

FD

FINANCE AND DEVELOPMENT

JUNE 2017

Robert Gordon
Profiled P.28

**What's Up
with Cash** P.32

**Capital
Slowdown** P.36



Millennials and the Future of Work

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Tomorrow's Workplace

IT SEEMS FITTING that we are launching our redesigned magazine with a cover dedicated to millennials and the future of work. But while *Finance & Development* has mainly changed its appearance, not its content, young adults may have to make more fundamental adjustments to keep pace with the requirements of tomorrow's workplace.

For a start, there is the changing nature of work itself. Whereas baby boomers and Generation Xers stood a good chance of landing a regular full-time job with benefits (such as paid leave and a generous pension), today's young people find it much harder, working instead in what has been dubbed the "sharing economy." About 40 percent of independent workers in the United States who make a living as freelancers are millennials, according to New York University professor Arun Sundararajan.

Then there is the fact that millennials got their timing horribly wrong, as they began to enter the workforce during the most severe global economic crisis since the Great Depression. In many countries, youth unemployment spiked at over 20 percent of the workforce, and it remains stubbornly high.

And technology is a double-edged sword for millennials. The digital economy has enabled the creation of millions of new jobs, but artificial intelligence and robotics may soon displace even complex human activities such as driving a car, providing health care, and giving legal advice.

What to make of it all? We asked millennials around the world. One of them, Kathy Gong of China, captured the spirit of optimism—coupled with fierce determination to create a better society—that drives many millennials. "Our future depends on the young people because they are at the core of creativity, the force behind breakthrough innovation, advocates for a fairer society, and drivers of economic growth and societal improvement," she says. Gen Xers and baby boomers, please step aside. **FD**

CAMILLA LUND ANDERSEN, Editor-in-Chief



ON THE COVER

Michael Waraksa is known for his botanical and zoological collages. On the cover of this issue, which sports *F&D*'s first redesign in 10 years, Waraksa portrays millennials as butterflies exploring their prospects in the changing work landscape.



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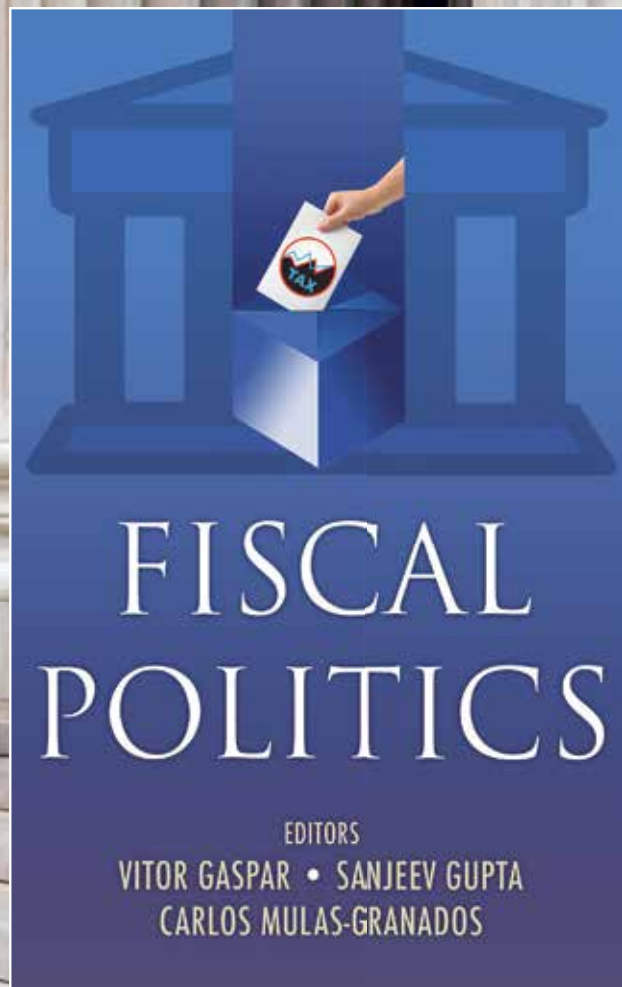
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I N T E R N A T I O N A L M O N E T A R Y F U N D





AN UNCERTAIN FUTURE

Along with exciting new possibilities, millennials face a whole different set of obstacles

Maureen Burke

MILLENNIALS ARE ENTERING the workforce at a time of technological change and economic disruption. These forces are shaping the choices they make and the experiences they seek—even as this generation in turn shapes the global economy.

Born between 1980 and 2000, millennials are the largest generation in the modern era. While their elders—the baby boomers and the Gen Xers—are digital immigrants, millennials are true digital natives, with an instinctual feel for the latest technology. Technology is second nature to them—yet many worry that their jobs may one day be taken by a robot.

Millennials are increasingly looking to find their way in the sharing economy, a phenomenon made possible by the emergence of digital platforms that facilitate the matching of buyer and seller. Jobs in the sharing economy—like driving for Uber or Lyft—help some millennials make ends meet, even if such temporary gigs are a far cry from the full-time jobs with traditional pension plans and other benefits their parents often enjoyed.

This generation also enthusiastically embraces the services of the sharing economy, which provides access to everything from beds to cars to boats without the hassle of ownership. Loath to buy big-ticket items such as cars and houses, millennials have sharply different spending habits from those of preceding generations.

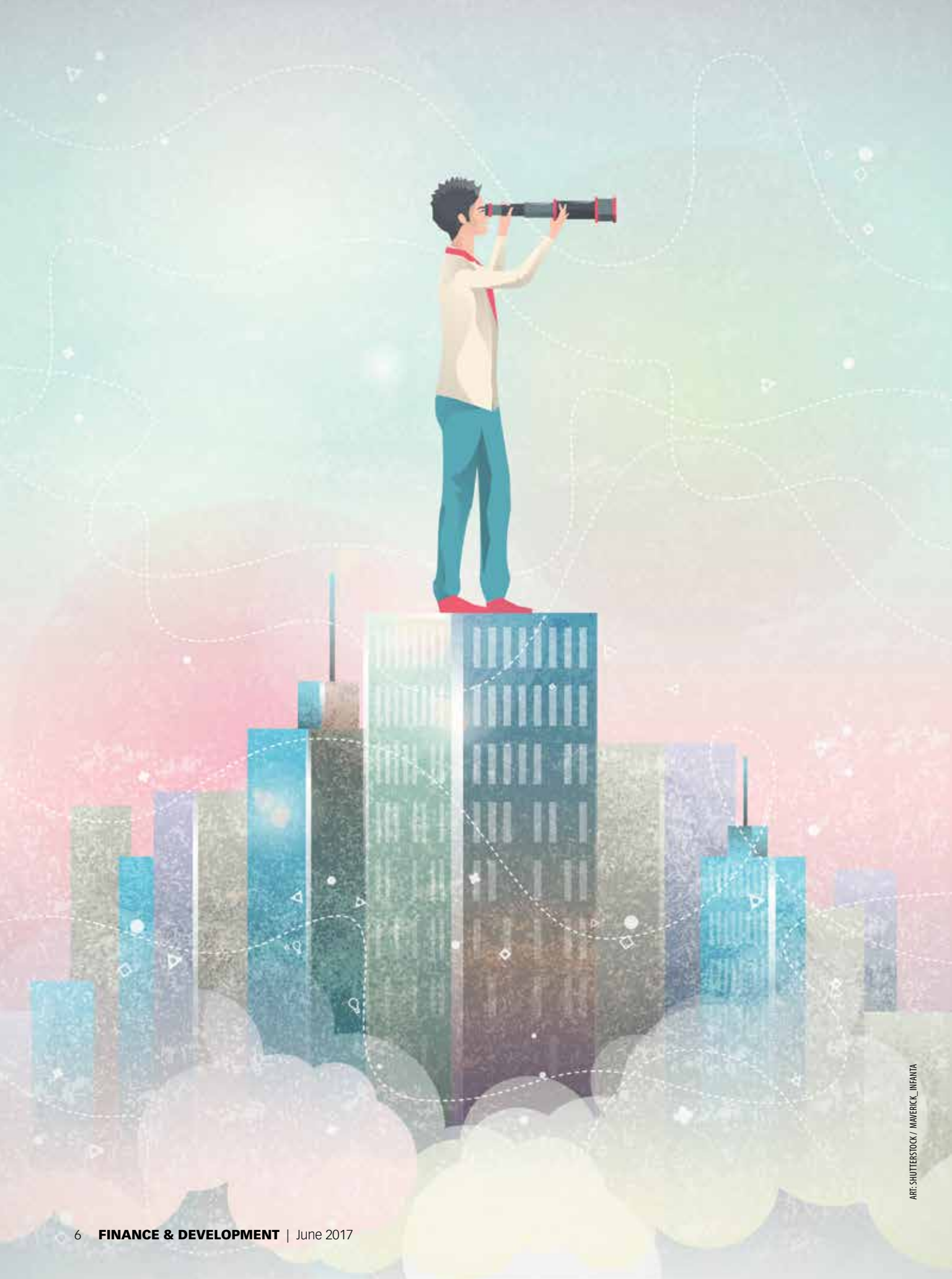
Is this a rejection of materialism—or simply a sign of insufficient resources? Or both? While young people are optimistic about the future, they are struggling to get jobs. And average incomes for today's young workers, at least in the United States, are lower than they were in 1975. The real (after-inflation) income for young American workers is 5.5 percent lower than it was four decades ago, according to the U.S. Census Bureau.

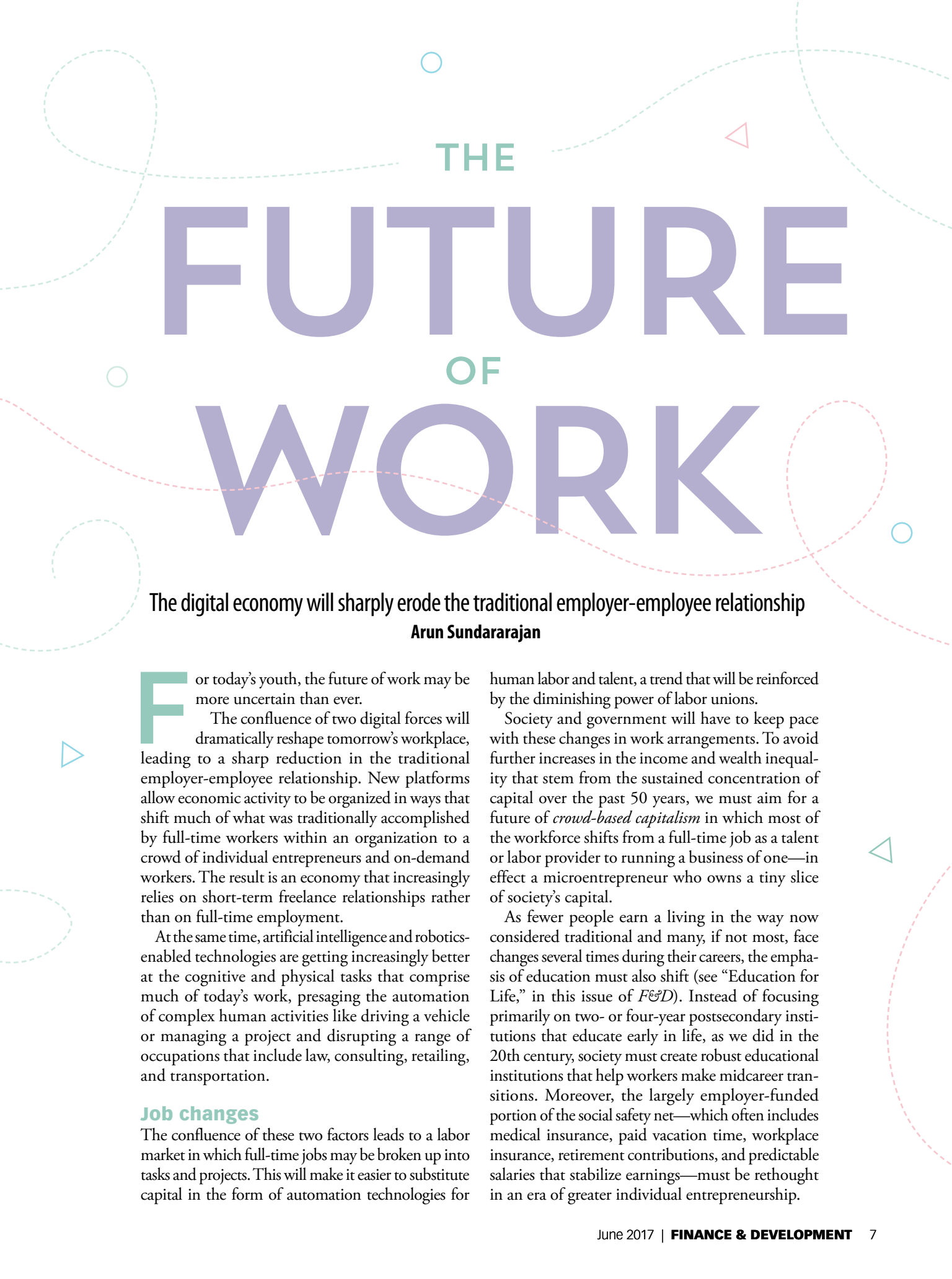
Millennials confront obstacles to prosperity that their parents didn't face. They are better educated than previous generations—but in today's world, that is not enough to guarantee financial success. Many, if not most, will be forced to retool and switch careers several times during their working life. While formal schooling remains the primary source of learning, educational systems must arm millennials and succeeding generations with skill sets for jobs that do not yet exist.

And whatever the jobs of the future turn out to be, this generation may need to keep doing them for longer than they think. As populations age and governments try to contain burgeoning pension costs, millennials face the prospect of having to work more years and save more for retirement to achieve the same standard of living as today's retirees.

This issue of *F&D* examines the economic opportunities and challenges of millennials, who will try to earn a living in a work world decidedly different from the one their parents inhabited. **FD**

MAUREEN BURKE is on the staff of *Finance & Development*.





THE FUTURE OF WORK

The digital economy will sharply erode the traditional employer-employee relationship

Arun Sundararajan

For today's youth, the future of work may be more uncertain than ever.

The confluence of two digital forces will dramatically reshape tomorrow's workplace, leading to a sharp reduction in the traditional employer-employee relationship. New platforms allow economic activity to be organized in ways that shift much of what was traditionally accomplished by full-time workers within an organization to a crowd of individual entrepreneurs and on-demand workers. The result is an economy that increasingly relies on short-term freelance relationships rather than on full-time employment.

At the same time, artificial intelligence and robotics-enabled technologies are getting increasingly better at the cognitive and physical tasks that comprise much of today's work, presaging the automation of complex human activities like driving a vehicle or managing a project and disrupting a range of occupations that include law, consulting, retailing, and transportation.

Job changes

The confluence of these two factors leads to a labor market in which full-time jobs may be broken up into tasks and projects. This will make it easier to substitute capital in the form of automation technologies for

human labor and talent, a trend that will be reinforced by the diminishing power of labor unions.

Society and government will have to keep pace with these changes in work arrangements. To avoid further increases in the income and wealth inequality that stem from the sustained concentration of capital over the past 50 years, we must aim for a future of *crowd-based capitalism* in which most of the workforce shifts from a full-time job as a talent or labor provider to running a business of one—in effect a microentrepreneur who owns a tiny slice of society's capital.

As fewer people earn a living in the way now considered traditional and many, if not most, face changes several times during their careers, the emphasis of education must also shift (see “Education for Life,” in this issue of *F&D*). Instead of focusing primarily on two- or four-year postsecondary institutions that educate early in life, as we did in the 20th century, society must create robust educational institutions that help workers make midcareer transitions. Moreover, the largely employer-funded portion of the social safety net—which often includes medical insurance, paid vacation time, workplace insurance, retirement contributions, and predictable salaries that stabilize earnings—must be rethought in an era of greater individual entrepreneurship.

Several studies over the past two years have documented a rise in the nonemployment labor force: people who derive their primary or supplemental income from freelance arrangements. Estimates of the total number of such independent workers in the United States range from 40 million to 68 million (see Chart 1). The variation reflects different definitions and methods; nevertheless, both the high and low estimates demonstrate that independent workers represent a significant fraction of the country's civilian labor force of 160 million people.

The tendency to pursue nonemployment work is more pronounced among younger people. For example, 40 percent of independent workers who make their primary income this way are millennials, compared with about a third of the overall civilian workforce, according to a survey by MBO Partners.

The emergence of numerous digital platforms that facilitate earning nonemployment income is likely to accelerate this trend. Many of these platforms commercialize personal assets by putting them to more productive use. These include transportation platforms (like Uber and Lyft in the United States, Didi Chuxing in China, BlaBlaCar in France, Ola in India, and Grab in southeast Asia); those like Airbnb that enable individuals (over 3 million at the end of 2016) to run a commercial short-term accommodation business in their home, and peer-to-peer

car rental platforms like Drivy in Europe and Getaround in the United States. They also include a growing number of on-demand and freelance labor platforms like Upwork, which operates globally and has more than 12 million registered freelancers offering skills ranging from administration and customer service to web development and accounting; country-specific platforms like CrowdWorks in Japan (over a million workers) and Giraffe in South Africa; and sector-specific professional labor platforms like Catalant for management consulting, Gigster for high-end software development, and UpCounsel for legal services.

A November 2016 JPMorgan Chase Institute study documents the change: at the end of 2013 about 0.5 percent of US adults had earned non-employment income via such platforms; by mid-2016, that number had grown to 4 percent. Although there are no comparable global estimates, an October 2016 study by the McKinsey Global Institute documented a similar percentage: about 4 percent across France, Germany, Spain, Sweden, and the United Kingdom. Nonemployment work arrangements will expand further in coming years as sector-specific professional labor platforms proliferate, possibly taking full-time jobs out of companies and converting them into sets of projects or tasks. That will shift the source of commercial trust toward digital systems and increase the role for new enterprise software from companies like WorkMarket and SAP that manage complex on-demand task-based workflows.

The second machine age

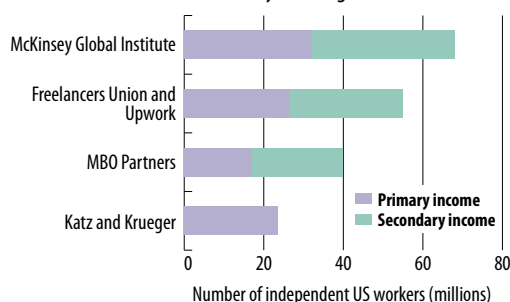
Concerns about this on-demand technological onslaught on full-time employment are exacerbated by growing worries about labor automation made possible by advances in artificial intelligence and robotics. Of course, fears of technological unemployment are hardly new. In the so-called Luddite labor riots between 1811 and 1816 in Britain, textile workers destroyed weaving machinery they believed would replace their role in production.

A report titled "Technology and the American Economy," prepared for the US president by the National Commission on Technology, Automation and Economic Progress, voiced similar concerns: "The fear has even been expressed by some that technological change would in the near future not only cause increasingly unemployment, but that eventually it would eliminate all but a few jobs, with

Chart 1

Independent employment

Four recent major studies found that a sizable portion of the 160 million US workers earn income by working freelance.



Sources: Katz, Lawrence F., and Alan B. Krueger. 2016. "The Rise and Nature of Alternative Work Arrangements in the United States, 1995–2015" (RAND); MBO Partners. 2016. "State of Independence in America," Herndon, VA; Freelancers Union and Upwork. 2016. "Freelancing in America 2016"; and McKinsey Global Institute. 2016. "Independent Work: Choice, Necessity, and the Gig Economy."

Note: In general, independent workers derive all or some of their income from freelance arrangements. The precise definition of independent worker varies from study to study.

the major portion of what we now call work being performed automatically by machine.”

This report was not prepared for President Barack Obama in 2016. Rather, it was presented to President Lyndon Johnson 50 years earlier. And although exaggerated in its prognosis, it was accurate about the long-term source of manufacturing job losses. Although US manufacturing employment continued to rise in the decade following this report, peaking at close to 20 million jobs in the late 1970s, it began to fall soon after. Manufacturing jobs represented 22 percent of nonfarm payroll employment in 1977. In contrast, the 12 million manufacturing jobs today account for less than 10 percent of nonfarm payrolls. Although it is difficult to precisely disentangle trade effects from those of technological change, many believe that those US manufacturing job losses over the past 15 years reflect factory automation more than companies shifting production to low-cost foreign operations. In fact, even as jobs were declining, US manufacturing output was growing. As robotics technologies continue to improve, automation may be even more ominous for China, where urban manufacturing employment was at a massive 80 million in 2014, a level bound to drop steeply in coming decades.

Perhaps what strikes greater fear than manufacturing automation among today's youth is the specter of the “second machine age” predicted by Erik Brynjolfsson and Andrew McAfee in their 2014 book, in which technologies start to perform the cognitive tasks once the exclusive domain of humans. IBM's Watson technology promises artificial-intelligence-powered solutions for financial compliance, medical diagnostics, and legal services. Self-checkout counters at a growing number of retail stores already replace cashiers. Self-driving automobile technologies seem poised to threaten tens of millions of trucking jobs globally. These professions span the expertise spectrum, which portends a slowing or perhaps even reversal of wage increases for high-skill work that have accompanied skill-biased technical change in past decades. Furthermore, many worry that if machines go beyond automating physical labor and start to absorb the demand for cognitive capabilities as well, little will be left for humans to do.

A glance at the history of job displacement from automation provides some context and reassurance. As farming was steadily mechanized in the United States, the share of the workforce employed in agriculture fell from 41 percent in 1900 to less

than 2 percent in 2000. Yet the specter of economy-wide unemployment did not materialize. Rather, progress in the underlying technologies themselves spawned new industries. As David Autor pointed out in a 2015 article in the *Journal of Economic Perspectives*, as passenger cars displaced equestrian travel and its supporting industries, the automobile industry emerged—along with highways, gas stations, the roadside motel, and fast-food outlets. The broader point is that even as old industries shrink or disappear, new ones that fulfill different human desires and needs emerge and expand. The health care sector, virtually nonexistent 200 years ago, accounts for about 12 percent of US employment today (see Chart 2). Tourism, barely an industry in 1900, employed 235 million people in 2011, constituting 8 percent of global employment. A pattern has emerged of activities

EVEN AS OLD INDUSTRIES SHRINK OR DISAPPEAR, NEW ONES THAT FULFILL DIFFERENT HUMAN DESIRES AND NEEDS EMERGE AND EXPAND.

once informal or done within the household or local community (like communication, entertainment, travel, education, or tending to the ill) becoming industries in the formal economy.

As the labor demands of industries that fulfill contemporary societal needs are automated by new technologies, people will be free to fulfill underserved human aspirations or new societal needs. Perhaps economic activity to counter climate change will scale up dramatically—or to educate the world or formalize the care economy.

Crowd-based capitalism

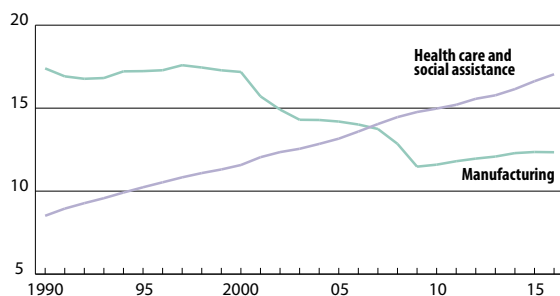
So the myriad projections about the big chunk of today's jobs that might be amenable to automation in coming decades are not cause for widespread and immediate panic. But the confluence of the twin forces of rising nonemployment work and the increasing cognitive capabilities of machines could call for a change in society's model of earning a living. This is because the labor displacement effects of automation are moderated by differences in how quickly it lowers the cost of doing different tasks

Chart 2

Changing faces of jobs

Even as traditional manufacturing jobs in the United States declined over the past 15 years, employment in health care, which hardly existed as an industry a century ago, climbed sharply.

(millions of workers)



Source: US Bureau of Labor Statistics.

that comprise a job. If organizations start to unbundle jobs and farm out tasks to on-demand labor platforms, the effect will be faster automation of such tasks when the technology is ready.

One solution is to redefine our basic model of how people earn a living: away from payment for labor and talent by a large organization that owns the capital associated with the economic activity and toward a system of tiny businesses that mix labor, talent, and capital inputs. Some inputs might come from the individuals themselves and some from other humans (perhaps via an on-demand platform); over time, a growing share might come from artificial intelligence and robotics technologies.

The emergence of sharing economy and other professional services platforms makes this future of crowd-based capitalism feasible at scale. Perhaps the best example is Airbnb, which matches owners of spare space with those seeking temporary quarters. By many measures, it is the world's single largest provider of short-term accommodations. (On December 31, 2016, more than 2 million people around the globe were staying in Airbnb housing. The world's largest hotel chain, Marriott-Starwood, has an inventory of roughly half that, or 1.1 million rooms.) Airbnb gathers demand for space, provides the reassurance that comes with a global brand, and sets and enforces some standards (almost like a next generation franchising operation). But the actual running of the businesses that provide the short-term accommodations—the

pricing, inventory management, positioning, merchandising, customer interaction—is done by the 3 million hosts, who build their own microbrands through Airbnb's reputation system.

Airbnb could be a microcosm of the future of work—relatively immune to the displacement effects of automation. In younger and faster-growing economies, like those of Brazil, India, and Vietnam—where full-time institutional employment is not yet dominant and traditional economic institutions vary in effectiveness—platforms with robust digital trust systems that match demand for services with suppliers could stimulate a self-employed and entrepreneurial population, empower it to reach global markets, and raise its standard of living by building individual capital. In more mature economies, like Japan, the United Kingdom, and the United States, which now rely primarily on full-time formal employment, such a model could maintain reasonable levels of individual income. In essence, these changes could partially insulate the workforce from higher capital-labor substitution because of automation by helping today's workers make the transition from labor provider to capital owner.

In the future, today's aspiring law associate might instead be a tiny law firm that operates through a legal services platform. That would give the young lawyer access to corporate clients the platform aggregates and cultivates while leveraging artificial-intelligence-enabled legal research capabilities. Microentrepreneurs might run urban transportation or local trucking businesses using fleets of autonomous cars or trucks through a platform. A global consulting firm might evolve into a platform through which millions of individuals run microconsulting practices (or even small partnerships).

Rethinking education

Such a future of large-scale crowd-based capitalism will require fundamental rethinking of postsecondary education. Countries around the world, most prominently the United States, have invested heavily in universities and colleges that prepare their workforces early in life for a career of full-time employment. Much of this focus must shift toward dramatically increasing the availability and quality of continuing education. Recent political developments in the United States and the United Kingdom reflect in part significant underinvestment in new opportunities for workers displaced by automation and ill equipped for a new world of work. To help those workers, new



A man uses the Airbnb smartphone app.

PHOTO: RUSSELL HART/ALAMY STOCK PHOTO

university-like institutions are needed to provide structured and pedagogically sound transition education. The instruction should be accompanied by a new professional network and access to new opportunities that help overcome the housing, credit, and community factors that often impede relocation to pursue a new career. Such an approach would give workers in flux a new identity and sense of purpose and enable them to rebuild their self-worth. Seeking this sort of midcareer intervention should be as natural as choosing to go to college after high school.

The government of a country must lead the creation of such a system. It may also be prudent to reevaluate middle and high school curricula for the next generation. As the cognitive capabilities of digital machines expand, students may need less education in science, technology, engineering, and math and may benefit from a greater emphasis on design thinking, entrepreneurship, and creativity to prepare them for a microentrepreneurial career.

At the same time, the social contract must be refashioned to accommodate a different kind of workforce. During the second half of the 20th century, a variety of labor laws were developed to improve the quality of work life for full-time employees—including minimum wages, overtime, and insurance. Funding for a number of other incentives—stable salaries, paid vacation time, workplace training, and health care—in many countries is based on an assumption of full-time employment and on the employer providing all or part of the incentive. The design and funding of tomorrow's social safety net must be adapted for a workforce that is increasingly independent. At the

same time, substitutes are needed for the career paths and sense of community many workers now get from the company they work for. Perhaps the role of the postsecondary schools will evolve to include this kind of lifelong career planning.

The challenges facing today's millennial workforce seem quite daunting. However, if society plays its cards right, tomorrow may offer a better place. As we have learned from Thomas Piketty his 2014 book, *Capital in the Twenty-First Century*, the most important driver of sustained inequality in modern economies is the concentration of capital ownership.

THE SOCIAL CONTRACT MUST BE REFASHIONED TO ACCOMMODATE A DIFFERENT KIND OF WORKFORCE.

Countries whose government policy steers an economy toward a future of *genuine* crowd-based capitalism and creates *authentically decentralized* capital ownership may also enjoy less inequality as a happy by-product. As digital machines compel us to reshape our world of work, perhaps they will also show us a path toward the more equitable society we've been seeking for years. **FD**

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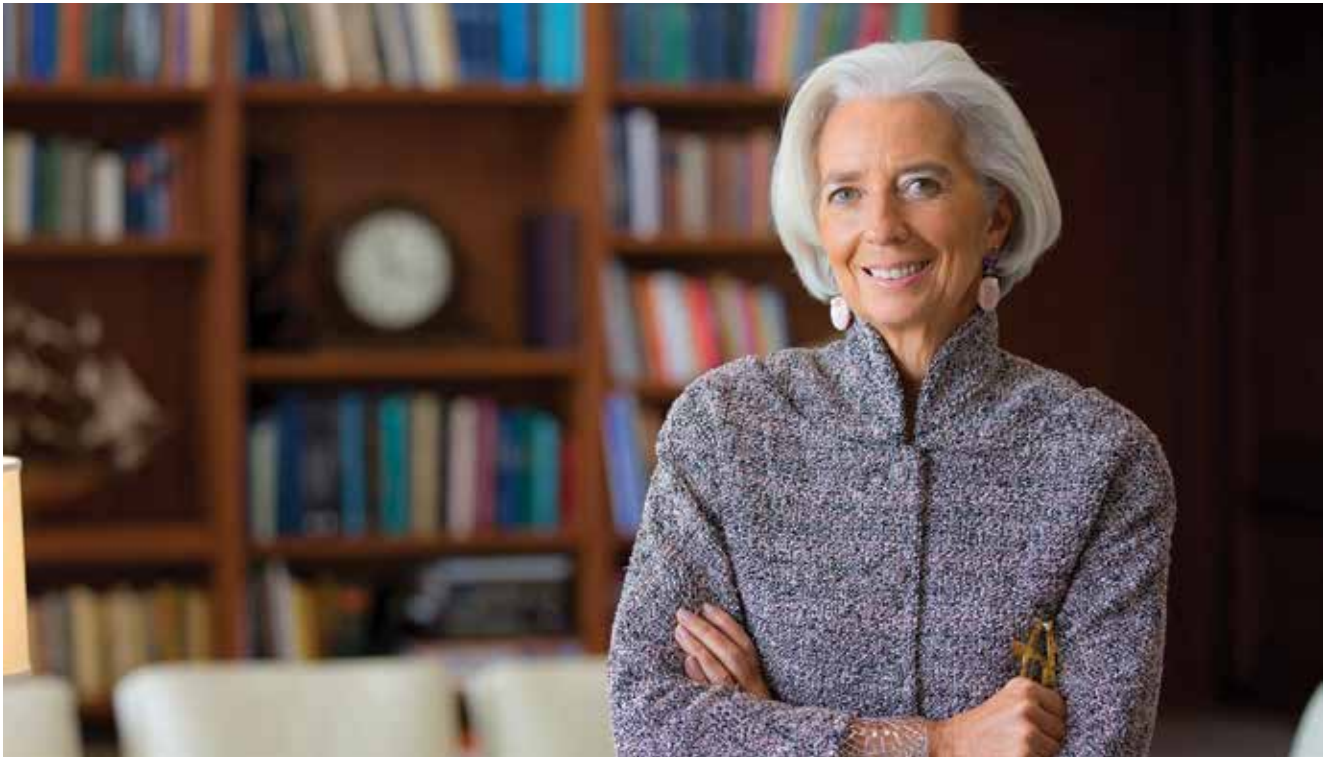


PHOTO: IMF PHOTO

The Voice of Youth

Adapt, adjust, and never stop learning

Christine Lagarde

THE OLD, as Oscar Wilde once remarked, believe everything; the middle-aged suspect everything; the young know everything.

That's why I appreciate hearing young voices—from students, to budding entrepreneurs, to fresh-faced community leaders. Their stories resonate with me because they are deeply felt, insightful, and inspiring.

Like those of everyone, young people's concerns vary by region and culture. But there are some questions that I hear nearly everywhere I go: can I find meaningful work that allows me to help my community and support my family? Is there a place for me in my own society? Can I start my own business—and if so, how successful will it be?

There is much hope and excitement in these questions, but they also convey a sense of doubt and trepidation—and for good reason. Unfortunately, young people today are twice as likely to be unemployed as the general population.

In France, for example, youth unemployment is nearly 20 percent, while overall unemployment is about 10 percent, with Brazil and Egypt facing similar problems. Around the world, youth

unemployment will reach 71 million this year, according to ILO estimates.

To make matters more complicated, young people who do find work are facing rapid technological disruptions that could eliminate their new-found industries. This transformation leaves everyone—especially young workers—guessing which jobs will still be around a decade from now and how they can train themselves to adapt.

Ready to adapt

Fortunately, young people have the tools in hand to prepare themselves for the tectonic shift that is underway.

In my conversations, I quickly pick up on the fact that this generation operates on a steep learning curve. Many students now embrace the idea of continuous training and take it as a given that they must add skills throughout their lives.

I have seen firsthand the incredible resourcefulness of millennials as they try to take control of their future. Many are not willing to wait for a job in the civil service or in a large company. They strike out and start their own businesses. They devise new online platforms and discover markets that previously did not exist. What I see is a generation that, if faced with unemployment, innovates to create fresh opportunities.

But this approach alone is not enough. Governments have a responsibility to build an environment that allows young people to fully realize

their potential. This means breaking down regulatory barriers, supporting entrepreneurs who may not succeed on their first attempt, and investing in mentorship across generations. How can this be done?

Tailored approach

There is no magic formula that works in all countries, but I see several practical solutions. One is structured vocational training, which has kept youth unemployment low in countries such as Austria, Germany, and the Netherlands. Another solution is giving young women better access to child care centers and flexible maternity benefits. These efforts can reinvigorate labor markets.

Take for example Mali, where the IMF has emphasized the economic benefits of girls' education. Or Mauritius, where we are examining ways of expanding women's access to finance.

In certain countries, a 10 percentage point decrease in gender inequality could boost growth by 2 percentage points over the next five years.

At the same time, our member nations need to remove barriers to competition and cut red tape. These reforms must of course be country specific—in advanced economies, we estimate that if research and development were increased by 40 percent, nations could grow GDP by 5 percent in the long term.

All these changes would benefit youth just embarking on their careers.

Smart policy choices can liberate young people to work for themselves or start a company. At the same time, young entrepreneurs face increased financial uncertainty because they can no longer rely on employer-based health insurance or pension plans.

How can the IMF help?

IMF work

Our mission at the IMF is to promote economic stability and growth around the world. And that means helping our member countries create better employment opportunities for the next generation of workers.

This is particularly important in countries where youth unemployment has remained high over many decades.

The IMF can help address these challenges by encouraging greater public investment in education and job training programs—and we are pushing for such reforms in our lending programs.

We also need more public-private partnerships that can make training programs more effective. A good example is Singapore's Skills Future program, which offers unconditional grants to all adults for training throughout their working lives.

But training is only one piece of the puzzle. There is so much more that governments and business can do to harness the power of innovation. Fintech, for example, is a fascinating field where more investment is needed.

Just look at Kenya and the innovative use of mobile-phone-based money transfer through M-Pesa. The government now permits phone-based payment of taxes, reducing compliance costs and delays.

The world cannot afford to waste so much precious human talent.

Some studies estimate that developing and emerging market economies can save \$110 billion annually by switching from cash and checks to digital payments. These savings can make all the difference when a young person is on the verge of starting a new business.

A career in the 21st century

If I were entering the job market today, I would focus on two things. First, a willingness to learn throughout your life. There is no “end” to education; there are simply milestones of progress.

Second, an openness to changing course. You do not have the luxury of being trained in one field or one profession only. In my life, I started as a lawyer, became a finance minister, and now lead the IMF. The generation about to enter the workforce will face even more twists and turns on their professional journey. Embrace those changes and bring new perspective gained from each position into the next.

Returning to Wilde, he said, “To define is to limit.” There is no precise definition of what a career or job will look like for the world's youth in the new economy. This opacity leads to understandable anxiety and uncertainty. At the same time, there is no limit to the possibilities. This is the great opportunity for the next generation, and I trust the entire global community will help them seize it. **FD**

CHRISTINE LAGARDE is the managing director of the IMF.



PENSION SHOCK

Young adults in advanced economies must take steps to increase their retirement income security

Mauricio Soto

Public pensions have played a crucial role in ensuring retirement income security over the past few decades. But for the millennial generation coming of working age now, the prospect is that public pensions won't provide as large a safety net as they did to earlier generations. As a result, millennials should take steps to supplement their retirement income.

Pensions and other types of public transfers have long been an important source of income for the elderly, accounting for more than 60 percent of their income in countries that are members of the Organisation for Economic Co-operation and Development (OECD). Pensions also reduce poverty. Without them, poverty rates among those over 65 also would be much higher in advanced economies.

Pressure on pensions

But pensions are also costly to provide. Government spending on pensions has been increasing in advanced economies from an average of 4 percent of GDP in 1970 to close to 9 percent in 2015—largely reflecting population aging (see Chart 1, left panel).

Population aging puts pressure on pension systems by increasing the ratio of elderly beneficiaries to younger workers, who typically contribute to funding these benefits. The pressure on retirement systems is exacerbated by increasing longevity—life expectancy at age 65 is projected to increase by about one year a decade.

To deal with the costs of aging, many countries have initiated significant pension reforms, aiming largely at containing the growth in the number of pensioners—typically by increasing retirement ages or tightening eligibility rules—and reducing the size of pensions, usually by adjusting benefit formulas. Since the 1980s, public pension expenditure per elderly person as a percent of income per capita—the so-called economic replacement rate—has been about 35 percent. But that replacement rate is projected to decline to less than 20 percent by 2060 (see Chart 1, right panel).

This means that younger generations will have to work longer and save more for retirement to achieve replacement rates similar to those of today's retirees (see Chart 2):

- **Working longer:** To close the gap in the economic replacement rate relative to today's retirees, one option for younger individuals is to lengthen their productive work lives. For those born between 1990 and 2009, who will start to retire in 2055, increasing retirement ages by five years—from today's average of 63 to 68 in 2060—would close half of the gap relative to today's retirees. A longer work life can be justified by increased longevity. But prolonging work lives also has many benefits. It enhances long-term economic growth and helps governments' ability to sustain tax and spending policies. Working longer can also help people maintain their physical, mental, and cognitive

health (Staudinger and others 2016). However, efforts to promote longer work lives should be accompanied by adequate provisions to protect the poor, whose life expectancy tends to be shorter than average (Chetty and others 2016).

- **Saving more:** Simulations suggest that if those born between 1990 and 2009 put aside about 6 percent of their earnings each year, they would close half of the gap in economic replacement rate relative to today's retirees. In practice, relying on people's private savings for retirement requires a hard-to-achieve mix of fortune and savvy. First, individuals need continuous and stable earnings over their careers to be able to save sufficient amounts. Second, workers would have to be able to decide how much to put aside each year and how to invest their savings. Third, the risks from uncertain or low returns are borne by individuals. Finally, workers would have to decide how fast to consume their savings during retirement. These are all complex decisions, and people can make mistakes at each step along the way (Munnell and Sundén 2004).

Time to cope

For younger generations, acting early is crucial to ensure retirement income security, especially because longevity gains are projected to continue. As millennials start to enter the workforce, retirement might be the last thing on their mind. But with many governments retrenching their role in providing retirement income, younger workers need to work longer and step up their retirement savings.

Governments can make it easier for individuals to remain in the workforce at older ages by reviewing taxes and benefits that might favor early retirement. Nudges to encourage workers to save can also help, for example by automatically enrolling them in private retirement saving plans. For example, starting in 2018, the United Kingdom will require employers to automatically enroll workers in a pension program. Boosting financial literacy and making the workplace more friendly to older workers can also be part of the solution.

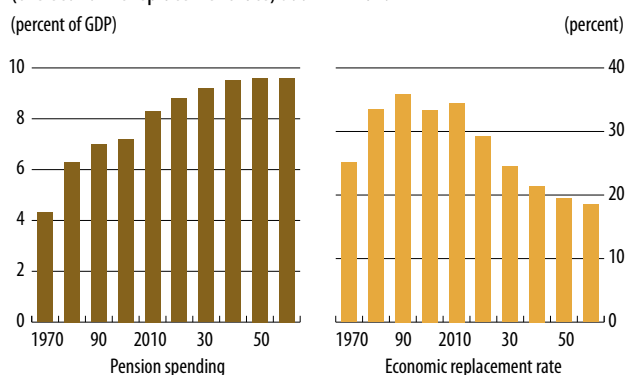
The good news for younger workers is that retirement is some four decades away, allowing time to plan for longer careers and to put money aside for later. But they must start now. **FD**

MAURICIO SOTO is a senior economist in the IMF's Fiscal Affairs Department.

Chart 1

Costly and inadequate

In advanced economies, pension spending as a percent of GDP is rising while pension expenditure per elderly person as a percent of income per capita (the economic replacement rate) soon will fall.



Sources: Organisation for Economic Co-operation and Development; United Nations; and IMF staff calculations.

Note: The economic replacement rate is average pension spending per individual 65 and older divided by GDP per capita for those ages 15–64. Data after 2015 are projections.

Chart 2

Preparing for the future

Today's workers in advanced economies can work longer and save more to offset the declines in the value of future pensions.



Source: IMF staff calculations.

Note: The calculations represent per age group the additional years of work needed to close half of the gap in the economic replacement rate and the additional savings required to close the other half. The economic replacement rate is the average pension spending per individual 65 and older divided by GDP per capita for those ages 15–64.

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EDUCATION

for **LIFE**

Labor markets are changing, and millennials must prepare and adjust

Nagwa Riad



One in three people around the world was born between 1980 and the early 2000s. Most of these millennials are in the workforce. Yet their work future won't look much like the world of their parents.

Technological advancement is transforming the way we live and the way we work. Although previous generations may have experienced significant technological changes, millennials likely will have to cope with much faster disruption. This means that many, if not most, will need to retool and learn new skills several times during their working life.

The implications for education are critical. The 2016 World Economic Forum *Future of Jobs* report estimates that up to 65 percent of children entering primary school today are likely to work in jobs that do not yet exist. So not only must education adapt to the needs and attributes of future workers, it must also anticipate and prepare them with the skills to flourish in an evolving workplace. Only then can the race between humans and machines give way to collaboration that harnesses the power of technology to benefit individuals and societies.

Changing workplace

Technology is already changing industries and occupations in many countries. Some of the most in-demand jobs were not even around 10 years ago. Think app developer jobs, which emerged with the advent of smartphones, or the cloud computing of more than half of

US businesses. Evans Data Corporation estimates that there were 12 million mobile application developers in 2016—by 2020 there are expected to be 14 million.

Developments in previously disjointed fields are merging and amplifying each other. Artificial intelligence and self-teaching computer programs that replicate human skills are combining with other technologies, such as sensors, to produce self-driving cars and trucks. Such innovations usually require a parallel transformation in workers' skills to implement the new technology and business models.

David Autor and others at the Massachusetts Institute of Technology find that the demand for higher-order cognitive skills—including numeracy, literacy, and problem solving in technology-rich environments—increases with an economy's technological sophistication. In the United States, the surge in demand for nonroutine jobs between 1980 and 2000 coincided with greater investment in the knowledge economy's infrastructure; demand for routine and manual jobs declined steadily (see chart). This shift will only accelerate.

These trends are not unique to the United States nor to millennials. Technology is also causing job dislocation elsewhere in the world and affects many age groups. Between 1991 and 2014, the share of income going to labor—as opposed to owners of capital—declined in 29 of the largest 50 economies, according to the IMF's April 2017 *World Economic Outlook*. Middle-skilled labor (most likely baby boomers) experienced the sharpest declines in income share, especially in advanced economies and in easily automated sectors such as manufacturing, transportation, and communications. Technology in particular accounted for about half of the decline in advanced economies.

A knowledge economy

A closer look at employment trends in science, technology, engineering, and math (STEM) occupations in the United States confirms that there is a premium associated with the higher-order skills needed in a knowledge-based economy. According to the Census Bureau, close to 9 million workers were employed in STEM occupations in the United States in 2015, representing more than 6 percent of workers. These workers also earned 29 percent more than their non-STEM counterparts—an advantage that increased from 26 percent in 2010.

STEM employment growth has outpaced that of non-STEM occupations over the past decade, at 24 percent and 4 percent, respectively. This trend is expected to continue, with STEM occupations projected to grow 9 percent between 2014 and 2024 compared with about 6 percent for other jobs.

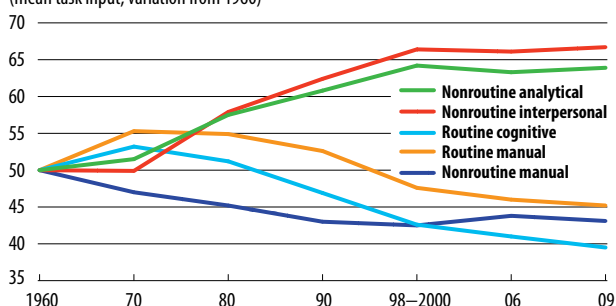


ART: SHUTTERSTOCK / YANASIA

Out of the ordinary

Demand for nonroutine analytical and interpersonal skills continues to rise in the US labor market, while that for manual and routine tasks falls or stagnates.

(mean task input, variation from 1960)



Source: Autor, David, and Brendan Price. 2013. "The Changing Task Composition of the US Labor Market: An Update of Autor, Levy and Murnane." MIT Working Paper, Massachusetts Institute of Technology, Cambridge, MA.

While cognitive skills are necessary, they are not all it takes. Soft skills such as teamwork, creativity, adaptability, and social and cultural awareness are just as important. Harvard education and economics professor David Deming finds the strongest job and wage growth in positions that require both hard cognitive skills *and* soft social skills.

Think of tasks such as management consulting or health care and legal services. These occupations require basic cognitive skills, but they also demand significant human interaction, which cannot be replicated by machines. The jobs of the future will marry science and art, so that humans can work *with* machines not *against* them.

In the workplace

But it seems clear that society is not sufficiently preparing workers for the new reality. Millennials as a group feel underprepared for the challenges of the new workplace. A 2017 survey of 8,000 working millennials across 30 countries by consulting company Deloitte found that many did not think college had equipped them with the full range of skills, personal qualities, and experience today's businesses are seeking. This finding is echoed in a study by McKinsey: 30 percent of graduates surveyed in the United States felt underprepared for the world of work. Employers agreed.

A knowledge- and technology-intensive economy depends on an educational system that prepares

students not only to use and complement technology but also to innovate. Studies using standardized competency and proficiency results suggest that some countries may be better prepared than others.

The Organisation for Economic Co-operation and Development (OECD) 2015 Program for International Student Assessment took a deeper look at students' proficiency in science, reading, and mathematics in 42 countries. Singapore was the top performer across all three subjects, followed by Japan, Estonia, and Taipei. US scores were at the OECD average in science and reading and below average in mathematics. Still, the United States has more than a fifth of the global population of top-performing 15-year-old students.

In a world of massive information flows and rapid change, the workforce of the future will need a well-aligned skill set to keep up. An understanding of science and science-based technology is no longer the domain of scientists; it is essential for any citizen to make informed decisions in everyday life and to foster a culture of lifelong learning.

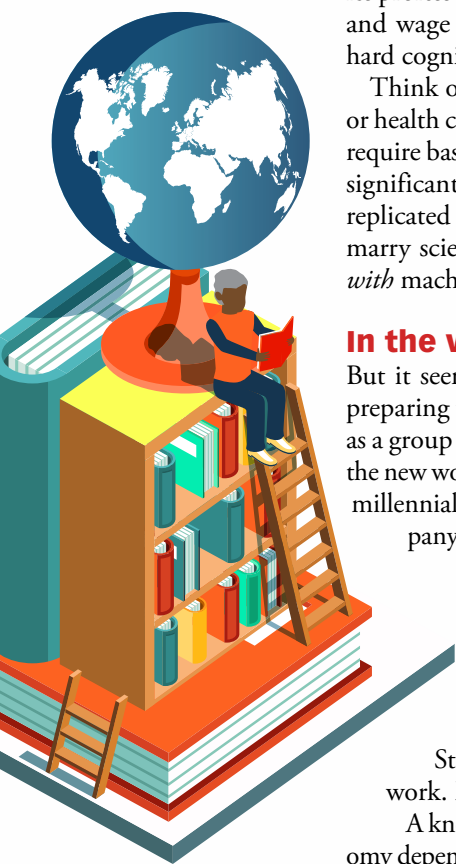
At the same time, a growing body of literature suggests that information and communication technology has shifted job design within occupations toward arrangements that favor team production, and therefore workers with social skills. A 2016 World Economic Forum report estimates that five years from now, more than a third of skills considered important today will no longer be relevant. Creativity and emotional intelligence will be among the top three needed. Hard cognitive and social skills have always been at play, but the balance is likely to shift in favor of the latter for 21st century workers.

Where learning begins

Clearly, skills—both cognitive and soft—are developed in a variety of settings and evolve with age. But formal education remains the primary source of learning. The challenge here is for the education system to equip students with skills for jobs that do not yet exist. This requires a holistic approach to education and lifelong learning built on a partnership between academic institutions, employers, and government.

The educational system must first adapt to the particular needs and attributes of the millennial generation. And it must tap into the way tech-savvy millennials learn, so that pedagogy can support learning.

Recent studies of millennials suggest that they are not passive listeners; they expect to be engaged



in learning. They socialize, study, and collaborate in groups and expect technology to be an integral process in learning. Business professor Roger McHaney, author of *The New Digital Shoreline*, offers some insight into ways teachers can rise to the challenge of preparing this generation.

For starters, teachers must become a “guide on the side” rather than the “sage on the stage.” They will have to play the role of a *master artist*—imparting new ideas and information to novices—and *network administrator*, guiding students as they forge their own learning experiences and ensuring that they have the requisite technical and social skills.

Technology will be a basic feature of the instruction process, according to education expert Persis Ricks. Teachers will be expected to shift seamlessly from a didactic approach to PowerPoint or Keynote presentations to hands-on demonstrations—all in the same class and space. This is essential to nurture the trial-and-error style of a generation more interested in hands-on problem-based learning than passive listening. Many teachers will need training in these new approaches.

Classes of the future will blend online and face-to-face classroom instruction. The rapid increase in massive online open courses at many universities allows students to master material at their own speed and in their own way.

Many skills are acquired outside formal schooling, especially on the job or through training. But as jobs are redefined and lifelong careers at a single employer disappear, retraining and lifelong learning become a fundamental responsibility of individuals rather than employers.

But employers too need to step up. Among working millennials in 30 countries, only a third report that their businesses engage in education, skills, and training. That will have to change if companies want to hold on to their staff.

Policymakers must be at the forefront of an agenda for policy change in education and learning. Korea, for example, adopted a longer-term vision for its education strategy. With 2030 as the target date, the focus of the strategy ranges from improving collective intelligence to use of simulations and mobile technology as research tools to improving learning outcomes through understanding of brain synapses and human nutrition.

Governments can help by offering incentives for retraining, which will be increasingly important as more people are self-employed and unable to afford

Hard cognitive and social skills have always been at play, but the balance is likely to shift in favor of the latter for 21st century workers.

additional education. About a third of the 53 million freelancing Americans today are millennials; this share is expected to increase even further by 2020 according to the consulting firm PwC, also known as PricewaterhouseCoopers.

Singapore has taken steps in this direction. In its *Singapore Skills Future* initiative, employers identify skills needed over the next five years, *The Economist* writes. That information is used to map the skills industries will need in the future; the government then provides financial credits to citizens over 25 to acquire relevant training.

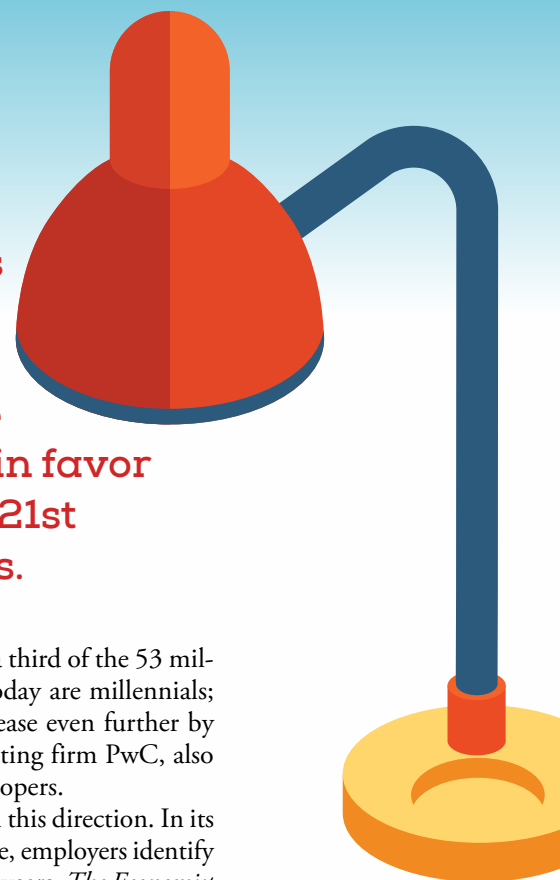
Collaboration, not competition

Most millennials recognize the benefits of automation for productivity and economic growth, according to the Deloitte study, but 40 percent see it as a threat. Not surprisingly, those most willing to engage with new technology had a more positive outlook.

These attitudes mirror the polarization on technological disruption—between those who foresee limitless new opportunities and those who predict massive dislocation of jobs. A win requires educational systems that teach both cognitive and social and emotional skills, businesses that actively support their workforce through retraining and upskilling, individuals who are proactive about lifelong learning, and governments that prepare a supportive environment for these efforts.

The current technological revolution need not become a race between humans and machines. With proper lifelong learning and updating of skills, humans can work with machines to unleash the full potential of technological innovations. **FD**

NAGWA RIAD is assistant to the director in the IMF's Communications Department.



PLAYING CATCH-UP

Youth today are not building wealth the way their parents did

Lisa Dettling and Joanne W. Hsu

Millennials began to enter the workforce during the most severe global economic crisis since the Great Depression, and their present and future economic decisions will be shaped by the historic upheaval in housing, financial, and labor markets they faced at the onset of adulthood. Millennials must also contend with other emerging issues critical to their prospects of building wealth, such as the rapidly escalating cost of higher education and uncertain retirement income.

These developments have presented millennials with economic circumstances very different from those of preceding generations. We highlight three generations of young adults and the early years of their adulthood: baby boomers (born between 1946 and 1964), Generation X (born between 1965 and 1980), and millennials (born after 1980) (see Chart 1). Successive cohorts born between 1946 and 1990 generally experienced slower economic growth during young adulthood than those that came before them. These macroeconomic conditions were the result of world developments that differed across generations: the post–World War II recovery, the end of the Cold War, the rise of computing and the Internet, and the Great Recession, among many others. On average, young adult baby boomers faced considerably more robust economic growth than both Generation X and millennial young adults; millennials (thus far) have experienced the worst economic circumstances as they entered adulthood.

To see how these broad patterns of macroeconomic growth affected the financial situation of the typical

household in these different cohorts, we turn to the 1983 to 2013 waves of the Survey of Consumer Finances, a nationally representative survey of household wealth in the United States conducted by the Federal Reserve Board.

To capture families' general financial situations over their life cycle, we focus on median net worth—a general measure of a family's net economic position, defined as the difference between its assets and liabilities. Though millennials are just starting to accumulate wealth, their current trajectory is well below that of both the baby boomer and Generation X cohorts at comparable ages (see Chart 2). Between ages 25 and 34, the typical millennial's net worth was about 60 percent that of the typical baby boomer at the same age. And although baby boomers and Gen Xers looked similar in young adulthood, Gen Xers are currently faring worse than their baby boomer counterparts at the same age, due in part to the Great Recession.

Just as the economic circumstances of young adults vary across generations, so too do the primary challenges and opportunities for building wealth. In this article, we will home in on three particular issues that affect how the millennial generation builds wealth: the growing cost of higher education, declines in home ownership, and changes in how families save for retirement. These three factors represent some of the largest components of household wealth, and their context has changed dramatically across generations.

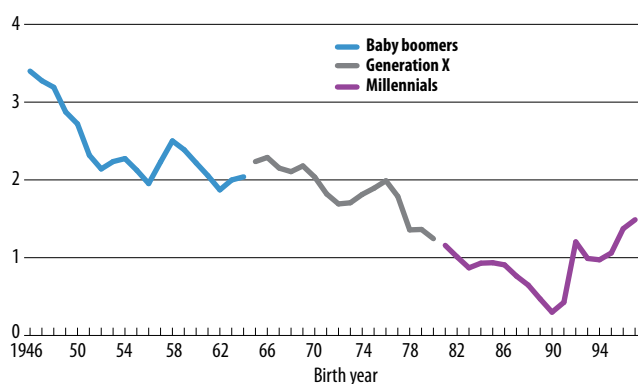
Borrowing for education: The cost of attending college in the United States has far outstripped the pace of inflation in the past few decades. But the economic returns of a college degree remain high,



Chart 1

Differing circumstances

Millennials are reaching adulthood in an era of lower growth than that of previous generations, which may explain the differences in their financial habits.
(average GDP growth rate, percent)



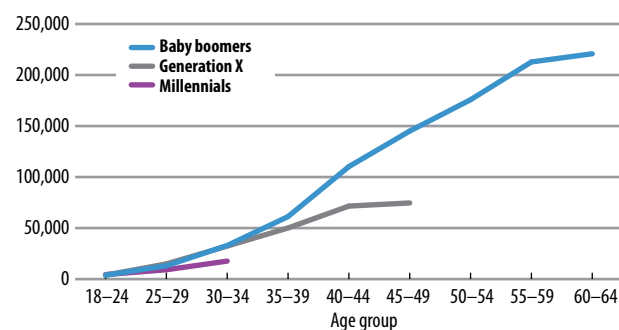
Sources: Organisation for Economic Co-operation and Development (OECD) national accounts data; and World Bank national accounts data.

Note: This chart shows the average growth rate of GDP per capita when the cohort was ages 18–31. Data are for OECD countries.

Chart 2

Amassing wealth

The wealth accumulation trajectory of millennials is well below that of other generations at comparable ages.
(median net worth, 2013 dollars)



Source: Survey of Consumer Finances 1983–2013.

and millennials are the most educated generation. To finance the rising cost of obtaining a college education, young adults are increasingly taking out student loans. In 1985 there were 8.9 million total student loan borrowers, which had increased nearly fivefold by 2014, to 42.8 million. And the average borrower is taking on more debt than ever: aggregate student loan volume in the United States had grown from \$64 million in 1985 to \$1.1 trillion by 2014 (in 2013 dollars; Looney and Yannelis 2015).

As a result, millennials entered their working lives with much larger debt than young adults of previous generations. These debt burdens may continue to influence their choices and economic circumstances for years to come.

Home ownership: Owning a home is a key way for families to accumulate wealth because it acts as a forced saving mechanism and allows owners to realize price gains over time. Homes are most families' largest asset, and movements in housing wealth have been shown to be positively correlated with consumption and childbearing.

However, young adults in the United Kingdom, the United States, and Europe have experienced declining home ownership rates. Millennial home ownership rates are nearly 3 percentage points, or 10 percent, lower than those of their baby boomer and Generation X counterparts at the same age (see Chart 3). For millennials who have purchased a home, however, net housing wealth (the value of the home, minus mortgage debt) is about the same as that of their baby boomer parents at the same age.

Living with Mom and Dad

Furthermore, there is growing evidence that, rather than renting, a growing number of young adults in Europe and the United States are choosing to live with their parents into young adulthood and are not forming independent households. In the United States, the number of millennials living with their parents rose by about 12 percent during the Great Recession.

It remains to be seen if millennials are delaying home purchases or forgoing home ownership altogether. New research suggests barriers to financing a home, such as borrowing constraints, are at least partially to blame for falling home ownership rates and rising coresidence rates (Martins and Villanueva 2009; Detting and Hsu 2014). Whether these barriers will ease in the future is unknown. However, a recent study in the United Kingdom finds that groups experiencing low home ownership rates at age 30 tend to catch up later in life (Botazzi, Crossley, and Wakefield 2015).

Saving for retirement: The retirement landscape has changed dramatically since baby boomers started to enter the labor market in the mid-1960s. In the United States, employers (particularly those in the private sector) have increasingly switched from generous defined-benefit pension plans, with employer-provided guaranteed retirement income, to defined-contribution account pensions, for which the burden of saving for and managing retirement wealth and income falls on employees' shoulders during their working years and in retirement. In other parts of the world, rapidly aging populations have led many countries to undertake

reforms to their public pensions, which have generally reduced their overall generosity. Millennials thus have greater responsibility for managing and growing their retirement savings and greater uncertainty about how much wealth and income they will be able to live on in retirement. (See “Pension Shock,” in this issue of *F&D*.)

Despite this shift from defined-benefit to defined-contribution plans, younger generations in the United States are participating in retirement plans at higher rates than earlier generations. Participation trajectories declined after the Great Recession, however, particularly for millennial households, and it remains to be seen whether these declines will reverse over time (Devlin-Foltz, Henriques, and Sabelhaus 2016).

Uncertain future

Millennials, Gen Xers, and baby boomers all experienced the economic turmoil of the Great Recession. But because each cohort was at a different stage, the recession affected each differently. Compared with the two previous generations, millennials had fewer assets and thus lower exposure to financial losses during the crisis (see Chart 4). And after the Great Recession, millennials and Gen Xers began accumulating wealth again, while baby boomer net worth has stalled. Although millennials have less wealth than their baby boomer parents at the same age, the median millennial’s net worth increased more than 40 percent between 2010 and 2013, and they still have much of their working lives ahead to recover further and continue to accumulate wealth. If millennials do eventually decide to buy homes or put away a nest egg for retirement, they may have the chance to begin when markets are on an upward trajectory, allowing them to reap the gains of future economic growth.

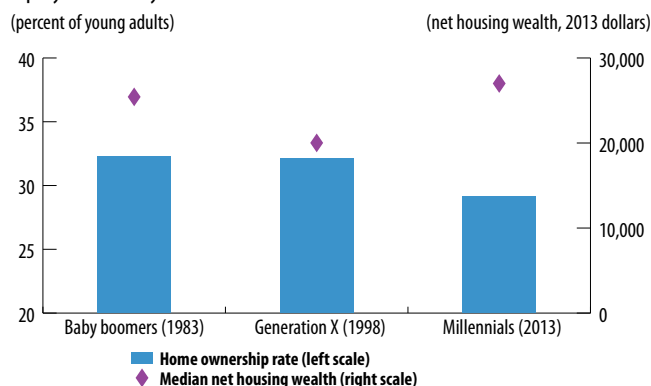
Millennials are now the largest living generation in the United States, having overtaken baby boomers in 2015. Through their sheer size, this cohort has the potential to wield substantial influence on the macroeconomy as they consume, save, and borrow, both now and far into the future as they reach their golden years. Only time will tell whether the recent trends described here are fleeting or represent a permanent shift in millennials’ financial habits and wealth. **FD**

LISA DETTLING and **JOANNE W. HSU** are senior economists at the Board of Governors of the US Federal Reserve System. The analysis and conclusions set forth are those of the authors and do not indicate concurrence by other members of the research staff or the Board of Governors.

Chart 3

No place like home

US millennials are buying homes at a lower rate than previous generations at the same age; those who do own their homes, however, tend to have as much equity as the baby boomers did.

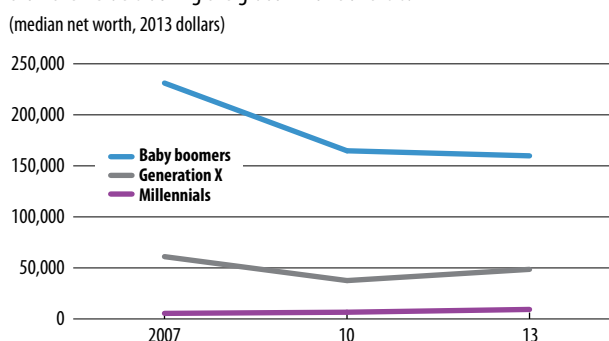


Source: Survey of Consumer Finances 1983, 1998, 2013.

Chart 4

Crisis effects

US millennials had fewer assets and thus lower exposure to financial losses than their elders during the global financial crisis.



Source: Survey of Consumer Finances 2007, 2010, 2013.

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In Their Own Words

Millennials reflect on the key challenges facing their generation

Nicole Braynen-Kimani and Maria Jovanović

Are today's young people hopeful or dispirited? Are they finding good jobs and saving for the future, or living paycheck to paycheck? Do they believe education is the key to economic success, or does entrepreneurship—and operating outside the established system—have more appeal for them? *F&D* asked youth leaders from around the world to weigh in on the challenges of their generation and whether they see themselves as better or worse off than their parents' generation.

Our informal survey took us to different corners of the globe—to China, Egypt, France, Nigeria, and Peru. Five millennials gave us their take on what is important to them individually and collectively as a segment of the global

population that is facing unique challenges in a shifting global environment.

All the young people saw their generation as being a central part of a global village, connected through technology and easy access to information, and an era of global citizenship. “This generation constructs bridges, not walls,” says Mariel Renteria of Peru. They also see their cohort as having a more entrepreneurial spirit, whether by economic necessity or through force of will.

So what is on the minds of young people around the world? Should they take a menial job just because there's nothing better? And just what would they tell their policymakers if they had the chance? Five influential youth reflect here on what motivates or intrigues them.



PHOTO: ISTOCK / BIDIZ / JAMIELAWTON

PHOTO: ESTEFANIE RENTERIA

**PERU: Mariel Renteria**

Cofounder and board member of Kunan, a nonprofit organization that supports young social entrepreneurs

Mariel Renteria is a strong believer in the power of education to encourage her country's younger generation to develop a positive, entrepreneurial, and global vision. A deep interest in education is a key driver for young Peruvians, Mariel says. She points to a poll by IPAE Acción Empresarial in CADE Universitario, the foremost university student summit in Peru, that highlighted not only the importance of access to quality education but also a national commitment to the improvement of the education system. She applauds the Peruvian Education Ministry's success in recruiting high-quality, committed, and innovative young public officials. "One fact that differentiates this generation is that today, education is perceived as a fundamental means of furthering individual development and that of society as a whole."

Better and more sustained education can also connect disadvantaged young people in rural areas with opportunities in the cities. "Social inequality is a national issue to tackle as well as a challenge that allows us to be united. The most important contribution from policymakers should be a quantum leap in the national education system, improvements to digital and infrastructural connectivity, and the promotion of additional platforms that connect us with the world."

PHOTO: ETUCCES

**FRANCE: Thiébaut Weber**

Confederal Secretary, European Trade Union Confederation

"Nature abhors a vacuum," says Thiébaut Weber, invoking Aristotle. This young leader sees innovation as a way forward for youth in his region. "Many innovative projects are underway on the ground in areas like short circuitry, coworking spaces, defense of digital-platform workers, solidarity with migrants, and cooperatives. Young people are taking part in these initiatives. Their will to act is welcomed and needed in the labor movement. Trade unions are tremendous 'fab labs' to realize new ideas."

Thiébaut believes a good job is one in which the worker feels empowered—a founding belief of the labor movement, he notes. "In a good job, workers are also secure and respected, regardless of age and status. Whether on the payroll of a company or self-employed, in the end you are a worker."

He adds that being secure also means being protected against unfair dismissal or from being abusively "deactivated" from an online platform, and having a job that provides a fair wage to allow workers to contribute and benefit from social protection.

He believes too in the need for policymakers to consider young workers as a long-term investment in the future. They should focus not only on growth and job creation but also on the quality of jobs. "A precarious and low-paying job is not 'better than nothing.' Young people are hard workers. But employers and policymakers should not consider this as a sign of docility. They should bear in mind that precariousness contributes to the rise of extremism."



EGYPT: Jawad Nabulsi

Founder of Nebny Foundation for Development, an after-school program for primary school students

Through the Nebny Foundation for Development, an organization he founded, Jawad Nabulsi has had the opportunity to interact with many young people living in the impoverished Manshiet Nasser area of Cairo. Despite having been dealt a difficult hand, he observes, these youths show a remarkable desire to “create, curate, explore, and learn through trial and error.” When the formal education and employment systems fail to provide them the tools and opportunities they need, the younger generation secures its own future.

To save themselves from poverty, these young people come up with creative, high-impact solutions to the problems they and their communities face. They are referred to as “invisible entrepreneurs”—operating with low budgets and without the fancy degrees or Ivy League credentials enjoyed by the elite class of entrepreneurs filling the seats at international forums and conferences. But Egypt’s invisible entrepreneurs have something better than fame to drive them. “They only seek survival, and that is probably the strongest motive for any social enterprise to take shape,” says Jawad. “They do not fit the typical entrepreneurial profile drawn by society.”

“Youth can now learn directly from world-renowned professors online.”

Because of their familiarity with the problems facing residents of Manshiet Nasser, these entrepreneurs are in the best position to tackle them. They know the ropes and have the passion to be agents of change.

And just a little goes a long way—the success of these entrepreneurs’ projects and ideas leads to a positive feedback loop in the community. As Jawad notes, “the roads between Manshiet Nasser and elite schools have become much shorter.” Over the years, several local nongovernmental organizations have begun offering Egyptian youth a chance to supplement their education. “Youth who were once unaware of the world outside of their neighborhood can now learn directly from world-renowned professors online,” says Jawad. The opportunities for lifelong learning offered by these organizations were unimaginable for previous generations.

The changes taking place in this poor Cairo neighborhood are largely a result of the motivation and determination of the young entrepreneurs who have actively participated in improving their own lives—and brought their whole community along for the ride. In their triumphs, Jawad finds compelling evidence for identifying and investing in other youth whose passion and innovation “contributes in immense ways to the development of their surrounding environments and societies.”



NIGERIA: Charles Akhimien

Cofounder of MOBicure, a mobile health company using technology to address health care needs in developing economies

Charles Akhimien tells the story of Chris, a young Nigerian man who is disillusioned with the lack of social safety nets in his country and across Africa. Chris earned a graduate degree in petroleum engineering and had dreams of becoming an engineer during his country's crude oil boom by joining one of the oil companies driving economic growth in Nigeria. He imagined earning a six-figure salary—enough to take care of himself, his aging parents, and his siblings—but after four years of searching, he is not even close to achieving that goal. He has had to resort to low-paying, menial jobs to survive.

And he is not alone: Africa's unemployment rate is among the highest of any region in the world.

Charles sees his friend's story as emblematic of the failures of government. Political stability, an end to corruption, and a better educational system are hugely important to equipping young people with the tools to meet the demands of the modern job market, he says.

Yet Charles is hopeful. Alongside the story of pervasive youth unemployment is the story of the continent's fast and steady strides in innovation and entrepreneurship that is already evident in cities like Nairobi, Lagos, and Johannesburg, he says. In these places, innovation hubs are springing up, largely run by young people who are changing the narrative.

"Young people represent the hope of Africa. All over Africa, youth are increasingly realizing that, in order to thrive, they have to create the future they want."



CHINA: Kathy Gong

Cofounder and chief executive officer of WafaGames

Kathy Gong believes in the power of individuals to map their own destiny through determination, grit, and creativity. She sees members of her generation as possessing these characteristics.

Her determination led her to fight against *hukou*, a national system of household registration that determines where citizens officially reside, and by extension means unequal access to health care, property ownership, and basic education. She tells the story of how her parents decided to move from their rural community into a city to start a business. After being denied entry into an elementary school because of the *hukou* rules, she enrolled in a chess school and eventually became the youngest national chess champion at the age of 10.

Kathy sees other young people in her country as similarly self-driven and motivated to have a better life—willing to lead rather than follow. But she acknowledges that her generation also feels more stressed because of changing workplace dynamics and worries about having enough money to afford children, a place to live, and eventual retirement.

"Our future depends on the young people because they are the core of creativity, the force behind breakthrough innovation, advocates for a fairer society, and drivers of economic growth and societal improvement," she says. **FD**

NICCOLE BRAYNEN-KIMANI and **MARIA JOVANOVIĆ** are on the staff of *Finance & Development*.

A portrait of an elderly man with white hair, wearing a dark green and blue cable-knit sweater, sitting at a wooden desk. He is looking directly at the camera with a slight smile. Behind him is a bookshelf filled with books.

Prophet of **PESSIMISM**

*Chris Wellisz profiles **Robert J. Gordon**, who predicts a slowdown in innovation will take a toll on economic progress*

Robert J. Gordon has a gloomy message for US millennials: unlike previous generations going back to the late 19th century, you won't see your standard of living double that of your parents.

"I'm here as the prophet of pessimism," says Gordon, 76, seated in his book-lined office at Northwestern University in Evanston, Illinois. Gordon is the author of a best-selling book, *The Rise and Fall of American Growth*. Its controversial thesis is that the United States is likely to languish in the economic doldrums, largely because the inventions of the future are unlikely to be as revolutionary as those of the "special century" from 1870 to 1970.

Electricity, the internal combustion engine, and indoor plumbing dramatically improved the standard of living in a way that's unlikely to be repeated, he argues. Most advances since then have been incremental rather than transformational.

"We moved from the speed of the horse and the sail to the Boeing 707, and we have not gone any faster since," Gordon says in an interview on the campus just north of Chicago by the shore of Lake Michigan. "The telegraph in 1844 created instantaneous communication, and we are now elaborating on instantaneous communication."

Beyond the ivory tower

The publication of *Rise and Fall* last year propelled Gordon into the ranks of economists whose renown extends far beyond the ivory tower. Gordon estimates that he's been interviewed at least 80 times by reporters and received more than 200 emails from readers. He has given the obligatory TED Talk and appeared on television. Among the many reviewers of his book was Microsoft founder Bill Gates.

Gordon's pessimistic message resonates at a time of economic malaise, as scholars struggle to explain the phenomenon for which Harvard University's Lawrence Summers has resurrected the term "secular stagnation." In the period from 1970 to 2014, labor productivity (output per hour worked) grew at an average annual pace of 1.62 percent, compared with 2.82 percent in the previous half-century.

At 762 pages, *The Rise and Fall of American Growth* offers a detailed and colorful account of the transformation of every aspect of daily life in America, from shopping and entertainment to medicine and

banking. Even those who dispute his conclusions admire the breadth and depth of his scholarship.

"Bob is absolutely unimpeachable about the past," says Andrew McAfee, coauthor, with Erik Brynjolfsson, of *The Second Machine Age*, which argues that computers and other digital technologies will do for mental power what the steam engine did for muscle power. "He makes the argument very well that this past century was an absolutely extraordinary one. Where Bob and I part company is about the innovations that we see unfolding around us now, and how big a deal they're going to be."

Lower impact

Gordon doesn't dispute the significance of advances such as the personal computer and the Internet, which generated a burst of growth from 1996 until 2004. But most of those haven't measured up to what he calls the "great inventions" of the past, which remade the economy in a way that smartphones and tablet computers have not. In public appearances, Gordon displays two images side by side: a smartphone and a toilet. "Which would you rather give up?" he asks.

He relishes his role as the scourge of the techno-optimists. One of his intellectual sparring partners is Joel Mokyr, a fellow Northwestern economist who jokingly refers to Gordon as "my esteemed and much misguided colleague."

"We actually agree on most things," Mokyr said in a recent appearance at the IMF's headquarters in Washington, DC, where he discussed his recently published book, *A Culture of Growth: The Origins of the Modern Economy*.

In it, Mokyr argues that values and beliefs that arose in Western Europe in the years 1500–1700 produced a spirit of scientific inquiry that laid the groundwork for the great inventions that came later. A precondition for the steam engine was the discovery that it's possible to produce a vacuum.

"If you look at what's happening to science and scientific progress in the past decade, I think it's been as exciting as ever," Mokyr says.

Gordon sticks to his guns, saying he sees little evidence that the latest technology has had a significant impact.

"Lots of things are being proposed—replaceable body parts, enormous revolutions in medicine—but they are going to happen very slowly," Gordon says.

Rise and Fall is the culmination of decades of research into the sources of economic growth. In his PhD thesis at the Massachusetts Institute of Technology (MIT), Gordon developed a new method of estimating the costs of construction. That eventually led to his groundbreaking 1990 book, *The Measurement of Durable Goods Prices*, which demonstrated that standard measures of capital failed to account for improvements in quality. “It was a very, very important contribution and changed the way people think about growth,” said Lawrence Christiano, chairman of Northwestern’s economics department.

Inflation has been another major area of research for Gordon. The “stagflation” of the 1970s—a simultaneous increase in both inflation and unemployment—challenged the conventional view, embodied in a relationship known as the Phillips curve, that higher inflation was generally accompanied by lower unemployment.

Gordon pioneered the development of a modified version of the Phillips curve that accounted for the impact of supply shocks such as the oil crisis of

The US Bureau of Labor Statistics adopted some of its recommendations for changes to the way it calculated the price index.

Gordon’s work on the “triangle” model of inflation demonstrated the importance of “core” inflation, which strips out the impact of volatile food and energy prices. That allows Federal Reserve policymakers to focus on the longer-term inflation trend while looking past short-term fluctuations caused by such developments as a sudden spike in gasoline prices.

Nobel Prize-winning economist Paul Krugman calls that a “hugely important” contribution.

“Twice recently—in 2008 and 2011—we’ve seen surges in headline inflation, with many people warning that central banks were behind the curve and demanding that rates be hiked and/or quantitative easing be reversed,” Krugman writes in an email.

“But these were all about commodity prices—which meant that core inflation was quiescent. The Fed, which focused on core, therefore concluded rightly that it should stay the course.”

Rise and Fall was inspired by a trip to a bed-and-breakfast in Michigan, where Gordon chanced upon

Gordon relishes his role as the scourge of the techno-optimists.

1973, when the price of a barrel of crude shot up to \$12 from \$3.

That research formed the basis for what Gordon calls the “triangle” model of inflation, which accounts for changes in supply and demand as well as inertia, or the time it takes for those changes to affect the overall level of prices.

The model proved relevant in explaining another surprising phenomenon: the “Goldilocks” economy of the 1990s, when unemployment remained low at a time of tame inflation. Gordon now plans to update his model to explain why prices continued to rise during the global financial crisis of 2008–09, despite the seismic shocks to output and employment.

During the Goldilocks years Gordon served on a five-member panel of economists formed by the Senate Finance Committee in 1995 to study the accuracy of the consumer price index. The Boskin Commission, named for its chairman, Stanford University economist Michael Boskin, concluded that the index overstated inflation by 1.1 percentage points.

a book of photographs by Otto Bettmann titled *The Good Old Days: They Were Terrible!* The book, by the founder of the Bettmann photographic archive, depicts the miseries of slum life in the late 19th century. “So it was natural to see how enormously things have improved since then,” Gordon recalled.

He spent four years on the book, aided by teams of research assistants. His office and home were crammed with piles of books bristling with Post-it notes. The result was a startling level of detail describing the drudgery of daily life in the pre-Civil War United States and the dramatic improvements that came later with inventions such as indoor plumbing, electric lights, and kitchen appliances.

One of Gordon’s research assistants was Andrew Sabene, who spent long hours in Northwestern’s transportation library, poring over 19th century railroad timetables.

Sabene described Gordon as a demanding boss who had his researchers keep close track of their time. But the two eventually bonded over their mutual interest

in music, even meeting over coffee with Gordon's wife, Julie, a portrait artist and professor of English and film at Northwestern, to talk about their favorite classical composers and Broadway musicals.

Gordon's neat, if jam-packed, office is a testament to the variety of his interests—which include photography, aviation, and history. While his shelves are lined with books on economics—including several editions of his own popular textbook, *Macroeconomics*—the walls are covered with photos of his travels to countries such as India and Thailand.

In an intermediate macroeconomics class packed with more than 200 students, Gordon delivers a brisk and well-organized lecture with the help of an overhead projector, which allows him to sketch out graphs as he speaks.

Gordon says he enjoys teaching, particularly his freshman seminar titled “Did Economics Win Two World Wars?” “That title is a subterfuge because it is about the wars themselves, not just about economics,” he says.

That subterfuge reflects his early interest in history. As an undergraduate at Harvard University, he initially planned to major in the subject but changed his mind after getting a B in one course. “History was too subjective; there were too many different possible answers,” he says. “Maybe I just was too nervous about a subject that I could get a B in.”

All in the family

So he followed in the footsteps of his parents, Robert Aaron and Margaret Gordon, both prominent economists at the University of California, Berkeley. His younger brother, David Gordon, also an economist, taught at the New School for Social Research in New York. He died in 1996, at 51.

After graduating from Harvard in 1962, Gordon went on to earn a doctorate at MIT, where his thesis adviser was Robert Solow, the Nobel Prize winner who in 1987 famously observed that the computer age could be seen everywhere except in the productivity statistics. (It was almost another decade before the impact of the new technologies on productivity became apparent.)

The slowdown in innovation isn't the only thing that's holding back growth, Gordon argues. The US economy also faces “headwinds” such as rising inequality, a plateau in educational attainment, an aging society, and the burden of government debt.

What does Gordon's pessimistic prognosis portend for US President Donald Trump's plan to boost growth



PHOTO: JUSTIN RUNQUIST

to between 3 percent and 4 percent a year with the help of cuts to personal and corporate income taxes and a \$1 trillion infrastructure program?

Trump's stimulus could boost productivity and growth in the short term as existing workers labor more intensively and new ones are drawn into the labor force, Gordon says. But the improvement is unlikely to last more than a year or two.

He ticks off a list of obstacles. Trump's policies would probably drive up the dollar and interest rates, which would tend to restrain growth. Cuts to non-defense spending would also be counterproductive. And tax cuts aimed primarily at the affluent might do little to boost demand, because the rich are less likely than the poor to spend the extra income.

Instead, policymakers should focus on raising productivity in the long term, largely through improvements to education and training, Gordon says. He suggests eliminating disparities between rich and poor public school districts, investing in early childhood education, and creating a German-style system of vocational training.

Gordon's former research assistant, Sabene, says he's heartened by the prospect that even if the United States has fully realized the benefits of the great inventions of the past, that is not true for much of the world.

“Think of countries like India where running water and urbanization and all of that is still in process,” he says. “I take some comfort in knowing that there's a lot of runway left to go.” **FD**

Economist Robert Gordon predicts US productivity growth will slow dramatically.

CHRIS WELLISZ is on the staff of *Finance & Development*.



CASH IS DEAD, LONG LIVE CASH

Virtual payments are fast displacing cash, but not completely and not everywhere

Alan Wheatley

Fewer Nordic banks are using cash in their branches. India recently scrapped 86 percent of its banknotes. Korea plans to stop minting coins by 2020. Online payments are booming. The march toward a cashless society, it seems, is unstoppable.

Young people especially, as well as the better off and better educated, are increasingly at ease paying by card or mobile phone. In the Netherlands, for instance, the number of card transactions surpassed cash (NFPS 2016) for the first time in 2015.

But wait. In other advanced economies, including Austria, Germany, Japan, Singapore, and

Switzerland, cash is still king and shows no sign of abdicating. Globally, perhaps 85 percent of all payments are still made in cash.

“The cashless society, as appealing as it may sound, is probably just as elusive as the much vaunted paperless office,” according to Yves Mersch, a member of the European Central Bank’s (ECB’s) executive board.

There is no inherent reason cash should survive if more efficient means of payment evolve. Cowrie shells were also a useful medium of exchange once. Banknotes did not come into use until the printing press had become sufficiently widespread and dependable.

“Today we can say the same thing about modern communication technology as about the printing presses in the 17th century. Access to the Internet is widespread, and computers, smartphones, and tablets are household items. Thus, the conditions

are ripe for launching more electronic payment forms,” Cecilia Skingsley, deputy governor of Sweden’s Riksbank, has said.

Sweden is blazing the cashless trail. Cash is now used for only 15 percent of transactions at the point of sale. Because cash distribution costs in the sparsely populated country are high, fewer than half of Swedish banks still handle cash. Uniquely, cash in circulation fell by nearly 15 percent between 2007 and 2015. Even homeless sellers of Stockholm’s street magazine accept mobile payments.

Network effects

Successful digitization of retail payments depends on economies of scale and network effects. In the case of technology-friendly Sweden, consumers and merchants alike have been happy to desert cash. The trend has been reinforced by a long tradition of cooperation among Sweden’s biggest banks, which jointly run the country’s payments infrastructure. So a new service enabling real-time payments was immediately able to reach most of the population.

“But if you look at some bigger countries, say Germany or the U.S., you have so many more important players that it’s simply more difficult to create this atmosphere of cooperation,” Björn Segendorf, of the Riksbank’s Financial Stability Department, tells *F&D*.

The more people use a particular platform, the more attractive it becomes—like Facebook. The M-Pesa mobile payment service took off in Kenya because there was one dominant mobile operator, Safaricom, in a country where few people had access to a bank: a market was crying out to be opened up.

“M-Pesa is a good case of network externalities promoting non-cash use,” Kim Huynh at the Bank of Canada tells *F&D*. “In Canada, contactless credit cards are a similar case.” Their use tripled between 2009 and 2013 (Fung, Huynh, and Stuber 2015). Contactless cards and devices contain an antenna that, when held very near or against a special-purpose terminal, transmits two-way purchase information.

China has largely bypassed cards and is jumping directly from cash to mobile. The number of mobile payment users leapt 64.5 percent in 2015, and nearly 60 percent of the country’s 710 million Internet users were paying with mobile devices at the end of that year.

India, too, criticized for the clumsy execution of its plan to withdraw 100 and 500 rupee bills from

circulation in a crackdown on illicit income, is laying the foundations for a digital payment network by cataloguing biometric data that will allow citizens to open subsidized bank accounts.

Less crime, more tax revenue

India is not alone in trying to increase tax collection and lower crime and corruption by deterring the use of cash. A number of European countries have imposed ceilings on cash transactions, and the ECB plans to stop printing the €500 note, its highest denomination, in 2018.

Peter Sands, the former chief executive of Standard Chartered Bank, is critical of the ECB for not acting more rapidly to stop issuance of the €500 note and to encourage withdrawal of the outstanding stock. But he adds: “What is good is that there is now much broader acceptance that cash—and particularly high-denomination notes—plays a big role in facilitating illegal activities.”

Sands advocates a pact among the Group of 20 advanced and emerging market economies (G20) for rapid withdrawal of all hard-currency notes

“There is now much broader acceptance that cash plays a big role in facilitating illegal activities.”

with a value of more than, say, \$50 because they dominate illicit financial flows in poorer countries. More than 60 percent of all \$100 bills, the highest US denomination, circulate abroad. “Getting rid of such notes is one of the best things that could be done by the advanced economies to reduce corruption and increase tax collection in the developing world,” Sands tells *F&D*.

Former US Treasury Secretary Lawrence Summers and ex-IMF chief economist Kenneth Rogoff also propose phasing out big bills. They have a battle on their hands. For one thing, Switzerland has no plan to do away with its 1,000 franc note, one of the biggest bills in the world (see “Mountains of Cash” in the December 2016 *F&D*).

Apart from disrupting the underground economy, replacing cash would save money. Processing all but the smallest card payments is cheaper than

handling cash. Korea wants to abolish coins because minting costs exceed their face value. In Singapore, where cash accounts for 60 percent of consumer payments and checks for 30 percent of business transactions, going cashless would save more than 0.5 percent of GDP, according to a study for the Monetary Authority of Singapore.

True, central banks would forgo seignorage, the profit made by issuing currency, but the sums involved are generally small. In any case, as Sands says in a paper for the Harvard Kennedy School, “Providing criminals with high denomination notes because doing so makes money seems indefensible.”

Doing away with big bills could also be an aid to monetary policy, Rogoff argues. That is because central banks would have more leeway at times of deflation to impose negative interest rates if there were no longer a threat of a stampede to turn bank deposits into cash.

The falling use of cash is transforming the task of ensuring the security and efficiency of the payment system. The authorities have to worry less

electricity, Wi-Fi, or cellular signals to make them work. Nor do you need to be literate,” he says.

Cash is also entrenched in advanced economies, accounting for more than half of all transactions by volume in six of seven countries covered in a coordinated central bank survey. In Austria and Germany, the share was 82 percent (Bagnall and others). In every country surveyed cash use decreases with education and income. Why? Among other things, a glance in the wallet makes it easier for households on tight budgets to monitor their finances.

Plenty of reasons have been put forward to explain why Germany, for instance, remains addicted to cash. One is an aversion to debt (and hence to credit cards); another is the folk memory of hyperinflation. Researchers are dubious about the latter theory (Bagnall and others), but, importantly, they say consumers everywhere are not completely rational in their choice of payment methods.

“Decision-making is more of an emotional process than a cognitive process,” according to Frank van der Horst and Ester Matthijsen of the Dutch National Bank. “On balance, paying by cash triggers more positive emotions than paying by debit card,” they reported (Deutsche Bundesbank 2014). Think of it this way: isn’t it more satisfying to give a child a crisp new banknote as a present than to write her a check?

Whether the desire to cling to cash is best described as subliminal or atavistic, Dario Negueruela of the Bank of Spain said it cannot be ignored: “Cash has certain special characteristics that link it to feelings and to deep and primitive human sentiments (Deutsche Bundesbank 2014).”

For some, cash is a tangible symbol of wealth and standing; for others, it is a defense against attempts by an all-encroaching “Big Brother” surveillance state to rob people of their anonymity by forcing them to leave an electronic payment trail.

Michael Tomlinson, a 68-year-old London lawyer, happily uses his smartphone to make mobile payments. But he also withdraws more than £1,000 a month in cash for tipping in restaurants and for use in an emergency in case his credit cards are hacked—as has already happened.

Tomlinson cannot imagine ever doing without cash. “The more options I have as a consumer, the more I like it,” he says. “I don’t see why I should fall into line with what the banks want.”

Or, to quote Dostoyevsky, “Money is coined liberty.”

Several central banks are exploring the merits of issuing their own electronic money.

about counterfeit notes and bank heists and more about cybertheft.

One of their toughest challenges is to maximize access to digital finance. In a world where 2 billion people are unbanked, holding back growth and entrenching poverty, financial inclusion is climbing the policy agenda.

In advanced economies, too, people without the Internet are finding it harder to access not only electronic payment networks but services of all kinds. “It’s more a question of digital exclusion,” says the Riksbank’s Segendorf. “They are shut out of large parts of society.”

The case for cash

The trend toward digitization may be irreversible, but Sands, for one, is not arguing for rapid removal of all cash, particularly in developing economies. “Low-value cash instruments are enormously flexible and robust payment instruments—you don’t need

What does the future hold?

Innovation will provide ever more opportunities to do without cash. Ian Pearson, a futurologist who runs the UK consultancy Futurizon, expects pieces of security jewelry, such as electronic signet rings, to enter the market for payment authentication. Transferring money through fingerprint recognition, or even a handshake, will also become possible, Pearson predicted in a report for the UK Payments Council. But he sees a good chance that technology, rather than killing off cash, will prolong its life because people will put a premium on privacy. “We’ll probably still have some form of everyday cash for little things even in 2040,” Pearson tells *FD*.

New forms of payment

A central focus of central bankers grappling with new forms of payment is the rapid development of blockchain technology, which underpins the digital currency bitcoin (see “The Internet of Trust” in the June 2016 *FD*).

In December the People’s Bank of China reportedly completed a successful trial run of a system for the transaction and settlement of bank acceptance bills using a blockchain-backed digital currency it had developed.

Several other central banks, including the Riksbank, are also exploring the merits of issuing their own electronic money—and the associated policy implications. For example, unpredictable public demand for e-krona could theoretically make it hard to carry out fine-tuning operations in the money market and to steer the money supply, the bank’s deputy governor, has warned (Skingsley 2016).

Blockchain has the potential not only to spawn competing currencies but also to permit the replacement of existing centralized payment systems by peer-to-peer networks. A continuously updated ledger would keep track of all transactions and would be distributed among all participants. By obviating the need to be routed via the central bank’s payment system, settlement would potentially be faster and cheaper.

Jon Nicolaisen, deputy governor of the Norwegian central bank, said in a 2016 speech that society might benefit greatly from a decentralized financial infrastructure. But the prospect raised fundamental questions about how banks’ funding and lending would be affected.

Carolyn Wilkins, senior deputy governor of the Bank of Canada, added that distributed ledger



technology could take regulators into uncharted territory over issues of law and governance. New fintech applications could also have implications for financial stability if some payment providers become “too big to fail,” Wilkins said.


Central bankers have no precedent to help them answer all these questions, but they do have time on their side: They expect banknotes to be used for the foreseeable future. Rogoff, in his book *The Curse of Cash*, advocates moving to a “less cash” society, not a cashless one. For one thing, whoever operates the new payment technologies will have to earn people’s trust—trust that, in the case of banks, has been badly eroded by the financial crisis.

Segendorf, the Riksbank official, says he personally can picture a day when Sweden dispenses entirely with cash. But the central bank researchers who surveyed payment methods in advanced economies probably better reflect today’s consensus. “Reports of the death of cash have been exaggerated,” they conclude (Deutsche Bundesbank 2014). **FD**

ALAN WHEATLEY is an economics writer and editor, formerly with Reuters, and editor and coauthor of *The Power of Currencies*.

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CAPITAL SLOWDOWN

Investment growth in emerging market and developing economies has been sluggish since 2010

M. Ayhan Kose, Franziska Ohnsorge, and Lei Sandy Ye

Investment growth in emerging market and developing economies has slowed sharply since the global financial crisis, declining from 10 percent a year in 2010 to less than 3.5 percent in 2016. While there have been signs of revival recently, over the past three years, investment growth, both public and private, has been not only well below its double-digit precrisis average rate but also below its long-term average.

Moreover, the investment weakness has been broad-based. In 2016, investment growth was below its long-term average in more than 60 percent of emerging market and developing economies, the largest number of countries to experience such sluggishness over the past quarter-century except during the 2009 global recession (see Chart 1). The weakness has persisted despite large unmet investment needs and is visible in both private and public components of investment.

The slowdown has been most pronounced among the large, so-called BRICS (Brazil, Russia, India, China, South Africa) economies and in commodity exporters. Between 2010 and 2016, investment growth dropped from about 13 percent to about 4 percent in the BRICS and from roughly 7 percent to 0.1 percent in non-BRICS commodity-exporting emerging market and developing economies. China accounted for about one-third of the total investment

growth slowdown in these economies during this period and Brazil and Russia for another third. The sustained investment growth slowdown in emerging market and developing economies contrasts with its partial recovery in advanced economies since the global financial crisis. Investment growth in advanced economies averaged 2.1 percent during 2010–15. By 2014, it had returned to its long-term average growth rate, not far below where it was before the crisis.

Why the slowdown?

The investment slowdown reflects a number of factors that offset exceptionally benign financing conditions—including record-low borrowing costs, ample financial market liquidity, and in some countries a surge in domestic private credit to the non-financial private sector. However, many headwinds offset the benefits of these historically low financing costs until late 2016, including disappointing economic activity and weak growth prospects and a severe decline in export prices vis-à-vis import prices (that is, a worsening in terms of trade) for commodity exporters, slowing and volatile capital flows, rapid accumulation of private debt, and bouts of policy uncertainty in troubled major economies.

We estimated the relative importance of these domestic and external factors in explaining investment growth.



Adverse factors over the medium term: In contrast to advanced economies, slowing output growth accounted for only a small share of the slowdown in the average emerging market or developing economy.

Terms-of-trade shocks were more important for oil exporters; for commodity importers, slowing inflows of foreign direct investment (in which foreigners take an ownership role), as well as private debt burdens and political risk for many emerging market and developing economies, played a large role. For oil exporters, on average, the terms-of-trade shock caused by the oil price decline that began in 2014 accounted for about half of the investment growth slowdown. For the average commodity importer, slowing foreign direct investment inflows accounted for more than half of the slowdown in investment growth.

Private sector debt-to-GDP ratios have unduly affected investment: the benefits of increased availability of financial services (financial deepening) for investment are increasingly outweighed by harmful effects of excess debt. The postcrisis reduction in debt in several commodity-importing emerging market and developing economies has reduced some of these obstacles to investment growth. In contrast, in several non-energy commodity exporters, high private debt has stymied investment. Rising political risk may account for about a tenth of the slowdown in investment growth in emerging market and developing economies since 2011.

Elevated uncertainty: Two forms of global and country-specific uncertainty are a major drag on investment: financial market uncertainty and

macroeconomic policy uncertainty. Domestic policy uncertainty holds back investment growth at home; global financial market uncertainty and policy uncertainty, such as in the European Union (especially among emerging market and developing economies in Europe), have weighed on investment more broadly.

Global financial market uncertainty, as measured by the VIX index (which tracks volatility in the US Standard & Poor's index of 500 stocks), is a key variable for explaining the path of investment in

Any setbacks to growth also jeopardize global goals for poverty reduction.

emerging market and developing economies, especially when there has been a sustained increase in the index. For example, a 10 percent increase in the VIX would considerably reduce investment growth (by about 0.6 percentage point within one year) in these economies.

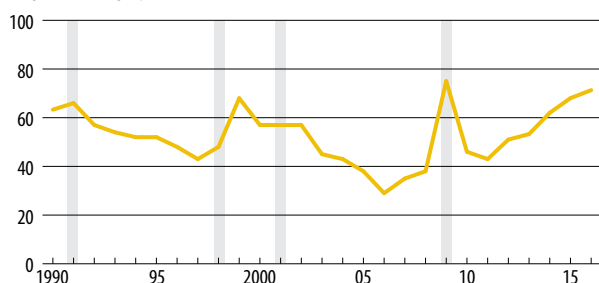
Bouts of policy uncertainty in the European Union, especially during the euro area crisis of 2010–12, spilled over on close economic partners. For example, policy uncertainty increased significantly during the four months ending September 2011 (at the height of the euro area crisis). This type of rapid increase in uncertainty has likely reduced investment, certainly in emerging market and developing economies in Europe and central Asia. In addition to these cross-border-uncertainty spillovers, domestic uncertainty added to investment weakness in major emerging market and developing economies.

Chart 1

Below average

Investment growth in emerging market and developing economies has been low over the past three years.

(share of emerging market and developing economies with investment growth below long-term average, percent)



Sources: Haver Analytics; IMF; Oxford Economics; and World Bank, World Development Indicators.

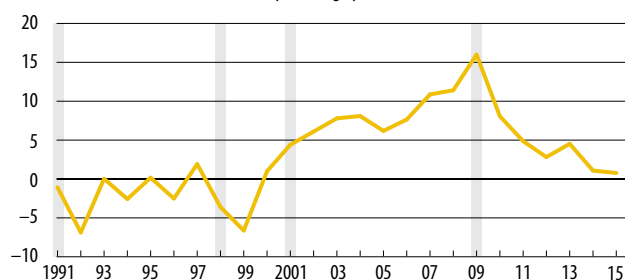
Note: Long-term averages are country specific and refer to 1990–2008. Data for 2016 are estimated. The shaded areas represent global recessions and downturns.

Chart 2

Closing down

Between 2009 and 2015 the much greater per capita investment growth in emerging market and developing economies than in advanced economies disappeared.

(difference between per capita investment growth in emerging market and developing economies and advanced economies, percentage points)



Source: World Bank.

Note: Weighted averages of the difference between real investment growth rates in emerging market and developing economies and advanced economies. The shaded areas are global recessions and downturns.

Negative spillovers from major economies: Weak growth in the United States and in the euro area has disappointed expectations a number of times over the past seven years. Given the sheer size of these economies and their degree of trade and financial integration with the rest of the world, a slowdown in their growth significantly worsens growth prospects for emerging market and developing economies.

Weak output growth in the United States and the euro area weighed on investment growth in

emerging market and developing economies: a 1 percentage point decline in US output growth reduced average output growth over the following year in emerging market and developing economies by about 0.8 percentage point, and a decline of the same amount in euro area output growth did so by about 1.3 percentage points within a year. Investment growth in emerging market and developing economies responded almost twice as strongly (2.1 percentage points) as did output growth.

China's policy-driven slowdown and rebalancing from investment toward consumption also hurt output growth in emerging market and developing economies. Since China is now the largest trading partner of many emerging market and developing economies, its output and investment growth slowdown has weighed on their growth.

For example, within a year, a 1 percentage point decline in China's output growth was accompanied by about a 0.5 percentage point decline in output growth in other commodity-importing emerging market and developing economies and a 1 percentage point decline in output growth in emerging market and developing economy commodity exporters. Since much of its investment is resource intensive, China's rebalancing away from investment has been more harmful for commodity-exporting emerging market and developing economies.

Effect on growth prospects

The postcrisis investment growth slowdown from record highs before the crisis could have lasting implications for long-term growth. By slowing the rate of capital accumulation, a prolonged period of weak investment growth can set back potential output growth in emerging market and developing economies for years. In 2009, there was about a 15 percentage point difference between per capita investment growth in emerging market and developing economies and advanced economies. By 2015, the difference was virtually zero, the lowest it has been since the early 2000s (see Chart 2). Because growth is one of the most powerful ways to reduce poverty, any setbacks to growth also jeopardize global goals for poverty reduction.

In addition to slowing capital accumulation, weak investment growth is associated with slower growth in total factor productivity (the part of economic growth that cannot be explained by increases in labor and capital inputs and reflects technological and efficiency changes). That's because investment is often

critical to the adoption of new, productivity-enhancing technologies. The productivity slowdown was most pronounced in commodity-exporting emerging market and developing economies and in those with the slowest investment growth. Weaker total factor productivity growth is also reflected in slower growth in labor productivity (output per hour worked)—the key driver of long-term real (after inflation) wage growth and household income growth.

Boosting investment

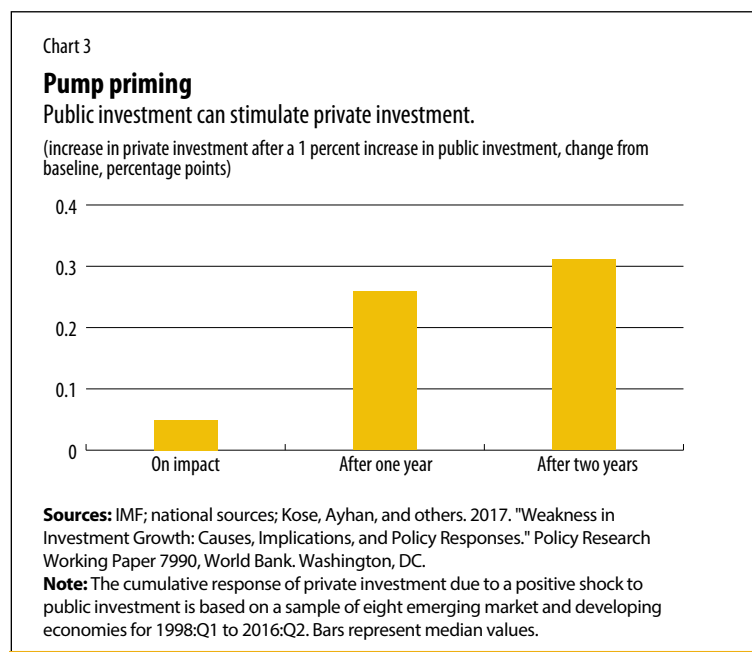
Many emerging market and developing economies have large unmet investment needs (Kose and others 2017). A number of these countries are poorly equipped to keep up with rapid urbanization and changing demands on workers. Investment is also needed to smooth the transition away from growth driven by natural resources (in commodity exporters) or sectors that do not engage in foreign trade (in some commodity importers) toward more sustainable sources of growth.

Policymakers can boost investment directly, through public investment, and indirectly, by encouraging private, including foreign direct, investment, and by undertaking measures to improve overall growth prospects and the business climate. Doing so directly through greater public investment in infrastructure and workers would help raise demand in the short term, increase potential output in the long term, and improve the environment for private

Many emerging market and developing economies have large unmet investment needs.

investment and trade. Public investment would also help close income gaps, as targeted by the United Nations Sustainable Development Goals and, under the right conditions, has the potential to stimulate private investment (see Chart 3).

Indirectly, macroeconomic policies can encourage productive investment—for example, by ensuring macroeconomic stability and improving short- and long-term growth prospects. More effective use of fiscal and monetary policies designed to counter slowing or declining growth can also promote private investment indirectly by strengthening output growth, especially in commodity-exporting emerging market and developing economies. These policies may be less



effective, however, if governments lack resources to increase spending or reduce taxes or if output growth is weak because of a need to adjust to a permanent decline in revenues from commodity exports.

To raise investment growth sustainably, such policies must be buttressed by structural reforms to encourage both domestic private and foreign direct investment. These reforms could span various areas. For example, lower barriers to entry for businesses and smaller start-up costs are associated with higher profits for existing firms and greater benefit from foreign direct investment for domestic investment. Reforms to reduce trade barriers encourage both foreign direct and overall investment. Corporate governance and financial sector reforms improve the allocation of capital across firms and sectors. Stronger property rights encourage corporate and real estate investment. Such policies should be complemented by efforts to foster transparency—that is, better financial reporting methods. [FD](#)

M. AYHAN KOSE is a director, **FRANZISKA L. OHNSORGE** is a lead economist, and **LEI SANDY YE** is an economist, all in the Prospects Group of the Development Economics Vice Presidency of the World Bank.

Reference:

Kose, Ayhan, and others. 2017. "Weakness in Investment Growth: Causes, Implications, and Policy Responses." Policy Research Working Paper 7990, World Bank. Washington, DC.



WHEN MONEY CAN NO LONGER TRAVEL

Correspondent banking relationships, which facilitate global trade and economic activity, have been under pressure in some countries

Andreas Adriano

Angola, the third-largest economy in Africa, relies on imports to keep its economy running. It is a heavyweight exporter of oil, diamonds, and iron ore, but it imports food, medicine, construction materials, vehicles and parts, and capital goods. Many sectors dependent on imports, like construction, are at risk of coming to a halt because importers often find it more difficult to pay their international suppliers. Why? Because Angola has undergone *derisking*—a term that describes a complex, multifaceted problem affecting mostly, but not only, small developing economies whose connections to the global financial network have been under threat.

Imagine if international airlines, like Air France, American, Lufthansa, and United, suddenly stopped

serving a country with no national airline that relies on these companies as its link with the rest of the world. The people and the economy would suffer: airlines that still served the country would raise their fares, making it costlier to import and export and for people to travel. Fewer direct flights and higher prices would discourage tourism.

Money travels around the world in more or less the same way as people, and through some of the same city hubs. Someone traveling from Luanda, Angola, to San José, Costa Rica, could fly to Europe, then to a US airport, then to San José (or to São Paulo, then Panama City, then San José). A wire transfer between two countries also hops around the globe and makes several connections, traveling usually within the networks of large global banks—Bank

of America Merrill Lynch, Citibank, Deutsche Bank, Standard Chartered, and many others.

Derisking happens when global banks stop providing international payment services such as wire transfers, credit card settlements, and even hard foreign currency to a country's local banks. In the world of payment systems, provision of these services is generically referred to as correspondent banking. Without it, a bank—and therefore its clients, i.e., people and companies in that country—loses access to the global financial grid.

It's not hard to see the consequences for a developing country in a highly integrated global economy if money cannot travel. Just imagine a country heavily dependent on tourism, as in the Caribbean, in which hotels all of a sudden are unable to process guests' credit card payments or airlines can't pay for fuel. In fact, Caribbean countries have been among the most affected by loss of correspondent banking relationships.

According to a survey earlier this year by the Caribbean Association of Banks, 21 of 23 banks in 12 countries have lost at least one correspondent banking relationship. Eight were operating with a single provider. Most are able to find alternative arrangements. Countries in Africa, eastern Europe, the Middle East, and the Pacific islands have also lost some relationships, as has the central bank of Belize. In Angola a scarcity of US dollars has impacted trade activity. Even large emerging market economies such as the Philippines and Mexico have been affected. A survey of Arab countries found that 39 percent of 216 banks had a "significant" decline in the scale of correspondent banking relationships.

Motivating factors

Banks are required by law to try to prevent the possibility of seemingly routine cross-border payments disguising money laundering, terrorism financing, tax evasion, and corruption proceeds. In most countries, and in particular in the United States, regulation and enforcement of these requirements has been a lot more rigorous, as is enforcement of economic and trade sanctions. Banks are directed to "know your customer." The necessary compliance structure can be so costly that correspondent banking, a large-scale low-margin service, could stop being profitable.

Remember the post-9/11 days, when even toddlers were frisked at airports? Or how, after the shoe bomber incident, shoe removal became standard practice at US airports? It's much the same with global payments. Banks are liable for all international transactions traveling through their networks and must "pat down" transactions from clients that are considered risky—and obviously stop those on the "no-fly list." The reputational risks are significant, and fines can be in the billions of dollars. "The penalties and reputational damage can be terrible," an anti-money-laundering expert in a global US bank tells *F&D*. The whole set of circumstances "creates a toxic environment in the financial industry."

For banks, it's a simple risk-reward analysis in one portion of their many business lines. But for a small flower exporter in a landlocked African country, it may be the difference between doing

It's not hard to see the consequences for a developing country in a highly integrated global economy.

business or not. Remittances are another potential victim. Already costly for poor people to send, they may become more expensive if there are fewer providers. And in this case the trend is not just from global to local banks. Republic Bank, one of the Caribbean's largest institutions, decided to withdraw from the money transfer business and closed the accounts of large global providers such as Western Union and MoneyGram. "These companies were the favorites of the Barbados diaspora in Canada and the United States, so people might have been affected," Ian de Souza, CEO of the Barbados subsidiary, tells *F&D*.

According to the World Bank's Remittance Prices Worldwide database, sending \$200 to Jamaica costs 7.4 percent from the United States and 10.1 percent from Canada, on average. The same amount from South Africa to Angola can cost up to 20 percent. The World Bank estimates that if remittance costs fell by 5 percentage points across the board

recipients in developing economies would get an extra \$16 billion every year.

According to a recent IMF paper, cross-border payments have so far remained stable and economic activity has been largely unaffected. However, in a limited number of countries, financial fragilities have been accentuated as their cross-border flows are concentrated through fewer correspondent banking relationships or maintained through alternative arrangements. These fragilities could undermine affected countries' long-run growth and financial inclusion prospects by increasing costs of financial services and negatively affecting bank ratings.

Belize Bank, the largest in the country, had relied on Bank of America as its sole correspondent for 35 years. In 2014, the US bank terminated the relationship with a 60-day notice. "They never gave us a specific reason; they just said that their strategy was not aligned with doing business with us anymore," says Filippo Alario, deputy CEO and chief risk officer, in an interview with *F&D*.

Alario says that most global banks are "not interested in Belize anymore," and to keep operating, his bank had to "be creative and do an incredible amount of networking." He does business now through small banks in other countries, some smaller than his own, and has different providers for various services. "We are managing, but don't have a strong long-term solution." He sees the problem affecting the entire economy: "Even US and British military training camps had problems receiving funds."

For Bank of America, it's basically a matter of scale, Stephanie Wolf, head of global financial institutions and public sector banking, tells *F&D*. She did not comment on specific cases, but she says that the bank's approach to global oversight of risk across different products and jurisdictions led it to focus on clients with more growth potential. "Not every client will be the right fit for us." Correspondent banking is still one of the leading businesses in their corporate banking practice, "very attractive both from the side of revenue and the diversity of portfolio." New clients have been added, and the bank even provides hard currency liquidity in many countries, one of the riskier parts of correspondent banking, she adds.

A mix of unclear or inconsistent regulatory expectations, enhanced efforts to combat money laundering and terrorism financing, weak compliance by correspondent banks, and countries with risky environments make derisking a complex problem. Banks have a long list of criteria to evaluate financial transactions' risks. Reputation counts a lot. For example, a bank may consider a Colombian client riskier in principle than one in Chile because of the former country's history of drug cartels, explains the US-based anti-money-laundering expert.

Certain businesses are riskier than others, like casinos. "A cash-intensive business is considered riskier than one relying more on electronic payments. Businesses with government contracts are riskier than private sector ones. A politician is riskier than a lawyer, who is riskier than a business manager," he explains. So-called politically exposed persons raise a red flag: cabinet members, lawmakers, and executives of public companies get deeper and more frequent scrutiny.

Most countries have strengthened their compliance with the recommendations of the Financial Action Task Force, the intergovernmental body that sets and enforces standards and practices for combating money laundering and terrorism financing. But a number are only partially compliant. Legislation that is indeed too lax, sometimes because of political circumstances, is a frequent problem, as is weak implementation. If too many politicians and their families are involved in business, it is not in their interest to approve local regulation of politically exposed persons. So it is harder for a foreign bank to vet a transaction properly, which could expose it to enforcement actions by its regulator. Some will however argue that international pressure may be the only way to force change in such situations.

Finding alternative routes

What's a derisked bank to do? Like an obstinate traveler, it will seek alternative flights and routes. In most affected countries, banks have figured out ways to continue doing business. One possible fix is to nest transactions with those of an intermediary bank that continues to have correspondent banking relationships. Angola is routing more transactions through South Africa and

Continued improvement in countries' standards for combating money laundering and terrorism financing is crucial to provide the confidence required by correspondent banks.

Portugal. Belizean banks have even resorted to Turkish providers. Diversifying foreign currencies if one becomes scarce is another possibility.

However, experts warn it may just be a matter of time before the process catches up with banks again. A global bank would likely ask a Portuguese bank about Angolan transactions folded in with domestic businesses. It's not implausible that the Portuguese bank could eventually lose its own correspondent banking accounts in the process.

Most important, the search for short-term fixes could lead companies and banks to resort to unorthodox schemes and less-than-reputable providers to continue operating. This may have the unintended consequence of pushing payments into informal channels.

A long-term, sustainable solution to the problem demands action on many fronts—and by a varied cast of policymakers in countries and international institutions, as well as in the private sector. Overall, it is key for the derisked bank to enhance its capacity to manage risks, and to communicate progress made, to build trust with global banks. If capacity cannot be achieved at the individual bank level, consolidating transactional traffic and terminating certain high-risk business lines may be needed to address correspondent banks' concerns about risk management. Some progress is already underway. Raising awareness about the complexity and seriousness of the problem was a first step, and not a trivial one. Belize Bank's Alario recalls that when his bank first raised the issue with US authorities and international institutions, "blame from every quarter was put on us."

Lobbying and joint action by countries, coupled with more research by international institutions, have already achieved significant improvements. Clarifying expectations by different regulatory bodies is an important step. Guidelines issued last August by the US Treasury Department that attempt to harmonize expectations among numerous US

government regulators are widely seen as an important milestone. The guidelines clarify that there isn't a zero tolerance expectation and that many fines were applied in cases of deliberate wrongdoing.

Measures suggested to address the problem include lowering compliance costs through industry initiatives (technology can help banks know their clients better and offers alternative channels for remittances). Continued improvement in countries' standards for combating money laundering and terrorism financing is crucial to provide the level of confidence required by correspondent banks.

Banks have been active as well. Standard Chartered, a UK bank with a large presence in Asia, established a correspondent banking training program to help its clients, local banks, and the clients' clients comply with anti-money-laundering and terrorism financing rules. The program is active in 23 countries.

Mexico, a major emerging market economy also affected by the loss of correspondent banking relations, has been active on several fronts. In some countries, privacy laws forbid subsidiaries of the same global bank to exchange information about clients' risk profiles. So Mexico amended its legal framework to facilitate this cross-border information sharing. It also established a domestic US dollar payment system and uses the central bank's correspondent banking relations to facilitate transfers.

In the air transportation business, stricter security has usually meant small individual sacrifices in exchange for greater general safety. It can likewise be argued that, by cracking down on financial crime, tighter international regulations also achieve a global good. The problem is that these regulations may affect legitimate people and businesses as well, not just suspicious ones. Good money has had difficulty traveling, as have good people recently, and this should not happen. **FD**

ANDREAS ADRIANO is a senior communications officer in the IMF's Communications Department.

FUELING REFORM

Energy subsidy reforms are challenging, but many countries are making progress

ENERGY SUBSIDIES ARE policy measures that aim to lower the cost of energy consumption. In 2015, these subsidies amounted to 6.5 percent of global GDP, or roughly \$5.3 trillion. Subsidies have many negative economic and environmental effects, and they primarily benefit the wealthiest households. Despite this, they have proved difficult to reduce or remove. But in recent years a few factors may have shifted the balance to provide incentive for reform: subdued growth since the global financial crisis, lower energy prices since a sharp decline in mid-2014, and pledges to reduce greenhouse gas emissions signed by 190 countries as part of the December 2015 Paris Agreement.

In fact, at least 32 countries have actively reformed their subsidies since mid-2014. More than half of them are oil exporters and have had to make up for declining oil revenues. Most of these oil-exporting countries faced much larger fiscal deficits than oil importers did. Environmental concerns have been

another driver in some countries—which have introduced a carbon tax, raised carbon tax prices on top of existing systems, or announced their own emission-trading systems. And recent reforms benefited from lessons of past experiences, which makes them more likely to succeed.

Successful energy subsidy reform has six key ingredients according to IMF research, and many recent reforms have incorporated them in their designs: a comprehensive plan with clear long-term objectives, transparent communication with stakeholders, phased-in price increases, more efficient state-owned enterprises, measures to protect the poor, and depoliticized pricing mechanisms.

In addition, energy subsidy reforms that are driven by long-term considerations, such as addressing environmental concerns or reducing oil dependency, are likely to be more durable than those driven by short-term factors, such as budget deficits resulting from lower oil revenues. **FD**

Why is energy subsidy reform important?



Getting energy prices right could:

Reduce global carbon emissions by

24%

Reduce fossil fuel air pollution deaths by

57%

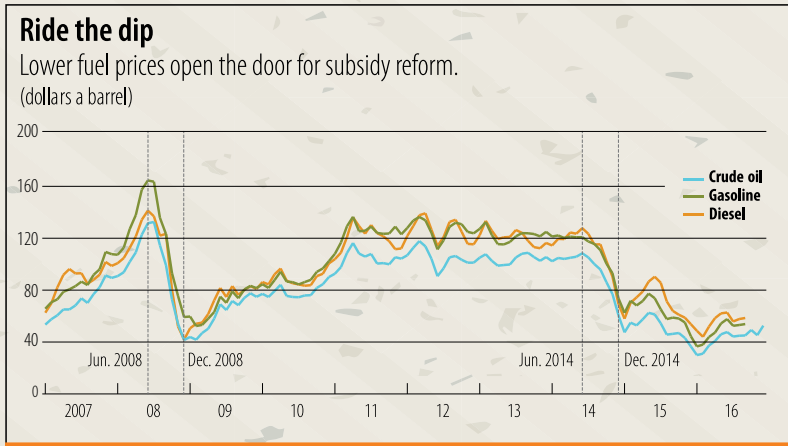
Generate 3.5% of global GDP, so countries could reduce inefficient taxes or expand priority public spending on health care, education, etc.

Alleviate **income inequality**, as subsidies largely benefit the rich

When is the right time?

Now!

The sharp drop in international energy prices since mid-2014 creates an opportunity for energy importers to remove their subsidies, and puts pressure on energy exporters to reform theirs.



And greenhouse gas reduction pledges submitted by over **190** countries in 2015 provide further impetus for change.

What kinds of reforms are being implemented?



Raising government-set prices
(Angola, Egypt, Ukraine)

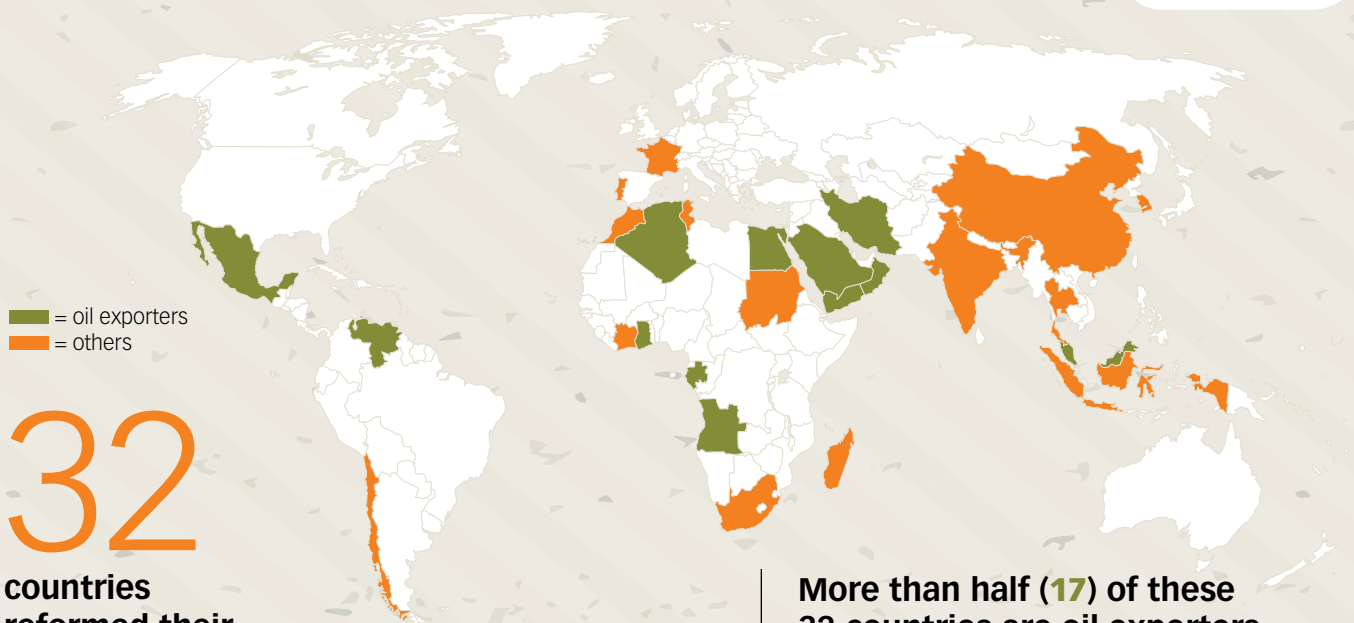


Liberalizing energy prices or
introducing an automatic pricing
mechanism (India, Madagascar,
United Arab Emirates)



Introducing an emission trading
system or carbon tax, or
raising carbon prices (Mexico,
Portugal, South Africa)

Where are reforms taking place?



32

**countries
reformed their
subsidies since
mid-2014 by raising energy prices:**

Algeria, Angola, Bahrain, Chile, China, Côte d'Ivoire, Egypt, France, Gabon, Ghana, India, Indonesia, Iran, Jordan, Kazakhstan, Korea, Kuwait, Madagascar, Malaysia, Mexico, Morocco, Oman, Portugal, Qatar, Saudi Arabia, South Africa, Sudan, Thailand, Tunisia, United Arab Emirates, Venezuela, and Yemen

**More than half (17) of these
32 countries are oil exporters**

Prepared by **MARIA JOVANOVIĆ**. Based on research by Amyra Asamoah, Emine Hanedar, and Baoping Shang of the IMF's Fiscal Affairs Department. For more on the IMF's work on energy subsidy reform, visit imf.org/subsidies.

Carrying out long-lasting and meaningful economic reform isn't easy. The benefits often show up years later, while the pain is felt immediately. In our new series, "In the Trenches," policymakers describe the challenges of pushing through reforms aimed at stronger growth, higher productivity, and more jobs.

PHOTO: PETER ANDREWS/REUTERS/NEWS.COM



Window of Opportunity

Leszek Balcerowicz explains why it's important to move quickly when citizens are willing to embrace change

LESZEK BALCEROWICZ, the architect of Poland's transition to a free-market economy, began studying ways of reforming the country's Soviet-style system in the 1970s. He later became an advisor to the Solidarity trade union movement. For two years starting in 1989, Balcerowicz served as finance minister and deputy prime minister under Tadeusz Mazowiecki, who headed the first noncommunist government in Eastern Europe since World War II. Balcerowicz again assumed those posts from 1997 to 2000 and served as central bank president from 2001 until 2007. He holds a PhD in economics from the Central School of Planning and Statistics in Warsaw (now the Warsaw School of Economics), where he still teaches.

In this interview with *F&D*'s Chris Wellisz, Balcerowicz recalls the intensity of his first stint as finance minister and tells how he sought to overcome the obstacles he encountered by exploiting a narrow window of "extraordinary politics."

F&D: In the 1970s you put together a team of economists to study ways to reform the existing

socialist system. You said this work was like a hobby, because the prospect for reform seemed slim. Then martial law was imposed in December 1981. What happened next?

LB: After the introduction of martial law there was no hope for any major reforms. ... However, we continued our work, but this time without any limitations. So we studied privatization, liberalization, fiscal reforms. ... We, of course, did not assume that this would be useful in our lifetime.

F&D: Then came the so-called Round Table talks between Solidarity and the Communist government, which were followed by elections that resulted in a new government under Mazowiecki. You have said you would take the job, but only under certain conditions. What were they?

LB: First, that the economic reform would be massive, rapid, and radical. Second, that I would enter the government with a group of people, the team. Third, that I would chair, as the deputy prime minister, the economic committee of the council of ministers as a sort of coordination device of all the economic ministries. At the same time, I accepted the position of minister of finance. And, fourth, that I would have a say in who would take the economic portfolios.

F&D: What was your assessment of the economic situation?

LB: [It] was dramatic; output was falling. We had hyperinflation. We had a very large foreign debt. But I realized only after I accepted the job that the situation was even worse, because it turned out we had some hidden domestic debt.

F&D: How did you decide on a strategy?

LB: First, we knew ... that once a country is struck by hyperinflation, you must be very quick to reduce the pace of the printing of money. Second, we knew from our studies of previous reforms under socialism, and in some other countries—but especially under socialism—the initial dose of changes must be very large and very quick. [We also knew] that the changes should not be sequential. Major changes should start around the same time, as a package.

F&D: Why was that so important?

LB: After a breakthrough like in Poland in 1989 there's a short period of what I called "extraordinary politics," a window of opportunity, if you

will, that people were more ready than normal to accept radical changes. And the best use of this gift of history was to move very fast on a broad front which ... we did in Poland. A very rapid stabilization and massive liberalization of the economy, which included dismantling of most domestic monopolies. ...

F&D: What was your most pressing challenge when you first took office?

LB: The main problem was to stop hyperinflation. Technically it was easy. We had to slow down the printing of money, so it was largely a fiscal challenge. At the same time, we introduced the independence of the central bank.

F&D: What about the currency? It wasn't convertible at the time, and there was a flourishing black market in dollars.

LB: One of the greatest reforms which we introduced was the unification of the rate of exchange and the introduction of the convertibility of the currency, and this was sort of a revolution because people could legally import goods. And this enhanced supply competition.

F&D: How did you decide on a currency regime?

LB: We opted for a fixed rate of exchange for a time which was very difficult to determine. There was an argument coming from the IMF which I accepted then, that Poland needs a nominal anchor to stop hyperinflation. And it was, of course, extremely difficult to say exactly at what level the Polish zloty should be stabilized—at what rate of exchange. But we had to make the decision.

F&D: You were new to politics. How did you find that transition?

LB: I did not enter politics for the sake of politics. I was asked to do a job. And the job was of historical proportions. We didn't need lots of public communication and persuasion because we had the parliamentary majority—the Solidarity movement—and delaying change in order to make a lot of explanation would be wasting very precious time. So this was politically pretty easy.

F&D: A million people lost their jobs. Were you concerned about the political cost?

LB: This is a widespread myth, because, first, people associate social cost with reforms, while

delaying reforms brings about much larger social costs. ... Secondly, on unemployment, you have to remember there was a lot of hidden unemployment in the socialist enterprises. And some of this hidden unemployment became open. And third, the initial law on unemployment benefits was too lax.

F&D: What was the main accomplishment of Poland's reforms?

LB: Poland was lagging behind the West economically for the last 300 years, so the gap was growing, especially after the Second World War. And only because of market reforms after '89 did we start to catch up. And we moved from about 30 percent of per capita income in Germany in 1989 to about 60 percent. This is the first time in Poland's history of the last 300 years that Poland has been rapidly converging with the West.

F&D: Were you concerned that voters would associate reforms with economic pain?

LB: For the first two years, there were no massive social protests and there were few political protests. With the passage of time, as in every country, there were politicians who tried to gain political capital from the criticism of what they called harsh or inhuman economic reforms.

F&D: Was there anything that was left undone that you wished you could have accomplished?

LB: If I had more people with whom I could work, I would have made more changes in the inherited social system, pension reforms and health reforms.

F&D: Does your experience have relevance today for policymakers in other countries?

LB: There are a lot of quasi-socialist economies that are dominated by the state sector. ... in these countries, the situation to some extent is comparable to that which existed in Poland and other socialist countries in 1989.

F&D: When you look back at that time, what are your personal reflections on the role that you played?

LB: Even at the beginning of 1989 I did not dream that Poland would be free and I would play a role in its transformation. This was, of course, not easy, but if something goes beyond your dreams you can't complain. **FD**



Beyond the Headlines

Migration from sub-Saharan Africa has far-ranging effects on home and host countries alike

Jesus Gonzalez-Garcia and Montfort Mlachila

International migration has been in the headlines for the past few years: a surge of refugees to Europe, especially from the Middle East and Africa, has spurred the ongoing refugee crisis. A backlash has followed in many countries, including within sub-Saharan Africa.

Developing economies tend to receive more immigrants relative to their population than advanced economies. Refugees make the headlines, but in sub-Saharan Africa longer-term migration, within and outside the region, strongly affects the continent's economies.

In 2013, about 20 million sub-Saharan Africans, twice the 1990 number, were living outside their

own country—13 million of whom had migrated within the region (see Chart 1).

The demographic boom in sub-Saharan Africa's working-age population—which typically feeds migration—means the trend will continue for decades. The current 2 percent migration rate (migrants as percent of population) in sub-Saharan Africa is low relative to the rest of the developing world, where 3 percent of the population live abroad. But it has kept up with the rapid growth of the region's population as a whole—from about 480 million in 1990 to about 900 million in 2015.

Where are they going?

Most migration occurs within the region (see Chart 2). People who move for economic reasons tend to look for opportunity in wealthier neighboring countries.

Why do Africans move to other African countries proportionately more than to richer countries? One reason is economics. The poor cannot afford a plane

ticket to Europe or the United States, but they can jump on a bus or truck, and borders within Africa are porous. Cultural and linguistic affinity also plays a role.

Forced migration

The number of refugees—people fleeing war or persecution—is much lower in Africa since 1990, both within and outside the region. About half of migrants were refugees in 1990, down to about 10 percent by 2013 thanks to fewer large-scale conflicts in the region (see Chart 3).

Five conflict-affected countries are the main sources of intra-African refugees: the Central African Republic, the Democratic Republic of the Congo, Somalia, Sudan, and South Sudan. Those from Somalia found refuge in Kenya and Ethiopia, refugees from Sudan migrated to Chad, and South Sudanese have been largely displaced within their own country and have gone to Uganda. Sub-Saharan Africa hosts the largest refugee camps in the world, with substantial fiscal costs for the host countries, estimated at 1 to 5 percent of GDP.

Both forced migration and migration for economic reasons can bring friction. The cost of hosting refugees and social tension in countries receiving large numbers of migrants seeking jobs, services, and opportunities can be difficult to manage.

Migration to the rest of the world is growing faster than within the region. About 6.6 million sub-Saharan African migrants—one-third of the total—lived outside the region in 2013, more than double the number in 1990. The composition has changed markedly: in 1990 about 40 percent moved for economic reasons, which had risen by 2013 to 90 percent. But the rate of global migration in sub-Saharan Africa is the lowest in the world, at 0.7 percent of the region's total population. That rate is about seven times larger in Latin America and the Caribbean and four times larger in the Middle East and northern Africa.

Why move?

Migration within Africa is driven mostly by geographic proximity, differences in income, and war in the home country, along with cultural links and environmental factors such as droughts or floods. Côte d'Ivoire and South Africa are among the recipients of the largest number of intraregional migrants.

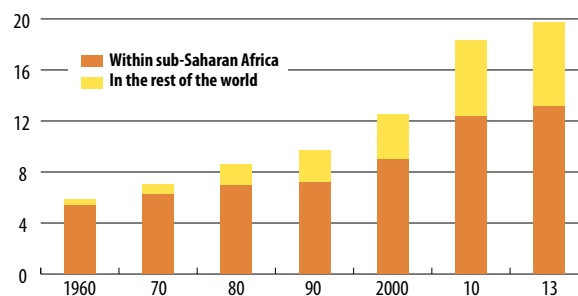
Migration to the rest of the world is driven mainly by economic opportunity, and the primary destinations are advanced economies. About 85 percent of

Chart 1

People on the go

An increasing proportion—but still a minority—of sub-Saharan migrants move out of the region.

(stock, millions of migrants)



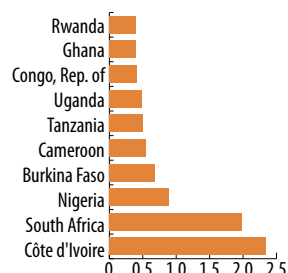
Source: World Bank, Migration and Remittances database.

Chart 2

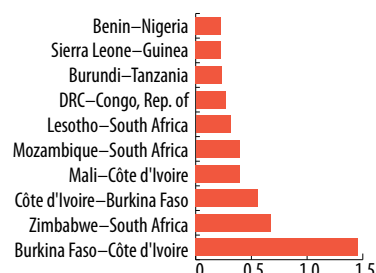
Close to home

Côte d'Ivoire and South Africa receive most sub-Saharan African migrants.

(top receiving countries, 2013, stock, millions of migrants)



(top migration corridors, 2013, stock, millions of migrants)



Source: World Bank, Migration and Remittances database.

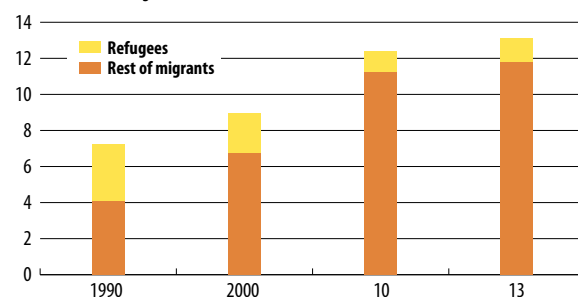
Note: DRC = Democratic Republic of the Congo.

Chart 3

Job hunters

Refugees are a smaller proportion of intra-sub-Saharan African migration compared with a quarter century ago.

(stock, millions of migrants)



Sources: United Nations High Commissioner for Refugees database; and World Bank, Migration and Remittances database.

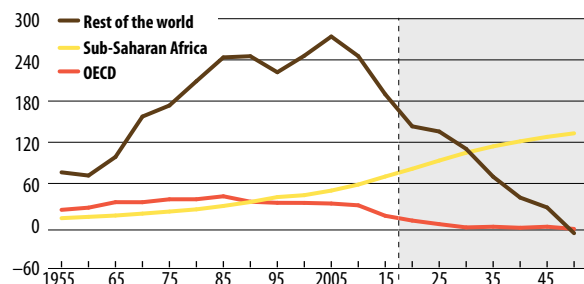
the sub-Saharan African diaspora is in countries belonging to the Organisation for Economic Co-operation and Development (OECD)—France, the United Kingdom, and the United States host about 50 percent of sub-Saharan African migrants.

Chart 4

Help wanted

As the working-age population of the rest of the world continues to plunge, sub-Saharan Africa can provide workers via migration.

(cumulative changes for five-year periods, millions)



Source: United Nations, World Population Prospects.

Note: OECD = Organisation for Economic Co-operation and Development. Shaded area represents projections.

Remittances are the biggest benefit for home countries. Inflows of money from expatriates have increased rapidly and are now one of the largest sources of external finance for developing economies, at 3½ percent of GDP in 2015. Remittances have leapfrogged foreign direct investment as the largest source of foreign exchange for developing economies, partly because the latter has declined sharply.

Remittances tend to be more resilient during economic downturns than foreign direct investment and official development assistance. After the global financial crisis, they dropped slightly in 2008 and 2010, recovered in 2011, and have grown ever since.

Remittances play an important macroeconomic role in sub-Saharan Africa. They are a source of foreign exchange and income, contributing more than 20 percent of GDP in The Gambia, Lesotho, and Liberia. They supplement the income of poor households, which can save some to invest in human and physical capital, which raises productivity and growth over time. Remittances also help mitigate the effects of macroeconomic shocks from natural disasters and conflict.

But emigration does harm the home country. The brain drain following the departure of skilled and qualified workers reduces productive capacity and long-term growth.

Evolving demographics

The demographic transition in the region will shape future migration. Not only will the region's population continue to increase—from about 900 million in 2013 to 2 billion in 2050—but the working-age population, which typically feeds migration, is set to increase even faster—from about 480 million in 2013 to 1.3 billion in 2050 (see Chart 4). This reflects the region's continued

population growth—total population has increased fourfold since the 1960s—declining fertility rate, and lower infant mortality rate, which is half what it was in 2000.

These demographic trends and persistently large income gaps between sub-Saharan African and advanced economies will likely drive more migration. The ratio of sub-Saharan African migrants to the total population of their new homes in OECD countries is projected to increase sixfold, from about 0.4 percent in 2010 to 2.4 percent by 2050—through a combination of more migration from the region and slow expected population growth in the OECD.

Better policies

Migrant workers can help receiving countries grow, especially where the population is aging rapidly (Jaumotte, Koloskova, and Saxena 2016). They bring additional tax revenues and social contributions in their new homes to support retired workers. Remittances will continue to support relatives' living standards, help alleviate poverty, and play a role as a stable source of foreign exchange.

Since migration within and outside sub-Saharan Africa will likely continue to expand in the coming decades, countries must design policies that help migrant workers adapt socially and economically in the host economies for all to benefit.

Population growth calls for policies that generate jobs in home countries. In countries receiving migrants, the boost to the labor force should compensate for aging and declining domestic populations, which is good for both economic growth and taxes in the long run. The boost to growth and taxes should ease social tension from concern about displacement of native workers and fiscal costs while increased international support to countries that host refugees would go a long way toward reducing fiscal and other related social costs. **FD**

JESUS GONZALEZ-GARCIA is a senior economist in the IMF's African Department, and **MONTFORT MLACHILA** is the IMF's senior resident representative in South Africa.

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FROM HUNGRY TO HEFTY

Obesity and diabetes threaten emerging market economies, but the right policies can help

Eduardo J. Gómez

The prospects for emerging markets look good, but rich country diseases like obesity and Type 2 diabetes pose a new threat to their improved economic outlook.

In recent years, Brazil, for example, has done more than China, India, or Mexico to strengthen the government's commitment to prevention and treatment programs, helped by an enduring partnership with civil society.

Since the 1990s, similar circumstances have contributed to the rise of obesity and Type 2 diabetes in these countries. With increased international trade came an influx of fatty foods accessible to all. Technology such as computers and mobile devices led to less physical activity and contributed to weight gain; in most of these countries, lack of access to public parks and poor environmental conditions also discourages exercise.

In Mexico, roughly a third of the population is now obese, and the proportion of obese children is the highest in the world. Type 2 diabetics in Mexico are expected to double in number by 2050. In India as well, obesity has surged, and children are afflicted

in both urban and poor rural areas. India's Type 2 diabetes rate is 10 times what it was in the 1970s, and by 2030 there are expected to be 100 million diabetics. In China, more than 120 million people are now obese; its diabetic population is the largest in the world (French and Crabbe 2010). Brazil's obesity and Type 2 diabetes rates have also surged in the past two decades.

Big price tag

Obesity and diabetes carry a hefty price tag. In Mexico, obesity and its associated diseases cost the government's health care system between \$4.3 billion and \$5.4 billion a year. Costs for diabetes programs and treatment rose from \$318 million in 2005 to \$343 million in 2010. In 2012, the government also disbursed about \$4 billion on diabetes-related spending (for example, hypertension, heart disease), including for treatment, primary care services, and research. Unchecked, according to Dr. Abelardo Avila Curiel of Mexico's Salvador Zubiran National Institute of Medical Science and Nutrition, the costs could demolish the health care system by 2030.

In India, obesity is projected to strain the government's health care budget—and the economy—due to work days lost. Moreover, government expenditures on Type 2 diabetes patients ranged from \$25 billion to \$38 billion in 2010, mostly on medication and hospitalization (Yesudian and others 2014). Within the next decade, the government is expected to spend roughly \$237 billion on health care related to diabetes, stroke, and heart disease.

In China, in 2009, the government is estimated to have spent \$3.5 billion treating obese patients. Recent estimates suggest that diabetes treatment costs the government about \$25 billion a year, and it's expected to reach \$47 billion by 2030, which could easily overwhelm the health care system.

Brazil's government costs for patients with obesity—often for treatment of ailments such as high blood pressure, diabetes, and cancer—rose from \$5.4 million in 2008 to \$10.4 million in 2011 and could reach \$10 billion by 2050. Type 2 diabetes costs—including for hospitalizations, diagnostic tests, treatment, and primary care services—rose from \$20.1 million in 2008 to \$28.3 million in 2011, almost half of that for medications.

Government response

In 2008, the Mexican government, private sector, and civil society agreed on the need to promote exercise and a better diet. The Ministry of Health

launched the National Strategy for the Prevention and Control of Overweight, Obesity and Diabetes in 2014. The initiative promotes healthy lifestyles, improves primary health care services, and advocates regulations and fiscal policies such as snack taxes. That year, Congress approved a soda tax of 1 peso a liter and an 8 percent tax on high-calorie foods.

But the tax didn't temper Mexicans' thirst for sugary drinks: consumption actually increased slightly from 19.4 billion liters in 2014 to 19.5 billion in 2015. Add to this conundrum an ongoing shortage of primary health care personnel and unreliable access to diabetes medication, which forces many people to pay out of pocket even when they have access to government-provided health insurance.

In 2008, India's Ministry of Health & Family Welfare introduced the National Programme for Prevention and Control of Diabetes, Cardiovascular Disease and Stroke. This initiative focused on early diagnosis, lifestyle changes, and improvements in primary health care. However, an inadequate health care infrastructure and a shortage of medical specialists and primary health care workers has hampered implementation efforts.

China's Ministry of Health has worked with schools to improve nutrition and physical activity and established the Chronic Disease Comprehensive Prevention and Control Demonstration program in 2010 to join with provincial governments to promote physical fitness and improved nutrition. The National Plan for NCD (Noncommunicable Disease) Prevention and Treatment (2012–15) boosted efforts to improve school nutrition and student fitness, strengthen primary health care systems, increase media awareness, and promote healthy lifestyles.

But only 25 percent of diabetics receive proper treatment, such as reliable access to medication and primary health care. Despite the obesity and diabetes prevention programs of the past decade, public awareness, healthier lifestyles, and early detection of diabetes have not progressed. A continued dearth of health care workers, especially in rural areas, and lack of coordination by the health ministry with provincial governments have further blocked policy implementation.

In Brazil, the Ministry of Health developed a strategic action plan in 2010 to combat noncommunicable diseases. The plan includes guidelines for better nutrition and school nutrition programs and boosts federal funding for obesity awareness and for health





care workers to implement prevention programs. Legislation had already been passed in 2007 that guarantees free distribution of diabetes medication—absent in China, India, and Mexico. Access to medication expanded further in 2011 with the “Health Has No Price” program. The ministry continued its commitment to diabetes surveillance, prevention, medication, and primary health care. Combined with well-staffed primary health care teams working with state governments, schools, and families, these policies helped dramatically increase access to medication and prevention services. (Gómez 2015)

Obstacles to success

Mexico’s policy shortcomings reflect political challenges. Despite consensus within the government that obesity and diabetes must be addressed, aggressive lobbying by the fast-food industry and the government’s priority on economic growth over public health mean limited congressional support for the Ministry of Health’s policy goals. Moreover, efforts to influence health policy made by the Mexican Alliance for Health and Nutrition, a consortium of 20 nongovernmental organizations, have been stymied by limited resources and lack of access to influential politicians (Barquera 2013).

In India, the government’s continued lack of political commitment to policy reform has been fueled by parliamentary disagreement over whether obesity and diabetes pose a serious public health threat. Those who suffer from these ailments are relatively rich, while most of the population is still malnourished and poor. Meanwhile, India’s nongovernmental organizations have failed to influence policy, largely because of government indifference to their views and the organizations’ lack of resources and poor management.

In China, although the government has stepped up efforts to fight obesity and diabetes, politicians have focused primarily on the economy and national security. Government officials have had no incentive to strengthen the Health Ministry’s policy response.

What’s more, nongovernmental organizations are not lobbying the government about obesity policy, and health officials have not committed to incorporating these organizations’ policy views. The Chinese Diabetes Society is well organized and funded but focuses more on research and public awareness than on criticizing and lobbying the government.

In contrast, Brazil’s government got the politics right when it came to obesity and diabetes. The

Congress’s historic commitment to universal health care, coupled with the Health Ministry’s strong track record on poverty and malnutrition, paved the way for support for the policy endeavors. Unlike in China, India, and Mexico, this political support led not only to earlier national conferences and government recognition of the dangers of obesity and diabetes but also to innovation in primary care. Brazil is the only emerging market economy recognized by the International Obesity TaskForce—in 2010—for its innovative policy response.

By the early 2000s, several nongovernmental organizations, such as the Brazilian Association of Nutrition and the Brazilian Diabetes Society, began to pressure the ministry to adopt supportive legislation. Unlike in China, India, and Mexico, health officials were also committed to working with these organizations through the National Council on Food and Nutritional Security.

Obesity and Type 2 diabetes pose a serious public health and economic threat in Brazil, China, India, and Mexico. Political leaders have implemented innovative prevention and treatment programs. But unless they are fully supported by all government stakeholders and the private sector, and in close partnership with civil society, as in Brazil, these policies will fail. Cases of obesity and diabetes will inevitably increase, as will debilitating costs to these nations’ health and economic systems.

A healthy and productive workforce calls for an environment in which politicians strengthen their commitment to working with local governments to implement policy while learning from civil society how to improve health care services. **FD**

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BEATING BACK EBOLA

Nimble action on the economic front was key to overcoming the health crisis

Mehmet Cangul, Carlo Sdravovich, and Inderjit Sian

In March 2014, the largest Ebola virus disease outbreak in history presented West Africa and the international community with an unprecedented public health crisis. From late 2013 to early 2016, the disease claimed more than 11,000 lives and infected over 28,000 people (see Chart 1).

Ebola also caused an economic crisis, triggered by massive health and social spending and compounded by the almost simultaneous collapse in commodity prices. Already under strain before the epidemic hit, the health and social systems of the governments of Guinea, Liberia, and Sierra Leone—the countries most affected by the epidemic—were overwhelmed.

Unprecedented epidemic

The world woke up slowly to the reality of the Ebola epidemic. While the first known patient was infected in December 2013 in Guinea, it was not until three months later that the World Health Organization (WHO) officially declared an Ebola outbreak in the region. By then, the virus had already spread to neighboring Liberia and Sierra Leone as a result of porous borders and high population mobility in the region.

Ebola is a lethal infectious disease. The number of deaths started rising sharply, reaching more than 10,000 by the end of March 2015 (see Chart 2). The fatality rate was about 40 percent on average but was close to 70 percent in the initial phase of the epidemic.

With casualties rising, domestic authorities in the Ebola-stricken countries struggled to contain the

virus's spread. Constrained financial capacity to deliver emergency health care, confusion surrounding the transmission of the virus, and burial practices that spread the disease posed significant challenges for a region that had little experience dealing with public health disasters on such a scale.

In addition to the initial delays in diagnosing the epidemic, international health agencies were also grappling with ways to contain the disease, resulting in slower mobilization of international support than was warranted. The lack of a cure or vaccine further complicated containment. And concerns about a pan-African epidemic or even a global pandemic grew only after cases emerged in Nigeria, Senegal, and Mali and as far away as Europe and the United States.

Collapse in economic activity

As the epidemic spread, tourism collapsed in the region, foreign direct investment fell, and trade and services were severely reduced, especially in densely concentrated urban areas. While agricultural production—largely for domestic consumption—was less affected, the trade of agricultural goods was stifled by wide-scale quarantine measures. Entire villages and communities were sealed off, sometimes





for months, to isolate and limit the transmission of the disease, which proved extremely resilient to human efforts to contain it.

These measures dramatically increased food shortages. Two-thirds of households in Sierra Leone were reported to lack easy access to food in June 2015. Quarantines and the closure of borders between countries also led to a plunge in regional trade: potato exports from Guinea to Senegal fell more than 90 percent in the year ending in August 2014. At the same time, the collapse in demand, restrictions on the movement of goods and people, and the delay or cancellation of investment increased unemployment.

A collapse of global prices of commodities compounded the crisis in the three Ebola-stricken countries. GDP in Sierra Leone declined more than 20 percent in 2015. The fall in growth was less severe in Guinea and Liberia, where mineral production was relatively less affected. For all three countries, medium-term growth prospects deteriorated significantly (see Chart 3).

Because of the collapse of economic activity, the public finances of the three Ebola-stricken countries deteriorated abruptly. Government revenues in the

three countries declined by almost 3 percentage points of GDP on average between 2013 and 2015, with Liberia accounting for the largest drop. At the same time, governments—under pressure to deliver emergency health care services and increase containment efforts—increased public spending by almost 5 percentage points of GDP over the same period. Liberia witnessed the largest increase, at more than 9 percentage points of GDP.

Rapid, flexible response

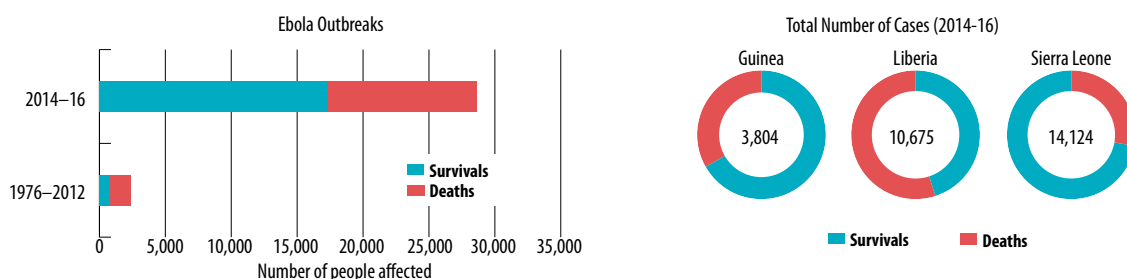
With the impact of the epidemic escalating, a coordinated global response and relief effort proved essential to stem the spread of the disease and limit the human suffering and economic deterioration in countries that were still recovering from war and political instability. The international community responded by focusing on addressing the health emergency and providing financial support, disbursing \$5.9 billion in aid.

The immediate concern was providing rapid medical assistance to overwhelmed domestic health agencies. With a well-established presence in the region, Doctors Without Borders moved in March 2014 to set up isolation facilities and manage

Chart 1

Unprecedented health crisis

From 2014 to 2016, the Ebola virus claimed over 11,000 lives, in stark contrast with previous outbreaks, which killed fewer than 1,600 people over four decades.



Source: World Health Organization.

clinical care for the swelling number of Ebola patients. At the peak of its intervention, this non-governmental organization employed nearly 4,000 national staff members and more than 325 external experts to combat the epidemic across the three countries. The WHO, in collaboration with Global Outbreak Alert and Response Network—a network of public health specialists, United Nations and international health agencies, and nongovernmental organizations—also responded to mobilize and deploy medical experts to support local clinics once the epidemic was officially declared.

Massive financial support also came through a number of channels. The United Nations set up the Ebola Response Multi-Partner Trust Fund to mobilize funding and provide a common financing mechanism. Over \$166 million was raised from members, nongovernmental organizations, and private institutions. The WHO also received \$459 million in donations from over 60 donors, including the United States, the United Kingdom, the European Union, the World Bank, and the African Development Bank.

The IMF was the first international financial institution to provide financing to the government budgets of the stricken countries. Within its mandate, it acted swiftly to provide the authorities with financial support, which was essential to sustain the delivery of key government services, including health care and education, while offering continuous policy advice. Because the fiscal pressures warranted a direct lifeline to government budgets, the IMF decided to finance government directly—rather than follow its usual approach of providing funds to central banks to prop up international reserves. The funds allowed the governments to spend on measures to stem the spread of the disease and protect critical social and infrastructure spending.

The IMF disbursed a total of \$378 million in three phases beginning in September 2014, just as the epidemic started to gather pace. As the gravity of the situation became clear, and concerns about the potential impact on the economy increased, the institution went ahead with disbursing funds—even though the evidence on the economic consequences was not yet fully clear—judging that the risks of inaction were simply too high. This sum included almost \$100 million in debt relief to Ebola-hit countries disbursed in March 2015, delivered through a new trust that had been quickly created to aid countries hit by public health disasters.

In June 2016, the WHO declared all three countries virus free and economic growth has started to strengthen in Guinea and Sierra Leone. Recovery has not yet occurred in Liberia, mainly due to the retrenchment of activity and investment in the natural resource sector.

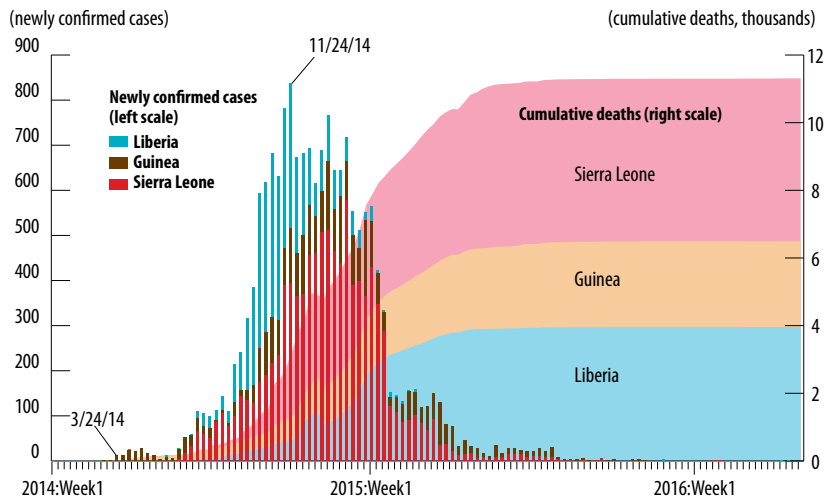
Lessons learned

The initial delay in recognizing the gravity of the epidemic and taking appropriate action shows that the world was unprepared for the Ebola crisis. Lessons on how to strengthen health systems to be better prepared to address catastrophic epidemics, at both the national and the international level, are still unfolding. It is clear, though, that the health systems in these countries still need to be strengthened, with the support of the international community—especially given the region's high susceptibility to infectious diseases due to the tropical climate. The epidemic also underlined the importance of early action plans and decentralized early warning systems to activate the health infrastructure and the global response in a timely way. Contingency planning and infrastructure investment—such as better sanitation facilities and basic health care structures—can also help prevent future crises.

Chart 2

Deadly epidemic

By the time public health authorities officially declared an Ebola outbreak, the disease had already spread to neighboring countries, and the number of new cases began to rise sharply.

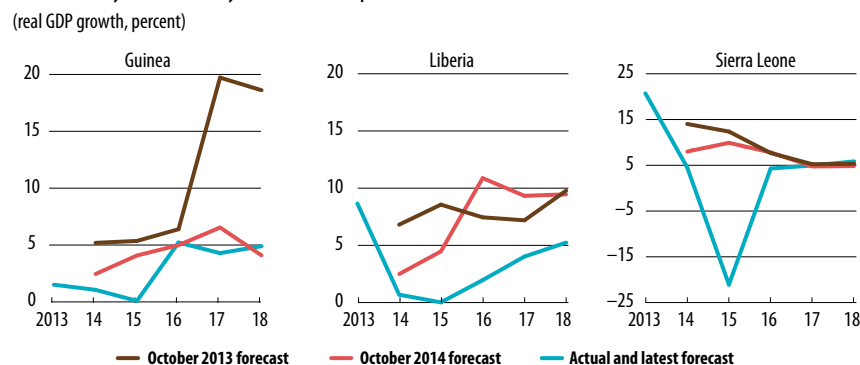


Source: World Health Organization.

Chart 3

Lingering effects

Growth rates in the affected countries are projected to converge to a non-Ebola baseline by 2018, but the GDP losses of the Ebola years will likely not be made up.



Source: IMF staff calculations.

From an economic perspective, the experience underscored the need for flexibility and speed in formulating a response. When government revenues fell, the right response was more spending to counteract the negative impact of the epidemic on the overall economy, despite the decline in revenues. But such policies to fight recession require rapid financing—and this is why it is so important for the international community to provide quick, massive, and coordinated financial support.

Although global coordination and support are necessary, success depends on the leadership of the affected countries themselves. In Liberia, the tide

turned after President Ellen Johnson Sirleaf asked tribal chiefs to persuade their people to abandon traditional burial customs. Strong leadership also helped communicate the importance of safety measures and sanitary practices to change behavior and prevent the transmission of the virus. But in all three countries the resilience and adaptability of the people were the key factor in the success of the combined efforts of the national authorities and global community. [FD](#)

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Free Trade, Closed Doors

IN MARGARET PETERS' *Trading Barriers: Immigration and the Remaking of Globalization* the author documents and investigates several new facts regarding the relationship between international trade policy and immigration policy. Her primary argument is that over long periods of time and across a diverse set of countries freer trade leads to tighter immigration policy, a message that Peters supports with an intuitive story and an impressive collection of data.

Peters' main argument is novel and straightforward: in the United States and other relatively well-off countries, international trade may reduce

around the world over two centuries. To do this, she gives an impressive descriptive account of government policies across 19 diverse countries (some OECD members, some in the Persian Gulf, and some in east Asia). She combines this account with data on advances in transportation technologies that have eased international trade. She first presents graphic evidence that immigration and trade policy have diverged over the long run in many of these countries and then shows that as immigration policies tighten, trade policies relax, even in the short run.

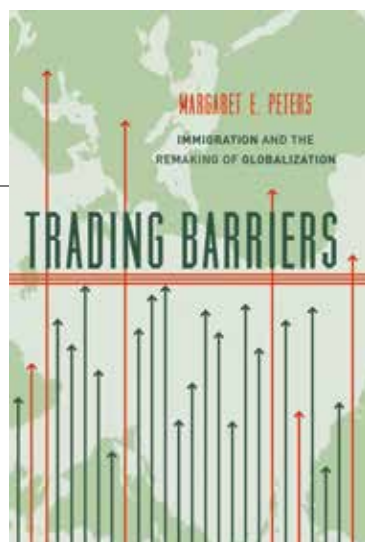
Peters then lays out the intermediate steps of her argument, showing that the intensity of industry lobbying on immigration legislation is systematically related to the exposure of the industry to freer trade. Focusing on the United States, she exploits differences in the degree to which firms in a US state are exposed to trade and asks whether these differences can explain voting patterns in the US Senate. In line with her thesis, she concludes that they can.

While Peters sometimes exaggerates the strength of her empirical results, the consistency of the findings across different contexts should be deeply informative for those who negotiate trade and immigration policy. If we cannot have both freer trade and freer immigration, we should choose carefully between the two.

Finally, let me offer a quibble with the economic theory that is intended to provide a framework for the book's narrative. In short, I feel that Peters could have gotten more quickly to her findings rather than describing in so many words, and in such detail, the various possible mechanisms through which trade, immigration, foreign investment, and technology may be related. This is ultimately an unsatisfying middle ground—a detailed exposition that neither rises to the status of a formal model nor serves as a quick overview—that leaves an academic audience questioning the claims and assumptions being made, while likely providing far too much detail for the casual reader.

But all in all, the book is well worth reading and should bring a new and influential perspective to the ongoing debate over trade and immigration policy. [FD](#)

GREG C. WRIGHT, assistant professor, University of California at Merced



Margaret E. Peters
**Trading Barriers:
Immigration and the
Remaking of Globalization**
Princeton University Press,
Princeton, NJ, 2017, 352 pp., \$95

the demand for low-skilled workers, including low-skilled immigrant workers, and this will therefore make firms less likely to lobby for less-restrictive immigration policies. Thus, freer international trade directly reduces the demand for low-skilled immigrants while also indirectly turning domestic policy against them.

Peters, a University of California, Los Angeles, political science professor, begins by examining the trade-offs that have shaped politicians' and firms' views on immigration and trade policy

The Crusty Professor

IAN KUMEKAWA HAS written a useful guide to the thinking on welfare economics of the British economist Arthur Cecil Pigou, who held the Cambridge chair in political economy—preceded by Alfred Marshall and followed by John Maynard Keynes.

Part exposition, part biography the book illuminates economic thinking in the 20th century, and the role of Cambridge in particular. In pre–World War I Cambridge intellectual circles, as in Keynes’s own thinking, there was an interest in applying ethics and ethical judgments to the study of economics, which drew on a strong tradition of liberal paternalist reformism. Kumekawa neatly traces the trajectory of that thought from optimism about solving social problems through knowledge and science in the pre-1914 world to increasing doubt and pessimism following the first world war and profound bitterness after the second.

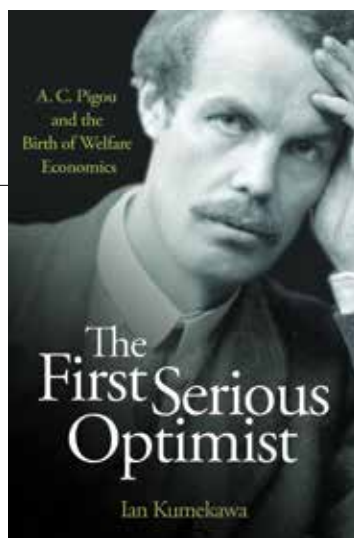
Like Keynes, Pigou was a pacifist, but he experienced the horrors of war while working for the field ambulance service and when conscripted he seems not to have wanted to register as a conscientious objector. The Great War transformed him

Pigou believed in the consensus of the great and the good.

from a gregarious and convivial bachelor don into an increasingly lonely figure. By the 1930s, he felt that the new Cambridge of Keynes was overtaking, deriding, and ignoring him, and he never really recovered from Keynes’s unfair portrayal of him in the 1936 *General Theory* as a straw man for outdated classical economics.

Pigou believed in the consensus of the great and the good, and sometimes even sacrificed his strong views on issues such as free trade in the interest of harmony. Keynes’s position as a combative public intellectual appalled him. He thought that dissenting reports were “ungentlemanly.”

Kumekawa rightly presents Pigou’s analysis of taxes as the best way to deal with externalities as relevant for today’s environmental issues.



Ian Kumekawa

The First Serious Optimist: A. C. Pigou and the Birth of Welfare Economics

Princeton University Press,
Princeton, NJ, 2017, 344 pp., \$35

Carbon taxes are a fine example of a Pigovian tax, which matches producer costs, for instance through pollution.

The book does not present a sympathetic portrait of Pigou the man. Kumekawa explains that “though Pigou set out to help the poor, he did not respect them,” and he “saw broad segments of the population as totally unfit to make even minor decisions.” It was high 19th century paternalism at its worst (and misogyny too—there is a chilling account Pigou’s attempt to freeze Joan Robinson out of a Cambridge lectureship).

Surprisingly, Kumekawa misses the strand of Pigou’s thought that is most relevant today and that anchored his thinking about damage control and the protection of resources. More than his contemporaries, and perhaps surprisingly for a childless bachelor, Pigou cared deeply about intergenerational fairness. Current generations’ strong incentive to pass along costs to their successors drove much of his thinking in welfare economics. He argued in his 1932 *Economics of Welfare* for intervention by the state, which is the guardian of those who are not present. “(...)the State should protect the interests of the future in some degree against the effects of our irrational discounting and of our preference for ourselves over our descendants.” That surely is a modern message, even if delivered by a crusty Edwardian professor. **FD**

HAROLD JAMES, historian, Princeton University and IMF

A Pretty Peso

Colombia showcases its rich culture on the newest member of its family of banknotes

Nadya Saber

“NO, [I’M] NOT RICH. I am a poor man with money, which is not the same thing.” Colombian Nobel laureate Gabriel García Márquez responded when asked about his literary fortune. The late García Márquez, affectionately referred to as Gabo, is now the face of Colombia’s second-highest denomination—the 50,000 peso banknote—as part of the new family of banknotes series launched by the central bank in 2016.

Colombia on the rise

Colombia—Latin America’s fourth-largest economy—has experienced strong economic growth over the past decade, partly thanks to favorable demographics and the commodity boom. With robust exports like coffee, oil, textiles, electricity, soccer star Radamel Falcao, and singer-songwriter Shakira,

Colombia is a rising player on the global stage. Despite serious challenges—including poverty, inequality, drug trafficking, and displacement of indigenous communities—Colombia is moving forward, not least by ending the armed conflict that has devastated the country for nearly half a century.

New beginnings

As Colombia progresses on a trajectory of healing and growth, the country has issued new banknotes that pay tribute to former presidents Carlos Lleras Restrepo and Alfonso López Michelsen, anthropologist Virginia Gutiérrez de Pineda, poet José Asunción Silva, painter Débora Arango, and national literary treasure García Márquez—influential Colombians who have shaped the country’s cultural, political, and scientific landscape.

José Darío Uribe, former governor of the Central Bank of Colombia says, “the new family of banknotes responds to the needs of the economy, pays homage to outstanding personalities of the country, and exalts our biodiversity, turning it into the new image of our banknotes.”

Noteworthy features

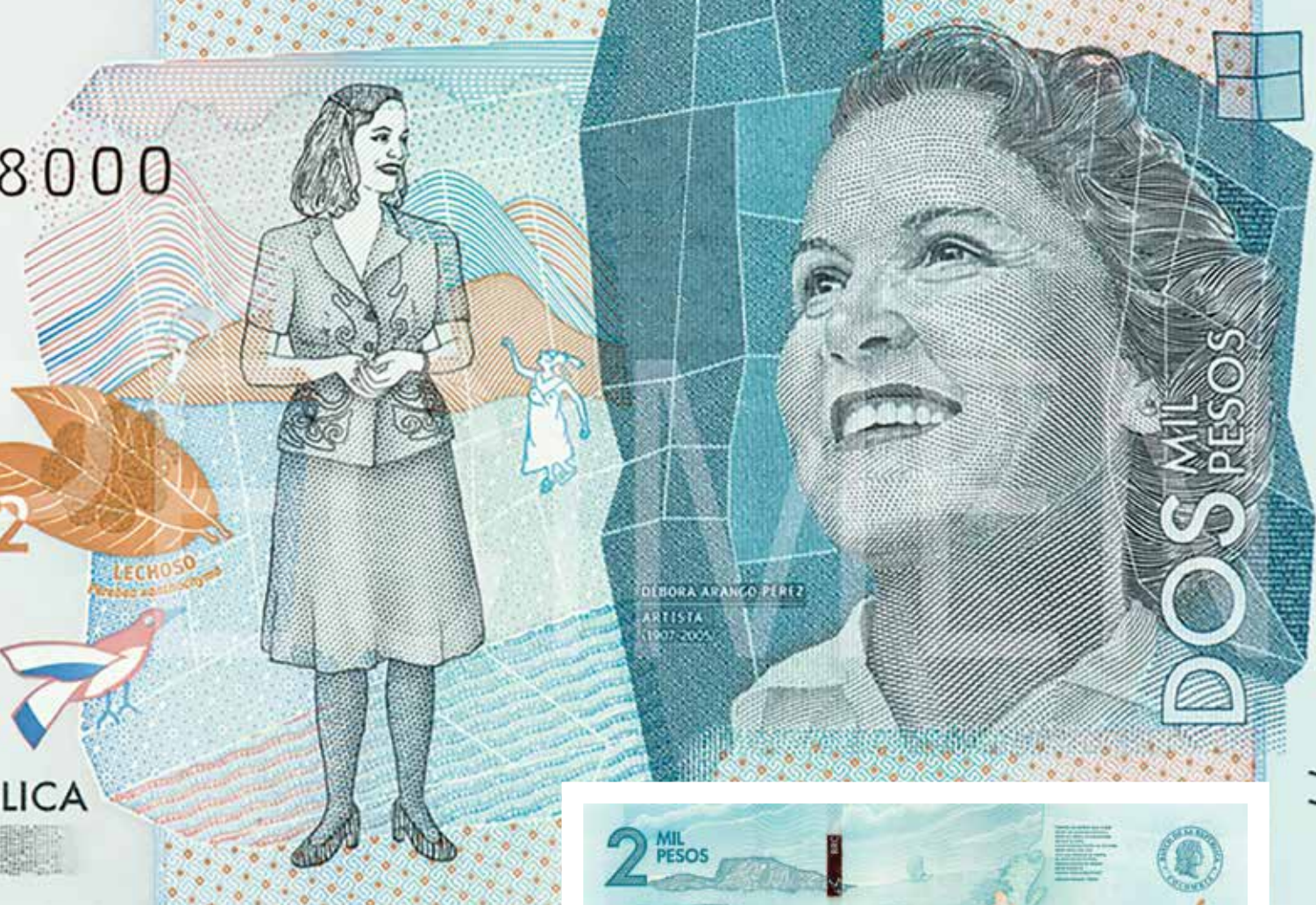
The new banknotes, which circulate alongside the old ones, feature special characteristics like inks and security threads with color changes and 3-D effects, microtext (small text that protect against forgery), hidden figures, and tiered sizing and touch-sensitive elements for the visually impaired. The new elements strengthen the currency’s security by integrating leading-edge technology and address the needs of people with disabilities.

The central bank ran an educational campaign with free training sessions on the new notes’ security features. The campaign advises people to “look, touch, lift, tilt, and check” to highlight the security features and designates each action with a corresponding color. For example, “lift” is associated with yellow and how the note interacts with light, and “check” refers to examining the note under ultraviolet light.



Top: Nobel Prize winner and father of magical realism Gabriel García Márquez is surrounded by butterflies, just like the character Mauricio Babilonia from his most famous book—*One Hundred Years of Solitude*.

Bottom: Colombia’s 24th president, Alfonso López Michelsen’s, close-up has 3-D effects on the front of the 20,000 note.



Front: On the 2,000 peso banknote, Painter Débora Arango stands tall as Colombia's pioneer of modern art.
Back: Caño Cristales, heralded as the river of five colors, shines through the inks and threads of the 2,000 peso banknote.

The bank also introduced a new high-denomination—100,000 peso—banknote to meet the needs of the growing economy and rising incomes.

Reinforcing the biodiversity theme introduced in 2012 with a new coin series, each banknote offers a glimpse into the country's diverse geography. For example, the 50,000 peso note features the Sierra Nevada de Santa Marta mountain range and a hummingbird feeding from a flower that changes color when you tilt the note. The 100,000 peso note includes an image of the Cocora Valley located in the Andes by the Quindío River. The area has been protected by the government since 1985 to prevent the extinction of the prominent Quindío wax palm, the country's national tree.

Images referring to indigenous culture sprinkle the new notes, like the ancestral Amerindian Zenú tribe earring on the 20,000 peso note and the terraces of the Lost City central to the Tayrona culture on the 50,000 note.

Winner takes all

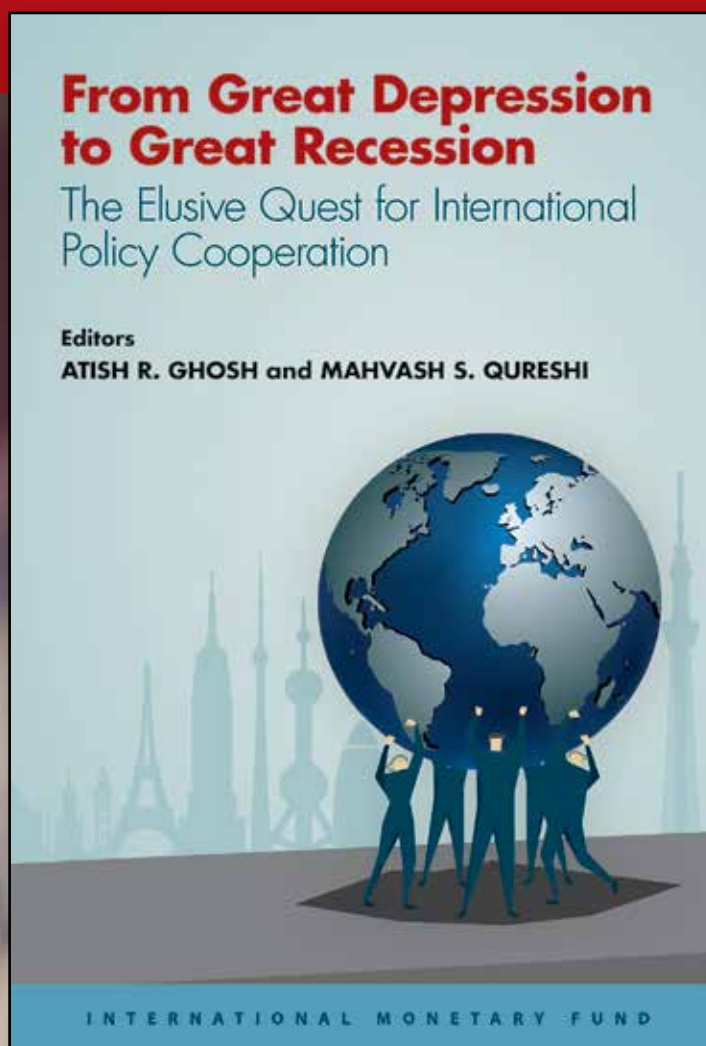
A 2016 nominee for the International Bank Note Society Banknote of the Year award, Colombia's 50,000 peso note featuring García Márquez is a finalist among 18 revamped banknote contenders from around the globe.

García Márquez's legacy—bringing Latin America to life through the pages of his poignant prose and giving the world a glimpse of the Colombia he loved—shines through the violet undertones of the 50,000 peso note. And an excerpt of his Nobel Prize acceptance speech is also featured on the bill.

It's no surprise then that everyone is talking about the Gabo banknote—especially on social media. Run the search #Gabo and you are likely to find countless posts not only praising the author's banknote, but also asking how to obtain one.

Colombia's new family of banknotes is cause for celebration—proving that the country is ready to cash in on its history to bank on the future. [FD](#)

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