F&D

FINANCE AND DEVELOPMENT

MARCH 2019

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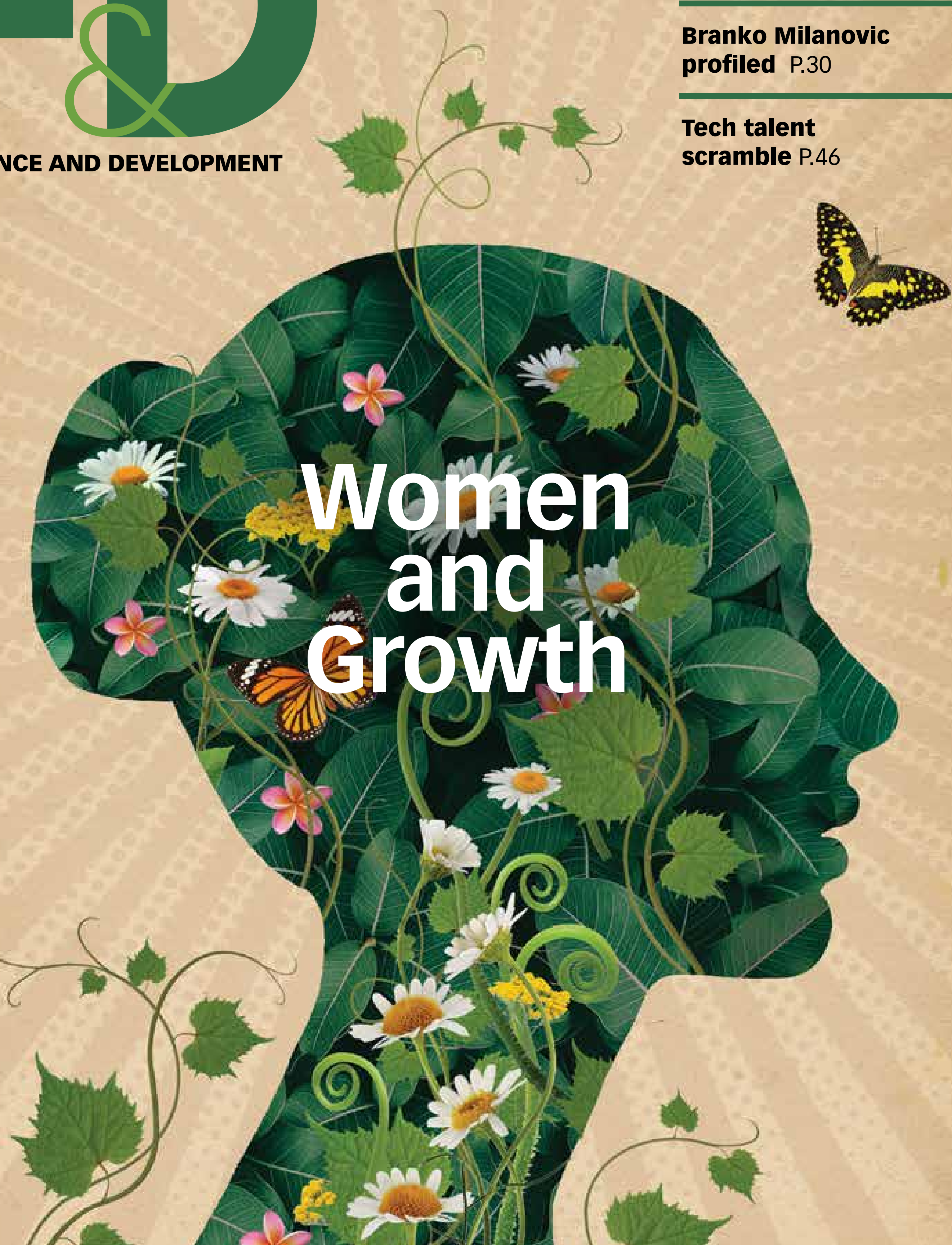

Women and Growth

INTERNATIONAL MONETARY FUND

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Equality for All

IF YOU ARE born a girl, you will have to fight for your rights. Worldwide, women still earn 63 percent less than men. Inequalities, big and small, keep them from joining the labor force on an equal footing with men. The resulting loss of economic output is staggering. According to the IMF, it ranges from 10 percent of GDP in advanced economies to more than 30 percent in South Asia and in the Middle East and North Africa.

Until recently, righting gender wrongs was considered a low priority in most countries. But today, there is renewed momentum, as policymakers wake up to the fact that it is not only morally right to empower women, it also makes economic sense. Still, progress is painfully slow. Political declarations mean little unless they are backed by measures that facilitate access to education, affordable childcare, and the labor market. Deeply entrenched stereotypes keep women trapped in centuries-old caregiver roles. Even in egalitarian Iceland, firm action was needed to put in place what Prime Minister Katrín Jakobsdóttir refers to as the "social infrastructure" of gender equality.

It is easy to despair. And yet small changes can be surprisingly powerful. Providing seed capital and training to women in India has allowed many to break the cycle of poverty, with digital financial services showing big promise. On Wall Street, a concerted push by institutional investor State Street to call out companies with no women on their boards has prompted action by a fourth of female-deprived boards.

Brave young women, such as Malala Yousafzai, who defends the rights of girls to be educated, and Greta Thunberg, who has dared the financial elite to act on climate change, give us hope that the next generation will be forceful in making their voices heard. We should do what we can to empower them. The world needs its women. FD

CAMILLA LUND ANDERSEN, editor-in-chief

ON THE COVER

Women help economic growth, and growth in turn helps women, the world is now discovering. This issue explores the symbiotic relationship between women and growth, subtly captured in artist Michael Waraksa's March 2019 *F&D* cover.

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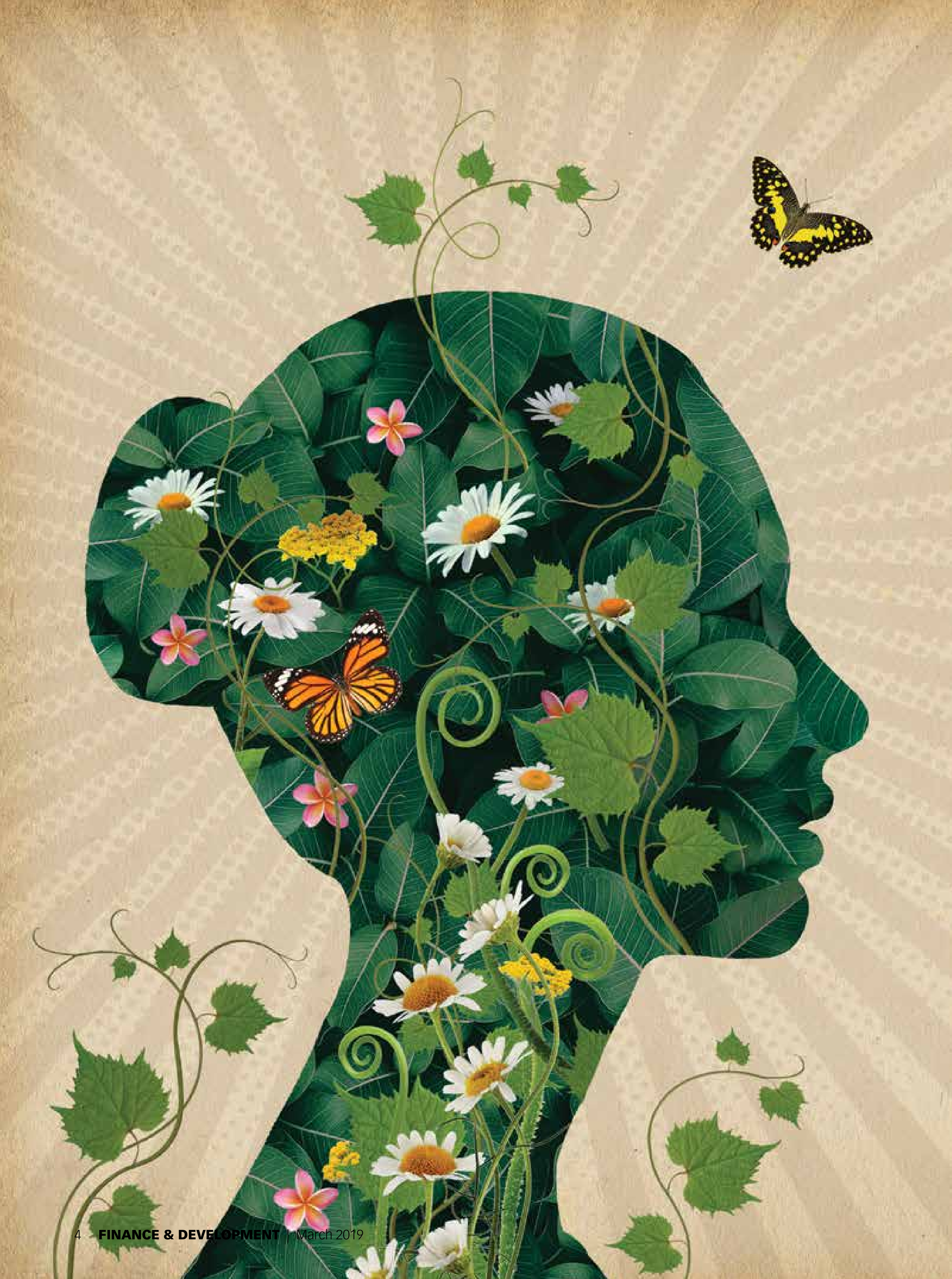


A Global Imperative

Empowering women is critical for the world's economy and people

Christine Lagarde

March 8 marks International Women's Day, which provides a chance to reflect on the struggle for greater gender equality. The roots of this annual event reach back more than a century, yet its focus on respect and opportunities for women remains strikingly relevant today—from sexual harassment and violence to unequal laws and unfairness in the workplace, where women are too often underemployed, underpaid, and underpromoted.

Unequal or unfair treatment can marginalize women and hinder their participation as productive individuals contributing to society and the economy in invaluable ways. Yet when I consider the rich tapestry of organizations and individuals who can make a difference to ensure women have equal opportunities, I also see a crucial role for policymakers. They can use their positions to design policies that help women and girls access what they need for a fulfilling life—including education, health services, safe transportation, legal protection against harassment, finance, and flexible working arrangements.

The IMF recommends these kinds of policy measures to its member countries—and works with many governments to examine how policies affect women. In recent years we have increased our emphasis on women's empowerment precisely because, beyond the important ethical considerations, it also represents a missed opportunity in the pursuit of macroeconomic stability and inclusive growth—where the IMF's expertise lies.

Our research has shown, for example, that if women's employment equaled men's, economies would be more resilient and economic growth would be higher. Our new estimates show that, for the bottom half of countries in our sample in terms of gender inequality, closing the gender gap in employment could increase GDP by an average of 35 percent—of which 7–8 percentage points are productivity gains due to gender diversity. Adding one more woman in a firm's senior management or corporate board—while keeping the size of the board unchanged—is associated with an 8–13 basis point higher return on assets. If banks and financial supervisors increased the share of women in senior positions, the banking sector would be more stable too.

The IMF's 189 member countries face many different challenges, but empowering women remains a common denominator and a global imperative for all those who care about fairness and diversity, but also productivity and growth of societies and economies that are more inclusive. If we can achieve this, we all gain. FD

CHRISTINE LAGARDE is managing director of the IMF.

CLOSING THE GENDER GAP

The economic benefits of bringing more women into the labor force are greater than previously thought

Era Dabla-Norris and Kalpana Kochhar

PHOTOS: SHUTTERSTOCK/ASLYSUN; GEARSTD; VICTEAH; ISTOCK/HAPPYFOTO

As girls, we were raised with the belief that we could accomplish anything, and that no barrier was insurmountable. Yet, for so many women, the reality doesn't quite meet their aspirations. Things weren't exactly equal in the relatively conservative middle-class society in India where we both grew up. But we thought of gender inequality as largely an issue of social justice. It was only after we started delving into the topic that we came to realize that it is an equally significant economic issue.

Women make up almost half of the world's working-age population of nearly 5 billion people. But only about 50 percent of those women participate in the labor force, compared with 80 percent of men. Not only is female labor force participation lower, but women who are paid for their work are disproportionately employed in the informal sector—especially in developing economies—where employers are subject to fewer regulations, leaving workers more vulnerable to lower wages and job losses. Furthermore, even in the formal sector, women doing the same work and having the same level of education earn less than their male counterparts. And, because women generally spend less time in the paid labor market, they have lower pensions and face a higher risk of poverty in old age. Among those who do work, few rise to senior positions or start their own businesses. Women also shoulder a higher share of unpaid work within the family, including childcare and domestic tasks, which can limit their opportunity to engage in paid work and constrain their options when they do.

The IMF's research highlights how the uneven playing field between women and men imposes large costs on the global economy. Early IMF studies on the economic impact of gender gaps assumed that men and women were likely to be born with the same potential, but that disparities in access to education, health care, and finance and technology; legal rights; and social and cultural factors prevented women from realizing that potential. In turn, these barriers facing women shrank the pool of talent available to employers (Kochhar, Jain-Chandra, and Newiak 2017). The result was lower productivity and lower economic growth. The losses to an economy from economic disempowerment of women were estimated to range from 10 percent of GDP in advanced economies to more than 30 percent in South Asia and in the Middle East and North Africa.

Hard-won gains from policies to increase the number of women in the paid workforce and close wage gaps may be quickly eroded if women are overrepresented in jobs at high risk of automation.

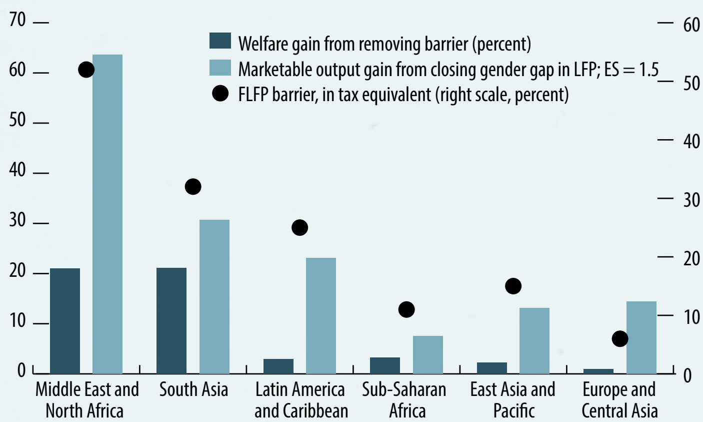
More recent research suggests that the economic benefits of bringing more women into the labor force exceed previous estimates. This is because women and men may have the same potential, but they bring different skills and ideas—that are economically valuable—to the table (Ostry and others 2018). Gender differences may reflect social norms and their impact on upbringing, social interactions, risk preferences, and response to incentives. For instance, studies have found women to be more risk averse, reflecting greater fear of failure, and less competitive. Women's greater caution has benefits: gender-balanced corporate boards improve firm performance, especially in high-tech manufacturing and knowledge-intensive services. Gender diversity on boards of banking supervision agencies is also associated with greater financial stability (Sahay and Čihák 2018). Similarly, banks with higher shares of women board members have thicker capital buffers, a lower proportion of nonperforming loans, and greater resistance to stress, possibly because having more women in executive positions contributes to diversity and complementarity of thought, leading to better decision-making.

Drawing on macroeconomic, sectoral, and firm-level data, a recent IMF study (Ostry and others 2018) suggests that men and women complement each other in the workplace in terms of different skills and perspectives, including different attitudes toward risk and collaboration. As a result, increasing women's employment boosts growth and incomes more than previously estimated, exceeding the improvement that comes simply from adding workers. Among countries where gaps in participation rates are the largest, closing them adds 35 percent to GDP, on average. Four-fifths of the gains come from adding workers to the labor force, but fully one-fifth arises from the boost to productivity brought by greater gender diversity. The study also shows that increasing women's labor force participation produces large gains in economic welfare, which account for changes in consumption goods, home production, and leisure time; these gains exceed 20 percent in South Asia and the Middle East and North Africa (see Chart 1).

Chart 1

Obstacle course

Removing barriers to female labor force participation produces considerable gains in economic growth and welfare.



Source: IMF staff estimates.
Note: See Ostry and others (2018) for explanations of the calculations. ES = elasticity of substitution. ES of 1.5 means that male and female labor are complementary in the production process. FLFP = female labor force participation; LFP = labor force participation.

Another important finding: when more women participate in the labor force, men also benefit. Why? Because women's complementary skills raise productivity, boosting wages for everyone. This increase in productivity more than makes up for the decline in wages that might be expected when more workers are competing for jobs.

But simply bringing more women into the workforce may not be enough. A recent IMF study sounds a cautionary note on the challenges women face in a rapidly changing labor market (Brussevich and others 2018). Digitalization, artificial intelligence, and machine learning are hollowing out jobs that involve routine and repetitive tasks while increasing the value of jobs involving management and cognitive skills. Hard-won gains from policies to increase the number of women in the paid workforce and close wage gaps may be quickly eroded if women are overrepresented in jobs at high risk of automation. Indeed, the study finds that women perform more routine tasks than men across all sectors and occupations, although there is significant variation across countries.

The risk of displacement is particularly high for less-educated women, those aged 40 and above, and those in low-skill clerical and sales jobs. Meanwhile, women across sectors and occupations are underrepresented in professional and managerial positions that are at lower risk of displacement by technology. Globally, women hold fewer than 20 percent of board seats in banks and bank supervision agencies (Sahay and Čihák 2018) and account for fewer than 2 percent of bank CEOs. In the fast-growing tech sector, women are 15 percent less likely than men to be managers and professionals

It will be essential to ensure equal support for displaced men and women through labor market policies to improve skills, connect workers with jobs, and promote job creation.

and 19 percent more likely to be clerks and service workers (see Chart 2).

Given the current state of technology, the study estimates that 26 million women's jobs in 30 countries (28 countries in the Organisation for Economic Co-operation and Development plus Cyprus and Singapore) have a greater than 70 percent chance of being displaced by technology within two decades. On a global scale, this suggests that 180 million women's jobs are at risk. While more men than women are at risk of being displaced by automation, the number of female jobs lost represents a larger proportion of the female labor force.

What can be done? Because gender inequality is so multifaceted, there is no single remedy, and the best policy approach will vary across countries, depending on the level of economic development, existing gender gaps, and the speed at which the new technology affects the economy. Three broad areas can be highlighted:

First, policies to bring more women into the workforce: A range of institutional, legal, regulatory, and fiscal policy levers have been shown to boost female labor force participation. While there is no one-size-fits-all solution, policies should seek to foster opportunity and remove barriers. Policies and infrastructure that make it easier for women to reconcile work and family life are particularly effective.

Emerging market and developing economies should

- **Invest in infrastructure.** In rural South Africa, for example, electrification increased female labor force participation by 9 percent. In India, building adequate sanitation facilities narrowed gender gaps in education and in female labor force participation. Mexico introduced public buses exclusively for women to ensure that they could travel safely.
- **Support female entrepreneurs by increasing their access to finance.** Women often face more restrictive collateral requirements, shorter maturity of loans, and higher interest rates than men (see "Banking on the Future of Women" in this issue of *F&D*). Initiatives such as Malaysia's Women Entrepreneur Financing Programme and Chile's simplified deposit accounts have helped close the gender gap in borrowing rates.
- **Promote equal rights for women.** Measures include addressing laws governing inheritance and property rights. Malawi, Namibia, and Peru revised their legal frameworks to reduce gender discrimination; in the decade that followed, female labor force participation rates increased substantially in all three countries.

Advanced economies should

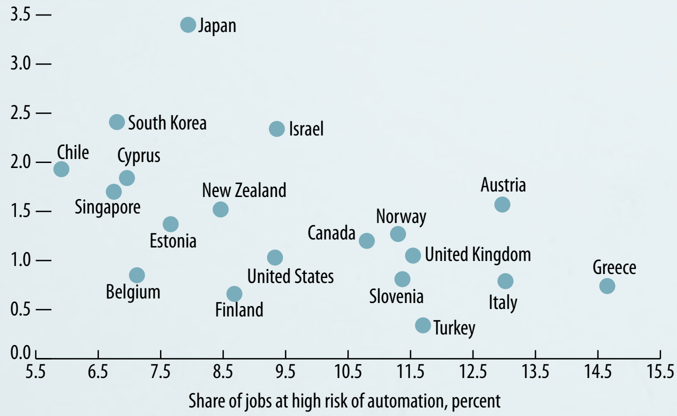
- **Push for greater parity between maternity and paternity leave.** In Sweden, this has helped mothers return to work more rapidly and has shifted underlying gender norms about parenting.
- **Promote access to affordable, high-quality childcare.** An example is Japan, which expanded

Chart 2

I, Robot

The difference in risks that men and women face from having their jobs automated varies widely by country.

(ratio of female to male jobs at high risk of being automated)



Source: IMF staff estimates.
Note: See Brussevich and others (2018) for explanations of the calculations.

childcare leave benefits from 50 percent to 67 percent of salary. Research shows that cutting the cost of childcare by half could increase the number of young mothers in the labor market by 10 percent. There is also considerable evidence that women are more responsive to specific tax policies than men. These include policies that do not penalize the secondary earner, who is still most likely to be female, by replacing family taxation with individual taxation, as Canada, Italy, and Sweden have done. Tax relief measures for low-income families have also been found to increase employment rates for women. The reason: tax relief reduces the tax burden and increases after-tax earnings for women, thus increasing the incentive for women to join, or remain in, the labor force. Examples include the earned income tax credit in the United States and a combination of tax credits and transfers in Belgium, Germany, and the United Kingdom.

Second, policies to provide women with the right skills and to empower women in the workplace: Gender parity in investments in education and health are necessary to ensure that women can obtain quality jobs. In India, for instance, IMF research suggests that female labor force participation would rise by 2 percentage points if Indian states increased education spending by 1 percent of GDP. Building skills early would also provide the most important safeguard against displacement by technology and allow women to benefit from new work opportunities.

For those already in the workforce, fiscal instruments such as tax deductions for training in the Netherlands and portable individual learning accounts in France can remove barriers to lifelong learning. Countries could also consider subsidizing training by private companies via dedicated payroll taxes and public grants. Concerted efforts are needed to provide women with more opportunities to rise into managerial and leadership roles by setting relevant recruitment and retention targets for organizations, setting promotion quotas as was done in Norway, and creating mentorship and training programs.

Large gender gaps persist in access to the digital technology that creates new job opportunities: 60 percent of the global population, mostly women in emerging market and developing economies, still have no access to the internet; 250 million fewer women are online than men. Public and private investment will be essential to support technological adoption and close digital gender gaps. Finland's approach to ensuring universal access to broadband connectivity, digital education for all, and digital access to business and government services is a good example of a comprehensive approach to closing the gender digital divide.

Third, easing transitions for displaced workers: Given that female workers face a particularly high risk of being displaced through automation, it will be essential to ensure equal support for displaced men and women through labor market policies to improve skills, connect workers with jobs, and promote job creation. Social protection systems will also need to adapt to more flexible forms of work, such as telework. To address deteriorating income security associated with rapid technological change, some advanced economies may consider expanding noncontributory pensions and adopting basic income guarantees.

Recent decades have seen considerable progress in leveling the playing field for economic opportunities, but much more work remains to be done. The good news is that countries across the globe have embraced the imperative for gender equality. Policymakers, governments, and corporations now recognize the benefits for economic growth and development of giving women equal opportunities, and they are seeking to improve their policies and practices in this area. The IMF is committed to working with other international organizations, governments, civil society organizations, and the private sector to reduce barriers to gender equality by providing policy advice and analysis. FD

ERA DABLA-NORRIS is a division chief in the IMF's Fiscal Affairs Department, and **KALPANA KOCHHAR** is director of the IMF's Human Resources Department.

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Building an Inclusive Economy

Iceland's prime minister discusses what gender means for rethinking the economy

Katrín Jakobsdóttir

COURTESY OF THE OFFICE OF THE PRIME MINISTER OF ICELAND

AS GOVERNMENTS ARE slowly turning their focus from raw GDP-driven measurements toward well-being criteria when judging economic success, the demand for progressive social justice policies is increasing. This is why many policymakers are examining how Iceland, which enjoys a relatively strong economy, has made gender equality a core part of its domestic and foreign policies.

The campaign for women's equality in Iceland has demanded government action to liberate women from social structures that have kept them down for centuries. This includes legislative changes for women's sexual and reproductive freedoms as well as robust equality laws and gender quotas for corporate boards.

But it has also required policies that are, in conventional economic terms, considered extremely expensive. And the price tag still prevents many governments from adopting them. The key topics here are universal childcare and shared parental leave. If applied properly, these policies have the potential to change the makeup—and the rules of the game—of both the public and the private spheres. Why? Because they enable women to participate in the labor market and public decision-making, while making space for men to share domestic responsibilities. Yet these family-friendly policies have not won the global support they deserve and are seen by many as a vast opening to profligate public spending.

Fifty years have elapsed since Robert Kennedy rightly said that GDP measures everything except that which makes life worthwhile. Economics is nonetheless still centered on the measurable, dividing government outlays into two categories: expenses and investment. This dualism classifies money spent on physical infrastructure as an investment and, therefore, worthy of public monies. On the other hand, social infrastructure is branded as expenses or operating costs, preferably the first in line to be cut. Yet these are the structures that sustain us from (before) birth to death and create the conditions that make life worthwhile.

Interestingly, physical infrastructure—roads, tunnels, buildings—is often the platform for men's employment, while women are much more likely to be employed in services associated with social infrastructure—education, childcare, health care. By focusing on physical infrastructure to the exclusion of social infrastructure, economists and policymakers ignore an obvious truth: we need both in order for our societies to thrive and develop. What is a school building worth without quality education for all? What is a hospital building without the people providing the health care? And what is the value of a road or a tunnel in a society where illiteracy prevents social mobility?

In this narrow view of the world, it is not surprising that universal childcare and parental leave are considered luxuries rather than essential features of a successful economy. In fact, however, they are an integral part of building a society where everyone can flourish. If there is anything that people living in the 21st century—the century of gay liberation and women's liberation, to name two—should know better than those living in the previous one, it is the benefits of liberating people from predesigned social norms and structures.

There is a striking difference between women's labor participation in countries where childcare is available and affordable, and in countries where women are forced to choose between family and career. Where the costs of childcare are high, mothers in lower-income groups cannot afford to work. To be sure, a cultural shift could enable families to turn away from the traditional male breadwinner model. But the gender pay gap will continue pushing men into work while keeping women at home. And as long as our societies are constructed in such a way that women need to take long breaks from work to care for their families, this pay gap will remain as persistent as ever.

In recent decades, the Nordic countries have developed shared parental leave schemes that offer a specific "use-it-or-lose-it" portion for both parents (including same-sex couples and adoptive parents). The Icelandic model—funded by government and businesses—offers three months of leave to each parent and an additional three months that can be divided between the parents however they choose. My government will extend this entitlement further. This is part of a broader effort aimed at closing the gap between parental leave and publicly funded, high-quality day care now starting at the age of two, a gap that is now mostly covered by subsidized childminders.

The current model has been implemented in stages since 2000 and has—along with universal childcare—transformed Icelandic society while simultaneously boosting the economy. A shift in mind-set has occurred: families now consider parental duties and care the equal responsibility of both parents. Fathers have formed better relationships with their children, and the old excuse that women cannot be hired or promoted because they will (all!) drop out of the labor market no longer holds water. On a personal note, I would not be both a prime minister and a mother to three wonderful boys if not for my country's family-friendly policies.

Does this mean that Iceland has cracked the code and that everybody enjoys equal rights and opportunities? Unfortunately, it does not. The gender pay gap still exists, and jobs typically held by women are still undervalued and underpaid in a labor market that remains far too gender-segregated. We have not managed to eradicate violence and harassment, and our children are subjected to gender stereotypes just as children are everywhere in the world. But we have made progress. Women's labor force participation is around 80 percent, or a bit below men's 87 percent, and yet it still roughly matches the Organisation for Economic Co-operation and Development average for men. The extensive economic activity of all genders is one of the key ingredients in Iceland's economy, where the unemployment rate is remarkably low at only 2.9 percent.

The inclusion and liberation of the many, rather than the few, is the right thing to do not only from a social justice perspective but also from an economic perspective. It is one of the many reasons Iceland is now taking part in the group of Wellbeing Economy Governments, working toward sustainability and well-being for all, within the context of the United Nations' Sustainable Development Goals.

Gender equality is an important part of this agenda, and it does not come about automatically. It requires an ideological vision, political struggle, and action on the part of governments, businesses, and social groups. The liberation of women and minority groups continues to be one of the urgent tasks of today's politics. We must forge ahead with progressive economic policies that defy common stereotypes about costs and benefits and keep on promoting gender equality as part of a forward-looking social justice agenda. Our generation will be judged by how we succeed on this front. FD

KATRÍN JAKOBSDÓTTIR is prime minister of Iceland.

Making It in India

Women struggle to break down barriers to starting a business

Ashlin Mathew

Rupali Shinde was able to expand her family's business, thanks to a loan from the Mann Deshi Foundation.

Radhika Baburao Shinde was all of 12 years old when she was married off to a man who was 10 years older. She was sent away to live with her new husband, a truck driver, and his family in remote, drought-prone Satara district, 330 kilometers southwest of Mumbai. She left school and went to work as a laborer on her husband's family farm.

When Shinde had children of her own—a daughter and two sons—she wanted them to have a better life. In villages across India, where an estimated 833 million people live on less than $3.20 a day, it usually falls to women like Shinde to take care of their children and ensure they have enough to eat.

PHOTO: MANN DESHI FOUNDATION

A chance encounter in 2014 helped her break the cycle of poverty. Employees of the Mann Deshi Foundation, which teaches business skills and lends money to rural women, arrived in her village offering training in various trades for a nominal fee. Shinde completed a 120-hour course in tailoring and acquired the skills she needed to start a small business catering to her neighbors, in addition to her farm work. This helped her earn the equivalent of $5 a month to spend on her children—a considerable sum for an area where the median household income was less than $70.

Her in-laws weren't pleased. They didn't want her new business to distract her from farming.

"There were many fights, and eventually they consented," she recalls.

Labor force participation

The women-run Mann Deshi Foundation, established in the 1990s, is among a handful of organizations seeking to break down social, legal, and economic barriers to women's entrepreneurship in India. Despite rapid growth, wide gender disparities in the economic sphere have been stubbornly persistent. The result has been a tragic waste of human potential that has hampered efforts to reduce poverty in the world's second most populous country.

Perhaps one of the starkest signs of Indian women's plight is their labor force participation rate, which was just 27 percent in 2017, about one-third that of men. By that measure, India ranks 120th among 131 countries, according to data from the World Bank. Women entrepreneurs do no better. Only about 14 percent of Indian women own or run businesses, according to the Sixth Economic Census, conducted in 2014. More than 90 percent of companies run by women are microenterprises, and about 79 percent are self-financed.

Women account for just 17 percent of GDP in India, less than half the global average, Annette Dixon, the World Bank's vice president for South Asia, said in a speech in March of last year. If even half of Indian women were in the labor force, the annual pace of economic growth would rise by 1.5 percentage points to about 9 percent, she estimated.

The World Economic Forum's *Global Gender Gap Report 2018* ranks 149 countries on four measures: economic participation and opportunity, educational attainment, health and survival, and political empowerment (see Picture This, in this issue of *F&D*). India ranks 108th overall, with particularly low scores on two metrics: health and survival and economic participation.

Small wonder, then, that the country also fares poorly in indexes of entrepreneurship. India ranked 52 among 57 countries in the 2018 Mastercard Index of Women Entrepreneurs, ahead of Iran and behind Tunisia. The index looks at things like financial access, advancement outcomes, and ease of doing business.

"Many times, there are pressures and opposition from within the family due to societal stereotypes that force women to just take care of the house as her key responsibility," says Aparna Saraogi, cofounder of the Women Entrepreneurship and Empowerment (WEE) Foundation. "Also, the lack of child-care support systems holds women back."

Lack of collateral

There are other hurdles. Women in India rarely own property that could serve as collateral for start-up loans. They have less education than men, on average. When they do work, they receive lower wages than their male counterparts and generally occupy low-skill jobs in agriculture and services, often in the informal economy.

Unequal access to finance is a major barrier for aspiring entrepreneurs, who need capital to start a business, however small. Providing equal access to finance while promoting female entrepreneurship would raise GDP and reduce unemployment, according to a 2018 IMF study, "Closing Gender Gaps in India: Does Increasing Women's Access to Finance Help?" The potential benefits would be greatest—amounting to a 6.8 percent increase in GDP—if India also simplified its notoriously complex labor market regulations and improved women's skills, the study found.

"If our economy is to grow by 9 to 10 percent consistently in the next three decades, we have to create ecosystems that support every kind of woman entrepreneur," says Sairee Chahal, founder of SHEROES, a community platform that allows women to reach out to counselors by telephone or via an app.

The organization has helped victims of domestic violence like Sathiya Sundari, who lives in the southern state of Tamil Nadu. When she left an abusive relationship, she found herself with no means of support. She turned to SHEROES, which helped her start a beauty parlor.

"I didn't know what it would take to run a business," she recalls. "SHEROES sent mentors to train and guide me and also set up a crowdfunding campaign to help me begin my business," Sundari says. The campaign raised the money she needed in just six days in 2017. Her beauty parlor now earns her about 8,000 rupees ($113) a month, a figure that rises to 15,000 rupees during the December–March wedding season. That's better than the median monthly household income of 7,269 rupees in rural areas of Tamil Nadu.

Unequal education is another major barrier. The literacy rate for Indian women is 64 percent, compared with 82 percent for men. It's no coincidence that states with higher literacy rates also have more women entrepreneurs. The region comprising India's four southernmost states plus Maharashtra, where literacy is higher than the national average, is home to more than half of all women-led small-scale industrial units in the country, according to the Sixth Economic Census.

Yet even among India's educated urban elite, women entrepreneurs face discrimination. Meghna Saraogi, who lives in New Delhi, is one of them. She runs a fashion app called StyleDotMe, whose users upload photos of themselves trying on various outfits and get feedback from other users in real time. She recalls her experience seeking start-up capital in the mostly male world of technology.

"There were many who asked what would happen to the business when I got married and had a child," she says. "Then there were others who were not sure if a business with a woman at the helm would find any investors at all."

In the end, she got two rounds of funding totaling the equivalent of $322,000 in 2016 and 2017 through the Indian Angel Network (IAN). Last year, StyleDotMe launched an interactive augmented reality platform for jewelry called mirrAR.

Meghna Saraogi's success story should be the norm, but it isn't. Padmaja Ruparel, cofounder and president of IAN, says only about a quarter of the fund's portfolio of more than 130 start-ups are led by women. Of the 10,000 deals they review each year, fewer than a third are brought by women, Ruparel says.

"It is not policy or regulatory changes that women are looking for, but better representation and a change in mind-set," says Debjani Ghosh, president of the National Association of Software and Services Companies. "India has to grow up and realize that there is no need to fear having an equal number of women in the room."

Still, there are signs of progress in the technology sphere. IAN, for example, has seen the proportion of pitches from women rise from 10 percent four years ago to 30 percent today. Says Ghosh: "Investors have slowly woken up to the fact that there is a need to look at the merit of ideas rather than the gender of the founder."

Low female participation in public life may help explain the persistence of formal and informal barriers. Women accounted for just 19 percent of ministerial positions in India and 12 percent of members of Parliament as of January 2017, putting it in 148th place among 193 jurisdictions tracked by the Inter-Parliamentary Union.

"There has to be a mechanism to have an effective legal structure which is supportive of women's empowerment," says Aparna Saraogi, of the WEE Foundation. "It should effectively address the gaps between what the law prescribes and what actually occurs."

Women often lack the knowledge and skills to tap opportunities, says Chetna Sinha, founder of the Mann Deshi Foundation. To help fill that gap, the foundation runs a help line for women entrepreneurs and organizes mentorship programs. It also runs mobile business schools, a women's bank, and a community radio station.

"Our program highlights access and control of finances," Sinha says. "We identify and train women according to their needs."

Among the foundation's trainees is Rupali Shinde. At age 14, she married into a family that owned a small leather-crafting business that earned them a monthly income of $56, barely enough to send their two children to school. Seeking to expand the business, she took out a loan of $1,405 from the Mann Deshi Bank, but she lacked the know-how to make a go of it. Counselors at the bank encouraged her to take a one-year business course.

"I became financially and digitally literate, and they helped me with practical solutions," she says. She now has five women working for her, and her family's income has risen to $281 a month—enough to enroll her daughter in an engineering course.

The WEE Foundation provides a six-month entrepreneurship mentorship program to both tech and nontech start-ups free of charge based on applications from around the country, says Aparna Saraogi. The program is funded by India's Department of Science and Technology.

"We have mentored more than 500 women-led start-ups since 2016 and enabled more than 5,000 women with skills to ensure that they can earn a living," she says.

Some vocational programs in India still favor men. Skill India, a government-sponsored program, teaches young men trades such as plumbing, masonry, and welding. But courses for women focus on beauty, wellness, and cooking, and none aim to develop entrepreneurs.

Women like Radhika Baburao Shinde have seen their careers take unexpected turns. She expanded her modest tailoring business with help from the Mann Deshi Foundation, adding a cloth shop. Then, she took a free, six-day course in animal husbandry at a local agricultural research institute after Mann Deshi counselors told her that it would help her improve her income.

"Once I came back, I started going to nearby homes to check their goats and to tell them about artificial insemination, sonograms. I inseminated 100 goats free of cost, and when these goats gave birth to healthy kids, people started trusting me. I started to get calls from nearby villages too." Now she earns about 8,000 rupees a month—and hopes to save enough to send her 16-year-old daughter to college.

Entrepreneurs like Shinde are blazing a path for the next generation of women. Not only are they making sure their own daughters get the education they need to start businesses of their own, but they are serving as role models for the wider community, offering Indian women hope for a brighter future. FD

Even among India's educated urban elite, women entrepreneurs face discrimination.

ASHLIN MATHEW is a news editor for the *National Herald* newspaper in New Delhi.

Invested in Gender Diversity

Across the investment industry, asset owners and asset managers push to enhance gender diversity at all leadership levels

Rakhi Kumar

COURTESY OF STATE STREET GLOBAL ADVISORS

OVER THE PAST decade, there has been mounting evidence that greater levels of gender diversity can have a positive impact on corporate performance and economic growth. Most relevant for investors, MSCI found that companies with strong female leadership at the board level generated a return on equity 36.4 percent higher than companies without a critical mass of women on their boards.

For both economic and social reasons, there has been a surge in interest from investors about how they can encourage gender diversity on corporate boards, in the C-suite, and at other levels of management. To support these efforts, State Street and asset managers of all sizes are developing new tools that empower investors to promote gender diversity at the companies in which they invest.

In March 2017, we placed the "Fearless Girl" statue in the heart of New York's financial district to serve as the public face of our efforts to raise awareness about the importance of gender diversity in corporate leadership. This campaign, however, is about much more than raising awareness.

As shareholders, we cast votes on candidates to a company's board of directors and other important issues facing the company. Through this proxy voting process, we have voted against nominees to all-male boards that are not taking adequate steps to add female representation. In addition, we are engaging directly with companies about diversity and other thematic environmental, social, and governance (ESG) topics and publishing thought pieces to educate boards about effective pathways to increasing diversity at all levels of the organization.

Since March 2017, we have called on more than 1,200 companies with no women on their boards to take action. We are pleased that more than 300 of those companies have now added a woman to their boards and 28 more have committed to doing so.

But we know there is more work to be done. In September 2018, we announced an escalation of our board diversity voting guidelines. Beginning in 2020 in the Australian, UK, and US markets and in 2021 in Canada, Japan, and continental Europe, we will vote against the nominating committee's entire slate of nominees if a company does not have at least one woman on its board and has not engaged in successful dialogue with us on the matter for three consecutive years.

Why are we giving companies three years to implement changes that we believe would have an immediate positive impact for investors before taking escalated voting action? Our goal is to ensure effective independent board leadership, which involves achieving the right skill sets as well as a diversity of views. We realize that achieving this can't happen overnight and that adding qualified candidates should be a thoughtful process that can take upward of a year.

While having only one female director on a board shouldn't be seen as the end of a company's diversity journey, we believe that adding a female perspective to the boardroom is an important first step. The Fearless Girl campaign is about changing the mind-set of boards on diversity—moving the conversation from "Why do we need gender diversity?" to "Why don't we have board diversity?"—and we believe that adding even a single female director helps to shift this mind-set.

Diversity is a relevant issue for all companies regardless of sector, market, or size. We found that

PHOTO: GETTY/ANADOLU

State Street's "Fearless Girl" statue in the heart of New York City's financial district.

many large companies today are making a concerted effort to include women on their boards, but among smaller companies the lack of female representation on boards continues to be significant.

Most boards lacking gender diversity cite a limited pool of suitable female director candidates as a primary obstacle. However, we believe that current practices for nominating directors, as well as behavioral biases that continue to undervalue the contributions of women in the workplace, are among the leading obstacles. As an example, some boards require that all director nominees have CEO experience.

Fortunately, these roadblocks and biases can be overcome. One best practice commonly used by companies with higher levels of board diversity is to ensure that every candidate pool of board nominees includes diverse candidates. Also, we are calling on companies to monitor and disclose the level of gender diversity not only on their boards but at all levels of management. We believe this increased transparency will help create a stronger pipeline of qualified female board candidates.

Inspired by a conversation we had several years ago with a client about how to advance the gender equity discussion and capture potential excess return from companies with gender-diverse leadership, State Street created an index that allows investors to achieve the dual purpose of impact and return.

Launched in March 2016, the SSGA Gender Diversity Index is designed to promote gender diversity and harness the potential elevated returns of companies with greater gender-diverse leadership. The index can even be combined with a charitable component to contribute a portion of the advisor's revenue to support charities that focus on science, technology, engineering, and math programs for young women.

For decades, asset owners have sought to effect change by using negative screening, which means avoiding investing in companies whose practices don't align with the investor's personal values or companies with poor ESG ratings. Increasingly, many investors are moving beyond this exclusionary approach and embracing ESG-focused investing as a tool for potentially improving a portfolio's risk-adjusted returns.

One of the biggest barriers to ESG integration is a lack of reliable and uniform data about a company's practices and their impact on financial performance. We believe that our stewardship initiatives calling on companies to improve disclosure about gender diversity at all levels of management should play an important role in giving investors the information they need to integrate gender considerations into their analysis of a company.

We are pleased to observe the growing awareness of the benefits of gender-diverse leadership across the investment ecosystem—from asset owners to asset managers to corporations themselves. According to the *Wall Street Journal*, as of March 2018—the one-year anniversary of the launch of Fearless Girl—asset managers and owners controlling more than $13 trillion had joined us in making gender diversity a stewardship priority.

But this is just a start. At State Street, we believe that companies throughout the asset management industry should continually look for new ways to use their expertise to further empower investors to promote gender diversity at all levels of leadership around the world. FD

RAKHI KUMAR is a senior managing director and head of ESG Investments and Asset Stewardship at State Street Global Advisors.

The views expressed in this material are those of Rakhi Kumar and do not constitute investment advice and should not be relied on as such.

The Hidden Costs of Unpaid Caregiving

The public and private sectors need to work together to promote gender equality

Sarah Gammage, Naziha Sultana, and Manon Mouron

The responsibility for unpaid care work worldwide falls disproportionately on women and girls, leaving them less time for education, leisure, political participation, paid work, and other economic activities. Much of this work is devoted to caring for household members and doing domestic chores. Care work takes up a significant amount of time in most countries, especially where infrastructure is poor and publicly provided services are limited or absent (Samman, Presler-Marshall, and Jones 2016). The burden of care work is particularly acute in rural settings and in aging societies. This burden can limit women's engagement in market activities and lead them to concentrate in low-paid, informal, or home-based work as a means of balancing unpaid care work and paid employment.

The disproportionate representation of women in low-paid and informal work contributes to gender wage gaps that undervalue women's labor and inflate the numbers of the working poor. Securing a pathway to decent work and addressing unpaid care work are therefore fundamental to women's economic empowerment.

To address these issues, the International Center for Research on Women has been working with the European Bank for Reconstruction and Development (EBRD) to explore how investing in care services and reducing care burdens can potentially increase women's labor force participation. The goal of the project is to explore whether and how the private sector identifies and addresses care needs and responsibilities as important factors that limit their ability to hire, retain, and promote women. Part of this work includes forecasting how women's labor force participation would be affected if care needs were resolved more effectively by the private and public sectors.

We know that men's labor force participation is higher than women's in all the countries where the EBRD works, with an average gap of 21 percent. The average gap in southern and eastern Mediterranean countries is higher, at 49 percent.

Drawing on recent country-specific studies that explore how women's labor force participation changes with the price of childcare, we can estimate the impact of investing in this service (Gong, Breunig, and King 2010; Kalb 2009; Lokshin

ART: ISTOCK/ENISAKSOY

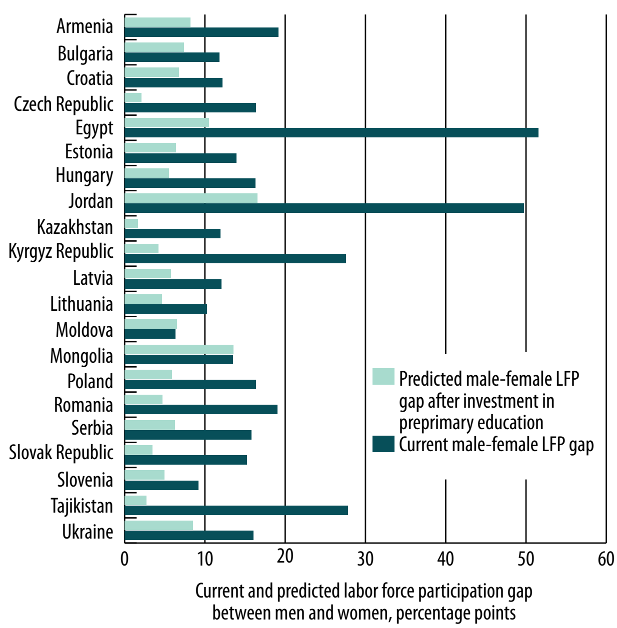
2000). Harnessing these studies, we can hypothesize that if the price of childcare were reduced by 50 percent, the labor supply of mothers would rise on the order of 6 to 10 percent.

We developed a cross-country regression to estimate the labor force participation gap with respect to the cost of care in EBRD countries, and our estimates show that on average, increasing the share of government expenditure on preprimary education (as a percentage of GDP) by 1 percentage point can reduce the labor force participation gap by about 10 points.

Using this relationship, we forecast each EBRD country's labor force participation gap after a 1.5 percent of total GDP increase in expenditure on preprimary education, the highest level of investment in the EBRD region (see chart). Doing so would bring down the average labor force participation gap from 21 to 6.5 percentage points. The biggest gains in women's labor force participation are in countries such as Egypt, Jordan, the Kyrgyz Republic, and Tajikistan, where the average gap falls to 13.5 percentage points from 49 percentage points.

Lessen the burden

Investing in preprimary education reduces the gender gap in labor force participation.



Source: Authors' estimates.
Note: LFP = labor force participation.

The role of the private sector

Exactly how we close the gap in women's labor force participation by investing in childcare services, and who pays, depends very much on the constellation of actors who are affected. Our project with the EBRD focuses on Egypt, Kazakhstan, Romania, and Turkey and seeks to explore whether the private sector recognizes that failing to resolve care needs affects its ability to recruit, retain, and promote women. We explored the prevailing gender gaps in time dedicated to paid and unpaid work and dug deeper into the social norms and customs as they relate to the issue of care—who performs it, who should perform it, and the role of men.

We also examined the legislation, policies, and regulations that underpin the care options available in these four countries. The care policies considered ranged from direct provision of care services and care-related infrastructure to subsidies, tax credits, and care credits that can potentially expand the supply of child and dependent care and increase its affordability. We also looked at labor policies and regulations, such as leave policies and other family-friendly working arrangements, education and health sector policies, and macroeconomic policies that shape the fiscal space for care provision. Given the private sector lens of the research, the analysis paid specific attention to whether and how existing legislation regulated the private sector's care practices and incentivized or reduced private sector involvement in care provision.

After interviewing managers, workers, and human resources staff, we found that even small companies experience costs from staff turnover associated with the failure to provide the kinds of care options that enable women to stay in the labor market after having children.

The case of Turkey

We found that in a medium-sized agribusiness company in Turkey of about 800 employees, more than 70 percent of whom are women, turnover posed a meaningful cost to the employer. The women employed in this agribusiness are mostly seasonal workers and are disproportionately represented in lower-skill and manual labor positions. The company provides maternity benefits in accordance with the law, including 16 weeks of paid maternity leave with provisions for another six months of unpaid leave. Breastfeeding mothers can take an hour and a half daily to nurse a child up to a year old. Fathers receive five days of paid paternity leave. The company does not provide childcare services or subsidies.

Employees in Turkey generally depend on family members, including older children at home, for childcare. Public childcare and education are available for children five and older. However, school hours are generally shorter than work hours, so family members must still help with drop-off and pickup. Where these support mechanisms are not available, women may quit their jobs to take care of their children.

In 2017, the company faced a turnover rate of over 26 percent of all women employees. Data from the human resources department and our interviews with workers and managers showed that 91 women quit every year for care-related reasons. The direct cost of recruitment and training, and the lost productivity as workers gradually learned all the skills required, came to almost $1 million a year—representing 14 percent of the company's annual revenue. The average yearly cost of childcare for a child six months to three years old is $1,100, which means that the cost of childcare is lower than the total cost to firms of turnover and lost productivity. In another example, a small textile firm we worked with spends $258,000 a year on childcare for its employees but saves more than $800,000 as a result of lower women's turnover.

Moving forward

The EBRD operates in many countries that currently don't have enough public investment in care provision. The private sector can help fill in some of these gaps by either providing care services for employees or subsidizing access to these services. This can complement and reinforce existing public sector programs.

The provision of childcare can include a mix of solutions ranging from on-site care to subsidies. The extent to which this cost is shared between the private and public sectors is a matter of choice in each country. But as long as resolving care needs falls on individual households, the cost to firms will not be trivial, and they have a substantial stake in the resolution of these care deficits.

More broadly, this ongoing research highlights how lack of care and family-friendly workplace policies affects the company, community, and economy.

At the firm level it is evident that many companies need guidance about how to track the full costs of failing to address care needs and how best to accommodate more work-life balance policies. Many of the companies we engaged with had a particularly hard time calculating the costs of turnover or demonstrating the benefits of longevity and retention. They were even more challenged when asked about tracking measures of individual and collective productivity. At the community level, more research should look at the costs and benefits of greater access to care and improved functioning of labor markets. And at the macro level, we should calculate the benefits of investing in care in terms of the jobs and fiscal space created.

It is only by making the economic costs and benefits of care provision more visible that we will be able to change the dialogue around investing in care, and around redistributing roles and responsibilities between the market, the state, and the household with the goal of supporting universal access to quality care. Demonstrating that the failure to resolve care deficits affects the private sector as well may also be fundamental to ensuring the design of more holistic solutions that include taxation and subsidies to complement the public provision of care. FD

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Banking on the Future of Women

Digital financial services are cutting out the middleman to equalize opportunity

Sarah Hendriks

COURTESY OF THE BILL & MELINDA GATES FOUNDATION

POVERTY IS NOT a single fact or condition, but rather a collection of them: a lack of financial assets, a lack of access to property, and a lack of voice in one's community.

Today, as it always has, poverty impacts women the most. Worldwide, women earn 63 percent less than men, yet they spend three times as many hours on unpaid labor, such as housework. Decades of research also show that poverty impacts women differently than men and that it deprives women of fundamental opportunities throughout their lives.

Conversely, we know that when women have the power to make, spend, save, and control their own money, they make gains not only for themselves but also for their communities. The McKinsey Global Institute estimates that fully incorporating women into the economy would add $12 trillion to global GDP by 2025. In other words, realizing gender equality lifts all nations.

One way in which we can help women unleash their power to control their own economic futures is to invest in financial inclusion. At the Bill & Melinda Gates Foundation, we are placing emphasis on the inclusion of women in the developing world, where 4 in 10 women do not have a financial account of any kind. With nearly a billion women lacking access to formal financial services, we need solutions that can apply on a large scale.

Digital financial services—including mobile money, debit and credit cards, and e-commerce platforms—can help a business grow far more efficiently than brick-and-mortar branches and can result in fees that are as much as 90 percent lower than those associated with cash-based services and transactions.

In Liberia, teachers travel up to 10 hours each way to collect their earnings in cash—a trip that often requires missing work and spending as much as 15 percent of their wage along the way. When salaries were digitalized, teachers saved an average of 13.5 hours every two weeks and reduced the cost of collecting their income by 90 percent. That's more than half a day they can now spend in the classroom or with their families.

When a woman has a personal account to store her own income, she can also gain more agency in her life. In Bangladesh, women comprise most of the garment factory workforce but, per local social norms, often hand over their cash wages to a husband or parent. As a result, they have very little say in how the money they earned is saved or spent. However, research from the Better Than Cash Alliance has shown that in garment factories where wages are digital, workers are 69 percent less likely to report that they cannot save money because a family member controls their salary.

Women's financial inclusion is one of many powerful levers that can advance gender equality, but we can't make significant progress if we don't truly understand the realities of women's lives. The United Nations Sustainable Development Goals brought global attention to the gap in gender data by showing that of the 14 indicators for gender equality, only 3 have sufficient data to track progress. It is clear that we need more and better data. In 2016, our foundation announced an $80 million investment to help fill some of these critical gender data gaps. Through better data, policymakers can more fully understand what works and what doesn't and take action that has proven to be effective.

The IMF has also taken valuable steps to address the gender data gap. Its annual Financial Access Survey looks at financial inclusion from the supply side to support analysis and formation of policy. Last year's survey was the first to disaggregate data by sex, allowing us to see which countries are closing gender gaps in transactions such as borrowing and depositing—vital information for understanding the strategies and policies that support those gains.

We are also exploring ways that technology can help women overcome or circumvent some of the social and cultural barriers to women's financial inclusion. Enabling women to apply for accounts through an automated process, for example, means that they won't be turned away by agents who think women shouldn't be allowed to have their own money. Kristalina Georgieva, interim president of the World Bank, draws a parallel between digital financial applications and the blind auditions employed at many major symphonies today. Digital financial services, she said, "would do for women in business what the curtain has done for women in music."

With about 80 million unbanked women in developing economies receiving government transfers in cash, we see a tremendous opportunity to financially include and empower women on a massive scale. But this will only happen if we consider the nuances of how people access and use cash transfers. So, when we collaborate with governments on their social payment schemes, we do it on three fronts: *digitalizing* payments on the supply side, *directing* them to women specifically, and *designing* the program so that they meet women's unique needs. Only when all three aspects are addressed will women truly attain and benefit from inclusion.

We also partner with governments on identity systems and requirements. In almost every country, people must provide legal proof of their identity to open a financial account. However, in low-income countries, more than 45 percent of women do not have a formal ID, as compared with 30 percent of men. Countries such as India and Pakistan have successfully rolled out national digital identity programs—using biometric data to eliminate literacy as a barrier. Now women can use their national ID numbers to open digital financial accounts and link directly to government services.

When a woman has a personal account to store her own income, she can also gain more agency in her life.

The pairing of digital identities and digital accounts appears to be mutually beneficial to both governments and citizens. In India, the issuing of digital IDs has helped millions of people open accounts for the first time. In Pakistan, after the government linked its identity system to a social payment scheme, the number of women who signed up for IDs nearly doubled.

At the Gates Foundation, we believe that all lives have equal value. But today we know that not all lives have equal opportunity. Access to digital financial services may seem like a small step in the broader context of inequality, but to the woman walking all day to collect her paycheck, or watching as others make financial decisions for her, it can make a world of difference. When women, especially the poorest women, achieve the same status, power, and opportunities as men everywhere, it will mean dramatic social change that propels *all* of us forward. FD

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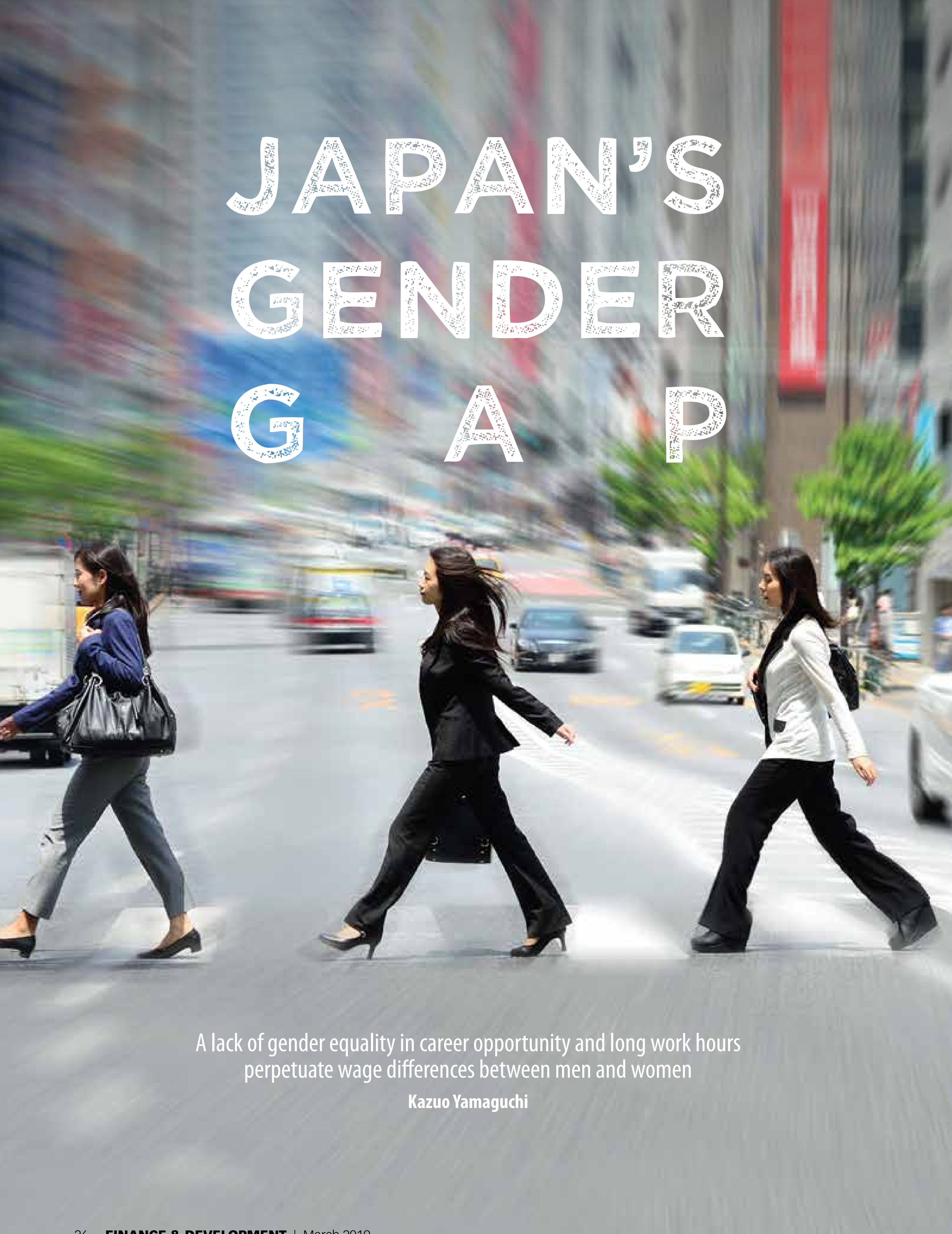


JAPAN'S GENDER GAP

A lack of gender equality in career opportunity and long work hours perpetuate wage differences between men and women

Kazuo Yamaguchi

Japan is not making progress in gender equality, at least relative to the rest of the world. Despite the Japanese government's attempts in recent years to pass legislation promoting the economic activity of women, Japan ranked a miserable 110 out of 149 in the World Economic Forum's 2018 Gender Gap Index, which benchmarks countries on their progress toward gender parity across four major areas. While this rank is a slight improvement over 114 out of 146 in 2017, it remains the same or lower than in the preceding years (111 in 2016 and 101 in 2015).

Among the primary reasons for Japan's low ranking is its large gender wage gap. At 24.5 percent in 2018, the gender wage gap is the second largest among Organisation for Economic Co-operation and Development (OECD) nations, surpassed only by South Korea.

Why is this gap so large in Japan? A major cause is the large number of women who are "non-regular" workers. "Regular" workers in Japan are employed on indefinite terms without specific job obligations and are strongly protected from firings and layoffs, while non-regular workers—including many full-time employees—have fixed-term contracts with specific job obligations. Just over 53 percent of employed women ages 20 to 65 fall into the non-regular category, compared with just 14.1 percent of employed men in 2014.

As is true elsewhere, Japan's non-regular employees have nearly uniformly low wages, irrespective of age and gender. For regular employees, on the other hand, wages increase with age until the employee reaches approximately 50 years old. This is because in a large majority of Japanese firms, regular employees receive wage premiums based on years of service. The gender disparity in the proportion of non-regular employees is perpetuated by the employers' perception that new graduates are more desirable candidates for regular employment. Because employers tend to prioritize the hiring of these younger job seekers for regular employment, women who leave their jobs for childrearing and attempt to re-enter the job market at a later date have very limited opportunities for regular employment.

However, my analysis of the gender wage gap by a combination of employment types (four categories distinguishing regular versus non-regular employment and full-time versus part-time work) and age categories finds that gender differences in employment type—specifically the larger proportion of women than men employed in non-regular positions—explain only 36 percent of the gender wage gap (Yamaguchi 2011). In fact, the primary factor is actually the gender wage gap within full-time regular employment, which accounts for more than half of the overall gender wage gap. The elimination of the gender wage gap among regular workers is therefore a more pressing issue than fixing the over-representation of women in non-regular employment.

WOMEN LACK THE OPPORTUNITY TO GO INTO PROFESSIONS OTHER THAN THOSE DEEMED SUITABLE FOR WOMEN.

Male-dominated management

A major cause of gender wage disparity among regular employees in Japan is the dearth of female managers. According to the *2016 Basic Survey on Equality of Employment Opportunity* by the Ministry of Health, Labour, and Welfare, women hold 6.4 percent of the positions of department director or equivalent; 8.9 percent of section head or equivalent; and 14.7 percent of task-unit supervisor or equivalent.

This same survey also asked employers with very few female managers for the possible causes of the paucity of women in the higher ranks. The two major reasons identified among many pre-specified possible reasons were "at the moment, there are no women who have the necessary knowledge, experience, or judgment capability" and "women retire before attaining managerial positions due to their short years of service." Such perceptions held by employers are misguided, as my own research (Yamaguchi 2016) reveals a very different picture.

I conducted an analysis of firms with 100 or more employees and found that only 21 percent of the gender disparity among regular workers in middle

PHOTO: ISTOCK/OLASER

EXTENDED WORK HOURS ARE INCOMPATIBLE WITH FAMILY ROLES AFTER MARRIAGE BECAUSE OF THE STRONG PERSISTENCE OF THE TRADITIONAL DIVISION OF LABOR IN JAPAN.

management (section heads) and above could be explained by gender differences in education and employment experience. The rest of the disparity arose from gender differences in the *rate of promotion* to managerial positions among employees with the same levels of education and experience. The limited employment duration of women was not a major factor. My analysis further showed that being male increased the odds of becoming a manager more than tenfold, whereas being a college graduate made it only 1.65 times more likely. (The study controlled for other determinants for becoming a manager.)

We regard societies where social opportunities and rewards are determined primarily by individual achievements as "modern" and societies where they are determined by an ascribed status as "pre-modern." Although "post-modernism" has been discussed in Japan, contemporary Japanese society maintains characteristics that cannot even be considered "modern." Gender at birth is what determines whether a person becomes a manager in Japan, not individual achievement such as earning a college degree.

Gender-segregated career tracks are largely to blame for the country's gender inequality in the rate of promotion to managerial positions. In Japan, there is a managerial career track (*sogo shoku*) and a dead-end clerical track (*ippan shoku*). This track system is strongly associated with gender. Many women do not pursue *sogo shoku* jobs despite their greater opportunity for career development because they require regular overtime hours.

Indeed, among women, the major correlate of becoming a manager is the presence of long work hours, indicating that women who do not work long overtime hours are deprived of opportunities to become managers. However, extended work hours for women are incompatible with Japanese family roles after marriage due to the strong persistence of traditional division of labor in which the burden of childcare and household tasks is chiefly borne by women. As a result, Japanese firms' insistence on long work hours is an inherent source of gender inequality, especially for the attainment of managerial positions.

Persistence of traditional roles

Another major cause of the gender wage gap is the high degree of gender segregation in professions. In OECD countries, women tend to be overrepresented in the human services professions, such as education, health care, and social work. In Japan, two additional characteristics exist. First, even among human service professions, women are underrepresented in the high-status professions—for example, the proportion of women among physicians and college educators in Japan is the lowest among OECD nations. Second, women are seriously underrepresented in non-human-service professions—such as research, engineering, law, and accounting.

My latest research takes a close look at the gender wage gap among professionals, focusing on the Japanese and US labor markets. Drawing on a 2005 nationwide survey for Japan and the 2010 US Population Census, I looked at gender proportions in the two categories of careers described above: the human services professions, excluding high-status professions, such as physicians and college educators, which I chose to call Type-II professions, and other professions, including high-status human service professions and all non-human-service professions, which I called Type-I professions. The research showed that in Japan, the proportion of women in the latter category is remarkably low: in the United States, 12.7 percent of female employees are in Type-I professions, compared with fewer than 2 percent of Japanese female employees (see chart). Women's jobs in Japan are clearly concentrated in Type-II professions.

This division of professions leads to a large gender wage gap for two reasons. First, while gender wage disparity in Type-I professions is very small, women are severely underrepresented in these professions. Second, there are large gender wage disparities *within* Type-II professions. Whereas the average wage for males in Type-II professions is higher than the wages of male clerical, sales, or manual workers, the average wage for females in Type-II professions is not only lower than the average wage for males in the same type of work, but it is also lower than the average wage of male clerical, sales, and manual workers.

My research also shows that the smaller proportion of women in management and Type-I professions cannot be explained by gender differences in educational background, including college majors (Yamaguchi, forthcoming). Japan and Turkey are the only two countries in the OECD where college graduation rates of women are still lower than those of men, and therefore, we may expect that gender equalization would reduce gender inequality in the attainment of high-status occupations. My analysis reveals, however, that if current gender-specific matching of education and occupation continues as the college graduation rate of women increases, it will be reflected mostly by the increase of women in already female-overrepresented Type-II professions. The increase of women in female-underrepresented managerial and Type-I professions, on the other hand, will be minimal. Hence, on average, achieving gender equality in educational attainment will not greatly reduce the gender wage gap.

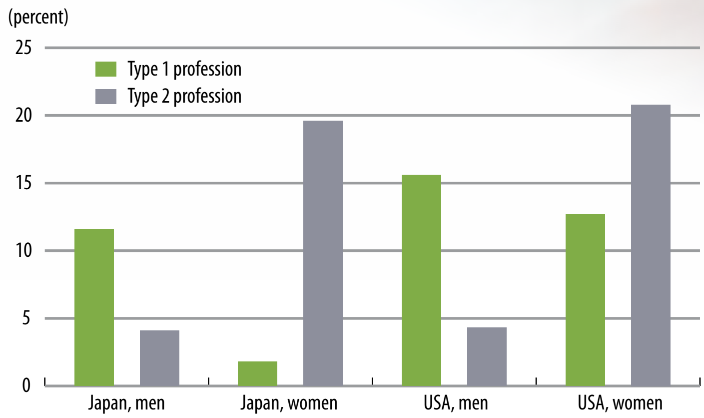
The only exception to this rule would lie in the equalization in the proportion of college graduates majoring in science and engineering. This would increase the share of female scientists and engineers, thus reducing gender disparity in the proportion of Type-I professions and thereby narrowing the gender wage gap to some extent.

The fact that educational background does not explain gender segregation among professions in Japan suggests that the segregation is a reflection of Japanese hiring practices. As a result of practices rooted in gender stereotypes, women lack the opportunity to go into professions other than those deemed suitable for women. The main careers open to Japanese women are extensions of women's traditional family roles, such as children's education, nursing, and other supportive roles in health care. Employers in Japan ought to acknowledge that the workplace is not an extension of gender divisions at home, but rather a place for individuals to fulfill their potential and contribute to society. But such an acknowledgment, for the most part, remains to be seen.

Although the government aims to pay equal wages for equal jobs—especially for regular and irregular workers with the same job—I believe that providing equal occupational opportunity, especially for managerial and high-status professional positions, is more critical for the reduction of the gender wage gap in Japan. Moreover, since the lack of opportunity for women persists not only because of hiring practices but also because of the long work hours required, the government should aim to create the conditions for better work-life balance. It could do so by changing the work culture that relies on long work hours and by promoting flexible workplaces. It could also encourage a change in the attitude that assumes child-care and home-care responsibilities are only for women. FD

Profession by gender: Japan vs. United States

In the United States, 12.7 percent of women employees work in the more demanding jobs outside the human services professions. In Japan, less than 2 percent of women work in such jobs.



Source: Kazuo Yamaguchi.
Note: Type 1 refers to professions outside human services, such as engineering, law, and accounting. Type 2 refers to human service professions—such as education, health care, and social work—but not the higher-end ones, such as physicians or college professors.

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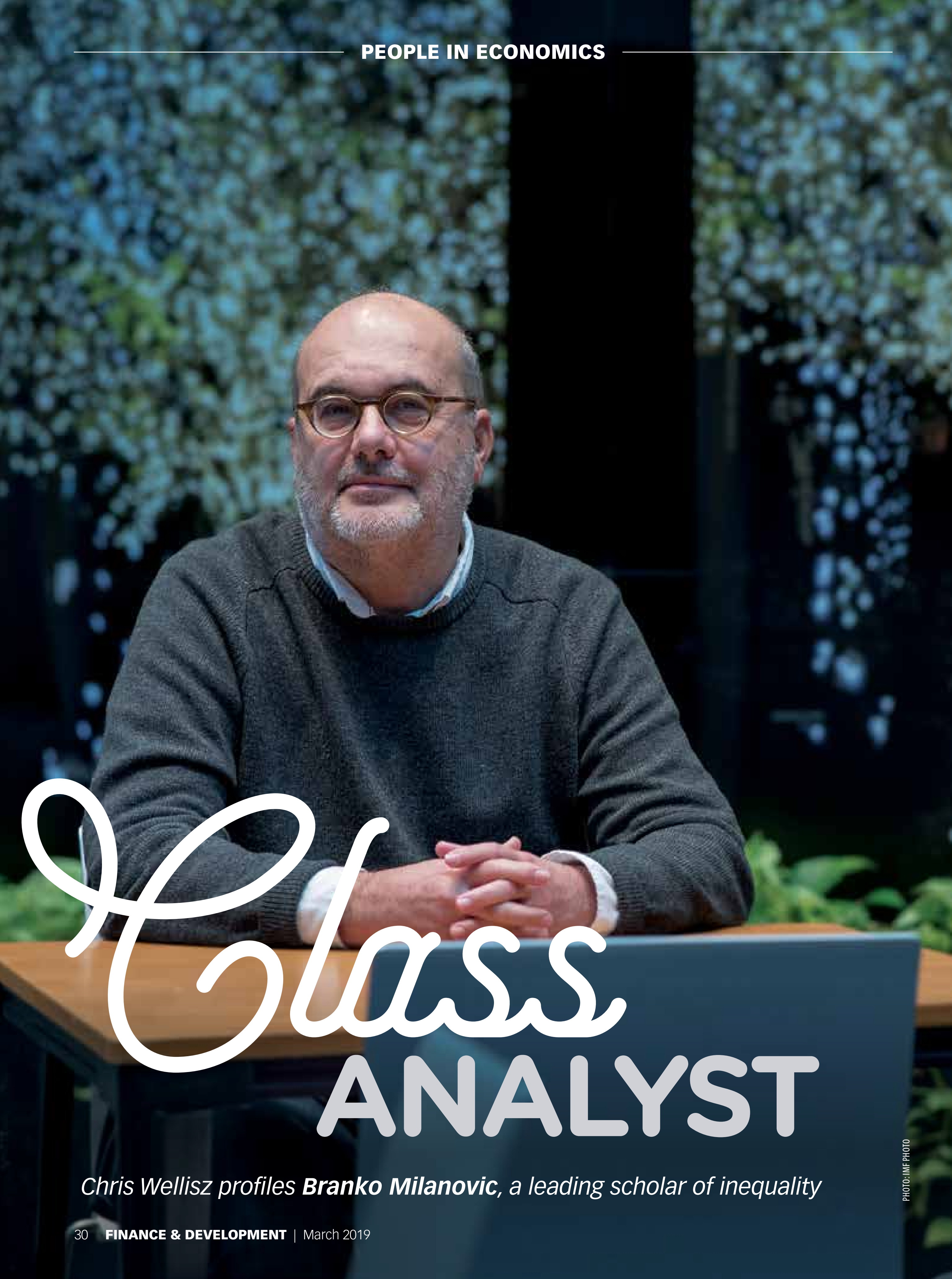


PHOTO: IMF PHOTO

Class ANALYST

Chris Wellisz profiles ***Branko Milanovic****, a leading scholar of inequality*

As a child growing up in Communist Yugoslavia, Branko Milanovic witnessed the protests of 1968, when students occupied the campus of the University of Belgrade and hoisted banners reading "Down with the Red bourgeoisie!"

Milanovic, who now teaches economics at the City University of New York, recalls wondering whether his own family belonged to that maligned group. His father was a government official, and unlike many Yugoslav kids at the time, Milanovic had his very own bedroom—a sign of privilege in a nominally classless society. Mostly he remembers a sense of excitement as he and his friends loitered around the edge of the campus that summer, watching the students sporting red Karl Marx badges.

"I think that the social and political aspects of the protests became clearer to me later," Milanovic says in an interview. Even so, "1968 was, in many ways, a watershed year" in an intellectual journey that has seen him emerge as a leading scholar of inequality. Decades before it became a fashion in economics, inequality would be the subject of his doctoral dissertation at the University of Belgrade.

Today, Milanovic is best known for a breakthrough study of global income inequality from 1988 to 2008, roughly spanning the period from the fall of the Berlin Wall—which spelled the beginning of the end of Communism in Europe—to the global financial crisis.

The 2013 article, cowritten with Christoph Lakner, delineated what became known as the "elephant curve" because of its shape (see chart). It shows that over the 20 years that Milanovic calls the period of "high globalization," huge increases in wealth were unevenly distributed across the world. The middle classes in developing economies—mainly in Asia—enjoyed a dramatic increase in incomes. So did the top 1 percent of earners worldwide, or the "global plutocrats." Meanwhile, the lower middle classes in advanced economies saw their earnings stagnate.

The elephant curve's power lies in its simplicity. It elegantly summarizes the source of so much middle-class discontent in advanced economies, discontent that has turbocharged the careers of populists from both extremes of the political spectrum and spurred calls for trade barriers and limits on immigration.

"Branko had a deep influence on global inequality research, particularly with his findings on the elephant curve, which has set the tone for future research," says Thomas Piketty, author of the best-selling *Capital in the Twenty-First Century*. Piketty and his collaborators confirmed the findings in a 2018 study, which found that the top 1 percent globally captured twice as much of total growth as the bottom 50 percent from 1980 to 2016.

Milanovic's findings "appear to be even more spectacular than what was initially suggested," Piketty says. "The elephant looks more like a mammoth."

Economists long disdained the study of inequality. Many lived in a theoretical world populated by a mythical figure known as *homo economicus*, or rational man, whose only attribute was a drive to maximize his well-being. Differences among people, or groups, were irrelevant. Variety was irrelevant. Only averages mattered.

In this world of identical rational actors, the forces of supply and demand worked their magic to determine prices and quantities of goods, capital, and labor in a way that maximized welfare for society as a whole. The distribution of wealth or income didn't fit into the picture. It was simply a by-product of market forces.

"The market solves everything," Milanovic says. "So the topic really was not—still is not—totally mainstream."

Then came the global financial crisis of 2008, and with it "the rise of the realization that the top 1 percent or the top 5 percent have really vastly outstripped, in income growth, the middle class," he says.

The study of inequality also got a boost from the explosion of data that can be mined with evermore powerful computers, making it easier to divide the anonymous masses of consumers and workers into groups with common characteristics. Big data, he says, "enables the study of heterogeneity, and inequality is by definition heterogenous."

Data has always been one of Milanovic's passions, alongside his interest in social classes, which flourished during his high school years in Brussels, where his economist father was posted as Yugoslav envoy to the then–European Economic Community.

"High school in Belgium—and I think it was the same in France—was very Marxist," he says.

His classmates were divided between leftist kids, influenced by the student movements of the late 1960s and early 1970s, and "bourgeois" kids. As the privileged son of a diplomat representing an ostensibly workers' government, young Branko didn't quite fit either category. "It was a very peculiar situation," he says.

At university in Belgrade, Milanovic initially leaned toward philosophy but decided economics would be more practical. It also offered a way to combine his interests in statistics and social classes.

Graduate studies led to a fellowship at Florida State University in Tallahassee, where he was impressed by American abundance—huge portions of inexpensive food, free refills of coffee, big cars—alongside stark income inequality and racial discrimination.

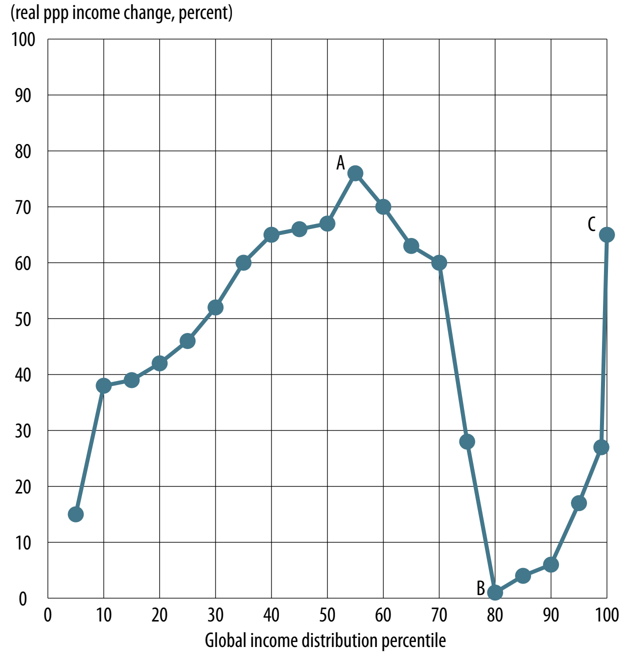
Two years later, he was back in Belgrade to work on his doctoral dissertation on inequality in Yugoslavia, mining rare household survey data supplied by a friend who worked in the federal statistical office.

While his dissertation raised eyebrows in Marxist Yugoslavia—along with his decision to avoid joining the Communist Party—it launched a two-decade career at the World Bank's Research Department.

Unequal distribution

From 1988 to 2008, income gains were greatest for people around the 50th percentile of the global distribution (point A) and among the richest 1 percent (point C). Gains were lowest among people around the 80th percentile globally (point B), most of whom are in the lower middle class of developed economies.

(real ppp income change, percent)



Source: Branko Milanovic.
Note: ppp = purchasing power parity.

"Branko was really one of the leading experts, even at that time, on income distribution," says Alan Gelb, who hired Milanovic to join a small team studying the transition to market economies in postcommunist eastern Europe. Milanovic focused on issues of poverty and income distribution.

The wealth of data the World Bank collects was a priceless resource, and it inspired Milanovic to carry out cross-country comparisons of inequality, which were a novelty. One day in 1995, Milanovic was talking with Gelb's successor as the head of his unit.

"I suddenly had this idea: 'Look, we have all this data from around the world. We study individual countries, but we never put them together.' " Four years later, he published the first study of global income distribution based on household surveys.

In the years that followed, Milanovic published widely and profusely. Alongside his work on postcommunist economies, he continued to explore inequality and its link with globalization. His articles and books display the broad range of his interests, which include history, literature, and sports.

In one article, he estimates the average income and inequality level in Byzantium in the year 1000. Another looks at the links between labor mobility and inequality in soccer, which he calls the most globalized sport.

He found that club soccer has become very unequal because a dozen top European teams can afford to recruit the world's best players. On the other hand, the free movement of soccer players has reduced inequality among national teams. The reason: players from small countries can hone their skills at top club teams, then return home to compete for their national teams.

Literary conversations with his wife, Michele de Nevers, a specialist in climate finance at the Center for Global Development, inspired him to write an offbeat analysis of Jane Austen's *Pride and Prejudice*. Arguing that the book is as much about money as love, he estimates the incomes of various characters and looks at how wealth influences the choice of mates for Austen's protagonist, Elizabeth Bennet.

He did the same for Leo Tolstoy's *Anna Karenina*. Both essays were published in Milanovic's 2011 book, *The Haves and the Have-Nots: A Brief and Idiosyncratic History of Global Inequality*.

Another book, *Global Inequality: A New Approach for the Age of Globalization*, was a milestone that synthesized years of his scholarship on inequality within and among countries since the Industrial Revolution.

In contrast to Piketty, who argues that inequality inexorably widens under capitalism, Milanovic sees it moving in waves or cycles under the influence of what he calls benign and malign forces. In advanced economies, income disparity widened in the 19th and early 20th centuries until the malign forces of war and hyperinflation reduced it by destroying wealth. After World War II, benign forces such as progressive taxation, more powerful labor unions, and more widely accessible education pushed inequality down.

The fall of the Berlin Wall was a watershed. It brought the former Soviet bloc states into the global economy at a time when China also began opening up. Rapid growth in the developing world narrowed inequality between countries while widening it in the developed world, where middle-class incomes stagnated as the wealthy prospered.

What does the future hold? It looks good for much of the developing world and especially Asia, which will continue to catch up with the rich countries. In advanced economies, on the other hand, the outlook seems grimmer.

There, the twin forces of globalization and technological innovation will continue to squeeze the middle class. Social mobility will decline as an entrenched elite benefits from greater access to expensive higher education and wields its political clout to enact "pro-rich" policies, such as favorable tax regimes.

As income disparities grow, so will social tensions and political strife—a prognosis confirmed by events such as Brexit and protests in France that have occurred since the book's publication in 2016. Milanovic worries that this friction might lead to a "decoupling" of democracy and capitalism, resulting in plutocracy in the United States and populism or nativism in Europe.

While there has been considerable debate about inequality over the past decade, "nothing has really moved" in policy terms, he says. "We are on this automatic pilot which basically leads to higher inequality. But I am not totally losing faith."

The traditional answer—redistribution of income—won't work as well as it did in the past because of the mobility of capital, which allows the wealthy to shelter their incomes in tax havens. Instead, policy should aim for a redistribution of "endowments" such as wealth and education. Measures would include higher inheritance taxes, policies that encourage companies to distribute shares to workers, and increased state funding for education.

"We cannot achieve that tomorrow," he says. "But I think we should have an idea that we want to move to a capitalist world where endowments would be much more equally distributed than today."

Milanovic also takes on the nettlesome issue of inequality between countries. He calculates that an American, simply by virtue of being born in the United States, will earn 93 times more than a person born in the world's poorest country. This is what Milanovic calls the "citizenship premium," and it gives rise to pressure for migration as people born in poor countries seek their fortunes in richer ones.

Milanovic argues that halting migration is no more feasible than halting the movement of goods or capital. Yet it's also unrealistic to expect citizens of advanced economies to open their borders. His solution: allow more immigrants but deny them the full rights of citizenship, and perhaps tax them to compensate citizens displaced in the labor force.

As income disparities grow, so will social tensions and political strife—a prognosis confirmed by events such as Brexit and protests in France.

His current work, in a way, brings him back to his roots in Yugoslavia. It involves the study of class structure in the People's Republic of China and, in particular, a close look at the top 5 percent of the income distribution. It forms a part of his next book, *Capitalism, Alone*, which argues that China has developed a distinct form of capitalism that will coexist with its liberal forebear.

Where is the study of inequality headed? Milanovic sees two frontiers, both driven by the availability of new data. One is wealth inequality, à la Piketty; the other is intergenerational inequality, a subject plumbed by economists such as Harvard's Raj Chetty.

The two areas "appeal to young people who are now very socially aware," he says. "On the other hand, they are very smart and want to work on tough topics." He adds, "I am very optimistic in that sense." FD

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

COURTESY OF THE CENTRAL BANK OF RUSSIA

Pursuing Stability

***Elvira Nabiullina** explains how bold policy action helped Russia avert a deeper recession and reform the banking sector*

WITHIN A FEW SHORT MONTHS after taking up her post as governor of the Central Bank of Russia in 2013, Elvira Nabiullina faced a growing economic crisis brought on by plunging oil prices and geopolitical tensions with Ukraine. By December 2014, the exchange rate and the banking system were under severe pressure, and the economy was heading into recession. A decisive response was needed, and the central bank chose to float the currency, announce an immediate move to inflation targeting, and step up the pace of banking reform. These bold policies have yielded significant positive results.

The first female governor of the Central Bank of Russia, Nabiullina was named 2015 Central Bank Governor of the Year by *Euromoney* magazine and 2016's Best Central Bank Governor in Europe by *The Banker*. She has also appeared on Forbes' list of the world's most powerful women.

In this interview with Olga Stankova of the IMF's Communications Department, Nabiullina, who previously served as minister of economic development, discusses her experience leading Russia's central bank during this challenging period.

F&D: Inflation targeting—when a central bank announces a target for inflation and manages inflation expectations through its policy actions—is considered fairly complex and demanding for emerging market economies. What was the rationale for adopting this policy in Russia?

EN: Looking at the experience of other countries we saw that inflation targeting is a policy that makes it possible to reduce inflation and maintain it consistently at a fairly low level. Of course, this policy can be challenging for emerging markets, because their financial markets are relatively shallow and—what is probably more important—inflation targeting requires the management of inflation expectations. This is challenging in an emerging market where the public has lived through periods of high inflation, has grown accustomed to high inflation and does not believe that low inflation can be achieved over the longer term.

We in any event did not make an abrupt switch to inflation targeting. We had already begun to prepare for it after the 2008–09 crisis. First, we developed the tools needed to refinance banks, and those tools made it possible to use interest rate policy—through the transmission mechanism—to manage inflation. Second, we gradually moved to a more flexible exchange rate, from a fairly strictly managed rate to a floating rate. Third—and very importantly—inflation targeting depends greatly on the quality of models, projections, and analysis, so we also developed that capacity. I think that these three elements were crucial to ensuring that we were able to achieve the effects that we had promised the public.

F&D: The exchange rate was floated at the peak of the crisis in late 2014. Were there any other good choices in that situation? And was managing the exchange rate for a while longer an option?

EN: Indeed, we had to move to a floating exchange rate during a period of elevated risks to financial stability. I am convinced, however, that this was not a reason to put off the decision. We would have simply spent some part of our gold and forex reserves and then would have needed to float anyhow.

In my view, the floating exchange rate has worked well to absorb external shocks and has facilitated a rapid adjustment of the balance of payments. We saw that again during the following cycle, in 2016. You will recall that in early 2016, oil prices fell, and thanks to the floating exchange rate, the effects on the financial markets as a whole were unremarkable.

F&D: What has the central bank done to broaden public support for its policies? What was the role of communications?

EN: Communications were very important during the transition from one policy to another, both to explain to society what was happening and to demonstrate the benefits of the new policy.

Inflation targeting requires a qualitatively higher level of communications with the market than other policies, because it is based on the management of expectations and on forecasts.

We greatly expanded our communications toolkit, starting with announcing the dates of board meetings a year in advance. We also began to hold press conferences and to provide more analytical materials, reports, interviews, and surveys and arrange meetings with investors and analysts.

At first, the focus was on ensuring that analysts and market professionals understand what we do. In fact, we see that inflationary expectations of market participants are now better anchored. What is important now is to communicate with a broader business audience and the public, to build trust in our policy, and to give people greater confidence as they make their life and business plans.

F&D: You also reformed the banking sector. What were the economic and political considerations behind your course of action?

EN: Stable economic growth requires a stable, strong financial system. A weak financial system cannot support economic growth. Our banking system had accumulated a range of problems that we have been tackling in recent years.

First, the banking system lacked sufficient genuine capital. You will recall that the banking system emerged very quickly in the early 1990s, and without capital. Even afterwards, capital did not flow into the system in any significant amounts. Second, as a result of the crises of 2008 and then 2014–15, the quality of banks' assets deteriorated. Those assets remained on banks' balance sheets, and it was necessary to deal with them. Another reason is that banks were often used for unscrupulous practices. Their owners used them to finance their own business, with poor risk management, and there was money laundering.

It became obvious that the banking system had to be restructured, as it could not support growth

"It is important for people who work at a central bank to understand that they are working for the public good."

and would continue to require large financial infusions to survive a crisis. We had to improve the health of the banking system also to avoid new infusions in the future.

We recognize that the market would like to see a reduction in the share of state ownership, and we certainly intend—and are working on it—to put banks in which we are temporarily holding a share back on the market as soon as there is an opportunity.

F&D: What leadership qualities are essential for success as a central banker?

EN: First, find professionals you can rely on, and do not be afraid to surround yourself with strong people. Stimulate debate, so people are not afraid to express their opinions. And then, on this basis, take a decision, and do not deviate from it.

It is important for people who work at a central bank to understand that they are working for the public good, for long-range goals. We need to deliver on our promises to society. That is a key principle for me and for our staff.

In any policy, including monetary policy, it is not possible to avoid compromises. However, it is important to understand that there are limits to compromise. FD

This interview has been edited for length and clarity. A longer version of the interview is available at www.imf.org/fandd.

PAST AS PROLOGUE

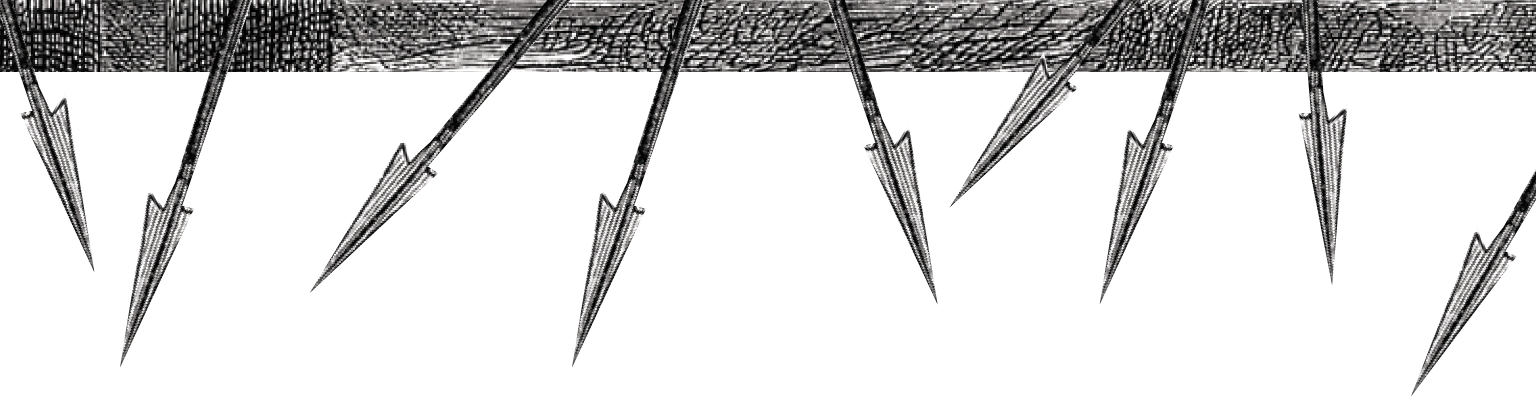
Ancient Rome offers lessons on the importance of sustainable development

Anthony Annett and Joshua Lipsky

Sustainable development encapsulates the idea that material progress must always go hand in hand with social inclusion and respect for the environment. Delinking economic growth from the other two pillars would be an act of self-sabotage. Ancient Rome offers us a case study of how tragedy might play out—and how it can be avoided.

The Roman Republic lasted 500 years because its institutions were supple enough to adapt to two great challenges—internal conflict between aristocrats and the masses and external conflict with rival states and integration of conquered peoples. Despite constant tensions, Romans were bonded by shared values—a sense of honor rooted in public service and a commitment to their conception of the common good.

For generations, the center held—until it did not. At first, the changes were subtle. Territorial expansion—at the beginning of the second century BCE, the Republic stretched from Gaul to Greece—brought an influx of wealth in the form of tribute payments, taxes from new provinces, and the development of metal mines. A new class of super-wealthy Romans created financial instruments to package debt, resell it, and invest the profits in infrastructure projects. Sound familiar? In many ways, this was an ancient form of globalization, both trade and financial. And the boom times drove the population of Rome to nearly 1 million by the first century BCE, making it the first city on earth to reach that milestone.



OVER THE COURSE OF THE REPUBLIC'S FATEFUL FINAL CENTURY, A SUCCESSION OF LEADERS SMASHED NORMS PREVIOUSLY THOUGHT INVIOLABLE.

But all was not well. The new wealth was not being shared widely. A mass influx of slaves upended the labor market and left soldiers and citizens out of work and increasingly angry. At the same time, as noted by Edward Watts in his new book, *Mortal Republic*, wealth accumulation began to supplant personal virtue and service to the state as the main measure of success. And the elites did not spend their newfound wealth merely on villas and luxury goods. Unlike their forefathers, they engaged in large-scale bribery and corruption to secure political honors and offices, and judicial impunity.

Perhaps no one person embodies the dynamic of the age better than Marcus Licinius Crassus. His fortune—generated largely by corrupt property speculation—was so vast that it matched the entire Roman treasury. And as bankroller for hundreds of politicians, he gained unrivaled influence from his wealth.

It wasn't long before the fault lines ruptured. In previous centuries, the elites responded to popular discontent by sharing power and rebalancing the political equilibrium. But under the sway of self-interest and corruption, the consensus unraveled.

The same pattern played out again and again during the Republic's last century—populist anger running into patrician intransigence, leading to overreach by both sides, often ending in violence.

The cycle started with the Gracchus brothers, Tiberius and Gaius. Tiberius pushed for the redistribution of land to the poor. But his reform plan triggered conservative opposition, and he was clubbed to death. His younger brother, Gaius, picked up the mantle, focusing on social protection—in the form of subsidized grain—and fighting corruption through judicial reform. He too was killed.

Following the chaos, Gaius Marius arose as the champion of the poor, riding a wave of popular disgust at senatorial corruption. But he ultimately allied with those willing to use violence for political means, prompting a patrician backlash and the dictatorship of Sulla, who did the unthinkable—lead an army across the Roman city limits. His reign was one of mass proscriptions, property confiscation, and neutering of plebian power.

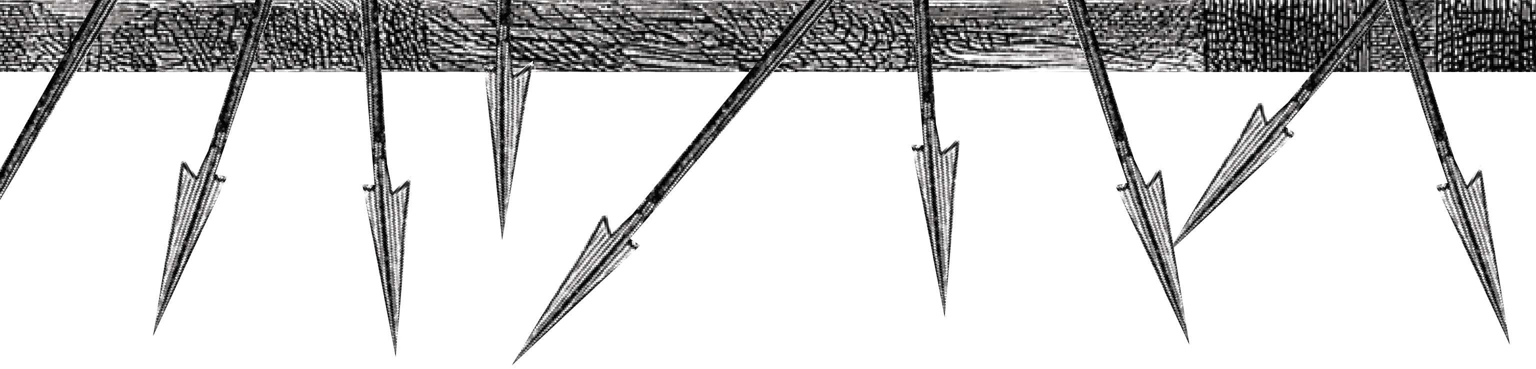
In the years that followed, unscrupulous patricians such as Cataline and Clodius sought to advance their own careers by exploiting popular frustration—including by casual recourse to violence and intimidation.

All of this paved the way for Julius Caesar, who used strong-arm tactics to carry out populist reforms. But after his victory in a civil war, Caesar too assumed the title of dictator and became increasingly autocratic. His murder prompted another round of civil bloodletting, effectively killing the Republic.

Over the course of the Republic's fateful final century, a succession of leaders smashed norms previously thought inviolable. Political violence became routine. The institutions of state were weaponized to persecute opponents. The mob grew increasingly angry. In turn, strongmen offered to restore order. All because of the festering wounds of inequality and corruption.

Following the Republic's collapse, Rome enjoyed a remarkable resurgence—although the peace was secured in part through the suppression of democratic institutions. Edward Gibbon, the great chronicler of the fall of Rome, deemed the apex of empire in the second century CE to be the period in history when "the condition of the human race was most happy and prosperous."

What Gibbon did not know was that favorable fortune owed much to a favorable climate. As documented by Kyle Harper in a remarkable new book, *The Fate of Rome: Climate, Disease, and the End of an Empire*, the period between roughly 200 BCE and 150 CE is now known as the Rome Climate Optimum—a warm, wet, and predicable climate uniquely favorable to the empire's key agricultural crops.



But by the third century, the climate became cooler, dryer, and more unpredictable, with more frequent droughts and crop failures. By the middle of the fifth century, the Late Antique Little Ice Age had arrived.

A changing climate reduced the empire's resilience to a variety of shocks, including pandemics. Smallpox struck in the second century, and a virulent outbreak that may have been Ebola followed in the third. In the mid-sixth century, the Plague of Justinian—the first known incidence of bubonic plague—probably killed half of the empire's population.

Recent evidence shows the role of climate change. The decade before the outbreak of plague saw some of Europe's coldest temperatures in two millennia, brought about by a sequence of massive volcanic eruptions. This likely forced gerbils and marmots out of their natural habitats in central Asia, causing the bacteria-bearing fleas they carried to infect the black rat, whose population had exploded along Rome's expansive network of trade routes.

To be sure, the fall of Rome had many fathers. It remains perhaps the most overdetermined event in human history. But it seems increasingly clear that the natural world impinging on the human world was a major culprit.

Weakened by these hostile forces of nature, the empire started to unravel in the third century. This was a period marked by persistent political instability, pressure on the frontiers, and a fiscal crisis compounded by currency debasement. After a genuine economic revival in the fourth century, the natural environment intervened once more—severe drought in Eurasia spurred the migrations of the Huns, whom Harper calls "climate refugees on horseback." This started a domino effect of mass migration across the Roman frontier, ultimately leading to the collapse of the western empire in the fifth century. That was followed in the sixth century by the ugly trifecta of climate-change-induced crop failures, catastrophic plague, and ruinous war. It was during this period that Rome's population fell to a mere 20,000—and the Roman forum became the *campo vaccino*, the cow field.

The Roman Republic and the Roman Empire both fell because they failed the sustainable development test. There is a cautionary lesson for our own times in how that failure played out—a breakdown in time-honored social norms, entrenched political polarization driven by economic inequality, repudiation of the common good by elites, and environmental havoc leading to disease and disaster.

We should take this lesson to heart, especially as we hear history rhyming in ways that are eerie and disconcerting. This demonstrates the utmost urgency of achieving the Sustainable Development Goals, the global call to end poverty, protect the planet, and ensure peace and shared prosperity. The Roman experience offers a window into our possible future if we fail to act.

The Roman Republic and the Roman Empire both fell because they failed the sustainable development test.

There are some important differences between our economy and that of ancient Rome, of course. Ours is vastly wealthier, healthier, more inclusive, and more resilient. The Romans did not have the ability to eliminate all forms of material deprivation, even though they could and should have better handled the inequalities arising from their own experience with globalization. We have it within our power to do both.

We also have it within our power to solve the problem of climate change, by far the greatest challenge of our generation. The Romans were very much at the mercy of nature. Their activity was not the driving force behind the shifting climate, so they could do little to slow or stop its march. But since human activity is causing climate change today, it can be fixed by changing our behavior—delivering a zero-carbon energy system over the next three decades.

The bottom line is that sustainable development is of enduring importance—whether we are talking about 130 BCE, 530, or 2030. FD

ANTHONY ANNETT is an assistant to the director and **JOSHUA LIPSKY** is a senior communications officer in the IMF's Communications Department.

Does a Minimum Wage Help Workers?

An overly generous wage may prompt employers to cut jobs

Piyaporn Sodsriwiboon and Gabriel Srour

ALMOST EVERY COUNTRY has a minimum wage. The details vary: some countries, such as France, fix a universal minimum across the economy, while others, such as New Zealand and South Africa, differentiate between sectors and types of workers. Typically, the minimum wage is set by the government and revised periodically in consultation with business and labor organizations (see chart).

Minimum wages have been justified on moral, social, and economic grounds. But the overarching objective is to boost incomes and improve the welfare of workers at the low end of the ladder, while also reducing inequality and promoting social inclusiveness. Critics counter that rather than improving welfare, minimum wages are counterproductive because they disrupt the market for labor. They argue that there are other, better-targeted, and less distortionary ways to provide social assistance.

Impact on welfare

So does an increase in the minimum wage actually benefit low-income workers? It depends.

First, employers may not comply with the minimum wage law. If no one actually receives the minimum, or if the law is mostly on paper, it is irrelevant. For example, in countries with large shadow economies, employers often give workers under-the-table wage supplements, sometimes known as "envelope payments," to evade taxes or the cost of providing benefits. In this situation, the employer could react to an increase in the minimum wage by reducing envelope payments, leaving overall compensation unchanged. Employers might also underreport the number of hours employees worked, also leaving total pay unchanged. Or the employer might not report employment at all, evading the minimum wage law entirely.

Second, even when minimum wage regulations are fully respected, additional earnings may face heavy social security and labor taxes, reducing the impact of an increase on take-home pay. Finally, employers may offset higher minimum wages by reducing benefits or hours or laying off workers to cut costs.

Impact on employment

The potential impact on employment is at the core of the debate on minimum wage policy and remains a contentious subject. On the one hand, in competitive markets, if the minimum wage is enforced and raises wages above the prevailing levels, some companies will be unwilling to pay the higher wage and will lay off workers. On the other hand, markets may not be competitive. For instance, a company that is the sole employer in a particular market may be able to impose lower wages than would prevail under competition. In this case, a minimum wage can raise the incomes of workers without reducing employment. Indeed, the higher wages may attract more workers and hence raise employment.

Research spanning several decades has not settled the debate. Some studies find that the minimum wage has significant benefits for workers; others conclude that it is harmful. Many studies have been inconclusive.

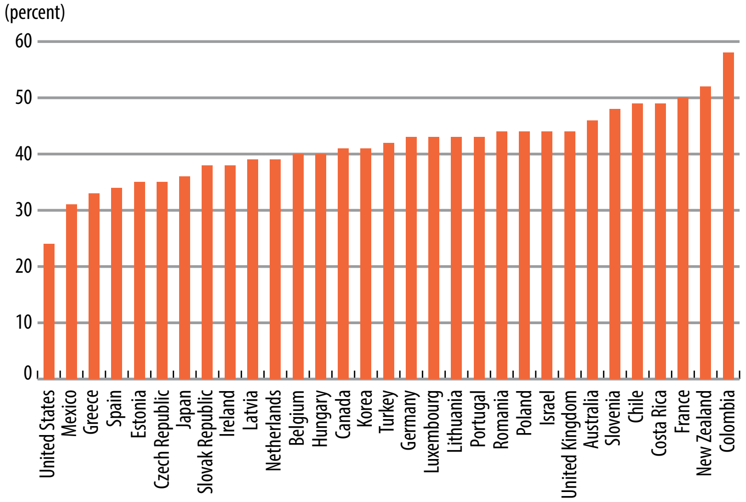
Even so, there appears to be a growing consensus that when the minimum wage is set at a moderate level, the impact on employment is modestly negative. Recent research generally concludes that the change in employment caused by an increase in the minimum wage is close to zero, although more vulnerable groups, such as low-skilled and young workers, may be hurt. A plausible explanation for the modest employment effects is that at moderate levels, minimum wages account for only a small share of an employer's total costs, so firms can absorb the increase in a variety of ways other than by cutting payrolls. Options include reducing nonwage costs, raising prices, boosting productivity, and accepting lower profits.

Impact on inequality

Another prime motivation for minimum wage policies is to reduce income inequality by improving the lot of those at the bottom of the wage distribution. Empirical studies show that minimum wage hikes do tend to narrow wage disparities, but only as part of a broader policy effort toward significant poverty alleviation.

Getting by

The minimum wage as a percentage of the average wage of full-time workers varies widely by country.



Source: Organisation for Economic Co-operation and Development.
Note: Data as of 2016.

Still, there are limits to what minimum wages can achieve. Those that are set too high can cause significant job losses and hence have perverse distributional effects. As low-income earners lose their jobs, inequality will widen. Furthermore, minimum wage increases can pump up the overall wage structure, leaving income disparity unchanged because firms want their more productive workers to be better compensated.

What is the appropriate level?

OK, let's assume that low minimum wages are beneficial and that those that are high are harmful. What then is the optimal level? Few studies address this question head-on, but those that touch on it put the ideal level somewhere between 25 and 50 percent of the average wage. In practice, minimum wage policies should be calibrated to keep overall wage growth in line with productivity gains. This argues for taking the minimum-wage-setting process out of the hands of politicians and delegating it to independent experts. FD

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CITIZENSHIP AND GROWTH

Inclusive citizenship laws tend to foster economic development

Patrick Amir Imam and Kangni Kpodar

The notion of citizenship has evolved over time. Historically, allegiance was typically to an ethnic group or a feudal lord. With the birth of the nation-state in the 19th century came the need to distinguish between those who belonged to the state and those who didn't, and therefore to create a legal distinction between nationals and foreigners. Most countries established then, or at independence, a "code of nationality" whose basic principles are still intact today. This code, in most cases, defines who is a national and how citizenship can be acquired. Citizens benefited from such rights as voting, the ability to move freely within the country, and the eligibility to work. They also had responsibilities, such as serving in the military, paying taxes, and voting.

ART: ISTOCK/ELENABS

The modern notion of citizenship contrasts two visions. One vision, based on the declaration of human rights, is inclusive and can extend nationality to anyone meeting certain conditions. The other view, more exclusive, defines a nation more as an ethnic community. Specifically,

- The inclusive vision is reflected in the law of the soil (jus soli), the principle that a child born within a country's territory automatically acquires that country's nationality. In this view, often found in the New World, bonds of citizenship extend beyond blood ties and encompass people of different genetic and geographic backgrounds. This provides the basis for an inclusive system, which ensures that newcomers and their children are assimilated and can easily obtain citizenship.
- The exclusive vision of the law of blood (jus sanguinis) is based on the principle that children acquire nationality from their parents, regardless of their place of birth. This is commonly the case in much of Asia and Europe and in parts of Africa. This form of citizenship is more ethnocentric and by definition less inclusive: citizenship derives meaning, in part, by excluding noncitizens from basic rights and privileges. In such cases people can belong to a family that has lived in a country for generations and still not be citizens of their native land.

A growing number of countries are adopting citizenship laws that are a mix of the two. Whereas countries often initially adopted either jus soli or jus sanguinis rules, many countries have recently changed their policies to move toward the other vision. In 1999, Germany significantly reformed its jus sanguinis–based citizenship law, making it possible for foreigners residing in Germany for years—particularly foreign children born there—to acquire German citizenship. On the other hand, countries such as the United Kingdom have tightened the rules of jus soli and do not automatically grant citizenship to people born on its soil. The chart (next page) illustrates the distribution of citizenship laws across the world.

Citizenship by region

In continental Europe, jus soli has historically been the dominant choice, a reflection of the feudal tradition linking people to the lord on whose land they were born (Bertocchi and Strozzi 2010). Most European nations drafted citizenship laws according to this model during the 19th century, as did Japan, which modeled its constitutional law on that of continental Europe.

France is an exception. The French Revolution broke this feudal link, and jus sanguinis prevailed. At the end of the 19th century, France reverted to jus soli to beef up its population, after losing the war against Prussia, and to integrate foreign communities, a step that would make for a strong military. The British, however, kept jus soli at home and throughout the British Empire.

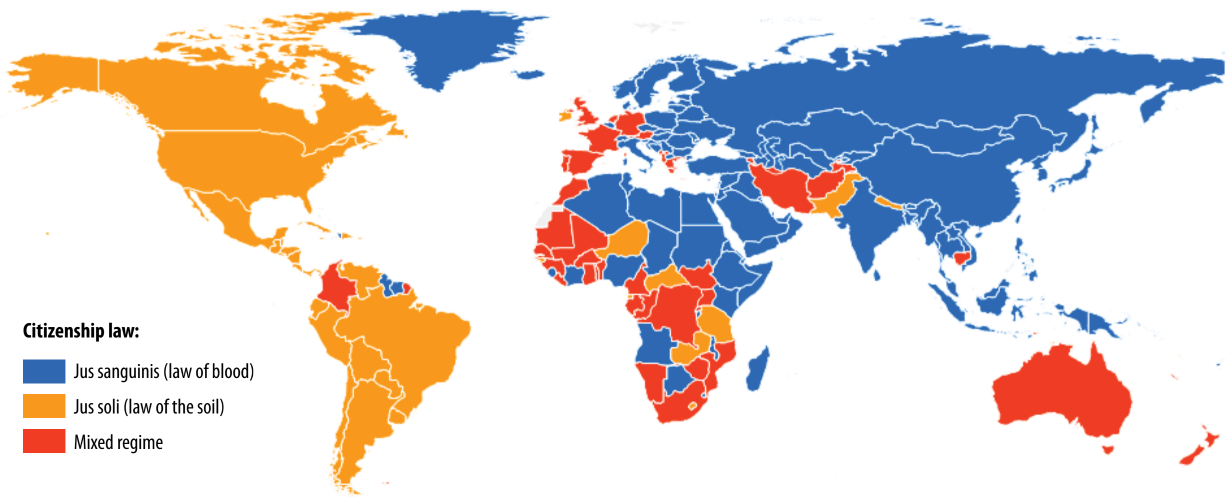
IN DEVELOPING COUNTRIES, PARTICULARLY WHEN INSTITUTIONS ARE WEAK, CITIZENSHIP LAWS MATTER.

Countries such as the United States chose jus soli, as would be expected in a country of immigrants. With the specific aim of protecting the birthright of black slaves, the US Constitution's 14th Amendment in 1868 encoded the jus soli principle. The relatively limited benefits of US citizenship versus US residency—a topic relevant to more than the United States, which deserves separate consideration—also meant limited fiscal costs of providing citizenship to a newcomer and the potential upside of an extra worker. (The cost of education fell on the migrant's home country; see Bertocchi and Strozzi 2010). Similarly, Canada, a large and sparsely populated country, welcomed immigrants with a jus soli citizenship law.

In colonized countries, citizenship laws were in general initially transferred from the colonial power (Bertocchi and Strozzi 2010). Countries with a strong national identity, such as China, Egypt, and Japan, typically make it hard to acquire nationality or obtain a second passport. Other countries—particularly newer Western Hemisphere countries—typically make it easier to be naturalized.

Citizenship laws across the world

Countries in the Western Hemisphere traditionally followed the "law of the soil," while in countries in Europe, Asia, and parts of Africa, the "law of blood" dominated. Today, a growing number of countries are adopting a mix of the two.



Many African countries, formed by British, French, and Portuguese colonial powers, lacked national cohesion. At independence, citizenship laws were revised: most former French colonies initially stuck with jus soli; former British and Portuguese colonies tended to switch to jus sanguinis, driven by ethnic considerations. Because many countries were artificially formed without consideration for local ethnic diversity, leading to political instability, jus sanguinis was thought to bolster national identity.

Such was the case in Sierra Leone, for instance, where the 1961 Constitution limited citizenship to transmission by descent, and only for those with black-African fathers and grandfathers. But in a heterogenous ethnic environment with forced migration the law excluded various ethnic and tribal groups, causing alienation and conflict, especially in the context of weak institutions. The Congolese Constitution of 1964, for instance, in an effort to exclude Rwandan immigrants, recognized as citizens only those whose parents were members of tribal groups established within the territory before 1908 (see Bertocchi and Strozzi 2010). Predictably, the marginalization of certain groups—and in some cases the creation of de facto stateless people who would later rebel—was a consequence.

Varying impact

How do citizenship rights affect economic development? The data vividly illustrate the striking difference in the average real GDP per capita in jus soli countries versus non–jus soli developing economies. In 2014, income per capita in the former group was 80 percent higher than in the latter. Splitting the sample of non–jus soli and jus sanguinis countries confirms that jus soli countries are richer, but there is no clear pattern when comparing mixed regimes with jus sanguinis countries.

Why the difference? Citizenship laws can be thought of as conflict-resolving or conflict-generating institutions. If inclusive, they can provide positive social capital, raising trust, cutting transaction costs, and reducing the probability and intensity of conflict. This is especially true when other conflict-resolution institutions lack teeth (for example, government is corrupt or the courts are weak), as in most developing economies. In principle, jus sanguinis makes integration more difficult and hence hurts economic development.

There are several channels:

Distorting (and reducing) investment: Investors who lack the prospect of obtaining citizenship have shorter time horizons, are mindful of excessive exposure to one country, and become wary around election times—they are particularly vulnerable in countries with weak institutions. In addition, their investment is distorted. If people's property rights are not well protected because they lack local citizenship, the focus will be on investment with a quick payback or requiring limited capital. In Cambodia and Madagascar, for example, foreigners may not purchase land, which restricts investment.

Political instability and corruption: Minorities without citizenship are often at polar extremes—either excluded from economic life or playing a disproportionately significant role in the local economy. Without citizenship, the marginalized minority cannot vote or impact public life through democratic means. One way for disenfranchised groups to draw attention to themselves is through protests or violence. This may spur governments to suppress these minorities, possibly increasing military spending and weakening growth as a result. Conversely, when a nonnational group plays a disproportionately significant role in economic life, its lack of protection by the state is a source of concern. Because of their vulnerability, influential minorities are motivated to influence the political process and may resort to bribes, which encourages corruption and weakens institutions.

Reducing public sector efficiency: Studies have documented how divisions—whether ethnic, religious, or linguistic—often undermine public sector performance, increasing patronage, lowering trust among the population, and ultimately hurting economic development (see Easterly and Levine 1997).

Distorting the labor market: Under jus sanguinis, noncitizen local minorities may be excluded from parts of the labor market. In many countries, immigrants are barred from entire professions. For instance, in Thailand foreigners cannot become hairdressers or accountants. In France, people from outside the European Union are not allowed to become directors of funeral companies. In these cases, jus soli expands the labor market in a way that jus sanguinis law does not—potentially broadening the labor pool and boosting the economy's efficiency.

Our empirical results confirm that the difference in citizenship laws affects economic development, even after controlling for potential internal factors. We first compiled a new data set of citizenship laws and then estimated whether citizenship laws can explain in part the significant differences in income per capita across countries. We found that in developing economies, particularly when institutions are weak, citizenship laws matter: jus soli, which is more inclusive in nature and encourages assimilation and integration, has a statistically significant and positive impact on income levels.

Per capita income in countries that switched to jus sanguinis was lower in 2014 (by about 46 percent) than it would have been if they had kept jus soli after independence, our results suggest. Moreover, our research found that in jus sanguinis countries, the income gap with jus soli countries could be reduced by easier access to citizenship through marriage and naturalization. This suggest some substitutability among the paths to citizenship.

Enhanced integration, growth

The debate over citizenship laws has been raging for the past few years—not just in developed economies but in those that are developing as well. We illustrate that such laws have a more material impact on development in lower-income countries, partly because their institutions are weaker and don't necessarily counterbalance the negative impact of exclusive citizenship laws.

The policy implications are clear, though nuanced. At a time when developing economies increasingly send emigrants and receive immigrants, integrating these populations effectively can spur economic development. In former colonies in particular, jus sanguinis has hurt development. All else equal, switching from jus sanguinis to jus soli can potentially enhance integration and boost economic growth. FD

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TECH TALENT SCRAMBLE

Global competition for a limited pool of technology workers is heating up

Pedro Nicolaci da Costa

Darren Kidd was making six figures a year working in Chevron's tech support department in Australia. He had never worked abroad before and had no plans to move his young family from their hometown of Perth, on Australia's west coast.

Across the continent and the Tasman Sea, the city of Wellington, New Zealand, was struggling to attract enough tech workers with the right skills for its fledgling start-up scene. So officials came up with an ambitious plan to woo families like Kidd's to the island nation: flying in 100 high-skilled workers and their families to the country's capital to interview for jobs in person with its premier technology firms. More than 48,000 people from 28 countries applied.

Kidd, who at first wasn't sure about living a nine-hour flight away from his hometown, discovered a vibrant city with a number of interesting jobs in start-ups and cloud computing—"a much more exciting prospect than many of the companies I was looking into in Perth." The 32-year-old moved to Wellington in August to work as a developer for Xero Limited, a fast-growing accounting software company based in Wellington. The pay was comparable to what he had been earning in Australia when factoring differences in the cost of living, but the New Zealand capital's strong commitment to embracing technology workers and helping their families transition, as well as the quality of life, proved a major draw.

Companies are finding their fortunes—and futures—increasingly tied to their ability to attract a limited pool of qualified technology workers. That shortage is expected to become more acute in coming years as the role of tech continues to expand across industries. Globally, tech spending was expected to grow to $3.7 trillion last year, up 6 percent from 2017, according to estimates from Gartner Inc., a global research firm based in Stamford, Connecticut.

Technology and science jobs in the United States outnumbered qualified workers by roughly 3 million as of 2016, according to data from Netherlands-based human resources consulting firm Randstad NV. By 2030, there will be a global shortage of more than 85 million tech workers, representing $8.5 trillion in lost annual revenue, according to management consulting firm Korn Ferry, based in Los Angeles.

Among the economies expected to be hit hardest are Brazil, Indonesia, and Japan, which could face shortages of up to 18 million workers apiece, according to Korn Ferry's projections. The United States and Russia are expected to be short 6 million workers each, while China could face a deficit of 12 million.

"It's pure supply and demand," says Alan Guarino, a vice chairman at Korn Ferry. "Companies are paying more, they're hiring more, but there is still a shortage of high-skilled tech workers. Technology is the thread that runs across every aspect of business."

Countries are finding their fortunes increasingly tied to their ability to attract a limited pool of qualified technology workers.

The economic stakes are rising as technology permeates a growing number of sectors. The tech share of US GDP has surged more than sixfold since 1980, according to figures from professional services firm PwC, although employment in the sector has not expanded materially, indicating the magnitude of productivity gains. With productivity growth slowing worldwide since the Great Recession, demand for tech-skilled workers has remained strong, especially outside the United States.

There is high demand, Guarino says, for data scientists, software engineers, programmers, and cloud computing experts, not just at software firms and traditional tech powerhouses like IBM and Cisco, but also in retail companies and financial firms, leading companies and municipalities to become increasingly aggressive in how they recruit new workers.

Government is also getting in on the act. School districts, cities—even entire countries—are competing to poach employees from each other by offering targeted financial incentives including higher salaries and tax breaks. Government officials increasingly realize the speed of technological change raises the chances of being left behind. The race for talent, it turns out, has also become something of a public function.

A recent high-profile example: the competition among US and Canadian cities to become home to Amazon's second headquarters campus. After an exhaustive race that had local governments and development agencies competing to offer new incentives, the company ended up choosing fairly predictable locations precisely because of their abundance of tech talent. In a measure of the intensity of the scramble for talent, Amazon was to receive incentives worth nearly $2.5 billion from the selected locations, New York City and Arlington, Virginia. Amazon later abandoned plans for a New York base following objections from some local officials.

On the national level, countries like Israel and Poland have become success stories when it comes to filling tech jobs, in part because both had a high domestic tech skill base to begin with. Sometimes called the "Start-up Nation," Israel has more start-ups per capita than any other country. Poland also boasts a strong start-up community along with a highly educated workforce with lots of English speakers. These made Warsaw an attractive location for Google to launch a new campus in 2016.

Crisis-stricken Greece is trying to revive its economy by partnering with venture capitalists to invest in homegrown tech companies. Athens-based Marathon Venture Capital, which has been investing in Greek start-ups for 12 years, says in a 2018 report that the local talent pool is attracting the attention of multinational tech companies like Oracle, Samsung, and Citrix, all of which have acquired Greek tech companies.

Portugal is offering residency and the prospect of eventual citizenship to tech workers and entrepreneurs. And India, already a technological hub for many international firms—like Microsoft and SAP Software Solutions—and homegrown tech companies like Tata Consultancy Services, is looking to retain its stronghold by offering broad training programs for the next generation of workers in IT, telecommunications, and other related fields. Prime Minister Narendra Modi launched a wide-ranging program called Skill India in 2015, looking to nurture tech skills in the younger generation.

China has seen mixed results. While it sends millions of young students overseas for secondary education, many for training in science and technology fields, China has until recently achieved limited success at attracting those students to work back home. Language and cultural barriers have also made it tougher for China to attract talent from abroad.

In Europe, the tech industry's fate has been closely linked to the fortunes of the continent's economy, which wobbled during the 2012 crisis but has since recovered. When Pedro Presa, a Portuguese entrepreneur, started scouting for the perfect city in which to launch his dream project, a streaming soccer video service called Mycujoo, he narrowed his search to three cities: London, Berlin, and Amsterdam (Presa was based in Zurich at the time but knew he didn't want to stay there).

He quickly ruled out the first two—too expensive, he says—and homed in on the Netherlands, which allows foreign workers to earn 30 percent of their income tax-free, making it easy for him to recruit high-skilled workers.

"It's very attractive here to hire expats because of the 30 percent rule," Presa says, adding that it's also easier to hire workers than in countries like Switzerland that have immigrant worker quotas.

He set up shop in 2014 but had always hoped to find a way to do business back home in Portugal. That opportunity came in 2016, when Portugal—recovering from a deep financial crisis—began creating new incentives to attract tech firms like Presa's. At the same time, a stronger Dutch economy meant greater internal competition for workers. In addition to other measures, Portugal this year started to offer a path to a European Union passport for anyone willing to hire at least 10 workers or make other major investments in the local economy.

Presa's firm, Mycujoo, opened an office in Lisbon two years ago. It now has 18 employees, and he expects to hire three dozen more in the next year.

"The government has been speaking with us about potentially creating a financial incentive for us as long as we reinvest in hiring people," he says, adding that he hopes to eventually move back to Lisbon himself. "Portugal has a really good quality of life and is not very expensive—so it just became an attractive place for people to move."

Some parts of the world can offer neither competitive salaries nor an attractive lifestyle to lure skilled employees. This leaves companies to tap into a pool of remote workers, who may not have to physically move in order to switch jobs. That's a double-edged sword, though. Reliance on remote workers makes it that much easier for international firms to hire away each other's employees, says Igor Rubenstein, managing director of Ukraine Tech, an IT recruitment firm in Kiev. After all, he says, "there's a shortage of IT workers all across the globe."

Where recruiting tech employees from abroad is not an option, some companies and governments are seeking to train their own. Kenya, Nigeria, and South Africa are looking to Google to train 10 million high-skilled workers. The tech giant launched a free training program aimed at closing the so-called digital divide between rich and poor nations, starting in March 2017. Locals say the services are fairly basic, but they are free—and much needed, especially in more rural regions.

The program will help close the deficit of skilled workers faced by Ndubuisi Ekekwe, who started an electronic design firm in Nigeria in 2010.

Ekekwe, the founder of First Atlantic Semiconductors & Microelectronics, says few locals have the specialized skills he's often looking for. Those who do tend to work for high-paying, foreign-funded start-ups or run their own companies. Recruiting high-skilled workers from other continents, he added, tends to be impractical because it is difficult to match international salaries.

Some parts of the world can offer neither competitive salaries nor an attractive lifestyle to lure skilled employees.

His solution was to partner with local universities to run workshops and develop courses to groom new workers who can navigate the company's newest technologies, which include sensors that help farmers increase productivity.

"Once they graduate, they join us," Ekekwe says. "We provide them with road maps of emerging technologies."

But, he says, that solution can present a new challenge: preventing the workers he has invested so much in from being poached by multinational companies hunting for skilled workers.

He's sometimes had to take extreme measures. After a number of employees were lured away, he moved his headquarters from Lagos to Owerri, a city of 1.2 million people about an hour's flight from the capital where there are fewer competitors and a lot less traffic and pollution. Another advantage of being outside the capital: his design and technical teams are now less likely to be snatched away by corporate headhunters, he says.

In Wellington, city managers were going for the opposite approach: flying in Kidd and other workers to meet with headhunters from a number of different firms. Although the companies were effectively vying against each other for the same pool of candidates, the program was successful in drawing thousands of qualified applicants, says David Perks, general manager of the Wellington Regional Economic Development Agency.

Perks says the partnership with domestic firms like Xero was crucial to the program's success in drawing qualified candidates from around the world.

The gorgeous surroundings, including the blue-ocean beaches and tree-covered mountaintops, didn't hurt either: "You can't beat Wellington on a good day," says Kidd, who adds that New Zealand now feels like home. FD

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GAP AT A GLANCE

Women still lag in many areas, while glaring disparity emerges in the technology field

GENDER EQUALITY is not just the right thing to do—it also makes good economic sense. Yet across the world, women are still a long way off from achieving gender parity with men, according to a new report from the World Economic Forum.

The 2018 Global Gender Gap Index finds that women have reached 68 percent parity overall, leaving a gap of 32 percent. The report measures the gender gap in four main areas: economic participation and opportunity, educational attainment, health and survival, and political empowerment.

When it comes to leadership, women still have a long way to go. They represent just 18 percent of ministers and 24 percent of parliamentarians globally, and they hold just 34 percent of managerial positions. In terms of broader economic power, women continue to experience large gaps with men in their control of financial assets and in time spent on housework and other unpaid tasks.

The report also flags the disturbing emergence of gender gaps in skills related to artificial intelligence (AI). It finds that only 22 percent of AI professionals worldwide are women, while 78 percent are men. The implications of this finding are worth noting. First, this skills gap may worsen future gender gaps, as AI skills will be increasingly in demand. Second, technology across many fields is being developed without diverse talent, limiting its innovative and inclusive capacity. Third, the low integration of women in AI implies a significant missed opportunity: the world cannot afford to deprive itself of women's talent in a field where talent is already scarce.

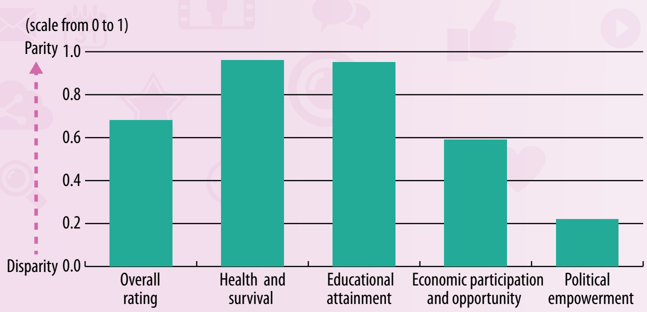
To stay competitive, then, countries must make gender equality a priority. The report points to potential role models by revealing those countries that—within their region or income group—are leaders in distributing resources more equitably between women and men, regardless of the overall level of resources. FD

*Prepared by **LIJUN LI**, communications officer, IMF. Text and charts are based on the World Economic Forum's Global Gender Gap Index 2018, available at https://www.weforum.org/reports/the-global-gender-gap-report-2018.*

Global snapshot

Gender gap score by area

Health and education gender gaps are closing, while political and economic empowerment gaps remain large.



Top 10 performers

Iceland leads the way, followed by its Nordic neighbors.

Country	Global Index Rank	Global Index Score (0–1)
Iceland	1	0.858
Norway	2	0.835
Sweden	3	0.822
Finland	4	0.821
Nicaragua	5	0.809
Rwanda	6	0.804
New Zealand	7	0.801
Philippines	8	0.799
Ireland	9	0.796
Namibia	10	0.789

ART: ISTOCK/CIENPIES

Progress has been made...

Gender parity in education is almost complete

There is high enrollment in secondary education globally…

65% of girls
66% of boys

…but low attendance in college/university,

39% of women
34% of men

and **20%** of women are illiterate in 44 countries.

...but challenges remain

Across 149 countries assessed, there are large disparities in political empowerment...

Women represent:
17 heads of state
18% of ministers
24% of parliamentarians
34% of managers

…as well as economic empowerment.

in just **60%** of countries studied, women have as much access to financial services as men.

in **42%** of countries, women have as much access to land ownership as men.

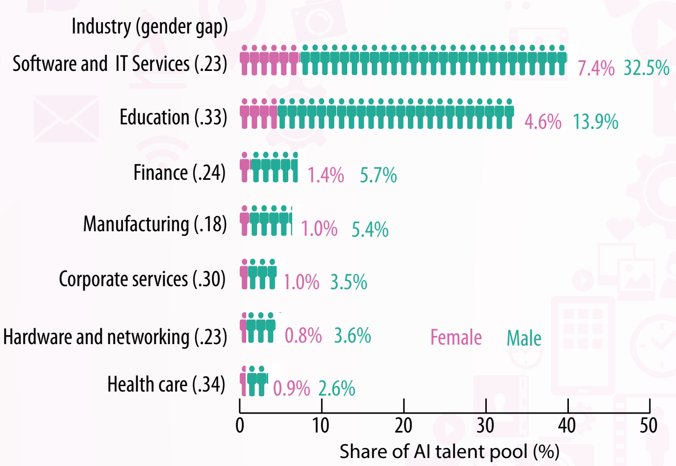
women spend **double** the time men do on housework and other unpaid activities in the 29 countries for which data are available.

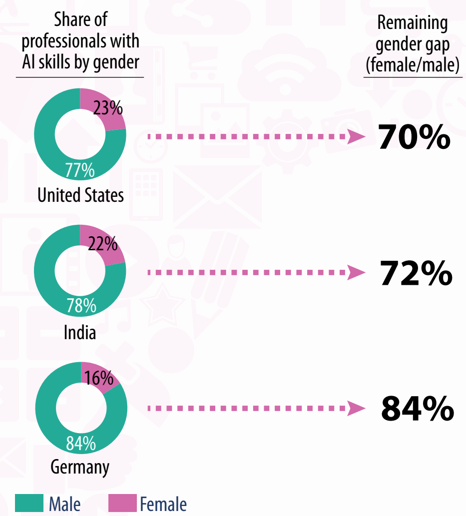
And new gender gaps are emerging in the jobs of the future

Women are sorely underrepresented in AI and other careers that require science, technology, engineering, and math skills.

Even in the countries with the largest AI talent pools, there is a significant gender gap among AI professionals.

AI workforce distribution
Women make up 22 percent of AI workers, but the gender gap varies by industry.





THE GROWTH FORECAST PUZZLE

With vast technological change afoot, why are long-term growth forecasts becoming more pessimistic?

M. Ayhan Kose, Franziska Ohnsorge, and Naotaka Sugawara

Over the past decade, the implications of recent technological innovations for future growth have become a subject of lively debate. Some claim that, in the coming decades, the global economy will enjoy a surge in economic growth driven by improvements in productivity thanks to new technologies (Brynjolfsson and McAfee 2014; Mokyr 2018). Others caution that future growth could stall, or even decline, because new technologies will likely have a diminishing marginal impact on productivity and structural challenges associated with aging and sluggish investment growth will cast a pall on prospects (Gordon 2016).

It is difficult, if not impossible, to undertake a credible quantitative analysis of the aggregate impact of new technologies on growth prospects. However, long-term growth forecasts could provide a small window into this debate. These forecasts could be expected to improve over time as new technologies, such as machine learning, cloud computing, robotics, and smartphones, spread. But is this borne out by the data? In our study, we examine how long-range forecasts have evolved during a period of rapid technological change in order to gauge what this might mean for future growth (Kose, Ohnsorge, and Sugawara, forthcoming).

PHOTO: ISTOCK/MONSITJ

Our analysis is based on forecasts published by Consensus Economics, a firm that surveys professional forecasters several times a year to generate its long-term annual growth projections—the average forecast for 6–10 years ahead. Forecasts by Consensus Economics reflect the perspectives of many institutions that use a wide range of methodologies, so they tend to stand up to potential uncertainty better than projections produced by a single entity. Our sample includes long-term forecasts over 1998–2018 for 20 advanced economies and 18 emerging market and developing economies that constitute roughly 90 percent of global GDP.

Increasingly pessimistic

Following the global financial crisis, long-term forecasts were steadily downgraded. The global economy was projected in 2010 to grow at 3.3 percent in 2020. By 2018, the long-term growth forecast had been reduced to 2.5 percent (see Chart 1). Long-term forecasts were downgraded for all countries by an average 1.4 percentage points between 2007 and 2018. One quick interpretation of these increasingly pessimistic expectations is that forecasters hold a dim view of the opportunities offered by new technologies for the next decade.

The global financial crisis marked a turning point in long-term global growth expectations. Between 1998 and 2007, the average long-term forecast rose from 3 percent to 3.4 percent and increased in almost half of the economies studied. Emerging market and developing economies, in particular, enjoyed improving growth prospects before the crisis, but advanced economies' forecasts were already being downgraded in the early 1990s. After a brief period of upgrades in the late 1990s, long-term forecasts for advanced economies resumed their gradual decline in the early 2000s. Since the 2008–09 crisis, these forecasts have materially deteriorated for both groups of countries. The postcrisis weakness in long-term growth expectations is also

Time and again, growth forecasts have proved overly optimistic relative to outcomes.

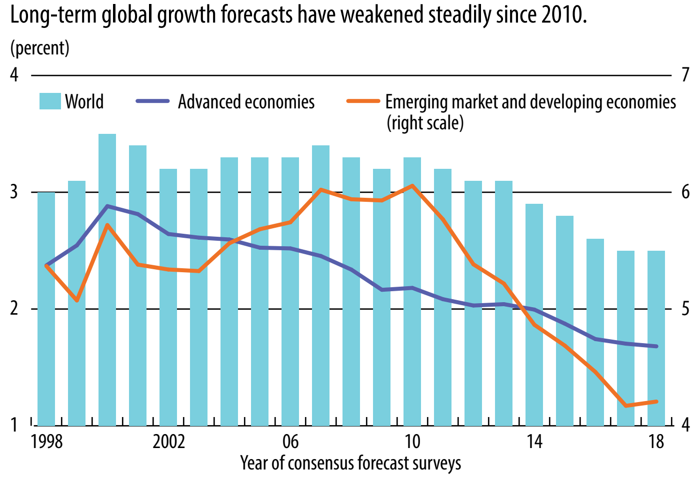
evident, albeit at different speeds and intensities, among alternative measures of activity, including growth rates of per capita income, investment, and consumption.

The pattern of precrisis upgrades and postcrisis downgrades in long-term forecasts is broadly shared by many large economies. For example, in 1998, US growth was expected to be about 2.4 percent in 2008. But by 2008, long-term growth forecasts had been revised upward by 0.3 percentage point. Similarly, in 1998 growth in China was expected to be 7.5 percent over

Chart 1

Cloudy, with headwinds

Long-term global growth forecasts have weakened steadily since 2010.



Sources: Consensus Economics; and World Bank.
Note: The sample includes 38 countries (20 advanced economies and 18 emerging market and developing economies) for which consensus forecasts are consistently available during 1998–2018. Annual averages of results from multiple surveys conducted in each year are presented. Aggregate growth is computed with GDP weights measured in constant 2010 US dollars.

Instead of a technology-driven productivity boost, growth is expected to slide further.

the following decade, and by 2008, the long-term forecast had been raised 0.2 percentage point following the economy's remarkably strong performance in the previous decade. Although long-term forecasts for Brazil and India were upgraded in 2008 relative to expectations a decade earlier, these upgrades did not last. By 2018, these economies' long-term growth forecasts had all declined 0.3–2.4 percentage points below 1998 levels.

Roller-coaster ride

The evolution of long-term forecasts reflects the global economy's roller-coaster ride over the past two decades. Precrisis strength in growth prospects coincided with unprecedented expansion of global trade and financial flows, along with rapid growth in some major emerging market and developing economies. During 2003–07, the global economy registered one of its best growth records since the early 1970s. Tailwinds, however, turned into headwinds during the 2009 global recession, which was followed by an anemic recovery, especially in advanced economies. Over 2010–15, long-term prospects were further impeded by the 2011–12 euro area debt crisis and by a sharp slowdown in emerging market and developing economies, attributable in part to a downturn in commodity prices.

The softening of long-term growth forecasts also reflects structural forces associated with demographic changes, investment prospects, and productivity trends. These forces have already been eroding *global potential growth*—the growth rate of the global economy at full capacity and full employment. During 2013–17, global potential growth was already roughly 1 percentage point lower than a decade earlier, as a result of weak productivity growth, sluggish expansion of investment, and a broadening slowdown in working-age-population growth.

Long-term global growth forecasts made a decade earlier exceeded actual outcomes in every year of the 2008–18 period except 2010 (see Chart 2). The same was true for the majority of individual country forecasts. And even in 2010, forecasts were overly optimistic for about half of advanced economies and a quarter of other economies.

The analysis here covers mainly the crisis and postcrisis periods that witnessed an unusual series of negative growth shocks, but the optimism bias of forecasts has been widely documented. Time and again, growth forecasts have proved overly optimistic relative to outcomes (Ho and Mauro 2015). Moreover, the degree of optimism tends to increase as the time horizon gets longer. On average, long-range forecasts overshot actual growth by 1.2 percentage points, and three-year-ahead forecasts overestimated growth by 0.7 percentage point over the period until 2018.

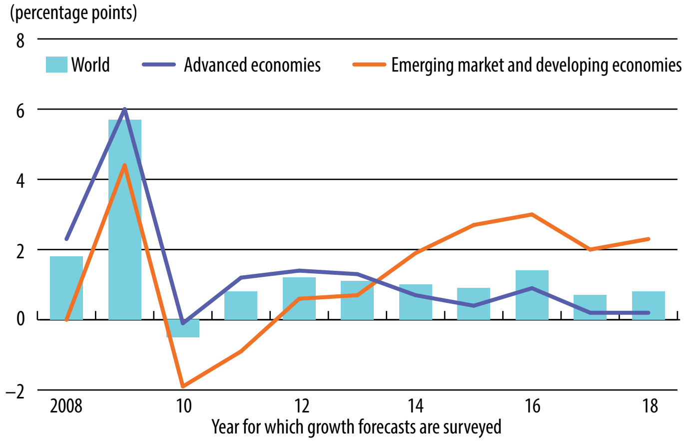
Since long-term growth expectations presumably abstract from cyclical effects, they should reflect forecasters' judgment about potential growth. But do they? Long-term forecasts for global growth often exceed the estimates of global

Chart 2

Rose-colored glasses

In every year except 2010, long-term global growth forecasts have turned out to be overly optimistic.

(percentage points)



Sources: Consensus Economics; and World Bank.
Note: A forecast error in an aggregate group is defined as a difference between consensus output growth forecasts a decade earlier (e.g., for 2008, forecasts made in 1998) and actual growth (in years on the horizontal axis), weighted by GDP in constant 2010 US dollars. Refer to the note in Chart 1 for the sample size.

potential growth over the decade that follows. These observations suggest that long-term growth forecasts have remained optimistic relative to eventual outcomes and potential growth estimates, despite becoming more pessimistic during the postcrisis period.

Long-term forecasts tend to improve during periods of sustained strong output growth. In other words, growth expectations generally rise if productivity, employment, and investment growth increase for a prolonged period.

Between hope and despondency

For now, forecasters appear to hold a cautious view of the growth boost from new technologies over the next decade, more in line with the technology pessimists than the technology optimists. Instead of a technology-driven productivity boost, growth is expected to slide further. This pessimism could reflect an awareness that weak productivity growth, increasingly unfavorable demographic trends, and subdued investment prospects are likely to weigh on global potential growth in the coming years.

There could, of course, be other explanations for increasingly pessimistic forecasts in an era of rapid technological change. First, forecasters may benchmark their forecasts against recent low productivity growth—but this indicator may be underestimated because of measurement error. Nobel Prize–winning economist Robert Solow nicely summarized the issue of measurement by saying, "You can see the computer age everywhere but in the productivity statistics."

Second, forecasters may be unable to project the impact of major technological changes on productivity and output growth because these types of changes, such as the mass use of electricity and cars, are rare and, when they happen, their impact on aggregate growth and productivity is felt only gradually. Moreover, a quantitative study of their implications for growth prospects requires improvements in econometric tools and data that are not available at the moment.

Both explanations attribute the decline largely to a lack of good information.

A third explanation is less benign: structural headwinds from adverse demographic trends, slowing investment growth, and stagnating productivity as a result of existing widely used technologies may reduce growth prospects to such an extent that even large productivity gains from new technologies will not be able to deliver strong long-term growth. This could mean that new technologies are still not mature enough to be widely used for general business purposes, and that their diffusion requires long and uncertain lags. It could also reflect obstacles to firms' adoption of new technologies, such as financing constraints and limited worker skills.

These explanations aside, if past performance is any guide, even these increasingly pessimistic long-term forecasts may eventually turn out to be optimistic as growth—yet again, as in the past two decades—disappoints. One message is clear: a hopeful outlook about future global growth depends on a significant pickup in measured productivity to offset the structural impediments confronting the world economy.

Rapid technological change may eventually bring a new era of global prosperity. However, rather than wait for that new era to arrive, policymakers must act now with measures to enhance their economies' potential growth. In the spirit of US President Dwight D. Eisenhower's dictum "Plans are worthless, but planning is everything," governments should prepare for the worst, even if the actual impact of new technologies is still unknown. This implies an urgent need to press ahead with initiatives to accelerate the realization of new technologies' growth benefits. These initiatives include raising investment in human capital and expanding infrastructure investment to facilitate the use of new technologies, as well as improving institutions and regulations to meet the needs of technological change. FD

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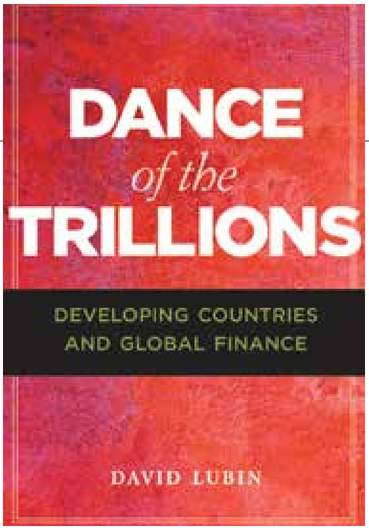
Turbulent Times



David Lubin
Dance of the Trillions: Developing Countries and Global Finance
Brookings Institution Press/Chatham House, Washington, DC, and London, 2018, 154 pp., $34.99

I HAVE ADMIRED and followed David Lubin for many years in his role as one of the leading emerging market strategists. In a world of often jarring ups and downs in the markets—2018 with its violent emerging market sell-off is a good illustration—David's calls and analysis have brought insight and perspective to often turbulent times.

Dance of the Trillions traces the ebb and flow of global capital to emerging market and developing economies from the 1970s to today, and it does so in an all-encompassing and well-written manner. Along the way, the book touches on the curse of hot money for many emerging markets, the illusion that managing exchange rates will somehow provide stability (when the opposite is so often the case), and the central role of US monetary policy as one of the principal drivers of capital flow cycles to emerging markets. The latter point is especially pertinent today, given that we stand at the tail end of a decade of extraordinary monetary stimulus that is, ever so gradually, being unwound.

Besides China's rising influence, emerging markets face a stream of challenges that will shape the coming decades. First, there is the shift toward protectionism in some advanced economies, which itself is rooted in a perception that globalization perhaps bestowed too many benefits on emerging markets at the expense of low-skilled labor in the advanced world. Second, there is the unstoppable march of technological progress, which may make low-skilled jobs increasingly obsolete. The 3D printing of running shoes is one example of the return of production from emerging markets to advanced economies as a result of the diminishing importance of wage differences. Some people have called this effect perhaps the biggest challenge for emerging markets. Third, the overhang from a decade of extraordinary monetary stimulus in the world's three leading economies produced record capital flows to emerging markets and thus, perhaps, record vulnerabilities.

The central question the book raises—which all of us in international finance debate regularly—is the role China will play in the world economy in the years ahead. Recent trade tensions between the United States and China are symptomatic of persistent imbalances and a reluctance to address them on all sides.

Besides China's rising influence, emerging markets face a stream of challenges that will shape the coming decades.

There's a separate set of issues, perhaps outside the scope of Lubin's book, around the geopolitics of going from a US-centric unipolar world (of which the so-called Washington Consensus was an outgrowth) to a more bipolar or multipolar world—and where this leaves China and the rest of the developing world. The mixed reactions to China's Belt and Road Initiative, especially around debt and the lack of knowledge transfer in recipient countries, reflects a larger issue: whether China's business model may face as much, or more, scrutiny as the Washington Consensus. FD

ROBIN BROOKS, managing director and chief economist, Institute of International Finance

Collecting Taxes

TAX COLLECTION is on many African policymakers' minds, and rightly so. The good news is, the median sub-Saharan African country has improved revenue collection from about 14 percent of GDP in the mid-1990s to more than 18 percent of GDP in 2016. But revenues still fall short of spending needs, and public debt has increased across the continent. Looking ahead, the IMF estimates that many low-income countries must spend an additional 14 percent of GDP to achieve the United Nations' Sustainable Development Goals by 2030. At the same time, governments are looking to move "beyond aid" to fund their own development. Is there a way to square these goals?

In their book *Taxing Africa*, Mick Moore, Wilson Prichard, and Odd-Helge Fjeldstad give an illuminating history of taxation in Africa and describe the current state of play. Based on the authors' broad experience in advising governments on tax policy and revenue administration, they offer ideas to boost revenue collection, without being prescriptive.

The book starts with a brief history of Africa's tax system, which has its roots in colonialism. Taxes were levied mainly on Africans and designed to force workers into the cash economy, working for European farms or mines. Some taxes are still associated with this period and face strong opposition. After independence, governments turned to taxing agriculture and mining exports to develop local industry and redistribute income. In the 1980s and 1990s, African countries moved to a more market-based approach and away from mainly taxing exports.

Today, tax systems across the continent feature a mix of direct taxes on personal and corporate income and indirect taxes on consumption, such as a value-added tax. But the authors note that the potential for local taxes is limited by the bribes citizens must pay to receive basic services. They also point to problems in collecting taxes from rich and influential citizens. Last, many countries—not just in Africa—struggle to collect taxes from multinational companies that use sophisticated strategies to shift income to tax havens.

So where is the potential to boost tax collection? The authors argue that the increasingly sophisticated revenue administration authorities in Africa can help design and implement better tax systems, for example, in Rwanda or Uganda. Unfortunately, tax authorities are up against powerful vested interests that obstruct reforms. But a political counterweight is emerging. Civil society is starting to support revenue mobilization, seeking to improve fairness, equity, reciprocity, and accountability. In this context, the authors note that many governments are better able to explain the need for taxes by pointing to the spending these taxes pay for.

Taxing Africa is a fascinating book that covers taxation and the challenge to increase tax collection from many angles. The book is written in nontechnical language and makes stimulating reading for anyone interested in tax policy and revenue administration. The authors' point that African leaders are increasingly looking for African solutions is encouraging. Still, the policy-minded reader might appreciate a few more concrete ideas about what governments can do. FD

AXEL SCHIMMELPFENNIG, division chief, IMF African Department

Mick Moore, Wilson Prichard, and Odd-Helge Fjeldstad

Taxing Africa: Coercion, Reform and Development

Zed Books, London, 2018, 288 pp., $24.95

Woman for the Ages

Canada's new $10 bill delivers a history lesson

Glenn Gottselig

A SUCCESSFUL black businesswoman is jailed, convicted, and fined for refusing to leave a whites-only area of a movie theater in 1946. Local Baptist church leaders step in to lend assistance. An appeal proceeds through the court system, but ultimately proves unsuccessful. Sixty years on, a government apology and posthumous pardon attempt to right the wrong.

A page torn from a history book recording events from the southern United States? Not quite.

While reminiscent of incidents that occurred much farther south in the early part of the 20th century, the episode transpired in Nova Scotia, one of the maritime provinces on the east coast of Canada.

PHOTOS: BANK OF CANADA

The new $10 note is the first vertically oriented banknote issued in Canada. It allows use of a more prominent image of Viola Desmond and differentiates the new $10 note from previously issued polymer notes.

Viola Desmond and her court case became an inspiration for the pursuit of racial equality across Canada. A testament to an oft neglected but marked moment in Canadian history, her likeness now appears on Canada's $10 banknote.

As Canada's first vertical banknote, the new $10 bill features enhanced security features that are easy to check and difficult to counterfeit, including:

- a color-shifting eagle feather that changes from gold to green;
- raised ink on various parts of the bill; and
- detailed metallic images—the Library of Parliament's vaulted dome ceiling, maple leaves, and Canada's flag and coat of arms—in and around the large transparent window.

Exceptional process

In 2014, the Bank of Canada reviewed the processes used to select and design the visual content of its polymer banknotes. The result was a commitment by the bank to consult more openly and broadly within Canada on the development of the theme, subject matter, and images for new banknote series.

At the November 2018 launch of the new $10 note featuring Desmond, Bank of Canada Governor Stephen Poloz described the early stages of the new process: "Finance Minister Bill Morneau agreed with me that it was long past time to feature an iconic Canadian woman on the front of a regularly circulating banknote," he said. "So the bank asked Canadians to tell us who that woman should be. And that invitation unleashed a flood of nominations—over 25,000 of them."

The nominations resulted in a list of 461 qualified nominees. An independent advisory council whittled the roll down to 12, and a public opinion survey then asked Canadians to weigh in. Just under 90 percent of respondents had no objections to any of the 12 women. History experts helped the council produce a short list of five names, and focus groups then convened to offer ordinary Canadians' opinions of the five women. The list met with approval and advanced to the bank, where the governor then consulted with the minister of finance. Per the Bank of Canada Act, the minister made the final decision.

"Banknotes are not only a secure means of payment that Canadians can use with confidence. They also tell the stories that have shaped our country," said Poloz. "Now, each time this new vertical $10 bill changes hands, it will remind us of our continued pursuit of human rights and social justice in Canada."

Time for change

When Desmond purchased her ticket at the movie theater that day in 1946, she received admission to the balcony—the seating generally reserved for nonwhite customers. But being nearsighted, and unaware of the policy, she went to sit in the

The back of the $10 banknote features images and symbols that represent Canada's ongoing pursuit of rights and freedoms, including the Canadian Museum for Human Rights—the first museum of its kind in the world.

floor section to be closer to the screen. A ticket taker noted her ticket was for upstairs seating, so she returned to the ticket counter to purchase a floor seat. Denied the purchase and realizing that her request was refused because of her race, she decided to sit on the main floor anyway. The police were called, and she was forcibly removed from the theater, injuring her hip, before she spent 12 hours in jail and paid the $20 fine.

While no laws existed in Nova Scotia to enforce segregation at the time, no court in the province had ruled on the legality of discriminatory policies in hotels, theaters, or restaurants. The tax on the balcony price of 20 cents was 2 cents; the tax on the floor price of 40 cents was 3 cents. In the end, Desmond was convicted of depriving the government of a penny in tax.

"In 1946, Viola Desmond took a courageous stand against injustice that helped inspire a movement for equality and social justice in Canada," said Jennifer O'Connell, parliamentary secretary to the minister of finance, who spoke at the $10 banknote event. "More than 70 years later, we honor her as the first Canadian woman to appear on a [regularly circulating] banknote and hope her story inspires the next generation of Canadians to follow in her footsteps." FD

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