploit complex avoidance schemes, and so many countries offer devices that make them possible, that examples are invidious. Nonetheless, the “Double Irish Dutch Sandwich,” an avoidance scheme popularly associated with Google, gives a useful flavor of the practical complexities. Here’s how it works (Figure 5.1):

- Multinational Firm X, headquartered in the United States, has an opportunity to make profit in (say) the United Kingdom from a product that it can for the most part deliver remotely. But the tax rate in the United Kingdom is fairly high. So . . .
- It sells the product directly from Ireland through Firm B, with a United Kingdom firm Y providing services to customers and being reimbursed on a cost basis by B. This leaves little taxable profit in the United Kingdom.

Now the multinational’s problem is to get taxable profit out of Ireland and into a still-lower-tax jurisdiction.

- For this, the first step is to transfer the patent from which the value of the service is derived to Firm H in (say) Bermuda, where the tax rate is zero. This transfer of intellectual property is made at an early stage in development, when its value is very low (so that no taxable gain arises in the United States).
- Two problems must be overcome in getting the money from B to H. First, the United States might use its CFC rules to bring H immediately into tax.<sup>1</sup> To avoid this, another company, A, is created in Ireland, managed by H, and headquarters “checks the box” on A and B for U.S. tax purposes. This means that, if properly arranged, the United States will treat A and B as a single Irish company, not

Figure 5.1. Tricks of the Trade



<sup>1</sup>The United States will charge tax when the money is paid as dividends to the parent—but that can be delayed by simply not paying any such dividends. At present, one estimate (cited in Kleinbard, 2013) is that nearly US\$2 trillion is left overseas by U.S. companies.

**Box 5 (concluded)**

subject to CFC rules, while Ireland will treat A as resident in Bermuda, so that it will pay no corporation tax. The next problem is to get the money from B to H, while avoiding paying cross-border withholding taxes. This is fixed by setting up a conduit company S in the Netherlands: payments from B to S and from S to A benefit from the absence of

withholding on nonportfolio payments between EU companies, and those from A to H benefit from the absence of withholding under domestic Dutch law. This clever arrangement combines several of the tricks of the trade: direct sales, contract production, treaty shopping, hybrid mismatch, and transfer pricing rules.



### Box 6. A One-Off Capital Levy?

The sharp deterioration of the public finances in many countries has revived interest in a “capital levy”—a one-off tax on private wealth—as an exceptional measure to restore debt sustainability.<sup>1</sup> The appeal is that such a tax, if it is implemented before avoidance is possible and there is a belief that it will never be repeated, does not distort behavior (and may be seen by some as fair). There have been illustrious supporters, including Pigou, Ricardo, Schumpeter, and—until he changed his mind—Keynes. The conditions for success are strong, but also need to be weighed against the risks of the alternatives, which include repudiating public debt or inflating it away (these, in turn, are a particular form of wealth tax—on bondholders—that also falls on nonresidents).

<sup>1</sup> As for instance in Bach (2012).

There is a surprisingly large amount of experience to draw on, as such levies were widely adopted in Europe after World War I and in Germany and Japan after World War II. Reviewed in Eichengreen (1990), this experience suggests that more notable than any loss of credibility was a simple failure to achieve debt reduction, largely because the delay in introduction gave space for extensive avoidance and capital flight—in turn spurring inflation.

The tax rates needed to bring down public debt to precrisis levels, moreover, are sizable: reducing debt ratios to end-2007 levels would require (for a sample of 15 euro area countries) a tax rate of about 10 percent on households with positive net wealth.<sup>2</sup>

<sup>2</sup> IMF staff calculation using the Eurosystem’s Household Finance and Consumption Survey (Household Finance and Consumption Network, 2013); unweighted average.