



FINANCE AND DEVELOPMENT

MARCH 2018

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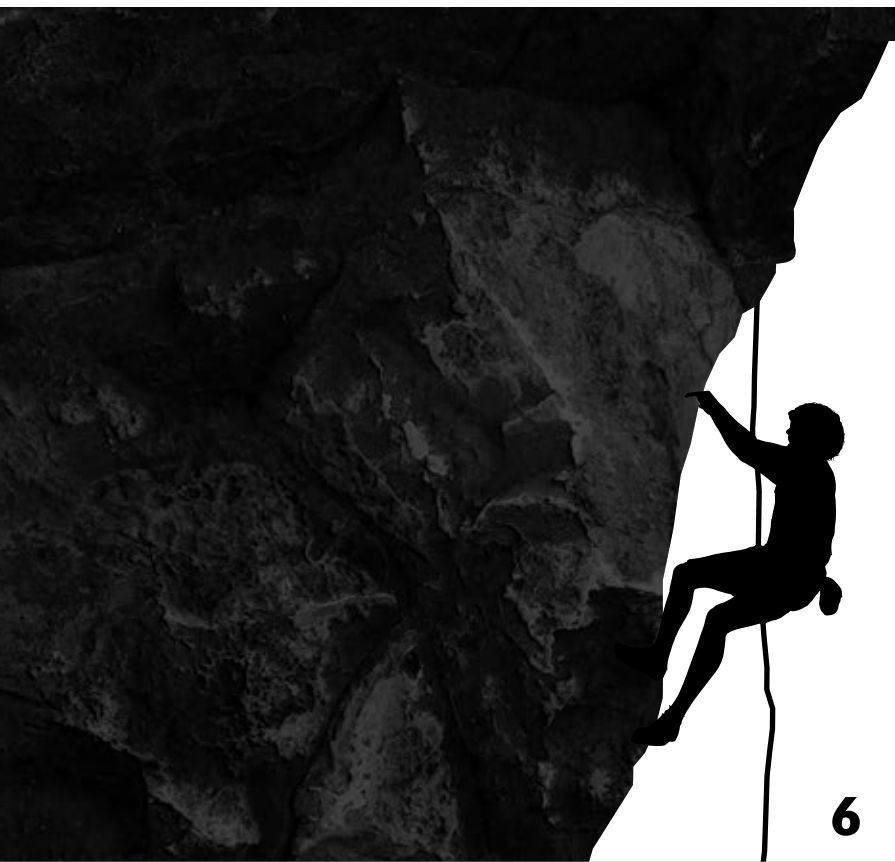
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Balancing Act

Managing the Public Purse

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holds lessons
for when to
tackle debt—
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The Problem with Debt

WITH THE GLOBAL ECONOMY humming along, there would seem little reason to worry about tomorrow. But in many countries, the future has been mortgaged by high public and private debt, which risks choking off growth. In this issue of *F&D* we ask, “How much is too much debt?”

The problem with debt is that it keeps countries from investing in future growth—putting more resources toward education and health, for instance, and finding ways to address low productivity, which continues to hold back wages in many countries.

In simple terms, advanced economies can either raise taxes or lower spending to reduce debt. Alberto Alesina, Carlo Favero, and Francesco Giavazzi find that countries take a smaller hit to growth if they cut spending—including for entitlement programs—than if they raise taxes. In fact, the latter can be self-defeating, leading to even higher debt and lower growth, they write.

But with growing concern over inequality, social spending cuts can be hard to justify. The World Bank’s former chief economist, François Bourguignon, reviews how best to address rising inequality and assess difficult trade-offs.

In low-income and emerging market economies, the challenge is to expand the tax base and increase the efficiency of public spending. Unlike previous debt crises, which were resolved through international collaboration, today’s crises are more difficult to fix because the debt landscape is more complex, writes Fanwell Bokosi of the African Forum and Network on Debt and Development.

With no easy solutions in sight, and electorates everywhere losing patience with the status quo, governments should use the current upswing to put their house in order. And while each country must chart its own course, the global recovery presents a rare opportunity—rising interest rates will soon make it harder to refinance and service debt. **FD**

CAMILLA LUND ANDERSEN, Editor-in-Chief



ON THE COVER

Some debt is a good thing, but excessive amounts can stifle growth. Illustrator Michael Waraksa's March 2018 *F&D* cover shows the stark choice countries face between spending and saving—and the difficulty of striking the right balance.



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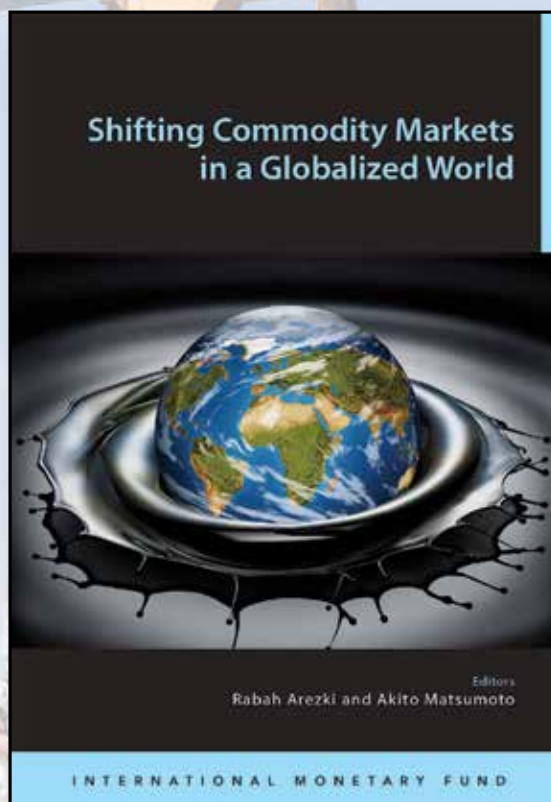
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I N T E R N A T I O N A L M O N E T A R Y F U N D





Seizing the Moment

Good economic times offer an opportunity to tackle budget deficits

Christoph B. Rosenberg

The global economy has a spring in its step. Growth is picking up, and the IMF has been ratcheting up its forecasts. Government coffers are filling and, with more people at work, demand for public social support is receding. The fiscal woes of the past decade seem behind us.

But this sunny perspective ignores debt levels that remain close to historic highs and the inevitable end of the cyclical upswing. Estimates of underlying growth potential have hardly budged, and interest rates—the cost of servicing all this debt—are starting to rise, making it harder to refinance bonds and loans.

How the government taxes, spends, and manages debt is therefore as hot a political topic as ever. Just look at recent debates in the US Congress and the German coalition talks. While fiscal choices are a matter of politics, recent research and experience can teach us much about the best path forward.

Start with the question of how much debt is too much. Academics and policymakers agree that a general limit—such as the 60 percent of GDP in the EU Maastricht Treaty—no longer makes sense; it doesn't capture enduringly low interest rates and nominal growth or countries' complex circumstances or credibility with financial markets. Japan clearly can carry more debt load than, say, Egypt. But few deny the urgency of debt that is high and rising.

Low-income economies may be at greatest risk. Traditionally, they borrowed from official creditors at below-market rates. But in recent years, many took advantage of rock-bottom interest rates to load up on commercial debt, leaving them vulnerable

to financial market swings. Higher global rates could divert precious budget resources to debt servicing from crucial infrastructure projects and social services. So it is all the more important for these countries to strengthen their tax capacity.

The recent postcrisis experience also holds lessons on when to tackle debt—and when not to. Spending cuts and tax hikes during a recession may only amplify the decline. It is much less painful to revamp the tax and benefit system when the economy is on an upswing and as part of a multiyear adjustment. Research shows that the stimulatory effect of fiscal expansion is weak when the economy is close to capacity. So increasing budget deficits now would be counterproductive in most countries. Conversely, raising budget balances toward their medium-term targets can be achieved at little cost to economic activity.

How best to reduce deficits? To raise revenue, simplify the tax code, broaden the tax base, and improve collection capacity. On the spending side, cutting unproductive current expenses (for instance, on an inefficient civil service) and subsidies (for instance, on energy consumption) is the way to go. Growth-enhancing infrastructure investments and crucial social services such as health and education should be maintained. Well-designed fiscal policy can address inequality *and* stimulate growth.

The time to fix the fiscal roof is now, while the sun is shining. Policymakers should heed the lessons learned and tackle debt on the upswing. **FD**

CHRISTOPH B. ROSENBERG is an assistant director of the IMF's Communications Department.

CLIMBI OUT OF DEBT



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A new study offers more evidence that cutting spending is less harmful to growth than raising taxes

Alberto Alesina, Carlo A. Favero, and Francesco Giavazzi

Almost a decade after the onset of the global financial crisis, national debt in advanced economies remains near its highest level since World War II, averaging 104 percent of GDP. In Japan, the ratio is 240 percent and in Greece almost 185 percent. In Italy and Portugal, debt exceeds 120 percent of GDP. Without measures either to cut spending or increase revenue, the situation will only get worse. As central banks abandon the extraordinary monetary measures they adopted to battle the crisis, interest rates will inevitably rise from historic lows. That means interest payments will eat up a growing share of government spending, leaving less money to deliver public services or take steps to ensure long-term economic growth, such as investing in infrastructure and education. Servicing debt will become a major burden.

What is the best way to reduce debt to sustainable levels? That question has taken on renewed importance since the global financial crisis of 2008, when government spending to stimulate growth and help the unemployed boosted budget deficits to postwar records. Some economists argue that cutting spending is the best medicine for restoring fiscal health. Others insist, on the contrary, that spending cuts are self-defeating, because they hurt economic growth. They prescribe even more government spending to reinvigorate a flagging economy.

To get a handle on the issue, it helps to look at the mathematics of debt reduction. The relevant number here is not the total amount of debt, but the ratio of debt to national income, or GDP,

richer set of data covering 16 of the 35 countries belonging to the Organisation for Economic Co-operation and Development between 1981 and 2014, including Canada, Japan, the United States, and most of Europe, excluding postcommunist nations. Our analysis focused on some 3,500 policy changes geared toward reducing deficits either by raising taxes or by cutting spending. We excluded fiscal measures aimed at stabilizing output—for example, cutting spending to cool an overheated economy—because such measures depend on the state of the economy and thus do not represent exogenous policy changes.

We should emphasize that our study focuses on a relatively limited group of developed economies. Austerity policies will have different effects in

Expenditure-based plans generally were less harmful to growth than tax-based plans.

which is a measure of the resources the economy can use to repay its debt. There are two ways to lower the ratio of debt to GDP. One is to reduce the size of the budget deficit (by cutting spending or increasing revenue); the other is to expand the size of the economy. Ideally, governments will reduce deficits and turn them into primary surpluses (that is, the excesses of tax revenue over spending, net of interest) in a way that does not hurt growth. If policies geared toward reducing deficits also caused a deep recession, they would be counterproductive: the decline in GDP would increase the debt-to-GDP ratio, notwithstanding the efforts made to reduce the deficit.

Which policies are more likely to result in a lower ratio of debt to GDP? A number of papers have addressed this question since at least the early 1990s (Alesina and Ardagna 2013 summarizes the early literature). We decided to take another look at the issue using new methodology and a much

developing economies, which have much smaller governments. Second, we are concerned with the short term and leave aside longer-term issues such as the impact of aging populations on pensions. Finally, we don't look at the flip side of austerity—expansionary policies such as tax cuts or increases in spending.

In studying these episodes, we recognized that shifts in fiscal policy typically come in the form of multiyear plans adopted by governments with the aim of reducing the debt-to-GDP ratio over a period of time—typically three to four years. After reconstructing such plans, we divided them into two categories: expenditure-based plans, consisting mostly of spending cuts, and tax-based plans, consisting mostly of tax hikes. Our conclusion runs against the basic Keynesian message, which implies that spending cuts are more recessionary than tax increases. On the contrary, our study confirms that expenditure-based plans

generally were less harmful to growth than tax-based plans.

More specifically, we found that on average, expenditure-based plans were associated with very small downturns in growth: a plan worth 1 percent of GDP implied a loss of about half a percentage point relative to the average GDP growth of the country. The loss in output typically lasted less than two years. Moreover, if an expenditure-based plan was launched during a period of economic growth, the output costs were zero, on average. This means that some expenditure-based fiscal plans were associated with small downturns, while others were associated with almost immediate surges in growth, a phenomenon sometimes known as “expansionary austerity” that was first identified by Giavazzi and Pagano (1990). By contrast, tax-based fiscal corrections were associated with large and long-lasting recessions. A tax-based plan amounting to 1 percent of GDP was followed, on average, by a 2 percent decline in GDP relative to its pre-austerity path. This large recessionary effect tends to last several years.

In our results, there is expansionary austerity when a fiscal adjustment is accompanied by faster growth than would have occurred without the fiscal correction. Other definitions are possible—for instance, looking at GDP growth relative to other countries in the sample. Expenditure-based fiscal corrections that resulted in GDP growth higher than the average, for the same period, of other countries in our sample included Austria, Denmark, and Ireland in the 1980s and Canada, Spain, and Sweden in the 1990s. Following the financial crisis, the two countries that adopted spending-based austerity and did better than the rest of the sample were Ireland and the United Kingdom, despite the huge banking problems in the former.

Governments sometimes seem to be aware of the different effects of tax-based and spending-based plans. For instance, in 2010 the Irish government noted that:


“The budget focused on curbing spending to adjust expenditure needs to the revenue base, which has been reduced as a result of the overall contraction of the economy and the loss of certain income streams. In addition...the Government took on board evidence from international organizations, such as the EU Commission, the OECD and the IMF, as well as the relevant economic literature which indicates that consolidation driven by cuts in expenditure is more successful in reducing deficits than consolidation based on tax increases.” (Ireland Stability Programme Update, December 2009, 15)

Our second finding is that reductions in entitlement programs and other government transfers were less harmful to growth than tax increases. Such cuts were accompanied by mild and short-lived economic downturns, probably because taxpayers perceived them as permanent and so expected that the taxes needed to fund the programs would be lower in the future. Thus, the data suggest that reforms of social security rules aimed at reducing government spending are more like normal spending cuts than tax increases. Because social security reforms tend to be persistent, especially in countries with aging populations, they entail some of the smallest costs in terms of lost output.

Private investment also responded very differently to the two types of austerity plans—positively to spending-based plans and negatively to tax-based plans. Business confidence behaved consistently with private investment. On the other hand, household consumption and net exports (the difference between exports and imports) did not appear to differ on average during the two types of adjustments.

What about recent episodes of austerity that occurred after the crisis and started during a recession? Although the sheer size of some of these





austerity plans was exceptional—not only in Greece but also in Ireland, Portugal, and Spain and to a lesser extent in Italy and the United Kingdom—the outcomes did not differ significantly from those of previous episodes. Countries that chose tax-based austerity suffered deeper recessions than those that chose to cut spending. Among the latter are Ireland, despite a massive bank bailout program, and the United Kingdom, whose economic performance was much stronger than the IMF had predicted. The UK plan consisted almost completely of spending cuts. These included cuts in government consumption and public investment; reductions in transfers, including more restrictive policies on employers' pension contributions; support allowances; and public service pensions. Spending cuts (planned or immediately implemented) between

harmful if preceded by a currency devaluation, which would make exports more competitive and support growth. We find that this was not the case: there was no systematic difference in the behavior of the exchange rate before the two types of fiscal adjustment. If the exchange rate had been a significant factor, then the difference between the two cases in terms of GDP growth should have been associated with higher growth of net exports following a devaluation, independently of the type of fiscal plan adopted. This was not the case. As mentioned above, the driving force was domestic private investment.

Finally, large fiscal adjustments are often periods of deep structural reforms, which may include the liberalization of product and/or labor markets. If these were systematically occurring at the time of

Countries that chose tax-based austerity suffered deeper recessions than those that chose to cut spending.

2010 and 2014 amounted to 2.9 percent of GDP—about 0.6 percent a year on average. Of all these measures, 87 percent were implemented within this five-year interval, with the rest deferred. The result: growth in the United Kingdom was higher than the European average. Investment growth recovered from the 21 percent drop of 2009 and increased almost 6 percent in 2010.

There are at least three possible explanations for these striking results. One is that the difference between tax- and spending-based plans is due to a difference in accompanying policies. The most obvious candidate is monetary policy. Guajardo, Leigh, and Pescatori (2014) argue that differences in the response of monetary policy are largely responsible for the different effects of the tax- and spending-based corrections they analyzed. We, however, find only a small fraction of the difference to be related to monetary policy.

A second possibility relates to the behavior of the exchange rate. A fiscal correction could be less

spending cuts, they might explain our finding. But in fact, these reforms did not occur systematically during periods of spending cuts.

A more promising explanation points to the role of confidence and expectations. Imagine an economy on an unsustainable path with exploding public debt. Rising interest rates in countries with high debt may generate exactly this scenario. Sooner or later fiscal stabilization must occur. The longer the delay, the more taxes must be raised (or spending cut) in the future. Stabilization, when it occurs, removes uncertainty about further delays that would have increased the costs even more.

Blanchard (1990) provides a simple model that illustrates this point. Stabilization that eliminates uncertainty about higher fiscal costs in the future stimulates demand today—especially from investors, who are more sensitive to uncertainty given the long-term nature of their plans. In their models, Blanchard (1990) and Alesina and Drazen (1991)

do not distinguish between stabilization on the tax and the spending side. However, it is quite likely that the benefits of removing uncertainty are more likely to occur with spending-based, rather than tax-based, austerity plans. A tax-based plan that does not address the automatic growth of entitlements and other programs over time is much less likely to produce a long-lasting effect on the budget. If the plan doesn't address automatic spending increases, taxes must be continually raised to cover the additional outlays. So the confidence effect is likely to be much smaller for tax-based plans, because of rising expectations of future taxes. Spending-based plans, on the other hand, produce the opposite effects. Our finding for the response of business confidence to austerity supports this view. Business confidence increases immediately at the start of a spending-based austerity plan, in contrast to what happens at the beginning of a tax-based plan.

Another set of explanations relates to the supply side of the economy, which reacts very differently to tax hikes and spending cuts. The persistence of the fiscal policy change is also crucial to any austerity plan and works in opposite directions depending on the type of plan. We found that a tax-based plan that lasts longer produces a deeper recession. One explanation is that without a reduction in spending, tax hikes must be long-lasting, producing long-lasting negative effects—for instance, on labor supply and investment—because of higher distortionary taxes. In contrast, a longer-lasting spending cut produces a milder recession because it signals that sooner or later it will be possible to cut taxes and the associated distortions.

The bottom line is that reducing the debt-to-GDP ratio depends a lot on how the budget deficit is corrected. If a surplus is increased by raising taxes, the downturn in growth may be so large that it raises rather than reduces the debt-to-GDP ratio. Deficit reduction policies based on spending cuts, however, typically have almost no effect on output, so they are a sure bet for a reduction in debt to GDP. **FD**



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Public Finance Goes Digital

Technology is reshaping how governments raise and spend money

Sanjeev Gupta, Michael Keen, Alpa Shah, and Geneviève Verdier

In Kenya, people can pay their taxes on their mobile phones. In India, they receive subsidies and welfare payments directly into their bank accounts, which are linked to unique biometric identifiers. In several advanced and emerging market economies, tax authorities collect information on sales and wages in real time, which gives them immediate insight into the state of the economy. Public finance, like so much else, is undergoing a digital revolution.

Public finance is the art of raising and spending money to deliver services and benefits, redistributing income, and smoothing the ups and downs of the business cycle. How effectively governments do these things depends crucially on their ability to collect, process, and act on a vast array of information: how much companies and workers earn, how many people are unemployed, who qualifies for government benefits.

Digitalization is starting to reshape this informational core of the way tax and spending policies are designed and carried out. It offers tools not only to improve the effectiveness of existing policies but also to introduce entirely new ones. But there's a dark side: digitalization has intensified concerns about privacy, confidentiality, and cybersecurity while adding to the larger debate over inequality and redistribution.

Rich troves of information

Through digital systems, standardized reporting formats, and electronic interfaces, tax authorities are better able to access the rich troves of information collected by the private sector on such things as bank transactions and interest income. Authorities in Australia and the United Kingdom, for example, receive real-time data on wages paid by employers. In Brazil and Russia, electronic invoicing systems allow immediate access to data on firm sales.

Better data collection, combined with increased processing power, allows governments to improve existing ways of collecting taxes. Electronic filing makes it easier and cheaper for taxpayers to fill out tax returns and for governments to process them. Access to third-party information is now so complete that a small but growing number of tax authorities prepopulate tax returns, so that taxpayers need only verify the information presented to them.

In Brazil, the Public System of Digital Bookkeeping allows authorities to determine a company's income tax obligation. China uses invoice-matching technology to verify that merchants seeking value-added tax (VAT) refunds were in fact charged the tax, a large step toward solving a problem that has long stymied tax collectors around the world.

Digital footprints

Data on individual taxpayers can now be aggregated in powerful ways. In the United Kingdom, HM Revenue and Customs' Connect computer system draws on a wide range of government and corporate sources, as well as individual digital footprints, to build a profile of taxpayers' total income, which can then be used to assess the accuracy of the information they report. Such increased data processing capabilities can also be used to improve revenue forecasts. And with increased capacity to store and analyze data, governments can exploit the correlation of tax receipts with the business cycle to anticipate, and perhaps forestall, an economic crisis or monitor their cash balances to assess liquidity and borrowing needs.

The growth of the peer-to-peer business model, which allows buyers and sellers to transact across a digital platform, is also offering new opportunities to improve tax collection. In Estonia, Uber Technologies can report income earned by drivers directly to the country's tax administration (see Box 1). Peer-to-peer platforms can also act as custodians; an example is Airbnb, which withholds hotel taxes on behalf of the property owners who use the platform in 10 advanced and emerging market economies.

Digital technologies, including electronic payment systems, are not only lowering the cost of collecting taxes but also creating the potential for expanding tax bases (for instance, by improving the identification and monitoring of taxpayers and making it easier for taxpayers to comply by such means as the use of mobile technology). They

are also improving the delivery of social welfare payments. Digitalizing payments has significantly reduced the cost of administering programs such as Ti Manman Cheri in Haiti, which helps mothers support their families, and 4Ps in the Philippines, which provides cash grants to the poorest families.

Biometrics

India has led the way in the use of biometric technology to extend social benefits to a larger number of people (see Box 2). Technology that monitors and records biometric characteristics, such as fingerprints and iris scans, allows more accurate and cheaper authentication of an individual's identity, ensuring that benefits reach only the intended recipients. McKinsey & Company has estimated that digitalizing government payment processes (both revenue and expenditures) could deliver savings of at least 1 percent of GDP in developing economies. This estimate overlooks second-round beneficial effects of improvements in public service delivery and widening the tax base. For example, the introduction of the new tax on goods and services in India has increased the number of registered taxpayers by 50 percent in less than one year.

Developing economies are also starting to tap the vast potential offered by mobile technology. In

BOX 1: ESTONIA PAVES THE WAY WITH X-ROAD

At birth, every Estonian is assigned a unique string of 11 digits and given a digital identity card. Citizens use these cards to vote online; consult medical records; access public, financial, and medical and emergency services; and file taxes. All told, the government provides more than 600 such services online.

In 2011, Estonia introduced X-Road, a platform that enables the secure exchange of Internet-based data between information systems. Public and private sector firms and institutions can connect their information systems with X-Road without a fee. The system has enabled digitalized income-tax declarations by linking citizens' employment and tax records.

X-Road saved the equivalent of 820 years of work in 2016, according to government estimates. Digital signatures have been estimated to permit a one-time savings of about 2 percent of GDP, the equivalent of one workweek a person.

sub-Saharan Africa alone, there were 420 million unique mobile subscribers in 2016, a number that is expected to increase to 535 million (roughly one subscriber for every two people), according to Groupe Speciale Mobile Association, an international trade organization. Kenya has been a pioneer in the adoption of mobile payments technology. Its M-Pesa system, launched in 2007, can be used to pay taxes. Such solutions may be particularly promising for fragile states, where conflict and corruption hamper tax collection and benefit payments. Mobile technology can also be used to deliver better public services, track medical records, and disseminate information.

The use of biometric authentication and digital payment systems to better target subsidies may reduce reliance on blunt redistributive instruments. One example is the application of reduced VAT rates for necessities, which, while aimed at the poor, benefit the wealthy even more. Better-targeted payments that can reliably provide relief to

the poorest would be more efficient and effective. More controversially, technology has the potential to create new sources of tax revenue. Many companies, such as Facebook and Alphabet's Google, now collect hugely valuable information on their customers when they interact with them online. If it's true, as some say, that "data is the new oil," do we need a special regime to tax it, as we would a natural resource?

Secure storage

Secure storage of sensitive data is another crucial area for fiscal authorities in developing and advanced economies alike. This is where blockchain, or distributed ledger technology, holds considerable promise. Blockchain increases trust in transaction systems by putting data into shared, distributed ledgers in a way that creates permanent records of transactions that cannot be lost, altered, or stolen. In the United Kingdom, the Department of Work and Pensions is experimenting with the use of blockchain to record benefit payments and reduce overpayment of claims.

While digital technology can be harnessed to improve existing tax systems, it also offers tools for devising new ones. One example: current income tax systems arbitrarily use a one-year period as the basis for assessment. But this is too short a time horizon, because people's well-being depends on their income over a much longer period—in principle their entire lifetime. It is also too short a horizon for tailoring benefits to immediate needs. Technology could enable collection of taxes and delivery of benefits over more appropriate time spans.

Big data too could be used to assess risks of noncompliance and predict the behavioral impact of new tax and spending policies. Widespread use of blockchain technology could in principle obviate the need for a VAT, which is charged at every stage of production, with businesses allowed an offset for taxes paid on inputs. An entire chain of transactions, securely recorded (a very big "if"), could allow a tax account to be maintained continuously at each stage of production. The tax could then simply be calculated and imposed at the point of final consumption.

Limits and pitfalls

Of course, there are limits to the benefits of digital technology. It is no substitute for the basics of getting procedures and operations right.

BOX 2: BANK ACCOUNTS AND BIOMETRICS IN INDIA

In recent years, several government initiatives have enabled large-scale digitalization of the Indian economy. A national biometric identity program, Aadhaar, has registered about 1.15 billion residents. A program to increase access to the financial system was introduced in August 2014. By March 2017, more than 280 million bank accounts had been opened.

India's government has capitalized on these initiatives to improve the delivery of social benefits. The Direct Benefit Transfer program, launched in 2013, significantly changed the way subsidies and payments are delivered by transferring them directly into bank accounts linked to beneficiaries' Aadhaar biometric identity. (One such program involves subsidies for cooking gas.) In April 2017, Indians were required to include their Aadhaar number in tax filings. More recently, they were required to link their individual bank accounts to Aadhaar. The 2018 budget has proposed an Aadhaar program for businesses as well.

Though estimates vary, the Ministry of Communications and Information Technology in March 2017 put savings from such programs at the equivalent of about \$7 billion over the previous two and a half years. The costs of the Aadhaar system through its first billion-plus registrations were about \$1.16 a person, or \$1.3 billion in total.

Prepopulating tax returns with erroneous information, for example, could encourage cheating because taxpayers have little incentive to correct mistakes that reduce their tax bill. Political, institutional, and human capacity constraints may hinder government innovation and uptake of advanced solutions. Corrupt bureaucrats and taxpayers might bypass digital systems, and cryptocurrencies might be used to evade taxes. And for all the talk of low-income countries harnessing new technologies to overtake more advanced economies, the potential for leapfrogging will be limited if large segments of the population lack access to the digital world. The past, it is worth remembering, is littered with unsuccessful and costly IT projects.

What's more, digital technology raises new concerns in the realms of cybersecurity, privacy, and fraud. The theft of data from US agencies such as the Internal Revenue Service and State Department have highlighted the vulnerability of government systems. Some European countries have faced multiple fraudulent VAT refund claims that are too small individually to draw attention but significant in the aggregate. We should expect the digitalization of public finance to involve an arms race in which victory may not always go to benevolent governments.

In the corporate sphere, digitalization has amplified challenges to the current system, which focuses on a company's brick-and-mortar presence. Companies such as Alphabet, Amazon, Apple, and Facebook can have substantial economic presence in countries without having much, or any, physical presence. Still more fundamental is a point touched on earlier. Many believe—and these are very contentious issues—that business models in which commercial value (not least for advertisers) is provided not just by the business itself but by the users of an online service fit poorly into current approaches. In response, some European countries have proposed taxing some element of turnover, rather than profits, when such user-generated value is significant. Singling out digital companies for special tax treatment is inherently problematic, however, as these technologies become critical to the operations of effectively all companies. Moreover, advances in artificial intelligence and robotics have aroused fears of rising unemployment and widening inequality. If these fears prove true, policymakers may face the prospect of a shrinking

tax base and rising social welfare payments. Some observers suggest taxing new labor-replacing robot capital. Others see that as in effect taxing progress and call instead for fairer distribution of capital ownership and taxing the profits generated through automation, which they say would preserve productivity improvements associated with new technologies. The idea of a universal basic income, while costlier than means-tested systems, is also gaining support.

Managing change

But these are issues that go far beyond public finance. The digital revolution presents markets, society, and governments with the challenge of adapting to continual change. For governments, both the positive and negative effects are likely to be profound. Given the speed of innovation by the private sector, the urgency of action to harness the opportunities and mitigate the risks

While digital technology can be harnessed to improve existing tax systems, it also offers tools for devising new ones.

is clear. Experience so far suggests that many benefits are within reach. To reap the full dividends of the digital revolution, countries must focus on solutions that address their most pressing priorities. Developing economies struggling to identify and help vulnerable populations may for instance benefit most from biometrics and information systems (social registries) used to implement social programs. Others may turn to electronic payment systems and mobile technology to reduce leakages. But all will need to take steps to avoid the pitfalls—digital exclusion, cyberattacks, fraud, privacy infringement. That will require strong fiscal, political, and governance institutions. **FD**

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This article draws on Digital Revolutions in Public Finance, published by the IMF in 2017 and edited by the authors. It can be downloaded from <http://www.elibrary.imf.org>

The Low-Income Trap

Urgent steps are needed to end the cycle of poverty and debt

Fanwell Kenala Bokosi



PHOTO: DANIEL GOODMAN

A SHARP INCREASE in the foreign debt of developing economies has raised concern that another crisis is looming. This is particularly true in Africa, where external debt in many countries has reached unsustainable levels. The burden of adjustment, when it comes, will inevitably fall on the most vulnerable—women, children, and the poor. That is why the international community must develop and implement new ways to restructure debt and measures to protect heavily indebted nations from the vicissitudes of the international credit markets. Borrowers and creditors alike must agree on responsible lending practices that have the support of democratically elected governments and civil society.

Developing economies in Africa and elsewhere benefited from debt relief under two programs sponsored by international lending institutions—the 1996 Heavily Indebted Poor Countries Initiative and the 2005 Multilateral Debt Relief Initiative.

When debt relief allowed low-income countries to resume borrowing, they quickly took advantage of low global interest rates to sell securities on international capital markets. But the sharp decline in commodity prices has dealt a financial blow to countries that depend on exports of farm products, oil, gas, and other natural resources to generate the revenue they need to repay their obligations. The countries of sub-Saharan Africa are now struggling to service external debt that in many cases has risen above 90 percent of GDP. An IMF debt sustainability analysis (2018) lists 14 African countries in distress or at high risk of distress, including Burundi, Cameroon, the Central African Republic, Chad, Ghana, Sudan, and Zimbabwe.

Still struggling

To be sure, many countries have done much to improve their debt management capacity since the Heavily Indebted Poor Countries Initiative. They have computerized debt records, established debt management offices that consolidate previously scattered functions, adopted medium-term debt management strategies, improved analytical capacity in debt sustainability, and attempted to develop domestic debt markets. Low-income countries are still struggling though. Revenue shortages keep them from paying down debt, which forces them to borrow even more to meet basic needs. Budget cuts only make matters worse by slowing economic growth, thereby reducing tax revenue.

The next crisis will be more difficult to prevent and resolve than the last one because the debt landscape has grown more complex. In the past, developing economy debt was held mainly by sovereign creditors represented by the Paris Club and by international lending institutions, so negotiating debt relief was relatively straightforward. Today, debt is held by private, bilateral, and multilateral creditors, and there are new financial instruments to contend with. Speculators target countries in crisis, which has forced nations such as Ghana and Mozambique to return to the IMF for help. Countries that

enter into debt restructuring agreements are at risk of attack by so-called vulture funds, which buy distressed bonds at a discount on the secondary market with the aim of forcing the debtor nation to pay a larger sum, as was the case with Argentina and Greece.

Flawed system

How can this vicious cycle of debt and impoverishment be broken? Overhauling the deeply flawed system of cross-border taxation would be one major step. Researchers at the IMF (2015) estimate that developing economies may be losing between \$100 billion and \$300 billion in revenue a year because of tax avoidance strategies by multinational corporations that subvert the spirit, if not always the letter, of the law. Poor countries lose another \$170 billion in revenue every year when income is sheltered in tax havens. Countries also lose out by engaging in an international race to the bottom as they compete to attract foreign investment by cutting tax rates, offering incentives, and negotiating unfavorable trade agreements.

More important is an urgent need for an international mechanism to restructure sovereign debt. The lack of such a mechanism represents a severe

borrow must be approved by democratic institutions. Loans must comply with national and international laws, consider the debtor country's ability to pay, charge reasonable interest and fees, avoid harmful policy conditionality, prevent future predatory debt litigation, and support development strategies.

Debt restructuring must also protect human rights, promote economic growth, and allow for public spending on essential services. A fair and rapid debt workout process would bring significant benefits not just to the debtor country, but also to the poor, women, and children, who are affected the most. **FD**

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The next crisis will be more difficult to prevent and resolve because the debt landscape has grown more complex.

gap in the international financial architecture. A fair and orderly mechanism could prevent debt crises by addressing unsustainable debt early, or at least mitigate the damage when a crisis is underway. Such a mechanism is critical to halting predatory behavior by creditors, promoting financial stability, reducing debt burdens, and encouraging responsible borrowing and lending.

The mechanism should be supplemented by a set of lending and borrowing principles intended to prevent future debt crises and increase transparency and accountability. Preventing reckless lending and borrowing requires a major change in the standards both sides must follow and how these are implemented. In particular, any decision to



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RAISING REVENUE

Five country cases illustrate how best to improve tax collection

Bernardin Akitoby

A typical developing economy collects just 15 percent of GDP in taxes, compared with the 40 percent collected by a typical advanced economy. The ability to collect taxes is central to a country's capacity to finance social services such as health and education, critical infrastructure such as electricity and roads, and other public goods. Considering the vast needs of poor countries, this low level of tax collection is putting economic development at risk.

How can policymakers tackle this challenge? A look at successful reforms between 2004 and 2015 in five low-income and emerging market

economies—which achieved some of the largest revenue gains after tax reform—offers some answers. The experiences of this diverse set of countries—Cambodia, Georgia, Guyana, Liberia, and Ukraine—show that, regardless of the constraints they face, countries can strengthen their capacity to collect tax revenue by pursuing reform strategies with certain distinct features. We focus here mainly on Georgia. By analyzing what worked in that country we can draw lessons for what strategies other countries should consider.

Georgia offers a striking example of successful tax revenue reform. Following the collapse of the Soviet



Union, the government struggled to collect tax revenue. By 2003, rampant corruption involving tax evasion, illegal tax credits, and theft of government tax revenue had left public finances in shambles. The government was no longer able to honor its obligations to public servants and pensioners, even though salaries and pensions were very low.

Georgia's sweeping tax reform was made possible after the 2003 Rose Revolution, which gave the new government a mandate to reform the economy and fight widespread corruption. The country's new leaders adopted a policy of zero tolerance for corruption, and the culture began to change, along with the laws. A revised tax code, passed in 2004, simplified the tax system, reduced rates, and eliminated a series of minor local taxes that had been generating little revenue (on pollution and gambling, for example). Only 7 of 21 taxes remained, and many of the rates were reduced.

Progressive personal income tax rates (12 to 20 percent) were replaced with a flat rate of 20 percent, and the social security contribution tax rate was first reduced from 33 percent to 20 percent and then eliminated altogether. Corporate income was taxed at a flat rate of 15 percent, and the value-added tax (VAT) was reduced from 20 percent to 18 percent. The revenue lost from lower tax rates was made up through a broader tax base, better compliance, and stricter enforcement.

The government also made it easier to pay taxes by introducing measures such as an electronic tax filing system. In this way, technology both improved efficiency and reduced opportunities for corruption. In parallel, the government lowered the minimum capital required to start a business, which also generated more tax revenue.

The improvement in the country's ability to mobilize revenue between 2004 and 2011 is all the more impressive given the sharp reduction in tax rates. By 2008, Georgia's tax-revenue-to-GDP ratio had doubled to 25 percent.

Lessons for tax reform

What does Georgia's experience teach us about how best to increase tax revenue? While there is no one-size-fits-all solution, there are a few lessons that can be drawn from Georgia's case as well as the experiences of the other four countries.

Have a clear mandate. Governments with a clear mandate to reform the tax system often succeed.

Georgia's comprehensive tax reform was feasible only after the country had reached a high degree of dysfunction, triggering a revolution. Similarly, in Ukraine, the 2004 Orange Revolution was a catalyst for tax reform. And in 2003, Liberia initiated reform after the civil war had ended.

Secure high-level political commitment and buy-in from all stakeholders. While a clear mandate is necessary, it is not sufficient. Many newly elected governments do have such a mandate, but not all of them reform. Therefore, political commitment at the highest level and broad buy-in are needed. Social dialogue enhances the likelihood of reforms being implemented and sustained.

MANY COUNTRIES INCUR A SIZABLE LOSS OF REVENUE THROUGH ILL-DESIGNED EXEMPTIONS, SUCH AS COSTLY TAX HOLIDAYS.

Effective communication with stakeholders that emphasizes the intended benefits of reforms can help overcome resistance of vested interests. And compensating the losers has proved effective in winning public support for tax reform initiatives.

Simplify the tax system and curb exemptions. A simpler tax system with a limited number of rates is critical to fostering taxpayer compliance, as seen in the Georgia example. Notably, in fragile states, focus first on simplifying taxes, procedures, and structures. Simplicity of the tax system and legislation is the guiding principle for fragile states. This makes tax administration less challenging in weak states that lack such basic institutions as security and a well-functioning judicial system.

Liberia is a case in point. Following its emergence from civil war, Liberia introduced taxes on turnover or import values, such as the goods and services tax, excises, and customs tariffs, underpinned by simple tax legislation.

Curbing exemptions can also reduce the tax system's complexity while boosting revenue by broadening the tax base. Many countries incur a sizable loss of revenue through ill-designed exemptions, such as costly tax holidays and other incentives that fail to attract investment. And discretionary granting of exemptions provides opportunities for corruption.

Reducing exemptions figured prominently in nearly all five countries. Guyana, for example, implemented a comprehensive exemption reform with main elements that included eliminating the power of the finance minister to grant discretionary exemptions, publishing exemptions annually, and limiting income tax holidays to every 5 or 10 years, depending on the sector.

Reform indirect taxes on goods and services.

The VAT has proved to be an efficient and strong revenue booster: countries that impose this tax tend to raise more revenue than those that don't (Keen and Lockwood 2010). In addition to reducing the rate, Georgia streamlined its VAT refund mechanism, allowing revenue from this source to rise from 8.5 percent of GDP in 2005 to about 11.5 percent in 2009.

Guyana successfully introduced a VAT on January 1, 2007, despite significant challenges in the preparatory work, including setting up the new VAT department with fully trained staff, putting in place the supporting IT system and procedures, and training potential registrants and practitioners. The VAT was broad-based, with a single rate of 16 percent and a limited number of exemptions for financial, medical, and educational services. As part of its reform, Ukraine also curbed VAT exemptions

and revised the regime for agriculture by reducing the rate and eliminating refunds.

Increases in excise and sales taxes are the simplest measures because they can raise revenue fairly quickly without fundamental changes to the tax system. For example, Guyana in 2015 took advantage of the decline in the international price of oil to raise fuel excise taxes. This step buoyed revenue during the country's economic slowdown. Similarly, Liberia broadened the scope of its goods and services tax while raising excise taxes on alcoholic beverages and cigarettes.

Introduce comprehensive tax administration reforms.

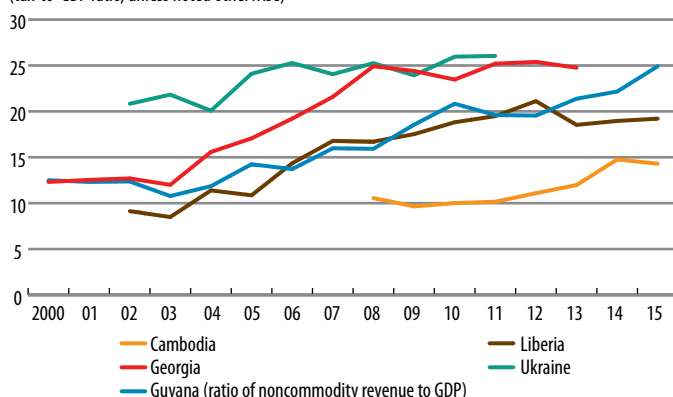
Successful revenue mobilization cases tend to take a more holistic approach to modernizing tax institutions. In all five case studies, revenue administration reforms figured prominently and covered a broad spectrum of legal, technical, and administrative measures, such as

- **Management, governance, and human resources:** Four of the five countries implemented some management and governance changes. Georgia gradually recruited new tax and customs officers and phased out the old ones as part of its anti-corruption reform.
- **Establishment of large taxpayer offices:** A large taxpayer office allows a country to focus tax compliance efforts on the biggest taxpayers, as Cambodia has done. These offices also support good tax administration; they often pilot new tax and customs procedures before their rollout to the broader population.
- **Smart use of information management systems:** Successful revenue mobilization hinges on managing information and leveraging the power of big data to improve compliance and fight corruption. Most of the countries studied have taken advantage of IT systems to leapfrog their revenue mobilization reforms. Georgia has automated most processes, including e-filing. It has also instituted a system for information sharing among tax authorities, taxpayers, and banks, as well as a one-stop Internet portal. Cambodia, Guyana, and Liberia have likewise computerized the administration of their taxes and customs.
- **More modern registration, filing, and management of payment obligations:** All five countries have sought to establish or modernize basic rules and processes in these key compliance areas. For instance, Guyana implemented a unique system of

On the rise

All five countries made impressive progress in collecting tax revenue during the reform period.

(tax-to-GDP ratio, unless noted otherwise)



Source: Akitoby and others. Forthcoming. "Large Tax Revenue Mobilization in Low-Income Countries and Emerging Markets: Lessons from a New Database."



taxpayer identification numbers and streamlined its process. It also introduced income tax withholding, a measure critical to fostering compliance.

- *Enhanced audit and verification program:* A risk-based audit, which links the likelihood and nature of an audit to the taxpayer's inherent risks, is the most effective type in terms of encouraging compliance. All five countries have made this a key part of their revenue mobilization strategy. Notably, Cambodia conducted risk-based audits of taxpayers at customs and of the 150 largest taxpayers and hired some 200 new auditors. Ukraine implemented a targeted audit program, improved the internal control of tax administration, fought fraudulent VAT claims, and developed an anti-smuggling program at the customs office.

Taking the long view

Although the optimal timing and design of reform measures vary among countries, these five cases highlight some basic lessons. One such lesson is that countries that pursue revenue administration measures and tax policy reform in tandem tend to see much larger gains.

But countries must give tax reform time to bear fruit. The duration of the reform episodes ranged from two to seven years. Sustained success requires institutional change, which happens only gradually.

The revenue increase in each of the five countries was impressive and averaged at least 1 percent of GDP a year over the reform period (see chart). This is consistent with the quantitative tax revenue objective over the four- to six-year time horizon recently

advocated by the IMF's Vitor Gaspar and Abebe Selassie. In Georgia, the revenue gains averaged 2.5 percent of GDP a year, as was the case in Ukraine. Moreover, all five countries sustained the revenue gains in the five years after the reform episodes, confirming the quality of the measures put in place.

These five cases clearly show that large tax revenue mobilization can be achieved and sustained. Although reform must be tailored to individual circumstances, three lessons stand out: tax reform requires first and foremost a broad social and political commitment; it rests on broad-based strategies that recognize that *what and whom* to tax should go hand in hand with *how* to tax; and it should be developed with the longer view in mind. **FD**

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This paper draws on a forthcoming IMF Working Paper, "Large Tax Revenue Mobilization in Low-Income Countries and Emerging Markets: Lessons from a New Database," by Bernardin Akitoby, Anja Baum, Clay Hackney, Olamide Harrison, Keyra Primus, and Veronique Salins.

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Higher tax revenue can support schools such as this one in Mali.



Spreading the Wealth

Fiscal instruments can reduce inequality, but some yield short-term results while others bear fruit over the long term

François Bourguignon

After years of quasi-neglect, economic inequality has taken center stage in the policy debate worldwide. In advanced economies, the apparent impact of globalization and technological change and the cost of counteracting these forces is raising concern. In developing economies, where inequality is higher, the issue is whether it poses a major obstacle to raising growth and reducing poverty. In both cases, the redistribution of income might achieve not only greater equality but also faster growth and, for developing economies, faster poverty reduction.

In countries where growth is satisfactory but benefits the poor much less than the non-poor, there obviously is a strong case for shifting resources from those at the top of the income scale to those at

the bottom. Giving poor children access to better education and paying for it by taxing the affluent is one way to reduce inequality while also fostering future growth and poverty reduction. Redistributive policies could also help narrow the gap between rich and poor in countries with high inequality, where social and political tensions or the rise of populist regimes might prove bad for growth in the long run.

Knowing that a more equal distribution of resources may be good for development is one thing; having the right instruments to implement it is another. These instruments—from progressive taxation, cash transfers, and investment in human capital to regulation and inclusive growth strategies—do exist. But they are vastly underused in developing economies.

Straight income redistribution

Taxation and income transfers to the poorest segment of society are the most direct way to keep inequality in check and reduce poverty in the short term. These instruments are particularly appropriate when the benefits of growth fail to reach the poor. But most

Transfers to the poor should not consist merely of cash; they should also boost people's capacity to generate income.

of the time they are too small to really make a difference. On average, taxes on personal income and cash benefits to the poor are almost 10 times lower, as a proportion of GDP, than in advanced economies.

The success of conditional cash transfer programs has demonstrated that it is possible to transfer cash efficiently to poor people in developing economies. These cash transfer programs give money to households on the condition that they comply with certain pre-defined requirements, such as up-to-date vaccinations or regular school attendance by children. The spread of such initiatives as Mexico's *Prospera* (previously *Progres*a), or Brazil's *Bolsa Família* from Latin America to other developing regions—as well as the results of several pilots in poorer sub-Saharan African countries—shows the progress made in the last 15 years or so in the field of redistribution. New methods of means testing and cash distribution have made it possible (see “Reaching Poor People” in the December 2017 *F&D*).

Such programs should continue to improve in the future, thanks to advances in information technology, particularly the use of mobile money. But their current impact on poverty and inequality is limited. Their main weakness is their size, which amounts to 0.5 percent of GDP at most in middle-income countries. In poorer countries, they are still at the pilot stage.

Expanding those programs requires more resources. A higher and more effective income tax in the upper part of the income scale could help raise the necessary funds. In this respect, the generalized use of bank accounts, credit cards, and debit cards by higher-income people in most countries should make it easier to monitor personal incomes and reduce tax evasion. Political economy issues aside, this should lead developing economies' governments to place more emphasis on direct taxation than they presently do.

Developing economies tend to rely relatively more than advanced economies on the indirect taxation of domestic and imported goods and services. Indirect taxes are said to be regressive because they tax consumption rather than income, and wealthier people save a higher proportion of their income. But in addition, indirect taxation in developing economies may even increase poverty depending on the

structure of tax rates and the consumption basket of households at various rungs of the income scale (Higgins and Lustig 2016). In any case, lowering taxes on goods such as food that weigh more in the budget of poor people achieves relatively little redistribution because wealthier people also consume these goods, perhaps as a lower proportion of their budget but possibly in larger quantity. The same argument applies to subsidies for purchases of basic goods like bread or fuel. Income transfers are preferable to subsidies because they cost less and are better targeted to the truly needy, as evidenced by the pilot experiments on the replacement of food subsidies by “direct benefit transfers” in some Indian states (Muralidharan, Niehaus, and Sukhtankar 2017).

There is therefore a strong case for the expansion of redistribution in developing economies when growth is satisfactory but poverty reduction is slow. There are political obstacles to doing so, however, as well as challenges related to the country's administrative capacity. Political opposition may well remain, but modern information technology is likely to improve administrative capacity.

Increasing opportunities

Income redistribution will lower poverty by reducing inequality, if done properly. But it may not accelerate growth in any major way, except perhaps by reducing social tensions arising from inequality and allowing poor people to devote more resources to human and physical asset accumulation. Directly investing in opportunities for poor people is essential. Transfers to the poor should not consist merely of cash; they should also boost people's capacity to generate income, today and in the future. Education and training as well as access to health care, micro-credit, water, energy, and transportation are powerful instruments. Social assistance is critical to prevent people from falling into poverty traps when adverse shocks hit. Programs such as India's Mahatma Gandhi National Rural Employment Guarantee, in which the state acts as the employer of last resort, do precisely that.

Conditional cash transfers have been shown to motivate families to send their children to school, improve their nutrition, and monitor their health. But facilities to meet this additional demand must

be made available and must be financed. The same is true of other programs focusing on improving opportunities for the poor. Financing these programs through progressive taxation while providing cash transfer incentives to poor households thus reduces inequality and poverty in the short term and helps these households generate more income over the medium and long term.

Is such a strategy of static and dynamic income equalization immune to the efficiency cost of redistribution? In other words, do these taxes and transfers take away the incentives for people to work, save, and become entrepreneurs? Given the limited scope of redistribution in developing economies, it is unlikely that it would have much effect on economic incentives. Substantial income tax progressivity may indeed be achieved with marginal tax rates much below those in advanced economies, where redistribution is not considered to be an obstacle to growth (Lindert 2004). Also, replacing distortionary indirect taxes or

The choice is difficult because some parties will necessarily lose in the short run.

subsidies with income transfers should improve efficiency. Moreover, conditional cash transfers appear to have no significant negative effect on labor supply; they may even encourage entrepreneurship (Bianchi and Boba 2013).

Strategies that promote greater equality and stronger growth rely on raising resources in a progressive way and spending them on programs that benefit the poorest segment of the population in this generation or the next one. Other policies that do not rely on redistribution may achieve the same goals. Before contemplating redistribution, however, governments ought to consider enhancing the pro-poor nature or inclusiveness of their growth strategies, in particular through fostering employment for unskilled workers.

Other policies besides straight redistribution are also available. Minimum wage laws—although controversial in advanced economies because of their potentially negative effects on employment when the minimum is set too high—generate more equality in the distribution of earnings. In developing economies, such policies may actually increase labor productivity by improving the physical condition of

workers, as predicted by the efficiency wage theory. Part of the drop in inequality observed in Brazil at the turn of the century just as growth was accelerating has been partly attributed to the significant increase in the minimum wage (Komatsu and Filho 2016).

Anti-discrimination laws can also promote equality and foster growth by improving work and training incentives for minority groups. And anti-corruption strategies, by reducing rent seeking, are probably the best candidates for both enhancing growth and income equality, even if the inequality arising from corruption is often difficult to observe.

Governments can draw on an array of policies to foster growth by reducing inequality and ensuring that growth reduces poverty. The policies they adopt will depend on the relative importance of these two objectives and the time horizon over which they can be expected to deliver results. Pure income redistribution policies generate less future growth than those policies that expand the economic opportunities of poor people—but they reduce poverty immediately. They also alleviate social tensions and may thus free growth constraints in the case of excessive inequality. On the other hand, policies that enhance opportunities for the poor do less to reduce inequality today, essentially through taxation, but result in faster growth, less poverty, and greater equality tomorrow.

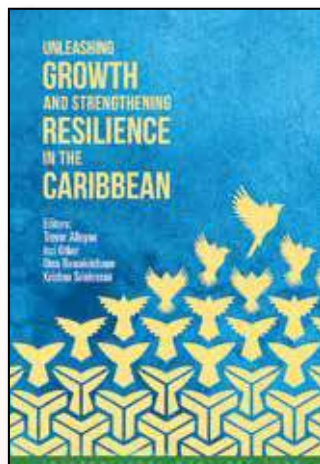
It is up to governments to choose their preferred policy combination. The choice is difficult because some parties will necessarily lose in the short run and might not make up for this loss anytime soon. Yet instruments are available today that would benefit all in the long run, through faster growth, more rapid poverty reduction, and less inequality. It would be a serious mistake not to make use of them. **FD**

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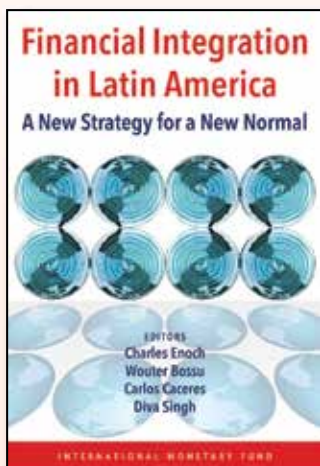


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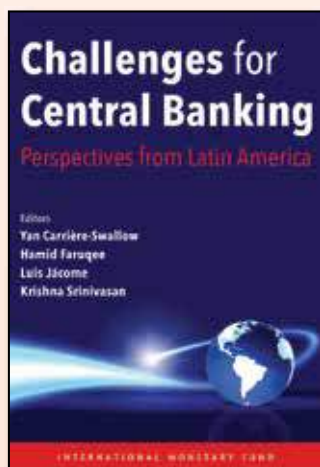
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A historic dinner meeting laid the foundations of US finances

Vitor Gaspar and David Amaglobeli

On the evening of June 20, 1790, James Madison and Alexander Hamilton met at Thomas Jefferson's home on Maiden Lane, in New York. Over a long dinner, the three struck a historic deal that laid the financial groundwork for the fledgling nation. Madison agreed to have the US federal government take over the states' Revolutionary War debt; in return, Hamilton agreed to support the move of the nation's capital to the banks of the Potomac River, a location favorable to Madison's home state of Virginia. The deal is an early and vivid example of how fiscal politics can shape history. The episode remains relevant because it shows that politics plays a crucial role in far-reaching reforms of public finances. Public finance reform is fundamentally political, and it has the potential to shape the political system itself. As this most famous dinner shows, political negotiation can help overcome apparently insurmountable obstacles and become a force for institutional transformation. Today's policymakers who disregard political realities are doomed to be ineffective.

About 18 months before that historic dinner, when George Washington was elected as the nation's first president, the federal government was bankrupt. The Treasury Department was not created until September 1789, and the first federal revenue had yet to come in. Yet by 1792, the new administration would manage to put its fiscal house in order. In addition to assuming the debt of the states, it restructured its own wartime debt, built strong federal tax capacity based on tariffs and an effective customs service, laid the foundations of public credit, created a national bank, and promoted the development of financial markets. These

steps gave the federal government tools to carry out a policy of active economic development.

Rarely in the history of finance has so much been achieved in so short a time. Building and shaping the nation's capacity to manage public finances was a profoundly political process. It divided the Founding Fathers into two opposing camps: the Federalist Party of Hamilton and John Adams, which advocated a strong federal government, and the Democratic-Republican Party of Jefferson and Madison, which favored a decentralized government with limited federal powers. This partisan split has been a feature of American politics ever since.

Pragmatic vision

Hamilton recognized that the Constitution alone would not make the federal government strong; it was also necessary to build the infrastructure of public finance. Guided by a vision that was pragmatic and concrete rather than abstract and theoretical, Hamilton laid out his program in three landmark reports: on public credit (January 1790), a national bank (December 1790), and manufactures (December 1791). Taken together, these reports addressed five core areas: taxation, public credit, financial markets and organizations, financial stability and crisis management, and trade policy. Hamilton was inspired by a new kind of state that had emerged from Britain's Glorious Revolution of 1688–89: one capable of mobilizing resources for war and international competition and actively engaged in economic and financial development. This program of state building dominated political debate in the United States for the next decade.

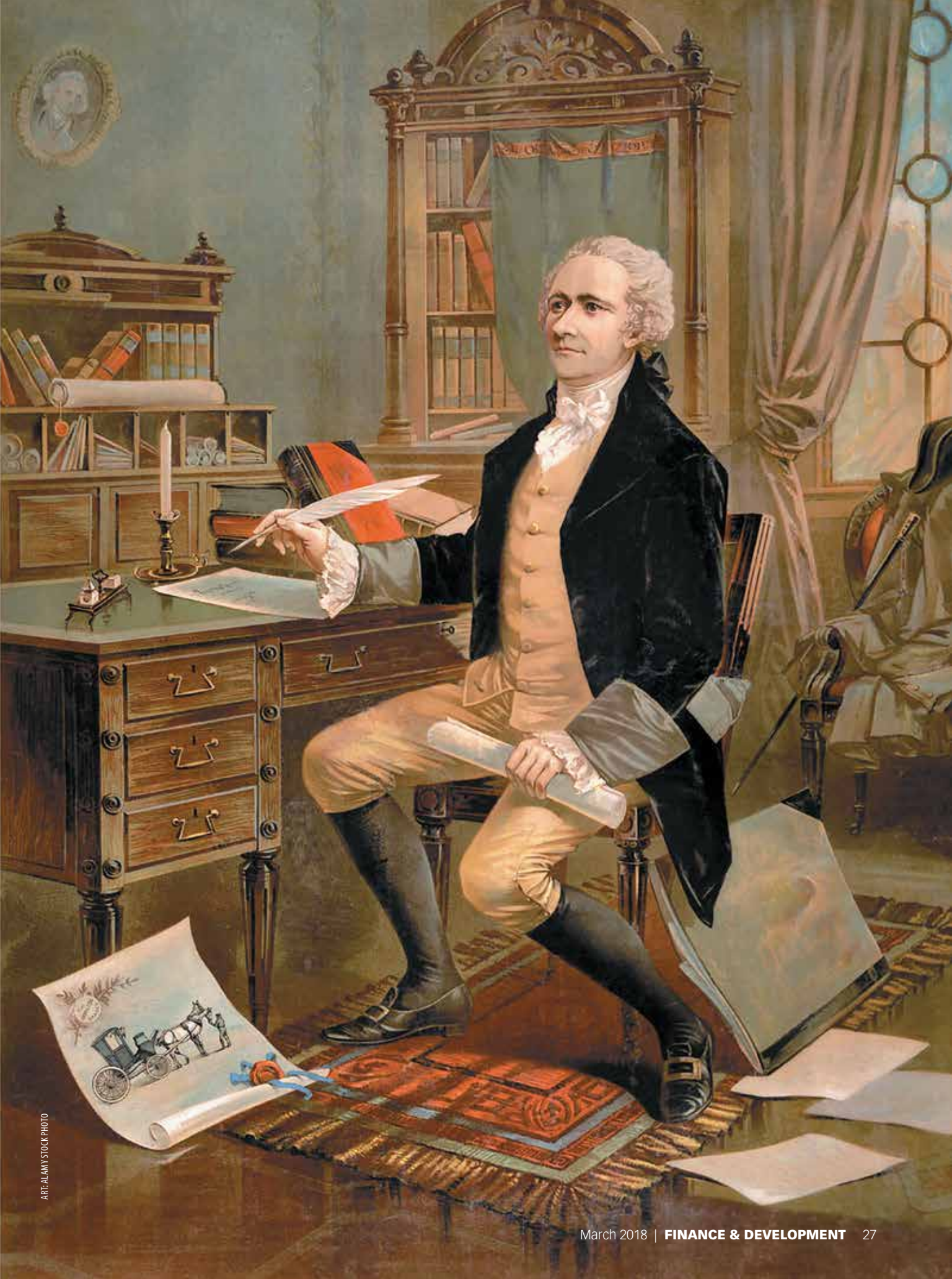
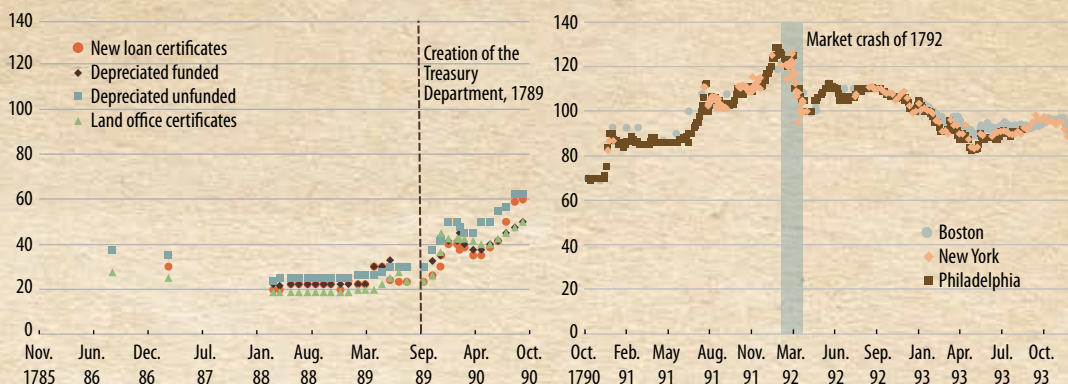


Chart 1

Full faith and credit

Prices of US Treasury securities started increasing with the establishment of the Treasury Department in September 1789 and continued to rise, reflecting the improved creditworthiness of the federal government. The boom was followed by a bust in 1791–92.

(prices of US debt securities, dollars)



Source: eh.net/database; data compiled by Richard E. Sylla, Jack Wilson, and Robert E. Wright.

Note: The left panel, covering the period prior to 1791, includes four different kinds of marketable securities issued by the Continental Congress. The right panel, starting in late 1790, shows prices for Alexander Hamilton's new 6 percent securities issued in Boston, New York, and Philadelphia.

Famously, Madison and Hamilton initially were close political allies. They collaborated on *The Federalist Papers*, which succeeded in their purpose of persuading the states to ratify the Constitution. They continued to work together in the field of taxation. On April 8, 1789, two days after a quorum was achieved in the Senate, Madison introduced the First Tariff Act, which would become law on August 1, to mobilize the resources needed to service the public debt and ensure the orderly functioning of the federal government. Tariffs were the most expeditious way of collecting revenue; direct taxes, on the other hand, were harder to collect and deeply unpopular. Tariffs ensured a stable source of revenue and contributed about 90 percent of the total. This key foundation was in place even before Hamilton took office as the first Treasury secretary.

The next order of business was to deal with the public debt, which led to initial controversy among key allies. The goal was to make sure that Treasury securities would come to be regarded as safe assets and a reliable source of financing for the federal government. Hamilton estimated the stock of public debt at \$79 million (roughly 40 percent of GDP), of which \$54 million was owed by the federal government and \$25 million by the states. Even though that level does not appear high from today's perspective and was much lower as a proportion of GDP than Great Britain's at the time, debt service costs alone exceeded tax revenues.

To keep taxation at reasonable levels, Hamilton's report on public credit proposed to offer domestic

creditors the choice of swapping their existing government notes for new debt. The debt conversion was meant to reduce the rate of interest from 6 percent to 4 percent, thereby saving about one-third of domestic interest costs. To sweeten the proposal, the Treasury Department would offer call protection that limited the government's ability to redeem the debt early if market interest rates declined. In his report, Hamilton wrote that such a decline could be expected if effective measures to establish public credit were taken. He concluded: "It ought to be the policy of the government to raise the value of the stock to its true standard as fast as possible."

Contentious issues

Hamilton's debt proposal raised a couple of contentious political issues. First, the debt swap would be carried out at face value. This meant windfall gains for many current debt holders who were speculators and had purchased the original securities at a small fraction of their face value—sometimes as little as 20 percent—from the patriots who bought them at issuance. Should not the original creditors be rewarded and financial speculation curbed? Hamilton thought not: the original holders sold voluntarily, obtaining needed cash and showing little faith in the creditworthiness of the US government. Retroactive government intervention in a private financial transaction would be inappropriate. Public credit was founded on the government's willingness to honor the terms of financial contracts. On that foundation, the US financial system would be built.

Credibility was gained rapidly after the passage of Hamilton's proposals. In 1791, prices rose above par before falling again during the financial crisis of 1792 (see Chart 1).

Second, Hamilton's proposal envisaged federal assumption of states' debt. He argued that the debt had been incurred by the states in pursuit of the common good: the financing of the War of Independence. That was clearly a common good for the fledgling nation.

Liquid markets

Hamilton was motivated by several additional considerations. Politically, he sought to ensure the allegiance of creditors to the federal government; institutionally, he wanted to foster deep and liquid markets for Treasury securities. A further political motivation was related to the fundamental matter of assigning taxation across levels of government. There were two issues to consider: first, the Constitution gave the federal government the exclusive right to levy tariffs. Overlapping authority for other instruments of taxation opened the door for tax competition among the states. Second, the federal government would assume states' debt and therefore the interest payments that comprised the biggest expenditures in most states. In this way, the federal government would diminish the revenue needs of the states, with the result that the ability to tax would be concentrated at the federal level (see Chart 2). Hamilton proposed to shape the structure of government through the structure of the public finances.

Given the controversial nature of Hamilton's report, it is not surprising that by June 1790, Congress had not yet decided to assume the debt of the states. On June 2, the House of Representatives passed Hamilton's funding bill, but without the debt-assumption provision. Then another divisive issue emerged: where to locate the nation's capital. The choice would not only increase the economic well-being of the host city but would have an indirect, albeit important, influence on political and policy decisions. Hamilton favored New York, which would thus become the center of political and financial power, like London—a perfect fit for his plan for a strong central government. On the other hand, Virginians such as Jefferson and Madison wanted the seat of government to be on the banks of the Potomac. A compromise was struck at that historic dinner, and in July 1790, Congress passed the Residence and Assumption bills in quick succession.

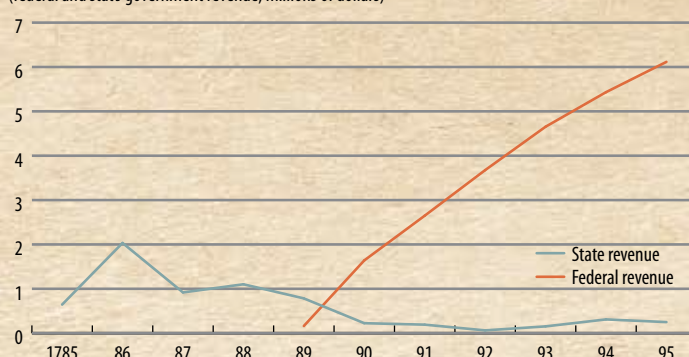
Jefferson nevertheless remained dissatisfied. More than two years later, in September 1792, the nation's

Chart 2

Concentrated capacity

Alexander Hamilton's reforms diminished the revenue needs of the US states, resulting in tax capacity concentrated at the federal level.

(federal and state government revenue, millions of dollars)



Sources: Edling, M., and M. Kaplanoff. 2004. "Alexander Hamilton's Fiscal Reform: Transforming the Structure of Taxation in the Early Republic." *William and Mary Quarterly* 61 (4): 713–44; Sylla, R. 2010. "Financial Foundations: Public Credit, the National Bank, and Securities Markets." <http://www.nber.org/chapters/c11737>; and Historical Statistics of the United States. <http://hsus.cambridge.org/HSUSWeb/index.do>. Data for state government revenue are for nine states.

first secretary of state referred to the episode in a letter to President Washington:

"When I embarked in government, it was with a determination to intermeddle not at all with the legislature & as little as possible with my co-departments. The first and only instance of variance from the former part of my resolution, I was duped by the Secretary of the Treasury and made a tool for forwarding his schemes, not then sufficiently understood by me; and of all the errors of my political life, this has occasioned me the deepest regret."

Why the deepest regret? Ensuring financing of federal government operations and the assumption of states' debt were only the first part of Hamilton's program. By putting in place centralized public finances in support of a vigorous executive, Hamilton was ready to start carrying out specific policies in the areas of financial stability, crisis management, and trade. From that point of view, agreeing to separate the country's political capital from its financial center was a minor concession.

It was now clear that the early policy confrontations between the two camps were signs of fundamental differences. In 1792, Madison and Jefferson organized their party to rival the Federalist party. That decision marked the beginning of professional, competitive party politics as a cornerstone of representative democracy in the United States. Fiscal policy, finance, and politics are inextricably intertwined. The same is true of debt, taxes, and state capacity. **FD**

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THE DEBT WEB

The interwar period shows how a complex network of sovereign debt can aggravate financial crises

Mark De Broeck, Era Dabla-Norris, Nicolas End, and Marina Marinkov

In the early 1930s, as the Great Depression took hold, the international capital flows that were critical to the functioning of the world economy dried up. The reasons are still debated: reckless behavior of speculators and banks, misguided monetary policies, and severe exchange rate misalignments are among the usual suspects. Few would argue that unsustainable fiscal policies and sovereign debt write-offs were the main reasons for the collapse of asset markets and global financial flows. Yet, in Europe in the 1920s and early 1930s, governments often received larger capital inflows than the private sector (see Chart 1).

Using a unique new set of data compiled by the IMF that records sovereign debt at the instrument

level, we took a close look at the web of debt—most of it incurred because of World War I—that linked the world's major economies in the interwar period. We found that concerns among investors about the credibility of fiscal policies and sovereign debt service contributed to the severity and persistence of the financial disruptions associated with the Great Depression, even if they were not the trigger.

Our study of the interwar period shows how external sovereign debts can play an aggravating role in global financial cycles, especially when they represent the nodes of a complex financial web. As with the global crisis of 2008 and the euro area crisis of 2010, loss of investor confidence, sovereign debt market disruptions led by liquidity drought, and government intervention in the financial sector added to the external debt burden. Thus, the interwar period offers a telling lens not only for understanding the 2008 crisis, but also for identifying and interpreting present-day vulnerabilities.

In the years after World War I, countries faced very high levels of sovereign debt and an unforgiving macroeconomic environment. Most took steps to reduce deficits and spur growth. The United

Underwriters and banks played an important marketing and risk-taking role.

Kingdom pursued restrictive fiscal and monetary policies to bring down prices in support of the return to the gold standard at prewar parity. Austria and Germany, by contrast, initially failed to achieve fiscal and monetary reform and went down the road of hyperinflation. Italy, Japan, and to some extent, France experimented with capital controls and financial repression—government domination of banks or manipulation of money markets.

These strategies found parallels in the years following the 2008 crisis: Greece restructured its public debt, and Iceland and Cyprus adopted capital controls. Banks in Greece, Italy, Portugal, and Spain sharply increased holdings of their own governments' debt. While such so-called home bias helps reduce government borrowing costs and provides fiscal breathing space in times of stress, it also obscures the pricing of risk, as it did during the interwar period.

Complicated networks

Sovereign debt interconnectedness between the wars was greater than could be inferred from net positions alone (see Chart 2). It took various forms:

- *Lending among allied governments and central banks during and after the war:* Official external debt also included reparations imposed on Germany and some other countries. These added another layer of interconnectedness, as did attempts to make interallied debt service contingent on German reparation payments.
- *Sales of sovereign debt to private investors in foreign markets, which rose considerably in the 1920s:* Underwriters and banks played an important marketing and risk-taking role in these issuances. For instance, JP Morgan & Co. was instrumental in floating foreign sovereign loans on the US market.
- *Sales of debt abroad by borrowers other than the sovereign, especially to US investors, which also grew in the 1920s:* Germany encouraged external borrowing by the private sector and state and local governments to help generate foreign exchange for reparation payments.

These manifestations of interconnectedness fed into each other, rendering the global financial system vulnerable to sovereign stress. Successive rounds of multilateral and bilateral renegotiation added more links. Each agreement came with forgiveness of a sizable portion of the debt and provided refinancing for the bulk of the obligations, thereby intensifying the complexity of the network. This has important parallels with the 2008 crisis, when the buildup of public leverage—servicing debt through more debt—left the global financial system more vulnerable to shocks.

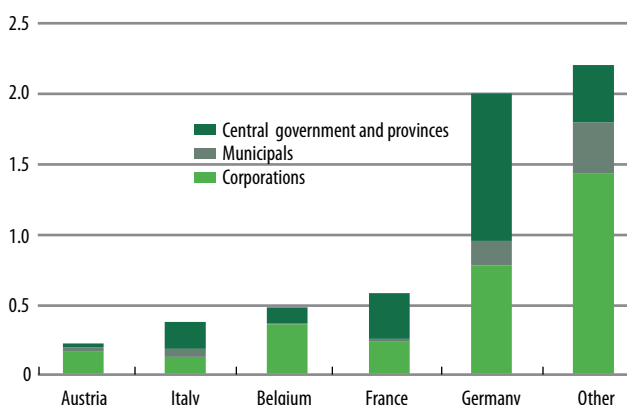
During the interwar period, many countries also had to issue foreign-currency debt abroad because they lacked well-developed financial markets at home. This left them vulnerable to the risk that the value of their debt would rise if their currency weakened, increasing the likelihood of default. The situation has parallels to examples of sudden stops in capital inflows in recent emerging market crises such as those in Argentina, Brazil, and Mexico in the 1980s and 1990s.

Chart 1

A king's ransom

Governments in Europe often borrowed more money from overseas than the private sector.

(debt inflows over 1919–32, billions of dollars)

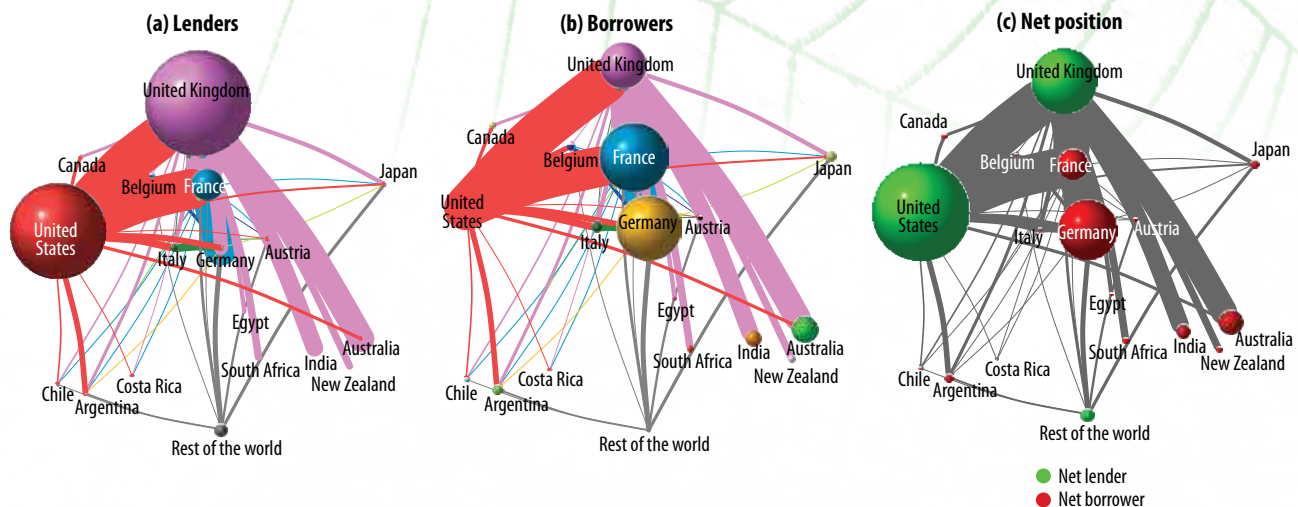


Sources: League of Nations. 1943. *Europe's Capital Movements 1919-1932: A Statistical Note*; and authors' calculations.

Chart 2

Debt nodes

The network of external debt in 1931 was dominated by a handful of large countries, including France, Germany, the United Kingdom, and the United States.



Source: De Broeck and others, forthcoming.

Note: The width of each link represents the amount of outstanding debt, while the size of the nodes represents the outstanding stock of debt borrowed by sovereigns on chart (a), lent to sovereigns on chart (b), and in net terms on chart (c) (based on amounts converted to US dollars, with the same scaling parameter for all panels). A net lender (borrower) is a country that is lending more (less) to the rest of the world than it is borrowing from the rest of the world.

Contagion risks within a network are heightened when all participants are dependent on a single node, as was the case in the 1920s. Germany alone accounted for the bulk of the net exposure in the network. In the years after World War I, it became increasingly clear that Germany would be unable to service its obligations, including reparations, without some form of relief. That did not stop France, Italy, and the United Kingdom from linking their own debt service to German reparation payments.

Systemic risks

Successive rounds of negotiations to reduce Germany's debt were based on overly optimistic economic assumptions and did not account for the possibility of a severe downturn such as the Great Depression. In other words, risks surrounding German reparations became systemic in the international financial network. Germany was too big to fail. The buildup of sovereign debt vulnerabilities came to a head when the sudden stop in international capital flows in 1931 cut off access to new funding. Some sovereigns could no longer service external debt with new borrowing and ceased payments. By 1933, they had written off a large part of their external obligations and instead

came to rely on selling internal debt to domestic banks. Today, high sovereign debt and large global and regional nodes in financial networks could also transmit and amplify shocks to the system.

Common exposure to a single large debtor in the interwar period spilled over to the private sector through several channels. First, bilateral and multilateral negotiations in the 1920s involved new loans to debtor countries that were generally taken up by private investors. Consequently, the nations involved had an interest in protecting these investors against sovereign default.

Second, the central role of underwriters, both public and private, only worsened the imbroglio. Even more than today, the marketing and placement of external sovereign bonds was a delicate art. During the interwar period, governments often hired private underwriters (such as JP Morgan and Rothschild) to manage issuance and guarantee a minimum level of take-up, thereby assuming financial risk. In some cases, central and government-controlled banks acted as underwriters. France, Germany, Italy, Japan, and the United Kingdom all relied heavily on their money-issuing authorities to influence bond prices, advertise sovereign securities at home and abroad, act as underwriters, and share some risks with the government.

There was no effective framework to prevent the slide into protectionism.

Third, contingent liabilities amplified the sovereign risk. Germany in the 1920s had encouraged local and state governments to borrow from private investors overseas. This became a source of moral hazard and a liability for the sovereign when local and state governments failed to pay. Austria took over a portion of the foreign liabilities of the country's largest bank, Creditanstalt, in 1931.

These themes have parallels in the recent global financial crisis: private and public banks and sovereigns were directly or indirectly exposed to default risks stemming from governments. Intricate fiscal-financial linkages triggered questions about the best ways to reduce sovereign debt, and whether debt relief was an option.

Weak institutional arrangements

When the network unraveled in the early 1930s, the lack of an effective multilateral platform complicated the resolution of sovereign debt. The League of Nations could not act as a truly global institution, in part because the United States did not ratify the 1919 Versailles Treaty and did not participate in the newly established institution. This implied that the United States could not leverage international collaboration to handle the global fallout from the Great Depression, underscoring the dangers of having a major country withdraw from international agreements and institutions.

The absence of a global lender of last resort added to the vulnerabilities. The Bank for International Settlements lacked the tools to intervene when a country stopped paying. Set up in 1930 to help enforce external payment discipline on Germany, the bank provided emergency loans in mid-1931 but could not make long-term loans. There was also no effective international framework to prevent the slide into protectionism, uncoordinated devaluations, and trade wars in the early 1930s. The League of Nations did not have the kinds of lending facilities the IMF has today; at best, it could help design and negotiate domestic adjustment programs and coordinate guarantees for private lending granted by individual governments. As a result, prominent

bankers such as Thomas Lamont and John Pierpont Morgan Jr. stepped in to fill the vacuum and informally represented the United States. Some distressed governments turned to “money doctors,” international bankers and financial advisers from the private sector, who were often unofficial emissaries of a great power. The breakdown of this arrangement in the early 1930s provides a vivid illustration of the benefits of international cooperation.

By studying the interwar period, we have seen how complex debt networks with large common exposures can heighten risks to the global financial system in the absence of effective international institutions. Immediately after World War II, new international institutions, including the IMF, and new financial support arrangements—the Marshall Plan in particular—were set up in response to shortcomings revealed during the interwar period. While there has been further progress in building institutions and regulatory systems since then, efforts to strengthen this architecture should continue lest the crises of the interwar period be repeated. [FD](#)

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Reference:

De Broeck, Mark, Nicolas End, Marina Marinkov, and Fedor Miryugin. Forthcoming working paper on interwar database and financial linkages, International Monetary Fund, Washington, DC.

This article is part of a wider IMF project on sovereign debt in the interwar period. It relies on a data set that records sovereign debt at the instrument level, covering allied and enemy countries, as well as selected British Commonwealth members during 1913–45. The data set provides detailed time series of the amounts outstanding for the main sovereign debt instruments. The authors are collaborating with Professors Thomas J. Sargent of New York University and George Hall of Brandeis University on the project.

ESCAPE ARTIST

*Peter J. Walker profiles
Angus Deaton, who
pioneered approaches that
connect the dots between
theory, measurement,
policy, and people's lives*

PHOTO: JIM GRAHAM

December 2015 was a whirlwind month for Angus Deaton. There was the trip to Stockholm to receive the Nobel Prize in economics from King Gustaf of Sweden. And there was the groundbreaking new paper with Anne Case on midlife mortality in the United States, which captured public attention around the broader debate on inequality and stagnating incomes.

“When you receive the Nobel Prize, there is an enormous amount of press attention, and I did not think you could beat that, but our paper generated more attention—it was like one tsunami was ebbing and then another, larger, tsunami hit us,” recalls Deaton in an interview in his office at Princeton University, his soft Scottish accent infused with transatlantic hints.

In the paper, Deaton and Anne Case, a leading economist and Princeton colleague, made a startling discovery: after decades of progress, mortality rates for white, middle-aged Americans flatlined or increased after the late 1990s, largely because of suicide and abuse of alcohol and drugs such as opioids. When Case and Deaton, who are married, met President Barack Obama at the White House at a reception for US Nobel Prize winners, he interrupted Deaton’s introduction of Case to say, “I know who Dr. Case is, and we are going to talk about your paper.”

The paper, “Rising Morbidity and Mortality in Midlife among White Non-Hispanic Americans in the 21st Century,” strikes at the heart of the opioid epidemic, arguing that it is more than a public health crisis—it is also an economic crisis. “Even if you get rid of the addiction, that does not solve it, because there is a much deeper problem—for people who only have a high school diploma, real wages have been falling for 50 years,” Deaton says.

The twin tsunamis of the prize and the paper capped a prolific academic career marked by research of notable significance and variety—encompassing public health, poverty, consumption, savings, and much more.

“Deaton has used his fine quantitative skills to tackle a breathtaking range of topics in economics and in other fields,” says Princeton economics professor Orley Ashenfelter. “His judicious use of evidence and careful attention to data have probably never been more important than today, a time when uninformed opinion, vehemently asserted, has increasingly become a powerful political force.”

Deaton’s story begins in a very different world. Growing up in 1950s Edinburgh, which he recalls as “a pretty grim place back then,” the young

Deaton found an escape in books about India and other far-off places. He also loved the outdoors, spending many afternoons playing in The Meadows, a large open space that was then being converted back to parkland from the allotments on which people had been urged to “Dig for Victory” during the Second World War, which ended a few days before Deaton was born.

At age nine, Deaton and his family moved to a small village near the Scottish-English border, where he caught the attention of his teachers at the local school. This was of great encouragement to his parents, particularly his father, who was not permitted to attend high school but caught up later through evening classes, became a civil engineer, and vigorously encouraged his son’s education. Deaton’s

His early career was not an unchecked ascent; he sometimes became frustrated with his perceived lack of progress.

subsequent scholarship to the prestigious Fettes College—at the age of 13 as one of two boys from underprivileged backgrounds admitted that year—marked the realization of his father’s unlikely dream.

At Fettes, pupils learned independently, an approach that served Deaton well. Learning became a hobby. Like other boys, Deaton joined the school’s Royal Navy cadet corps and spent summers at sea, going abroad for the first time—to Brittany, in France, where they “all went ashore and bought cheap red wine.”

Following his secondary education, Deaton was admitted to the University of Cambridge to study mathematics but soon lost interest, finding it to be “incredibly badly taught” at the time. He cast about for another field, and was steered into economics, without much idea of what “economics” was.

Deaton’s interest in the discipline steadily grew. He spent a summer reading economics textbooks while holding down a job selling clothes aboard the transatlantic ocean liners *Queen Elizabeth* and *Queen Mary*. Every fortnight he disembarked at New York’s Pier 92, in an area that was “pretty rough and littered with sleazy diners,” and gradually set out beyond the waterfront to explore the rest of Manhattan.

Back at Cambridge, such glimpses of the harsh realities of life animated student discussions. “We all

read left-wing newspapers and we all worked for the revolution—whatever that meant—but it mostly meant sitting around drinking and playing cards,” Deaton says.

After his graduation in 1967 and a brief stint at the Bank of England, Deaton returned to Cambridge to pursue his PhD and work as a research assistant—and to be with Mary Ann Burnside, his first wife. They moved to a nearby village and had two children, Rebecca and Adam.

At work, Deaton found a mentor in future Nobel Prize winner Richard Stone, and the two collaborated on the analysis of saving and demand—two foundations of economics. An early insight came when Deaton used his hesitation to buy coffee in high-inflation 1970s Britain to argue that, contrary to conventional wisdom, unanticipated inflation can help increase—not decrease—savings. Doubters were surprised when the government announced a rise in household savings, as his theory had predicted.

While Deaton impressed, his early academic career was not an unchecked ascent; he sometimes became frustrated with his perceived lack of progress. He was not alone. Deaton and his tennis partner, future Bank of England Governor Mervyn King, bonded over their mutual, if premature, disappointment at not landing professorships. Neither one had attained his 30th birthday.

That changed in 1975, when Deaton became professor of econometrics at the University of Bristol. Just a few months before, Mary Ann had tragically passed away, and Deaton sought a change of scene for both personal and professional reasons.

At Bristol, Deaton developed the Almost Ideal Demand System with John Muellbauer, who was then at Birkbeck College, London. As its name suggests, the model did not claim perfection—it was *almost* ideal—but it did provide a more complete and realistic picture of consumer behavior than previous attempts. Among other benefits, it could more accurately predict how policies, such as tax changes, affect different income and demographic groups. The Nobel Committee later noted that “even after 35 years, it remains a cornerstone of demand estimation around the world, whether that estimation is based on aggregate, individual, or household-level data.”

Deaton spent the 1979–80 academic year on sabbatical at Princeton—a prelude to a permanent move in 1983—and was impressed by its resources and intellectual quality. The only snag with the sabbatical was that Princeton “only paid me for nine months, so I needed something to do in the summer.” He found a job at the World Bank, working on the incipient Living Standards Measurement Study, which sought to understand how policies affect social outcomes in developing economies. Deaton proved to be instrumental in its evolution, especially its development of household surveys.

As Deaton’s career progressed, household surveys would rank among his most influential contributions. He pioneered ways to use and interpret household surveys to more accurately describe realities on the ground by looking at consumption, analyzing birth cohorts, and estimating local market prices. Deaton conducted much of his work in India, rekindling a childhood fascination with the country.

HEALTH AND WAGES

In their 2015 paper, “Rising Morbidity and Mortality in Midlife among White Non-Hispanic Americans in the 21st Century,” Anne Case and Angus Deaton offer important insights into the opioid epidemic, comparing its significance to that of the AIDS crisis.

They find that mortality rates for non-Hispanic white men and women ages 45 to 54 increased by half a percent a year from 1999 to 2013, after falling in the previous two decades. Drugs, alcohol, and suicide were the main drivers of the rebound in mortality, which was more pronounced among those without a college degree. Morbidity also increased, with significantly more reports of poor physical and mental health. By contrast, mortality continued to decline among other US demographic groups and in other advanced economies.

What, according to Case and Deaton, lies beneath these alarming trends? Prescription painkillers known as opioids—synthetic forms of opium—became more widely available in the late 1990s, around the same time as the increases in mortality and morbidity. Economic insecurity may also play a role, with poorer middle-aged whites particularly affected by the slow growth in US median wages as well as moves from defined-benefit to defined-contribution pension plans, which transfer financial risk to the employee. Case and Deaton caution that failure to bring the epidemic under control could result in a “lost generation.”

Their 2017 follow-up paper, “Mortality and Morbidity in the 21st Century,” found that the trend continued through 2015.

Throughout much of the 1980s and 90s, Deaton made further groundbreaking discoveries in the study of consumption, identifying the need to reconcile individual behavior with aggregate outcomes. He also analyzed how consumption changes over time, formulating the Deaton Paradox, which notes that the standard representative agent version of the permanent income hypothesis is internally inconsistent because the time-series behavior of average income implies that temporary changes in income should lead to larger changes in consumption, not smaller ones.

During this period, Deaton deepened his engagement in development economics. For instance, he addressed the so-called poverty trap thesis. He took issue with the widely accepted argument that poor nourishment keeps people from earning enough to escape poverty. Drawing on research in India, Deaton and Shankar Subramanian of Cornell University showed that an adequate diet cost just 5 percent of a day's wages. They concluded that malnutrition is a consequence, rather than a cause, of poverty.

In *The Great Escape: Health, Wealth, and the Origins of Inequality*, published in 2013, Deaton argued that foreign aid can be harmful because it makes recipient governments more accountable to foreign donors than to their own people. As a result, the social contract between a government and its citizens is eroded, reducing incentives to strengthen institutions and undertake other reforms central to sustainable development. "The argument that we have to do something because these people are so poor seems like a very powerful argument, even though it is not," he says. "The one thing you do not want to do is hurt them, but that is exactly what is happening now."

These arguments have been contentious. "We have lots of concrete, tangible benefits in the shape of nurses, teachers, vaccinations, avoided deaths etc., lined up against a rather vague and not very well evidenced claim of long-term institutional damage," Duncan Green of Oxfam GB wrote on the anti-poverty organization's blog. Others argued that the real issue is how foreign aid is delivered. The debate continues.

So, too, does discussion of the book's central narrative—that the past 70 years have seen remarkable reductions in poverty and improvements in health around the world. "It is inconceivable that these advances would have happened without globalization," Deaton writes. He rejects the notion that globalization is the problem, contending that the true culprits are the "winners who pull up the ladders behind them"—



Economist Angus Deaton argues that foreign aid can be harmful.

yielding poor public policies that breed corporate rent seeking, inadequate health care, and stagnant wages. Aspects of this argument are put forth in Case and Deaton's 2017 paper "Mortality and Morbidity in the 21st Century."

It was at Princeton that Deaton and Case met; they married in 1997 and today work in adjacent offices. Being married to a colleague brings many pleasures and much joy, but also involves some trade-offs that the two have yet to solve, Deaton concedes. "People want us to speak everywhere all the time, and if I am speaking and Anne is teaching, it is quite hard to sit down and do our work." In their scarce spare time, they like to fly-fish, cook, and travel.

In December 2016, a year after the heady days of the Nobel Prize and the mortality paper, Deaton jumped into a London black cab with Case and his son, Adam, and asked to be taken to Buckingham Palace. "What are you here for?" asked the cabbie, unsure if they were tourists or royal guests. "My Dad invented a new kind of toilet-roll holder that the Queen likes," his son quipped. Once inside, Deaton was knighted by Prince William, Duke of Cambridge.

"It is a wonderful tribute to scholarship," pronounced Professor Sir Angus Deaton, "and much more fun than having to find a horse, a suit of armor and a lance, so to ride into battle for the Queen." **FD**

PETER J. WALKER is a senior communications officer in the IMF's Communications Department.

PHOTO: ALAMY / KRISTOFFER TRIPPLAAR



E-stonia Takes Off

Toomas Hendrik Ilves explains how digitalization can make people's lives a whole lot easier

TOOMAS HENDRIK ILVES is the former president of Estonia and the man behind rebranding the country once best known for logging to the place where Skype was born. Inspired by his own childhood experience learning computer programming in a New Jersey high school, Ilves launched the Tiger Leap project—which involved building network infrastructure and getting schools online. It was the early 1990s; Estonia had regained its independence after the collapse of the Soviet Union, and Ilves recognized the promise of technology as a means of boosting its ailing economy.

Born in Sweden to Estonian parents who had escaped the Iron Curtain, Ilves grew up in the United States. It was while serving in Washington, DC, as Estonia's Ambassador to the United States and Canada that Ilves laid the groundwork for the country's digitalization program known today as e-Estonia. He was elected president of Estonia in 2006 and served two terms.

In this interview with *F&D*'s Bruce Edwards, Ilves says it was innovative policy more than

technology that enabled Estonia's remarkable digital transformation.

F&D: Just how digitalized has Estonian society become?

THI: There are only three transactions involving the government where you actually have to show up. The first is getting married, the second is the sale of real estate, and the third is divorce.

F&D: Are people well adapted to the system?

THI: Yes. The common gripe among Estonians abroad is that systems don't work. After the end of my term I came to Silicon Valley, the mecca of information technology and innovation. Within a 10-mile radius are the headquarters for Apple, Facebook, Google, Tesla, and more. But when I registered my daughter for school, I had to prove that we lived in Palo Alto by bringing a photocopy of my electricity bill. So you have this enormous contrast.

We Estonians in Silicon Valley all wonder how it's possible that this is the center of the technology universe, yet everyday life is so 1950s!

F&D: Certain aspects of digitalization are highly contested in a lot of countries because of the collection of personal data. How difficult was it to get Estonians to buy into this idea?

THI: People didn't really object because it's highly secure. Part of it is architectural: we don't have any central databases. You can only access this system through a highly encrypted end-to-end, two-factor authorization system. For that, you need a secure digital identity or ID card.

F&D: On what technology is it based?

THI: You have a distributed data exchange layer, which means that only you and those people you authorize can access your data. If you authorize a doctor, only that doctor can see your medical data. And every time someone accesses the data, the system flags it. This is how people know they'd get caught if they were to try.

Ultimately it is all based on trust. I can assure you that even in the most horrendous of crimes, the government of Estonia would not go into your private data because there is full recognition on the part of the government that, if the system were ever to be compromised, it would fall flat and collapse. So no one takes that risk.

F&D: But at the very beginning of the process, weren't Estonians reluctant to share their data?

THI: Their data are stored; they're not sharing it. Estonians like this system because it's convenient. Your records are far more secure this way than on paper. You can, in fact, still do everything on paper. It's just that people prefer not to.

F&D: Is the technology overwhelming for some older people?

THI: Well, we've been doing this for 25 years. So, if you're 50 you were 25 when it started. You only really need to have access to a computer, be able to read, and have an ID card. So that has not been a problem. In terms of jobs, we have a 4.4 percent unemployment rate in Estonia, which is almost full employment. The future is going to be more and more technology based, of course. We see ourselves as ahead of the curve because we teach kids to program in elementary school.

F&D: The digitalization process in Estonia has spurred some interesting concepts like "e-residency," which offers nonresidents virtual residency. What's the benefit of becoming an e-resident?

THI: The main benefit is for small and medium-sized enterprises that want to be within the European Union. They can just set up their company in Estonia digitally. They pay taxes in Estonia, which is one benefit because the tax rates are lower.

F&D: Is this a way for the government to expand its tax base?

THI: Not really. We make a bit of money, but it's more that it's innovative. It makes people think differently about the role of the state and of the EU's single market. It calls into question this idea that you have to be there physically in order to have an EU business. You don't—businesses are already virtual in many cases. We just took it one step further.

F&D: Can you imagine a digitally integrated European Union?

THI: That was the agenda of Estonia's EU presidency that just ended—to get the EU to move in the direction of creating the legal framework. Right now, you have free movement of labor, capital, goods, and some services. But the same free movement

does not exist for digital services or data. Estonia has pushed to get those basic roadblocks removed.

Here's an example of a cool innovation: In Estonia, we have digital prescriptions. You go see a doctor and he puts your prescription into the computer. From then on, if you want a renewal, you can go to any pharmacy in the country, insert your card, and get your medicine. Finland has basically adopted our platform. So I proposed to Finland's president that we link the systems, as we get 8 million visits from Finland each year. Well, it has taken almost six years, but starting this summer, if you're a Finn and you visit Estonia and need a refill from your doctor, you just call your doctor in Finland and you can go to an Estonian pharmacy. One day this may work all across Europe, but right now, this is a huge step forward.

F&D: There are so many cool aspects to this story. Why aren't more countries doing this?

THI: I keep stressing it's not the technology. It's political will, policy, laws and regulations, in that order. In order for it to work, you need laws that underpin the system. You want to define digital identity, then set out the regulations to avoid abuses. And in Estonia that has worked. **FD**

This interview has been edited for length and clarity.

Small Country with a Big Backbone

Estonia's 1.3 million citizens rarely stand in line for anything. Virtually all government services and a growing number of private sector services are offered online via its snappy e-Estonia.com state portal. It ranks among the most digitally advanced countries in the world thanks to a government-backed technology investment initiative dating back to the early 90s. Estonia has since made massive investments toward increasing its bandwidth and designing school curricula to have a "Technology and Innovation" theme. Children learn how to write code from the age of seven.

At the heart of Estonia's digital society lies an encrypted national identification card that provides access to all of Estonia's e-services, such as one-click tax filing, i-voting and electronic medical records. Information technology allows security services to determine the locations of accident victims more effectively and has made police work 50 times more efficient.

Estonia has also become somewhat of a hotbed for start-ups, including Skype. Its e-Residency program—which offers nonresidents virtual residency—continues to attract entrepreneurs who want to establish a company within the European Union.



DIGITAL **CRUSADERS**

Technology offers weapons for the battle against corruption

Chris Wellisz

Oleksii Sobolev was a fund manager by day and a pro-democracy protester by night. After work, he would leave his office at Dragon Asset Management in Kiev to join the crowds camped out in Independence Square demanding the resignation of a president they viewed as corrupt. Sobolev handed out food and helped clean up the square. When police started firing at the so-called Maidan protesters, he brought tires that were burned to create a protective curtain of smoke.

"The saying was, 'Fires save lives,'" Sobolev recalls.

Ukraine's president ended up in exile, and Sobolev gave up managing money to take an unpaid advisory post helping to restructure state-owned enterprises. Four years later, he has put his business skills to work fighting corruption, a problem that continues to bedevil the eastern European country of 44 million people. Ukraine ranked 131st among 176 countries on Transparency International's Corruption Perceptions Index 2016.

Sobolev's team of activists created an electronic auction system that brought transparency to notoriously murky sales of public assets ranging from bank loans to scrap metal. In its first 13 months, the system, ProZorro.Sale, handled \$210 million, almost as much as the money raised from conventional privatization sales in the past five years, says Max Nefyodov, Ukraine's first deputy economy minister. That's a significant boost for the cash-strapped Ukrainian government.

Sobolev belongs to a new breed of idealistic young people who are using digital technologies to promote transparency and integrity. Just as smartphones and social media helped empower popular uprisings from Ukraine to Tunisia, 21st century technologies such as blockchain and big data offer powerful new weapons against corruption, a phenomenon that dates

back at least as far as the first century BC, when Julius Caesar secured the office of Pontifex Maximus by greasing voters' palms.

Worldwide, bribery alone is estimated to cost as much as \$2 trillion a year, about equal to the GDP of Italy and many times the \$142 billion in global development aid. But corruption takes a much bigger toll, according to a 2016 IMF study "Corruption: Costs and Mitigating Strategies." It discourages private investment, curbing economic growth. Corrupt officials channel public funds to wasteful projects that generate bribes, depleting funds that could be spent on health, education, and other services that benefit the poor. And young people have little incentive to acquire new skills in societies where who they know is more important than what they know.

"Countries that are less corrupt have higher growth rates, have higher levels of GDP, and have higher levels on the Human Development Index of the United Nations," which measures things like life expectancy and years of schooling, says Susan Rose-Ackerman, a Yale University law professor who studies the political economy of corruption.

That explains why international financial institutions, such as the IMF and World Bank, are helping governments fight corruption through improved transparency, accountability, and institution building. The anti-corruption drive is providing opportunities for private technology companies like the Bitfury Group, which signed a contract with the Republic of Georgia to register land titles using blockchain technology. Blockchain serves simultaneously as a means of exchange—of money or information—and a database that automatically registers transactions. Records are encrypted and stored across a network of computers, rather than in a central location, so they cannot be altered or stolen.



Based in Kiev, Ukraine, Oleksii Sobolev helps bring transparency to government.

Some start-ups are offering their services to charitable organizations as well as governments. Among them is Dublin-based AID:Tech, which created a platform that ensures the integrity of charitable contributions and social welfare payments.

"I know a lot of people who would love to give money but don't because they don't know where it goes," says AID:Tech's CEO and cofounder, Joseph Thompson.

AID:Tech was inspired by a charity event in 2009. Thompson ran 152 miles across the Sahara Desert to raise money for children who needed reconstructive surgery. When he asked for evidence that the aid had been delivered to the intended recipients, the charity couldn't provide it.

Thompson, who has master's degrees in business, digital currencies, and computer science, set out to find a way to make sure that charitable donations don't go astray. He found it in blockchain, also known as distributed ledger technology. Originally developed to store and exchange Bitcoin, a cryptocurrency, it has since been adapted for a variety of uses.

"If you can get an end-beneficiary on the blockchain, that's their bank account," Thompson says. Donations go straight to the beneficiary, without intermediaries; the company provides the technology

but doesn't handle any money. "There's no more fraud, no more people claiming benefits for dead parents or brothers and sisters who have emigrated."

The Irish Red Cross agreed to test Thompson's solution with a program to distribute aid to Syrian refugees in Lebanon. Each recipient was given a small plastic card stamped with a QR code—a type of machine-readable optical label. Money was deducted when the cards were scanned at supermarket checkout counters. Five hundred electronic vouchers worth \$20 apiece were redeemed in Lebanon, and not a penny went astray.

"The results were fantastic," says Daniel Curran, head of fundraising for the Irish Red Cross. Using a dashboard Thompson set up, he tracked spending by recipients in real time, gleaning valuable insights into their needs. (He was surprised to learn that refugees bound for resettlement in Ireland bought dental products rather than winter clothes.)

The technology also allows charities to appeal to a younger class of smartphone-wielding donors, and it reduces their reliance on expensive direct-marketing campaigns. That means more money will flow to the people who need it.

"This is a cheaper, more transparent, faster, and efficient way of not just obtaining the donation,

PHOTO COURTESY OF OLEKSII SOBOLEV

but actually getting the donation to the beneficiary in the end,” Curran says.

AID:Tech is expanding rapidly, with contracts to provide software for the delivery of remittances to Serbia, social welfare payments in Jordan, and aid to homeless women in Ireland. It is raising between \$3 million and \$5 million from investors and plans to open offices in Singapore and Dubai. The goal is to have at least 100,000 people on the platform by June.

Thompson doesn’t hesitate to say he aims to do well by doing good. “We are a for-profit, but we’re using technology to solve some of the world’s biggest problems,” he says. The platform, he says, can be used by governments and social welfare agencies around the globe, with a potential customer base in the billions.

Another promising use for blockchain: secure digital storage of documents.

“Blockchain is so powerful because it gives us something we didn’t have in the digital world,” says Gonzalo Blousson, cofounder and CEO of Signatura, a platform that can be used to sign and notarize documents among multiple people. “Digital information is easy to modify. Blockchain gives us immutability.”

Blousson is working with Argentina’s second-largest city, Córdoba, which recently passed a law requiring public officials to file financial disclosure forms. Blockchain ensures that the forms are both visible to the public and cannot be altered.

Blousson and his team also used the technology to build a procurement platform, called Teneris, which companies and governments can use to solicit bids from suppliers of goods and services, a process that is often rife with opportunities for bribery and bid rigging.

Still, blockchain has its limitations, says Beth Noveck, a New York University (NYU) professor who specializes in the use of technology to bring transparency to government. Corruption also occurs after bids are awarded—when a building contractor uses shoddy materials to cut corners, for example.

That’s where big data offers a promising investigatory tool, Noveck says. The technology makes it possible to aggregate data on government spending and contracting and to analyze it for signs of waste, fraud, and corruption. As Noveck puts it, “You can spot the patterns of whose brother-in-law got too many contracts.”

Mobilizing citizen involvement also makes a difference, says Noveck, a lawyer by training who

heads NYU’s Governance Lab. People like Diego Mendiburu are doing just that. A former journalist and technology buff, he put together a team of programmers to develop a mobile app that allows Mexicans to report substandard public services. Users with smartphones can capture and share short videos of potholes that go unfilled or trees that are cut down illegally as a way of shaming public officials and pressuring them to act.

The app, Supercivicos, uses GPS technology to pinpoint the date and location of the videos, then builds a database of reports that can be used by civic groups and government agencies to identify problem services and find solutions.

Mendiburu wants users to become engaged citizen-journalists. “It’s not only about pointing

You can spot the patterns of whose brother-in-law got too many contracts.

out what’s wrong, it’s about telling stories,” he says. “We believe that this project can be exported to other countries in Latin America.”

In Ukraine, there are similar ambitions for ProZorro.Sale (the name combines the Ukrainian word for transparency with Zorro, the fictional Mexican who defended the poor against corrupt officials). As of December, Transparency International Ukraine was in talks with the European Bank for Reconstruction and Development to adapt the system for use elsewhere in Europe.

Of course, digital technology, while effective, can be stymied by governments, whose support is needed in the fight against official corruption. Late last year, the IMF and World Bank criticized Ukraine for undermining its recently established National Anti-Corruption Bureau and for failing to make good on promises to create an independent anti-corruption court.

“E-tools are important, but institutions are far more important,” says Viktor Nestulia, director of the Innovation Projects Program at Transparency International Ukraine. **FD**

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— UNLOCKING — Public Wealth

Governments could do a better job managing their assets

Dag Detter and Stefan Fölster

National and local governments own a potential gold mine of assets, mostly in the form of real estate and government-owned companies. With better governance, many of these assets—such as outdated buildings, undeveloped land, brownfield spaces, and air rights—could generate value and a revenue stream to fund government budgets, lower taxes, or pay for vital infrastructure. Unfortunately, most

opportunities for better public wealth governance have been lost in the debate over state ownership versus privatization.

Consider a city like Boston, which by its own accounting does not appear to be particularly wealthy. The city reported total assets worth \$3.8 billion in 2014, of which \$1.4 billion is in real estate. The city's liabilities of \$4.6 billion exceed its assets, but this valuation largely underestimates

the true value of the public assets. Using accounting conventions followed by most cities in the United States, Boston reports assets at book value, valued at historical costs. If it used the International Financial Reporting Standards, which require the use of market value, to assess the city's holdings, the assets' worth would be significantly higher than currently reported. In other words, the city is operating without fully leveraging its hidden wealth.

A recent independent estimate of the real property portfolio owned by the City of Boston, based on a consolidated list of publicly held real estate, gives an indicative valuation of the real estate alone of about \$55 billion. Boston's real estate portfolio includes holdings ranging from the Boston Housing Authority's \$4.7 billion worth of buildings and land to the Boston Public Market, valued at \$5.6 million. (The valuations are from work by one of the authors of this article and Tolemi, a company that provides data analysis to local governments.)

Accounting for the market value at current use is the first step toward quality asset management. The next step is to understand the return the city earns from revenue and rising market values on its assets. This is essential not only to compare its current use with the potential best use, but also to understand whether performance has been satisfactory and show stakeholders that their wealth is managed responsibly.

While Boston does earn revenue on some of its holdings, the city, by design or by default, does not report any return on its assets—that is, it does not make any connection between the value of the assets and their yield. Assuming, cautiously, that the city could earn a 3 percent yield on its commercial assets with more professional and politically independent management, such a yield on a portfolio worth \$55 billion would amount to an income of almost \$1.7 billion a year. That is about four times Boston's current capital plan of about \$400 million. In other words, even with a modest yield, Boston could quadruple its infrastructure investments.

For a glimpse at what's possible with better management of city-owned real estate, consider Copenhagen's By og Havn (City and Port) urban development project—the largest in Europe, with 1,290 acres in waterfront and inland districts. The successful development of these assets consolidated under a single independent institution and balance sheet will contribute to funding and managing the construction of more than 33,000 new housing

units, 100,000 work spaces, and a new university for more than 20,000 students, as well as new parks and retail and cultural facilities. Returns from City and Port have helped finance infrastructure investments, including expansion of the local metro system. Hamburg's 157-hectare (388 acre) HafenCity development is another example. This inner-city district of old harbor buildings is being transformed into more than 2 million square meters of space for offices, hotels, shops, and residential areas.

Missed opportunities

Many similar opportunities lie fallow. Our 2017 book, *The Public Wealth of Cities*, highlights one example in the Boston region. If Boston's Logan Airport were moved from prime waterfront real estate to cheaper inland property, it would stand to make a large windfall gain in real estate assets on the waterfront land that would probably well exceed the cost of building a new airport and infrastructure. Indirectly, GDP would also get a boost from ensuing investments. Living standards might rise since people appreciate waterfront views. But mainly it would represent a gain in wealth for state and city government, which could then be

Accounting for the market value at current use is the first step toward quality asset management.

captured under a consolidated balance sheet and used, for example, for greatly needed infrastructure spending. As a bonus, the existing transportation to Logan would continue to take people to what could become a spectacular part of Boston.

When it comes to knowing their assets, many cities around the world have even less information to go on than Boston. For example, a 2017 inspector general's audit of Washington, DC, found that the city's Department of General Services (DGS) "neither maintained a complete and accurate inventory of District-owned property, nor submitted annual reports detailing changes in this inventory to the D.C. Council as required by law. DGS lacked effective policies and procedures for maintaining inventory records; collecting and recording required data; and creating the



Politicians who deftly buy support from various groups are rewarded, not those who enact reforms in the wider public interest.

necessary data fields in its database to record and update the inventory.”

Even some countries are not much better informed about the value of the assets they own.

Some “policy” assets funded by taxes—national parks or roads, for example—may not need a precise valuation. More worrisome is governments’ scant knowledge about public commercial assets that can render a revenue stream. These are government-owned enterprises; utilities; transportation assets such as airports and ports; and natural resources that can be commercialized, such as air rights, broadband spectrums, real estate, and toll-based infrastructure.

The IMF attempted to collect statistics on the book value of public commercial assets for 27 countries in a 2013 paper (IMF 2013). We added more countries in our 2015 book *The Public Wealth of Nations*. According to our estimates, public commercial assets are on the same order of magnitude as annual world GDP, which the IMF put at \$75 trillion in 2013, and comfortably higher than world public debt of \$54 trillion. At the city level, available valuation figures suggest the entire public portfolio of real estate within a city has the same value as the city’s GDP and represents a quarter of the total market value of real estate.

Although there are excellently run state-owned firms, such as Norway’s Statoil, these may be more of an exception. Studies by Bloom and van Reenen (2010), using detailed information on management methods, show that state-owned firms lag private firms considerably.

Comparison with some of the better professional institutions for governance of public commercial assets, such as Singapore’s Temasek, or pension funds managing similar assets suggests that much higher yields should be within reach. Consider,

conservatively, an additional annual yield of 3 percent worldwide: this would amount to \$2.7 trillion, more than current global spending on transportation, power, water, and communications infrastructure combined.

In addition there are democratic costs. Public wealth within easy reach of city administrations or national governments introduces incentives for abuse—for example, political favors in exchange for lucrative contracts or positions in state-owned firms; free access to federal land or water from public water companies in exchange for political support; union support if state-owned companies raise wages; and caving in to vocal minorities that oppose development projects. In all these ways democracy for the common good degenerates into clientelism or worse. Politicians who deftly buy support from various groups are rewarded, not those who enact reforms in the wider public interest.

A long-overdue revolution

With the invention of double-entry bookkeeping and accrual accounting some 700 years ago, the balance sheet was born. In contrast, the development of proper public sector accounting has just started. For the public sector, such a balance sheet would be able to quantify and publish specific fiscal risks, such as guarantees and other contingent liabilities, as outlined in the third pillar of the IMF’s fiscal transparency code. New Zealand and the United Kingdom are both regarded as pioneers in the use of accrual accounting—which records revenue and expenses when they are incurred—for public finances.

In the United Kingdom, the demand for better use of local government balance sheets is increasing, partly because of strong demand for public housing across the country. Moreover, local councils in the United Kingdom are diving headlong



into the commercial property market, borrowing at favorable government rates to purchase commercial real estate in pursuit of higher returns to fund gaps in their budgets after years of central government spending cuts. It is a role for which they are ill-suited, and the consequence is huge financial and fiscal risks.

As a result, the UK government is now making moves to improve balance sheet management. In the latest budget proposal, the UK government launched a balance sheet review to make more effective use of its public commercial assets, looking at areas such as improving the return on investments and reducing the cost of liabilities. The review will help release resources for further investment in public services and improve the sustainability of the public finances.

Toward effective governance

The holy grail of public commercial asset management is an institutional arrangement that detaches governance concerns from direct government responsibility. This can be accomplished through an independent balance sheet that encourages active long-term governance aimed at greater societal and financial value. Effective governance maximizes value in a transparent manner according to the highest international standards and independent of short-term political influence.

Some countries have made progress with a national wealth fund, similar to a private equity fund but wholly owned by the public sector, with active professional ownership to maximize long-term value. Such public wealth funds work under a government mandate while remaining fairly independent of short-term political influence, much like an independent central bank. This arrangement brings together the interests of the commercial management and the long-term life cycle of assets and supports the funding of maintenance, the bulk of the lifetime costs.

In Austria, for example, the ÖIAG (Österreichische Industrieholding AG) is a state holding company similar to Solidium in Finland that holds the government's listed companies. Another example is Singapore's Temasek, which has reported an average annual return of 15 percent over the 35 years since its inception.

A few cities have been very successful in setting up independent and professional holding companies or funds to manage their commercial wealth and help finance infrastructure investments—Copenhagen's City & Port Company and Hamburg's HafenCity, for example. MTR Corporation (originally, Mass Transit Railway Corporation), in Hong Kong SAR, funded and managed not only the vast investment in the city's rail infrastructure but also the large housing estates and shopping complexes incorporated into its stations. In addition, MTR pays a substantial dividend to the city, providing an income for the government that has been deployed to pay off existing debt and develop other assets.

Over the coming decades technological disruption and globalization will open many new opportunities for multiple uses of public assets. For example, self-driving cars may free public parking space that can be put to better use, and harbors, airports, and other transportation infrastructure will be revamped. Cities and countries are more likely to succeed with a transparent account of the assets they own and a government that promotes the creation of value. **FD**

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Bracing for the STORM

For the Caribbean, building resilience is a matter of survival

İnci Ötker and Krishna Srinivasan

Besides their captivating beauty, one thing the Caribbean countries have in common is their vulnerability to frequent and costly natural disasters. Many are among the 25 most vulnerable nations in terms of disasters per capita or land area. Irma and Maria—the two Category 5 hurricanes that hit the Caribbean in September 2017—are the most recent tropical storms that have devastated the region, causing substantial loss of life and widespread destruction from the Turks and Caicos Islands to Dominica.

Natural disasters have massive economic and human costs: they take a deep toll on growth prospects and erode fiscal cushions. Huge reconstruction costs in their aftermath crowd out scarce resources for health, education, and social spending. And climate change will only intensify these risks. Countries can adopt policies to reduce the human and economic costs of disasters and build resilience to future shocks through better preparation and a more effective response.

High vulnerability

Since 1950, 511 disasters worldwide have hit small states—that is, developing economies with populations of less than 1.5 million. Of these, 324 were in the Caribbean, home to a predominant share of small states, killing 250,000 people and affecting more than 24 million through injury and loss of homes and livelihoods.

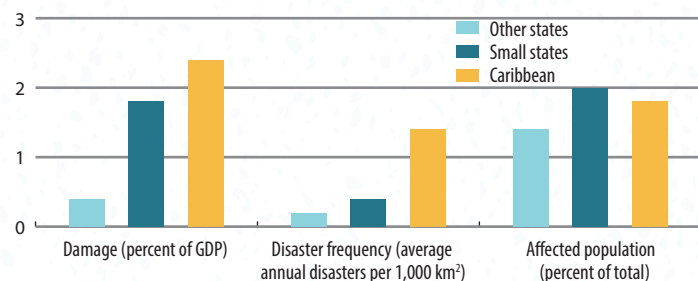
The Caribbean's vulnerability is characteristic of small island states, but this region has typically suffered more damage than others. Average estimated disaster damage as a ratio to GDP was 4.5 times greater for small states than for larger ones, but six times higher for countries in the Caribbean. Moreover, the region is seven times more likely to be hit by natural disasters than larger states and twice as likely as other small states (see chart).

The economic cost of these disasters for the Caribbean is substantial, exceeding \$22 billion (in constant 2009 dollars) between 1950 and 2016, compared with \$58 billion for similar disasters globally. For some countries, the damage well exceeds the size of the economy: Hurricane Maria is estimated to have cost Dominica 225 percent of its GDP, while the hurricane damage for Grenada in 2004 was 200 percent of GDP, leaving huge reconstruction needs that can take years to fulfill.

Climate change is expected to compound the problem by making such disasters more frequent and severe. While the Caribbean accounts for a tiny part of greenhouse gas emissions globally, it is disproportionately more vulnerable to climate risks. Large shares of the region's population live in high-risk areas with weak infrastructure. Moreover, their economies rely heavily on sectors sensitive to weather, such as tourism and agriculture, while capacity and resources to manage risk are limited. Recurrent floods, droughts, hurricanes, and rising sea levels pose

Highly exposed

Natural disasters occur more frequently and cost more on average in the Caribbean than elsewhere—even in comparison to other small states.



Sources: EM-DAT; IMF. 2016. "Small States' Resilience to Natural Disasters and Climate Change—Role for the IMF"; IMF, *World Economic Outlook*; World Bank, *World Development Indicators*; and authors' calculations.

a threat to agriculture and coastal areas and increase the risk of water and food insecurity. Climate-related disasters encourage migration, as noted by Michael Berleemann and Max Steinhardt in their 2017 paper "Climate Change, Natural Disasters, and Migration—A Survey of the Empirical Evidence." This could become a significant policy concern for the Caribbean, where brain-drain poses a serious threat to growth.

Disasters have large and enduring economic effects that range from lost income to the destruction of physical and human capital, infrastructure, and property. Rebuilding provides a temporary boost, but indirect effects can spread throughout the economy and undermine investment, growth, and macroeconomic performance. Debt dynamics inevitably worsen as governments borrow to finance recovery and growth slows.

An analysis of 12 Caribbean countries with the largest damage costs relative to GDP since 1950 supports this view. Although most countries experienced reduced growth in the year of a disaster, they recovered in the subsequent year. But fiscal deficits increased in 7 of 12 countries, current accounts deteriorated, and debt-to-GDP ratios surged. In some, debt continued to rise, suggesting that exposure to frequent disasters interrupts efforts to sustain strong growth and improve public finances.

If these countries could reduce disaster damage, they might generate significant growth dividends and find their way out of the vicious cycle of high debt and low growth in which many are currently trapped.

An ounce of prevention

Preparing for disasters is generally more cost-effective than responding after the fact. The region must make it a priority to design adaptation measures that reduce the likelihood and cost of climate-related disasters and build resilience to future shocks. For a region so exposed to calamity, building such resilience is not a matter of choice but of survival.

The starting point is to assess the likelihood and potential impact of disaster and climate change risks. If these risks are deemed high, policymakers could integrate them explicitly into their policy frameworks and prepare plans to manage the exposure. Initiating information campaigns to raise awareness, setting up early warning systems, investing in disaster-resilient infrastructure, enforcing land-use and zoning rules to limit deforestation and coastal exposure, and ensuring appropriate building standards could go a long way toward reducing risks.

Risk cannot always be averted, however, and in those cases, countries should invest in ways to lessen the impact of disasters, including the following:

- *Self-insurance by building fiscal cushions* can protect a country against a rainy day when it faces small but unpredictable financing needs. Building cushions in years when no disasters strike helps governments offset adverse effects when they do occur. Fiscal rules can provide the needed discipline to sustain buffers and guide policy. Several Caribbean states are establishing frameworks to self-insure systematically.
- *Insurance and hedging tools* allow the public and private sectors to pool risk for moderate disasters, for which the cost of large buffers through self-insurance may become too high. They help protect governments from the economic burden of disasters and enhance their capacity to respond while reducing the pressure on public resources to cover private losses. These tools call for deeper and more developed financial markets that facilitate risk pooling, expand the insurance market, and provide access to financing for infrastructure projects that build resilience.
- *Innovative risk-sharing tools* provide governments with additional relief in managing disaster risks. Parametric insurance bases payouts on the nature of a disaster and bypasses on-site loss assessment, offering quick relief. Risk pooling allows countries to share the high cost of insurance in developing markets. An example is the World Bank's Caribbean Catastrophe Risk Insurance Facility—

a regional fund that allows governments to limit the financial impact of natural disasters by providing quick liquidity when a major disaster strikes. Catastrophe bonds (cat bonds) are another risk-sharing tool that transfers the risk to markets in exchange for generous regular payments (coupons) and allows the issuer to forgo repayment of the principal if there is a major disaster.

- *Contingent lines of credit* with bilateral, multilateral, and commercial creditors put financing in place before disaster hits, reducing funding uncertainty. The World Bank Catastrophe Draw-Down Option—a credit line that can be accessed after declaration of a state of emergency because of a natural disaster—offers middle-income countries immediate access to funds when liquidity is most scarce. This instrument has been used by several countries in Latin America, but there has been no uptake to date in the Caribbean, in part because of its cost and the stigma associated with borrowing.

Prepare for the worst

Better preparation should diminish the need for countries to finance the costs of rebuilding after disasters. But experience suggests that, despite the clear benefits of preparation, countries perennially underinvest in risk reduction and prevention.

Why is this so? Several factors may be at play. First, obtaining funds to prepare for a disaster is limited, given complex eligibility and disbursement criteria, information gaps, and the absence of coherent plans for access that may be hard to design in a low-capacity environment.

Second, insurance coverage remains low, given the high cost, shallow financial markets, limited competition, or when a particular disaster is not covered in the insurance contract. In Belize and Grenada, for example, insurance covered only 4.5 percent of the total damage in a recent large disaster.

Third, even though many Caribbean states subscribe to the Caribbean Catastrophe Risk Insurance Facility, payouts have been small compared with the costs, because countries simply cannot afford to pay for higher insurance coverage. Pooling risk to include other small states across the globe could reduce premiums, reflecting a lower risk that all countries will be hit by the same shock. The cat bond market for very large disasters is small and shallow, making cat bonds too expensive for a single country. While several

Caribbean states are establishing contingency funds, more governments need to take these risks into account as they formulate policy.

When risk cannot be averted or mitigated at reasonable cost, relying on borrowing, external aid, or disaster-financing facilities from international financial institutions may be the only recourse. These options come with their own challenges, not least because most Caribbean countries have attained middle- or high-income status and do not

Countries perennially underinvest in risk reduction and prevention.

qualify for financing at concessional rates of interest under the existing eligibility criteria. Moreover, the limits for financing facilities are typically low compared with the massive damages incurred.

The international community could make a difference by helping the region's policymakers develop the capacity to manage risk. Advice could focus on designing systems to assess disaster and climate-change risks; developing affordable insurance and hedging markets; improving access to financing for preparation; and strengthening and diversifying economies so they can better absorb the economic impact of disasters.

Strengthening the Caribbean Catastrophe Risk Insurance Facility to broaden its capital base and membership as well as lower insurance premiums could help broaden insurance coverage. This instrument could also reduce insurance premiums for countries that make a concerted effort to prepare before disaster strikes.

Disaster financing should help countries reduce vulnerability and build resilience to shocks while rewarding efforts to prepare for and reduce risk. Some out-of-the-box thinking is needed to ensure that such financing holds both short- and long-term benefits and doesn't exacerbate the region's cycle of high debt and low growth. **FD**

INCI ÖTKER is a division chief and **KRISHNA SRINIVASAN** a deputy director in the IMF's Western Hemisphere Department.

This article draws on the 2017 book Unleashing Growth and Strengthening Resilience in the Caribbean by Trevor Alleyne, Inci Ötker, Uma Ramakrishnan, and Krishna Srinivasan.

LEARNING CURVE

To realize education's promise, countries need to prioritize learning, not just schooling

HUNDREDS OF MILLIONS of children across the developing world are shortchanged on their educational experience, reaching young adulthood without even the most basic life skills. Many grow up not knowing how to calculate the correct change from a transaction at the local market, how to read a doctor's instructions, or how to interpret a campaign promise—even if they have attended school. In short, monitoring school attendance is a poor measure of what, if anything, a child has learned.

At the current rate of improvement, it would take 75 years for teenagers in Brazil to reach the rich-country average score in math. It would take them more than 260 years to do the same in reading. In 14 sub-Saharan African countries, the average sixth-grade teacher could read no better than the highest-performing sixth-grade student. In rural India, nearly 75 percent of third-grade students were unable to solve a basic math problem. This learning crisis widens inequality, because poor students suffer the worst learning outcomes. Malnutrition, high fees, and gender barriers fuel the crisis; so do

absent, ill-prepared, and poorly supported teachers. What drives it all is a political system that doesn't prioritize learning.

Delivered well, education—and the human capital it creates—has many benefits. For individuals, education promotes employment, earnings, and health. For societies, it drives long-term economic growth, reduces poverty, spurs innovation, strengthens institutions, and fosters social cohesion.

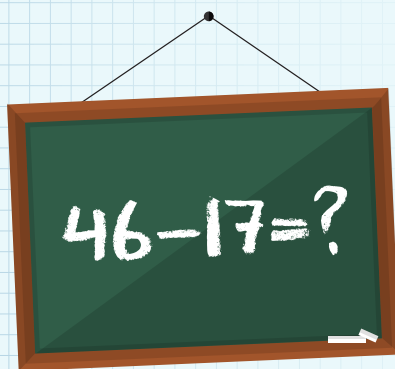
The World Bank's *World Development Report 2018* proposes a three-tiered approach to get a grip on this crisis. First, countries need to use learning assessments to shine a light on the problem of low learning. Second, they should leverage research on effective educational interventions. And third, countries need to prioritize learning, data collection, and reform at the national level.

After all, an educated workforce is critical to a nation's future prosperity. **FD**

Prepared by MARIE BOURSQUOT. Text and charts are based on the World Bank's World Development Report 2018.

The problem

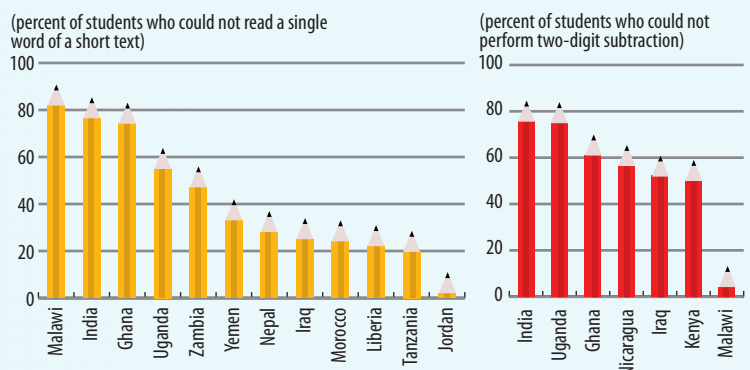
Schooling does not equal learning



In rural India, **nearly 75% of students in grade 3 could not solve a basic math problem**: two-digit subtraction, such as 46 minus 17. By grade 5, 50% of these students still could not do so.

Shortfalls in learning start early

Percentage of grade 2 students who could not perform simple reading or math problems, selected countries.



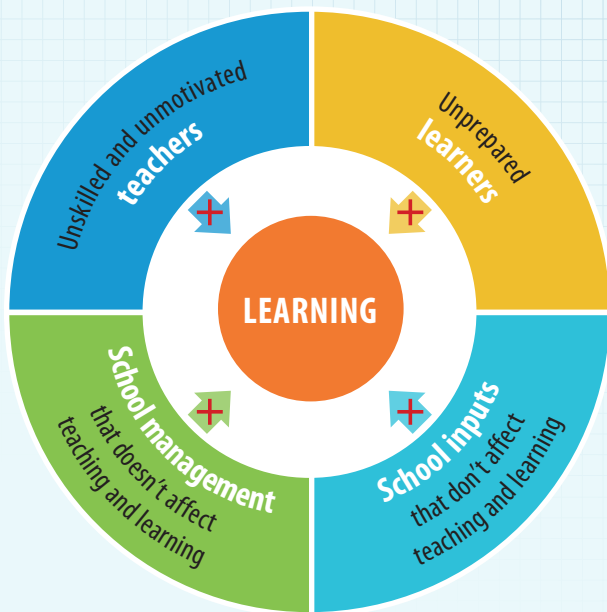
Source: World Bank, *World Development Report 2018*.

Note: These data typically pertain to selected regions in the countries and are not necessarily nationally representative.

The story behind the numbers

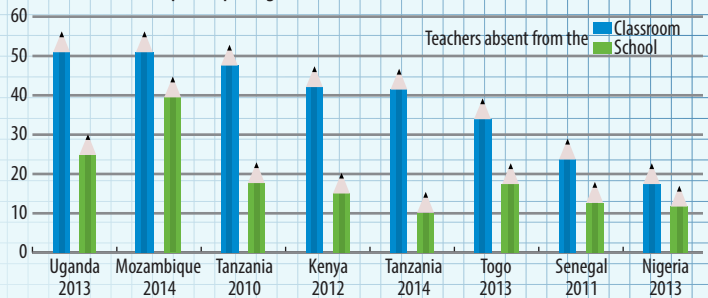
Why aren't students learning in school?

Four factors are at play:



Teachers are sometimes absent

Percentage of teachers absent from school and from class on the day of an unannounced visit, participating African countries



Source: World Bank, *World Development Report 2018*.

Note: Absent from the classroom combines absences from school with absences from class among teachers who are at school.

Of the 121 countries studied, **half lack the data required to report on levels of reading and mathematics proficiency** of children at the end of lower secondary school.



Key numbers

75 YEARS

At their current rate of improvement, 15-year-olds in Brazil won't reach the rich-country average score in math for more than 75 years.

180 YEARS

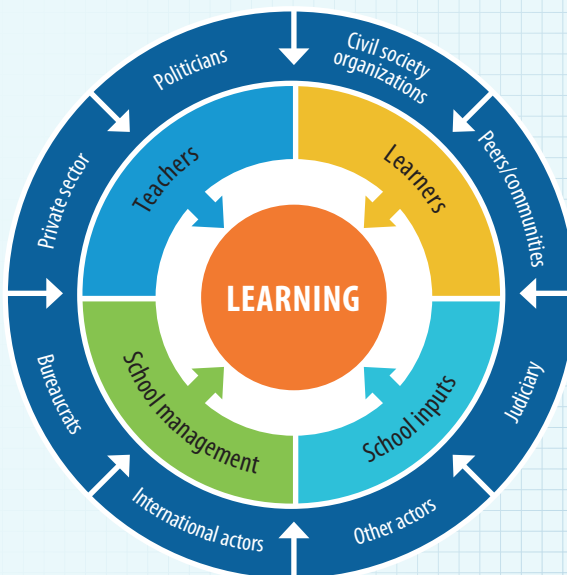
At their current rate of improvement, 15-year-olds in Tunisia won't reach the rich-country average score in math for another 180 years.

260 MILLION

Some 260 million children worldwide are not enrolled in primary or secondary school.

The solution

Countries have made enormous progress on getting children into school. Now it is time to focus on improving learning.



Restoring Ethics to Economics

Modern economics should return to its roots

Anthony Annett



PHOTO: STEVE JAFFE / IMF

THE DOMINANT ECONOMIC PARADIGM is facing a crisis of legitimacy. There are numerous dimensions to this fall from grace—rising inequality and economic insecurity; raw memories of the global financial crisis and the impunity enjoyed by those who provoked it; and a pattern of globalization perceived to privilege large corporations and the financial elite. Looming over it all is the specter of climate change. These fault lines are undermining trust in institutions, both national and global, and sometimes even provoking a backlash in the form of insularity and a tilt toward extremism.

A response to these challenges can be found in the 17 Sustainable Development Goals (SDGs) adopted by 193 nations in 2015 under the auspices of the United Nations. These goals are predicated on the idea that economic progress can no longer be evaluated without reference to social inclusion and environmental sustainability. Implicit is the notion that markets alone cannot solve these problems, which require cooperation between nations at a global level and social partners at a national level.

This shift in turn requires a serious rethink about the ethical foundations of modern economics. Such a conclusion might seem peculiar, however. Neoclassical economics, after all, evolved in a way that created a sharp distinction between the positive and the normative, between facts and values. Yet there is no way to divorce values from economic deliberation. And on the big questions posed by moral philosophy—relating to the nature of a human being, the purpose or goal in life, and the right course of action in different circumstances—economics proposes specific answers.

These answers are, I believe, inadequate. The ethical paradigm of neoclassical economics centers on “homo economicus,” who is driven by self-interest to seek the maximization of subjective material preferences—which is shown to be achievable (under highly restrictive assumptions) by competitive markets.

But is homo economicus an accurate reflection of human nature? Not according to the latest evidence from psychology, neuroscience, and evolutionary biology. Harvard biologist Edward O. Wilson, for example, argues that evolutionary forces imply the triumph of selfish people over altruists within groups, but that groups of altruists beat groups of egoists. If this is correct, then humans are hardwired to cooperate and uphold moral norms. Yet it also signals built-in tendencies to favor insiders and demonize outsiders.

From this perspective, I would argue that most ethical frameworks (both secular and religious) have a common goal—encouraging people to cultivate prosocial traits and to suppress those that are selfish and aggressive.

Neoclassical economics stands out as an exception. It endorses egoism, elevates material pursuits, and ignores ethical formation—preferences, after all, are held to be sovereign, subjective, and never open to scrutiny. And not only is virtue deemed irrelevant, but what older traditions regarded as vice is held to be beneficial. This is the basis of Adam Smith’s famous claim that self-interest rather than benevolence serves

the public good (although Smith himself was far more nuanced than many of his followers on that point).

A critical assessment of neoclassical economics must begin by asking what human beings actually value. An obvious answer is happiness. But this means different things to different traditions. Utilitarianism sees happiness in the hedonic sense of maximizing pleasure and minimizing pain, and neoclassical economics is heavily indebted to this tradition. The Aristotelian approach puts forth a deeper notion of eudaemonia, human flourishing, identified with living a full life in accord with what is deemed intrinsically worthwhile—meaningful relationships, a sense of purpose, and contribution to the community. For Aristotle, this requires the inculcation of virtue—best understood as actualizing potential, so that people move from what they are now to what they could be if they realized their essential nature. This is closely related to the capability approach associated with Amartya Sen and Martha Nussbaum, which stresses unfolding capabilities, the ability to do or be what a person values doing or being.

Primacy of relationships

Modern psychology gives some support to these insights. The literature on subjective well-being, for example, shows the primacy of relationships and purpose for well-being, affirming that money does not buy happiness beyond a certain level. The annual *World Happiness Report* shows that happier countries are not only wealthier, but also enjoy stronger social support, higher levels of trust and generosity, and a greater ability to unfold capability free from impediments (including corruption).

Copious studies also show that humans are endowed with prosocial inclinations such as altruism and a sense of fairness. Recent findings from behavioral economics, for example, show that people are inclined to cooperate, share, and reward trust, but also to punish cheating and opportunism, even at a financial cost to themselves.

If these insights are true, then it should come as no surprise that people feel such anxiety about precarious job prospects, given that decent work is a vital dimension of human flourishing—a core source of dignity, purpose, and social contribution. Or that they react negatively to perceived cheating and unfair advantage in the global economy.

In the Aristotelian tradition, the common good is understood as the good arising from a shared social experience that transcends the good of the individual, excludes no one, and cannot be disaggregated into the sum of individual goods. It reflects the insight that we flourish only in relation to others. Politically, it is synonymous with institutions that further the well-being of all, including future generations.

We need a commitment to the common good as a moral boundary on the market economy.

This notion of a common good is an uneasy fit with ethical paradigms emerging from the Enlightenment, which stress individuals' autonomy in pursuit of their own concept of what is good. This approach has brought enormous ethical advances, chiefly through its emphasis on universal human rights, but the loss of an objective common good carries a cost—it becomes too easy to reduce all value judgments to subjective preferences.

Ethical blindspot

Neoclassical economics falls prey to this temptation. With no mutual common ends, the goals of economic life are reduced to material and financial gain. Economic actors are expected to respect laws and property rights rather than moral norms and to be guided by financial incentives rather than virtue. This represents an ethical blind spot. It is precisely this mentality that fuels massive inequality, financial instability, and the environmental crisis. As Sen notes, an economy can be Pareto efficient—whereby market exchange achieves the maximum satisfaction of preferences—but still “perfectly disgusting.”

Delving even deeper, there is evidence that inculcating the values of homo economicus leads people to suppress empathy and solidarity in favor of egoism and opportunism. As the American economist Samuel Bowles notes, excessive reliance on financial incentives can undermine virtue, despite a growing awareness that key markets and institutions simply will not function without some commitment to virtues such as fairness,

honesty, and trust. It makes little sense to claim that any value judgment beyond efficiency lies outside the discipline's domain. Homo economicus appreciates none of this—and is, as Sen says, a “social moron.”

We need a commitment to the common good as a moral boundary on the market economy, which suggests not only allowing all people to develop their capabilities, but making sure that these are directed toward some agreed-upon common ends—especially as framed by the SDGs. Given the gravity of the environmental crisis, shifting to a zero-carbon energy system over the next three decades is of paramount importance.

A cosmopolitan responsibility? This raises another question: how far should the common good extend? One answer assumes a responsibility to all humanity. Such universalism is deeply embedded in modern moral philosophy. It is foundational to Immanuel Kant's

duty-based categorical imperative, which permits only maxims that can be universalized. It also underpins utilitarianism, which is predicated on seeking the greatest happiness of the greatest number. This universalism is especially pronounced in Princeton philosopher Peter Singer's argument that we are obligated to assist those in need anywhere in the world when it is within our power to do so. Such cosmopolitan responsibility is surely magnified by bearing some blame for the underlying predicament (as with wealthy countries and climate change).

Yet Aristotle and the Greeks were far more particular in their ethics—they regarded the common good as limited to the city-state and wrote women and slaves out of the equation. In some respects, this plays to the innate tendency toward in-group preference. Yet we must also recognize that we are socially embedded beings with a deep attachment to community as the locus of civic friendship, identity, meaning, and purpose. This is key to understanding the backlash against globalization.

How can we better balance these competing moral claims? There is no easy answer, and this question touches on cultural as well as economic factors. But the SDGs do offer a path through the thicket—a road map for global action that is both practical and affordable, on the one hand, and compatible with the major secular and religious ethical traditions on the other. In this context, the goals lay out the contours of a common good, delineating the basic requirements of human flourishing in each country alongside the specific responsibilities of wealthier nations toward poorer ones. Implementing them would repair some of the fault lines that threaten globalization and multilateral cooperation.

We must restore ethical reflection to the heart of economic reasoning, re-center policymaking on the common good, and re-embed ethical education in economics and business programs. Economics emerged as a subbranch of moral philosophy, and it must return to its roots. **FD**

ANTHONY ANNETT is assistant to the director of the IMF's Communications Department. For the past three years, Annett was an advisor at Columbia University's Center for Sustainable Development, working on the intersection of ethics, economics, and sustainable development.



The Inevitability of Bailouts

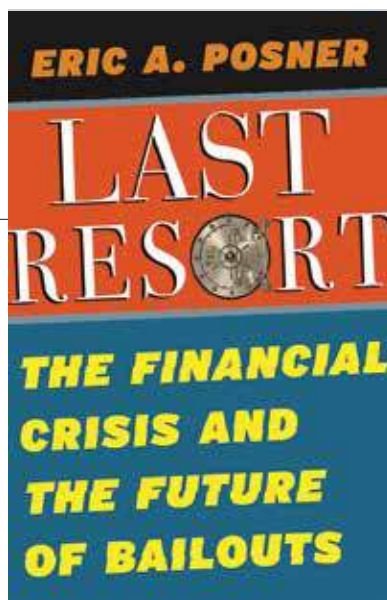
ECONOMICS SAYS THAT bailouts are bad because they beget moral hazard—that is, they shield those involved from risk, which encourages recklessness. Politics seems to agree: the no-more-bailouts sentiment was a driving force behind the 2010 massive US financial reform legislation known as the Dodd-Frank Act. The global financial crisis's 10th anniversary raises the question of whether we are better poised to deal with future crises. Eric Posner's response is a resounding no.

In *Last Resort* Posner's argument rests on three points. First, he argues that much of the response both by the Federal Reserve and the US government to the 2008 subprime crisis was illegal. Second, future crises will inevitably require bailouts or liquidity provision by a lender of last resort (LLR). Third, we still don't know how to provide an LLR legally and effectively in a crisis. Much space is devoted to the first point, leaving scant opportunity to address the challenge of designing adequate (and fully) legal policy tools.

The 19th century concept of an LLR is all about liquidity for solvent institutions in crisis. But today distinguishing between liquidity and solvency problems is often impossible. It is still a matter of debate whether Lehman Brothers was insolvent or just illiquid in September 2008. Similarly, the legal

Today distinguishing between liquidity and solvency problems is often impossible.

battles Posner analyzes regarding the insurer AIG and the government-sponsored housing enterprises hinge on the question of insolvency or illiquidity when the government intervened. It is hard to make this distinction, so bailouts are inevitable, and there must be rules for liquidity support. If anything, Dodd-Frank limited the Fed's ability to react. Other Dodd-Frank provisions may reduce the



Eric A. Posner

Last Resort: The Financial Crisis and the Future of Bailouts

University of Chicago Press,
Chicago, IL, 2018, 272 pp., \$27.50

probability of a crisis, but if there is one, we may be less able to respond.

Posner has no sympathy for the idea that the Fed, operating under extreme conditions, was innovative and creative in its crisis response. He presents a legal brief on why the government intervention to “take” the equity of AIG and of the government-sponsored housing agencies was illegal, as opposed to bailouts of worthless organizations. Not until the last three lines of the book does he acknowledge his work on AIG's legal case against the government.

In the last chapter, Posner turns to the design of a postmodern LLR. Legislation can never guarantee that crises will not occur, so bailouts will still be needed. Posner would like to see an LLR with broad powers to lend when collateral is unavailable or impossible to value, make capital injections, and direct firms to enter financial transactions. His strengthened LLR could make fiscal or expenditure commitments, crossing the line that separates traditional central banking from the government.

Would any legislator give such extensive authority to an independent financial regulatory body? It is a troubling conclusion: the modern financial system requires an LLR with powers no political structure is likely to grant. **FD**

PAUL WACHTEL, Stern School of Business, New York University

From Money to Data

SMOOTHLY WRITTEN and provocative, *Reinventing Capitalism in the Age of Big Data* is one of those rare pop future books that takes fundamental economics seriously. Nobel laureates from Friedrich Hayek to Alvin Roth don't just make cameo appearances: their insights drive the book's arguments. Authors Viktor Mayer-Schönberger and Thomas Ramege argue that the data's rise means money's decline, that meaningful economic growth overwhelmingly depends on data innovation, and that regulating market competition requires rethinking data access.

Data are not the new oil but a form of capital much like human, social, and intellectual capital. The authors see data becoming the dominant organizing principle for wealth creation. Markets

will be understood to surge because of rich data flows (not money). Finance capitalism will be as old-fashioned as Flower Power."

Big data accelerates the creative destruction of capitalism as we now know it. As data assume petabyte proportions and processing powers continue their exponential rise, Nobel Prize-winning research inspires disruptions. For example, reduced transaction and coordination costs—Ronald Coase's essential insight into enterprise economics—will inexorably lead to new organizational forms. Machine-learned matching and recommendation algorithms embedding Alvin Roth's intuitions about market design will deliver superior investment and consumption outcomes. And the human limitations of Herbert Simon's "bounded rationality" and Daniel Kahneman's behavioral economics will be algorithmically managed by bots nudging people's actions.

In other words, rich data should lead to richer—and more efficient—societies. The authors' vision is more upbeat than cautionary: this book was not written to depress.

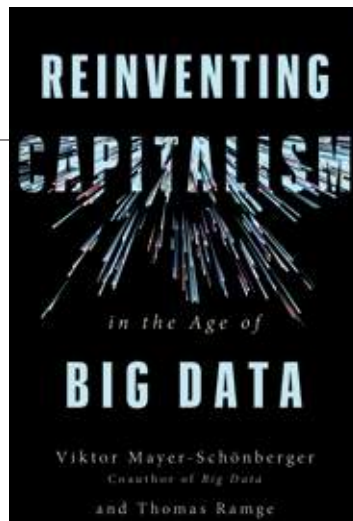
To be sure, Mayer-Schönberger and Ramege aren't Pollyannas. Their proposals for regulating data-dominant oligopolies are thoughtful. How should data be shared to stimulate greater competition, innovation, and entrepreneurship? Can greater transparency be structured to facilitate greater accountability? The world's Amazons and Googles will increasingly find themselves struggling to answer. If they can't, regulators and legislators surely will.

That said, the book champions governance over government. Indeed, the authors celebrate markets. "Eliminate the decentralized market and the empowering quality of data vanishes," they declare. "That is why we call the shift from money to data a revival of the market instead of the rise of artificial intelligence or the advent of Big Data."

The book's singular weakness is an overweening Western bias. The Chinese, Indian, and African ontologies receive only perfunctory review. Possible—even probable—global clashes of big data's economic and commercial culture are unexplored. These omissions undermine the authors' optimism and cheat the serious reader. If future wealth, growth, and living standards depend on data-ism, then it will surely be as much a source of rivalry and competition as collaboration and trade. **FD**

MICHAEL D. SCHRAGE, research fellow, MIT Sloan School Initiative on the Digital Economy

Viktor Mayer-Schönberger
and Thomas Ramege
**Reinventing Capitalism
in the Age of Big Data**
Basic Books,
New York, 2018, 288 pp., \$28



evolve into platforms enabling valuable new genres of data-rich products, services, and experiences. Fintech supersedes traditional finance. Classical market signals like price descend into anachronism.

"In data-rich markets," they write, "participants no longer use price as the primary conveyor of information...one of the central tasks that money has played in the economy will be gone." Money's role will erode to the point where "(r)ather than equating markets with money and the economy with finance capitalism in which money rules supreme, markets

Mexico's Lesson in Capitalism

IN THIS FORMIDABLE work of scholarship, Georgetown University historian John Tutino recounts Mexico's long journey to modernity from the standpoint of small communities surrounding Mexico City. This ambitious exercise spans five centuries to analyze how these communities "built, sustained, subsidized, resisted and changed capitalism" in its various phases from silver-based imperial capitalism under Spanish rule to the shift from national capitalism to liberal globalism in the late 20th century.

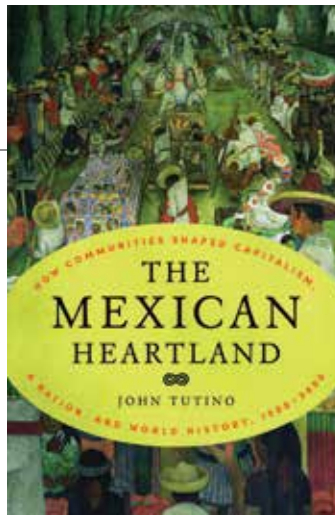
Tutino gives a rich description of the clash between traditional community life and the expansion of capitalism through the centuries and tells the stories of people in communities such as Chalco, Tenango del Valle, and Tepoztlán, places exhibiting the enduring traits of the Mexican heartland: poverty, productive communitarianism, local autonomy, and patriarchalism.

A key theme of the book is the resilience that allowed communities to retain, with varying success, a degree of the ecological, political, and cultural autonomies secured during the era of the global silver economy under Spanish rule. In the late 19th century liberal capitalism brought with it a concentration of land ownership that, combined with population growth and mechanization, undermined the patriarchal family system. Tutino describes how this

Openness of the economy and social inclusion do not, of course, come about automatically.

led to rising violence, both within families and by armed rebellion. The ultimate result was land reform yielding a temporary renewal of autonomy. But strong population growth in the 20th century and the rapid expansion of Mexico City sapped the rural heartland and left most of its people struggling to build satisfactory lives in the sprawling conurbation.

For Tutino, this phase, and the subsequent collapse of national capitalism with the "triumph of globalization" since the 1980s, marked the definitive end of local autonomies. Yet the author may have marked the ending too early. The clash between traditional



John Tutino

**The Mexican Heartland—
How Communities Shaped
Capitalism, a Nation, and
World History, 1500–2000**

Princeton University Press,
Princeton, NJ, 2017, 512 pp., \$39.50

communities and liberal capitalism was still evident in 2006 when riots led by the community of San Salvador Atenco forced the new Mexico City airport project to be postponed for 10 years.

The author also seems to suggest that capitalism's incompatibility with traditional autonomous communitarianism implies a choice between social erosion and inclusion. Yet some of the most open and market-oriented economies are also among those with the best track records on inclusiveness and the environment.

While Tutino may be right to say that it remains to be seen "how people will make communities and press their needs in our new world," there is as much reason to be optimistic about this as pessimistic. Openness of the economy and social inclusion do not, of course, come about automatically. The right policies are needed for the sort of inclusive and sustainable growth that can combat poverty while safeguarding the environment and fostering human rights and democracy. At a 2017 meeting of the Organisation for Economic Co-operation and Development, which I lead, the Network of Open Economies and Inclusive Societies was established to champion this combination. The OECD has been working closely with the Mexican authorities to design and implement reforms that simultaneously boost productivity and improve the inclusiveness of growth. I hope and believe that, for the Mexican heartland, the best is yet to come. [FD](#)

JOSÉ ÁNGEL GURRÍA, secretary-general, Organisation for Economic Co-operation and Development

Fiji's Bug Bill

The island nation pays tribute to its rich animal and plant life

Eszter Balázs

NANAI ARE A RARE SIGHT: the cicadas make an appearance in Fiji only once every eight years. The shiny-backed, yellowish tree bugs, a native of Viti Levu, Fiji's largest and main island, also recently replaced the image of Queen Elizabeth II on the Fijian \$100 banknote.

In 2012, Fiji decided to highlight its endemic national heritage—and the need to preserve, protect, and promote it—on the faces of its legal tender. The island nation in the South Pacific is not the first country to showcase its plants and animals on its currency. South Africa, New Zealand, and Brazil also flaunt species of elephants, falcons, and dusky groupers that are unique to their countries. In Fiji's case, a number of these flora and fauna are critically endangered or have not been sighted in a long while.

Take, for example, the *kulawai*, or red-throated lorikeet, the smallest member of the parrot family in Fiji. Recorded on only four of the country's 332 islands, the predominantly green bird with orange and yellow patches around its beak and tail was last seen in 1993 and is suspected to have

Fiji decided to highlight its national heritage—and the need to preserve, protect, and promote it.

fallen prey to an invasive species of ship rats. The bird, now likely extinct, is immortalized on Fiji's only polymer banknote, the \$5 bill.

The \$10 banknote features a *beli*, or Lever's goby, a freshwater fish found in fast-running streams in the highlands of Fiji. The \$20 banknote depicts a bird that nests on a single island, Gau, which gave the otherwise seafaring Fiji petrel its name, *kacau ni Gau*. Experts believe that no more than 50 pairs of this rarely seen bird—which used to adorn Fiji's former national airline, Air Pacific—survive today.

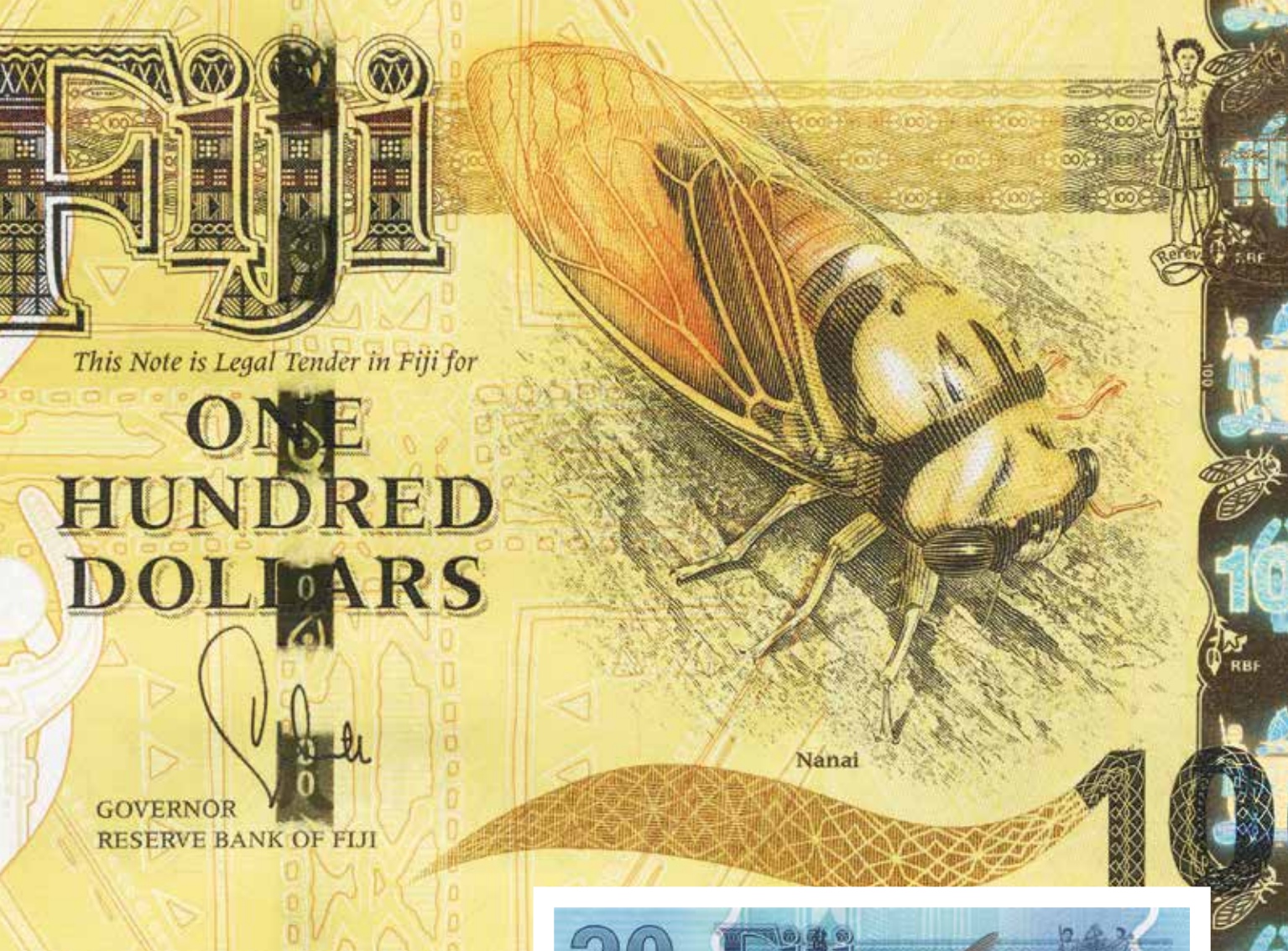
In addition to the banknotes, the Reserve Bank of Fiji issued a series of coins featuring other endemic species, including a rabbitfish, a flying fox, a parrot, a humphead wrasse, an iguana, and a peregrine falcon.

The only plant that made it onto the new tender is the *tagimoucia*, Fiji's best-known flower, which flourishes only on a single island. "People have tried to plant it elsewhere in Fiji, but it refuses to grow," said Susan Kumar, chief manager of the Currency and Corporate Services Group at the Reserve Bank of Fiji, who worked on the new banknote series from its conception to its launch in 2012.

"By using animals and plants unique to the Fiji Islands we wanted to make people aware of them,



Top: Fijian \$5, with the kulawai bird. Bottom: Fijian \$10, with beli fish.



to help preserve them for the next generations,” she said. “Before, no one talked about the emergence of the *nanai*, for example. There were newspaper articles when these tree bugs reappeared last year.”

The choice of what to display on the banknotes and coins was made by a team of experts including biologists, historians of the National Museum of Fiji, and members from a cross section of the community. The committee, under the guidance of the governor of the Reserve Bank, Barry Whiteside, quickly settled on the theme of flora and fauna, said Kumar. For her, the real excitement was seeing the designs emerge, some drawn from preserved specimens by Luis Morris, a former senior banknote designer at banknote manufacturer De La Rue, in the United Kingdom.

“Once I called him to follow up on something, and right at that moment he was busy doing the petals of the tagimoucia. He did not stop talking to me, but later showed me the petal he was drawing as we spoke. This memory is now etched in my mind and recalled every time I see the banknote,” she said.

The public loves the new design series, Kumar said. “The banknotes are colorful and vibrant,



Top: Fijian \$100, with the country's endemic cicada. Bottom: Kakau ni Gau bird flying on the Fijian \$20.

and people can relate to what they see on both the bills and the coins. It is the natural history of their country.” With the proud display of local natural riches, however, came a big change: after 78 years, the currency of the Commonwealth member country ceased to display images of the British royal family.

The collection of Fijian flora and fauna banknotes won the Regional Banknote of the Year Award in 2013 for its visual artistry, technical sophistication, and accurate reflection of the country's cultural heritage. [FD](#)

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