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# Wising Up to the Costs of Aging

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



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## Keeping Smart about the Older Generation

**T**HE WORLD is on the threshold of a stunning demographic transformation caused by falling fertility and rising life expectancy. Global aging promises to affect every dimension of economic, social, and political life—from the shape of the family to the shape of the world order. Perhaps most fatefully, it could throw into question the ability of many countries to provide a decent standard of living for the old without imposing a crushing burden on the young.

This issue of *F&D* explores the consequences on society of aging populations. The world's population will reach 7 billion this year and is projected to exceed 9 billion in 2050. But in our [lead article](#), Ronald Lee and Andrew Mason say that hidden behind these headline numbers are important changes in the age distribution of the population. In the rich industrial nations as well as some middle- and lower-income countries, populations will age as the proportion of elderly people rises dramatically.

Population aging will certainly challenge public and private budgets in many ways, but through a combination of reduced consumption, postponed retirement, increased asset holdings, and greater investment in human capital, it should be possible to meet this challenge without catastrophic consequences.

We look at which countries are best and worst prepared to meet the needs of the growing wave of retirees. [Neil Howe](#) and [Richard Jackson](#) publish a fascinating ranking.

We also have articles on a broad range of current topics, including [Middle East unemployment](#), [the economic repercussions of the earthquake and devastating tsunami in Japan](#), and [banking in offshore financial centers](#) such as the Cayman Islands. [Carmen Reinhart](#) and [Jacob Kirkegaard](#) look at how governments are finding ways to manipulate markets to hold down the cost of financing huge public debts, and in [Straight Talk](#), the IMF's Min Zhu argues that emerging markets must adapt to the new global reality by building on their economic success and address some of their long-term challenges.

In our regular [People in Economics](#) column, Prakash Loungani speaks to Nobel Prize winner George Akerlof, and we also discuss the aftermath of the global crisis and what it has taught us with three other laureates—Michael Spence, Joseph Stiglitz, and Robert Solow—in our “[Rethinking Economics in a Changed World](#).” On the F&D website we have video interviews with all four of the Nobel winners—well worth taking a look. And we now have a new Facebook page where you can join the discussion at [www.facebook.com/FinanceandDevelopment](http://www.facebook.com/FinanceandDevelopment).

Jeremy Clift  
Editor-in-Chief

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# The Human Face of Economics

*Prakash Loungani* profiles **George Akerlof**

**I**N 1984, economics Nobel Laureate George Stigler predicted that economics was on its way to becoming the queen of the social sciences. He called economics “an imperial science,” one that was clearing a path through the academic thickets for other social disciplines. He applauded the work of “economist-missionaries . . . often against apprehensive and hostile natives.”

Well a funny thing happened on the way to the coronation. Over the quarter-century since Stigler’s article, it has become clear that economics has as much to learn from other disciplines

as it has to teach them. Today, the field of behavioral finance uses insights from psychology and sociology to understand financial markets. Corporate scandals and greed-driven financial crises have led to calls for blending ethics into economics. And [Nobel Prizes in economics](#) over the past decade have gone to a psychologist, Daniel Kahneman ([see \*F&D\*, September 2009](#)), and a political scientist, Elinor Ostrom.

These developments might have upset George Stigler but not his namesake, George Akerlof, a 2001 economics Nobel laureate. He says it has long been his “dream” to have a macro-

economics grounded in the “full range of human emotions and actions: fairness, confidence, greed, identity, procrastination.” (Procrastination? We’ll get back to that . . . later.)

### **“It’s not fair!”**

Akerlof says the topic that has motivated him the most over his 40-year career is unemployment. “I have always thought of unemployment as a terrible thing. In fact that has been the motivation for almost everything I have ever written. A person without a job loses not just his income but often the sense that he is fulfilling the duties expected of him as a human being.”

Why does unemployment arise? Akerlof, in joint work with noted economist Janet Yellen (who also happens to be his wife), has argued that the notion of fairness plays a key role. Akerlof and Yellen draw on sociology to enrich the description of how exchange takes place in markets, including the labor market. In economic theory, the price at which

## **“The combination of daring questions and beautiful answers is what makes George the successful contrarian he is.”**

an exchange takes place is determined by supply and demand. If more sellers bring fruit to a farmers’ market than there are buyers that day, the price at which fruit is sold drops. If there is an unexpected snowstorm, a hardware store, according to the economic theory, will raise the price of shovels and is justified in doing so to reflect their sudden scarcity.

But “human beings don’t always think this way,” says Akerlof. Surveys have shown that people regard it as unfair if hardware stores raise prices in the middle of a snowstorm. And prices may not always fall in the farmers’ market when supply outstrips demand. People who shop in farmers’ markets are often “making a statement,” Akerlof says. Some buyers may buy a bit more than they had planned if they see the sellers they are trying to support not doing too well. And some sellers may have too much “pride in the quality [of their product]” to lower the price and may hold out for a price they regard as “fair.”

When applied to the labor market, considerations of fairness play an even more important role. The price at which labor is exchanged—the wage rate—does not depend solely on the demand and supply of labor. The employer has to factor in the impact of paying a low wage on the morale and efficiency of the worker. It does no good for an employer to drive down a worker’s wage if that would cause the worker to be resentful and to figuratively “spit in the soup.” Hence employers offer something higher than the wage that would equate demand and supply. Akerlof and Yellen call this the “efficiency wage” to capture the notion that higher wages motivate workers to be more effective or efficient at their jobs.

The aggregate consequence of employers doing the right thing is that there will always be some unemployment in the economy, because wages will be set higher than the rate at which everyone who seeks a job would be employed. “The

market for jobs is then like a game of musical chairs, with more people on the dance floor than there are chairs. When the music stops, some people cannot find a chair,” Akerlof has written ([Akerlof and Shiller, 2009](#)).

### **Animal spirits**

Akerlof says that trying to understand unemployment—“why supply doesn’t always equal demand in labor markets”—has also helped him think in a more broad-minded way about how “people, organizations, markets, and capitalism” really work. This creative thinking is reflected in Akerlof’s 2009 book *Animal Spirits* (see *F&D*, December 2008)—written jointly with Yale University economist Robert Shiller—which was short-listed for the Financial Times/Goldman Sachs Business Book of the Year Award. Shiller told *F&D* that in the process of writing the book, the views of the two authors, already close, blended further, so that “I can no longer identify reliably who wrote what.” The book, he says, reflects “our view that the social sciences should be more united.”

Akerlof and Shiller demonstrate how forces not generally considered in standard macroeconomics—such as fairness, greed, and confidence—are critical to understanding not just why there is unemployment but also why economies fall into recession and why asset markets are so volatile. They are particularly keen to resurrect the importance the great British economist John Maynard Keynes assigned to the role of confidence in economic fluctuations, most notably in his assertion that business investment depends significantly on the state of confidence or on “animal spirits.” “The state of confidence,” Keynes wrote, “is a matter to which practical men always pay the closest attention. But economists have not analyzed it carefully.”

Investment decisions by businesses and households’ choice of how much to consume today versus how much to save for the future are driven by uncertain and fluctuating expectations of what the future holds. Keynes argued that “this feeling of uncertainty waxes and wanes: sometimes people are more confident than at others. When confidence is high, the economy thrives; when it is low, it sickens.” Indeed, overconfidence can spur excessive and foolish investment, for instance in housing markets. The collapse of optimistic expectations can thus lead to a collapse of the economy. And when the economy is down, loss of confidence can cause an overreaction in the other direction, with credit drying up and consumers retrenching.

Akerlof points to the 1991 recession in the United States as an example of the importance of confidence. He remembers a session at the American Economic Association meetings in 1992 where leading economists went through the usual roster of explanations for the recession. None fit. The best explanation was the one offered by Olivier Blanchard, then at MIT but now the IMF’s chief economist, who said that the invasion of Kuwait by Saddam Hussein had delivered a blow to U.S. consumer confidence and hence to consumption expenditures. “Olivier’s explanation was simple but it was right,” says Akerlof. “Or at least I don’t know of an explanation that fits the main facts better.”

## Happy home

With the private economy subject to mood swings, the role of the government is to stabilize the economy through its actions. The government, Akerlof and Shiller state, should be like a responsible parent to the economy, neither too authoritarian nor too permissive. Capitalist societies can be tremendously creative, and the government should not be so strict as to interfere with that creativity. But capitalism left to its own devices also runs to excess, and the government's role is to act as a countervailing force against extravagance.

So when the private economy is booming, the government must guard against euphoria and it must save for the likely collapse. And when private confidence is low, the government must carry out public investment. Indeed, Keynes famously argued that even digging ditches and refilling them

## Unemployment is the topic that has motivated him the most.

was a worthwhile activity for the government when the private sector is in the doldrums. Akerlof says it “should not come to that. There are many more worthwhile things that a government can do to create a confidence multiplier” to get the economy back on track.

The government also has a role in preventing corruption and predatory activity. In a famous paper written in 1993, Akerlof and his coauthor, economist [Paul Romer](#), dispensed with the euphemisms and simply called it “looting.” The paper was written in the aftermath of a spate of financial crises during which private investors left the government with the responsibility for extensive debt. Akerlof says, “of course we were very much motivated by the savings and loan crisis” in the United States in the early 1990s.

Akerlof and Romer wrote that the savings and loan “fiasco” occurred because regulators hid the true extent of the problem, Congress pressured regulators to go easy on favored constituents and big donors, and lobbyists succeeded in preventing corrective action until the problem was so large it had to be passed on to the general public. They concluded that “now we know better. If we learn from experience, history need not repeat itself.”

Unfortunately, events since Akerlof and Romer wrote their paper read, as David Leonhardt put it in *The New York Times*, “like a sad coda to the ‘Looting’ paper.” In the early 2000s, scandals engulfed corporations like Enron. Inadequate regulation of subprime lending and outright fraud are now widely accepted to have been a trigger for the global financial crisis and the Great Recession of 2007–09. Romer now recalls that just as they were done writing their paper in 1993, Akerlof told him that the next candidate for looting would be an obscure little market called “credit derivatives.”

Asked to summarize his view of government policies over the past 30 years, Akerlof says with characteristic understatement: “Let’s just say that the government has had mixed success in creating a happy home.”

## Ivy League

In his 2001 Nobel lecture, Akerlof describes his own life as a child and young man as mostly a happy one, but subject to the vicissitudes of his father’s career. Akerlof remembers thinking that “if my father lost his job, and my family stopped spending their money, then another father would lose their job and so on. The economy would spiral downward.” Worries about his father’s job prospects may explain, he wrote in the lecture, why “in some sense I began work on unemployment theory when I was 12. Fifty years later I am still mulling over the same subject.”

Akerlof went to Yale for his undergraduate education; he had “no choice,” he says, because his father had been an assistant professor there and his brother went to Yale as well. In addition to taking courses in economics and math, he worked on the *Yale Daily News*. He says it “dominated his life.” He tried to make the *News* less of an official organ and more of a newspaper devoted to student issues and features of human interest: “I wanted it to be less solemn and more serious.” Despite his enthusiasm and hard work, however, he was denied election to the *News* board in his junior year.

In his Nobel lecture, he said that this denial may have been because “I am not accurate regarding facts.” But Akerlof told *F&D* that his “statement [in the lecture] perhaps leaves a wrong impression about me.” He says that he is careful with the “facts that matter” and that his research has always been guided by trying to explain facts: “Why is there unemployment? Why do people report that they have trouble selling their houses? Why are some people poor? Why do people procrastinate? Why do people act up? Why do entire nations act up?”

After Yale, Akerlof headed for graduate work at MIT, which boasted a cast of stellar professors, such as Robert Solow (see *F&D*, March 2011), and brilliant students—including Joseph Stiglitz (see *F&D*, December 2009), who later shared the Nobel Prize with Akerlof. Princeton University’s Avinash Dixit (see *F&D*, December 2010), also a contemporary of Akerlof’s at MIT, says that “[George] posed questions that no one else would. And just when you were thinking that only a damn fool would ask a question like that, he produced a beautiful answer that changed your perspective . . . The combination of daring questions and beautiful answers is what makes George the successful contrarian he is.”

## Berkeley bound

Since 1966, much of Akerlof’s career has been as a professor at the [University of California, Berkeley](#). As with Yale, there is a family association; his great-grandfather graduated from Berkeley in 1873. When he won the Nobel in 2001, Akerlof gave the prize money to Berkeley: “I did that because I felt that they had supported me well and I wanted to show how grateful I was.” [Christina Romer](#), a fellow professor at Berkeley, says that “George is a kind, generous, and enthusiastic person who loves economics. He contributes immeasurably to the department by simply being the kind of person he is.” She adds that his “teaching evaluations are simply off the charts.” Shiller says that Akerlof is like a father toward the graduate students he supervises: “He advises them to be nice



when they go on the job market. The people interviewing you are hiring you to be a colleague, he tells them, and they want to see that you are a nice person.”

While an academic at heart, Akerlof has maintained close links with the policy world. During the 1970s, he worked for a year each at the [Council of Economic Advisers](#) (CEA) and the [Federal Reserve](#). Barry Chiswick, a labor economist and currently department chair at [The George Washington University](#), was at the CEA at the same time. In his Nobel lecture, Akerlof credits Chiswick with teaching him empirical economics. Chiswick tells *F&D* that “it is very gracious of George to have said that,” but “it was a two-way street—All of us at CEA learned from George’s unique basket of skills.” He recalls Akerlof as being very engaged with the issue of teenage unemployment, a problem in the 1970s as it is today. “George was concerned that if young people miss out and don’t get a good first job that it would be taken as a negative signal that could affect them for life,” says Chiswick.

In addition to these stints at U.S. government agencies, Akerlof has maintained a long-term association with the [Brookings Institution](#). Since September 2010 he has been a senior resident scholar in the [IMF’s Research Department](#). Blanchard says that “having George in our midst would be a boon at any time; but his presence is particularly welcome at the moment, when the IMF needs creative thinking on many fronts, from tackling the unemployment crisis to the design of financial regulation.”

## Lemons

While unemployment is the topic that has motivated him the most, it is his 1970 article showing how markets might break down in the presence of asymmetric (or unequal) information that won him the Nobel Prize. Indeed, if you play a game of word association with an economics PhD and say “Akerlof,” chances are the response will be “lemons.” This is because the example Akerlof gave was of used car markets, where sellers have better knowledge of whether their car is a good one or a “lemon.” The buyers’ best guess is that the car is of average quality, so they will only be willing to pay the price of a car of average quality. This means, however, that owners of good cars will not place their cars in the used car market. But that in turn lowers the average quality of cars on the market, causing buyers to revise downward their expectations of quality. Now even owners of moderately good cars are unable to sell, and so the market spirals toward collapse.

Akerlof says that the problem dates back to one that has confronted horse traders over the ages: “If he wants to sell that horse, do I really want to buy it?” But problems of asymmetric information are present in most markets, particularly in financial markets. “This [recent financial] crisis gave us glaring examples,” says Akerlof. “Ordinary people thought they were buying homes, not the complex derivatives that they later realized they had ended up buying.”

Akerlof says he chose the example of used cars to make his paper “more palatable” to U.S. readers. But his interest in the subject had been triggered when, during his stay in India in 1967–68, he noticed people’s difficulty obtaining credit. He

kept this example in the paper, along with sections on how the “lemons principle” could also explain why the elderly had trouble obtaining insurance and why minorities had difficulty obtaining employment. All this proved too exotic for much of the academic market of the time; the paper was turned down by three leading journals before it was finally published in the *Quarterly Journal of Economics*.

Today, the questions Akerlof tackled in the “lemons” paper are a staple of the academic diet. And Akerlof himself continues to push the frontiers on the study of such questions, most recently in *Identity Economics*, coauthored with Rachel Kranton, then at the [University of Maryland](#). Akerlof’s son, Robby, carries on the tradition. A graduate of Yale—where Shiller was one of his professors—and Harvard, he is studying questions such as why corruption and the tolerance of it vary across corporations; what managers can do to increase the legitimacy of their authority (paying efficiency wages turns out to be one option); what accounts for an oppositional culture where minorities disparage the majority and are disparaged in turn; and what fuels protracted feuds between two parties.

## Oh finally!

So here at long last is the procrastination story. Akerlof wrote a 1991 essay, “Procrastination and Obedience,” in which he argues that studying the habit could explain phenomena such as substance abuse and inadequate savings.

In the essay, Akerlof tells of having procrastinated for over eight months before sending back a box of clothes from India to the United States. The box belonged to Joseph Stiglitz, who had left it behind in India when visiting. “Each morning . . . I woke up and decided that the next day would be the day to send the Stiglitz box,” Akerlof wrote. Reflecting on the story, Akerlof told *F&D* that “on things that really matter” he is not a procrastinator.

“Joe didn’t really need his box. If I had thought he needed it, he would have got it.” ■

*Prakash Loungani is an Advisor in the IMF’s Research Department.*

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# The price of maturity

**Aging populations mean countries have to find new ways to support their elderly**

*Ronald Lee and Andrew Mason*

**T**HE WORLD'S POPULATION will reach 7 billion this year and is projected to exceed 9 billion in 2050. But despite the overall increase, hidden behind these headline numbers are important changes in the age distribution of the population. In the rich industrial nations as well as some middle- and lower-income countries, populations will age as the proportion of elderly people within the mix rises dramatically.

Surprisingly, this population aging is driven more by low fertility than by longer life. Low fertility means fewer children to grow up and enter the workforce, while the number of elderly keeps rising. But people are also living longer, which reinforces the effects of low fertility. Between now and 2050, about 1 billion working-age adults and 1.25 billion members of the age 60+ population will be added to the global population, while the number of people younger than 25 is projected to hold steady at 3 billion (UN, 2009).

These changes have worrisome implications for both policymakers and individuals, since most elderly people are no longer part of the labor force and their consumption must be funded by their younger family members, by public or private pensions, or by their accumulated asset holdings. As the ratio of elderly to working-age people rises, it becomes more difficult to fund them through public or private transfers, and asset accumulation is often inadequate.

We examine how the elderly are supported in different countries and discuss how these support systems will be affected by population aging. The ways populations have supported the elderly in the past won't always work in the new demographic reality.

## **More elders**

Why will the number of elderly people grow faster than the number of working-age people? Countries around the world had unusually large cohorts of children during the second half of the 20th century. Many high-income countries experienced a baby boom after World War II, while in low-income countries the driving force was

a rapid decline in infant and child mortality, leading to much larger numbers of surviving children. Over time these large cohorts are aging, adding first to the working-age population and later to the population of seniors. The oldest baby boomers are just reaching retirement age.

## Population aging is most advanced in the rich industrial nations, but it will also start soon and proceed rapidly in east Asia.

The baby boom ended in the 1960s, and fertility rates are now at low levels—in some cases, very low—in east Asia and Europe. The situation in the developing world is highly varied. Fertility rates have declined almost everywhere, but there are exceptions. In Africa the total fertility rate is just below 5 births per woman. In Asia, Pakistan's fertility rate is 4, while in India and Bangladesh the rate is approaching 2. In China, by contrast, the fertility rate has declined to very low levels—about 1.5 births per woman.

Countries are aging at different rates:

- In lower-income countries, the dominant demographic trend is growth in the working-age population, while total dependency ratios are falling. This will continue to be the case for several more decades in countries like India and those in sub-Saharan Africa.

- In the richest countries, the dominant trend is growth in the older population. Although these populations have already aged considerably, the most challenging phase of population aging is yet to come, when the ratio of old people to those of working age—the so-called old-age dependency ratio—nearly doubles by 2050.

- In many emerging economies, the share of the working-age population is just now reaching a peak. In the coming decades, these countries will experience the population aging that high-income countries are already confronting. Ignoring these long-term trends may be tempting, but failing to respond now may take countries down an unwelcome and avoidable path of economic decline.

- Population aging is most advanced in the rich industrial nations, but it will also start soon and proceed rapidly in east Asia because of that region's early and deep fertility declines. In south and southeast Asia, aging will come considerably later. The same is generally true in Latin America, but in some countries fertility is already low and population aging has begun. Fertility is still high in most of Africa and the Middle East, where population aging is still far in the future.

### Economic life cycles

Changes in population age structure matter because economic activity varies in important and fundamental ways over a person's life cycle. We consume from birth until death, but we only work for a limited portion of our lives, and over extended periods we consume much more than we produce.

In most low- and middle-income countries, consumption is relatively low during childhood and rises to a plateau across all adult ages (see Chart 1, top panels).

In contrast, in many rich countries with well-developed welfare states, consumption rises strongly at older ages and increases particularly rapidly above age 85, but less so in Germany than in many other high-income countries. High consumption at older ages is largely driven by public and private spending on health and long-term care. Low labor income compounds the effects of high consumption by the elderly in rich countries. Workers tend to retire earlier in high-income nations partly because they can afford to but also because of the incentives and disincentives built into public and private pension plans, tax systems, and employment practices (Gruber and Wise, 1999).

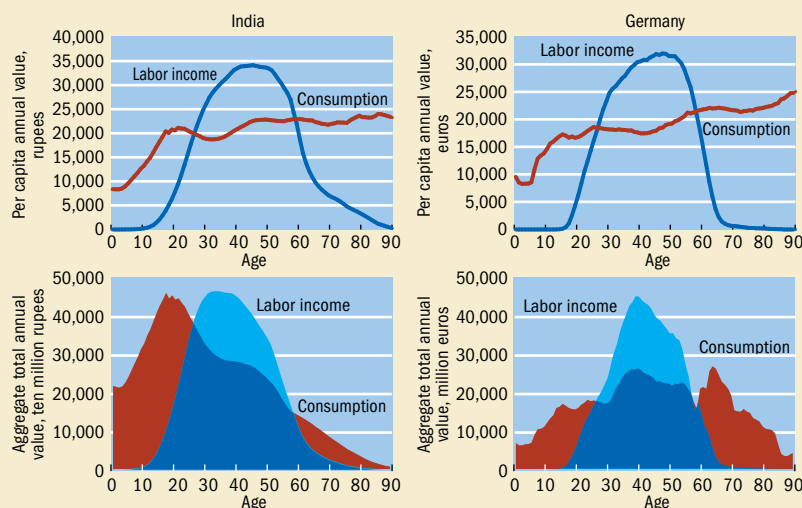
In middle-income countries with generous public pension programs—such as Uruguay and Brazil—the elderly also have high consumption levels.

The *aggregate life cycle* depends on per capita consumption and labor income profiles combined with a population's

Chart 1

#### Richer countries spend more on elderly

The age profiles of per capita consumption and labor income are similar. But the aggregate profiles, such as those of India and Germany, are very different, because of countries' age structures.



Sources: Lee and Mason (forthcoming); and National Transfer Accounts database.

age distribution. It shows the total amounts consumed and produced by age in the national economy. The aggregate life cycle profile for a young country like India is very different from that of an older country like Germany (see Chart 1, lower panels).

The Indian profile is dominated by the *life cycle deficit* of children—the gap between what they consume and what they produce—while the deficit at older ages is relatively small, primarily because that population is a relatively small share of the

## In many poor countries . . . where fertility began to decline later and has not proceeded as far, support ratios are rising and raising economic growth.

total. Germany's life cycle deficit at older ages is much larger, while children claim a smaller share of total resources than older Germans. The per capita life cycle profile plays a role here, but Germany's population age structure is the real driver.

The transformation of the aggregate economic life cycle is fundamental to understanding the economic implications of the demographic transition. The enormous life cycle deficit for children in India leads to a very large downward flow from older age groups to younger age groups. In principle, children could borrow to pay for the gap between consumption and labor income. In practice, however, children rely on a combination of familial transfers from parents and grandparents and public transfers from taxpayers. In low- and middle-income countries, familial transfers are much greater than public transfers, so families directly bear the large costs that arise from such young populations.

The end of the demographic transition is marked by very large flows to older populations. These flows are very different from the downward flows to children, however. First, the family plays a much diminished role and the public sector plays a much more important role in upward transfers. Second, the life cycle deficit at old ages can be funded by the accumulation of assets—a retirement plan, personal savings, a home, consumer durables, a business, and so forth. While children are overwhelmingly dependent on older generations, older generations are not necessarily dependent on younger generations.

### Getting help

Living standards are directly influenced by changes in a population's age structure. If the number of workers (those who are contributing to national income) grows faster than the total population (those who are consuming), living standards go up.

Demographers refer to the number of workers divided by the total population as the *support ratio*. The more people there are of working age in a population, the higher the income per person, other things equal.

Until recently, support ratios were rising in most low- and high-income countries, which added to their economic growth. But population aging means support ratios are now declining in high-income countries (see Chart 2). In the coming decades, many poorer countries will also begin to experience declining support ratios.

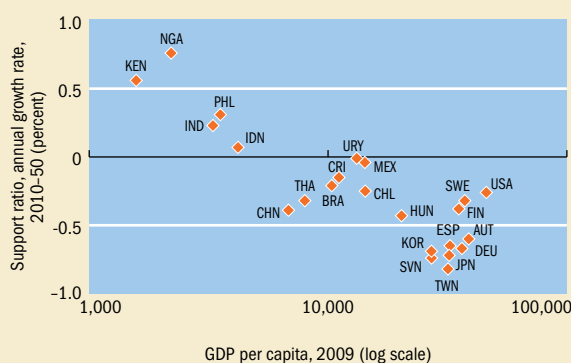
Between 2010 and 2050 declining support ratios are expected to depress economic growth by 0.7 percent a year in Japan, Germany, and Spain and by 0.8 percent a year in Taiwan Province of China. In the United States, which is aging more slowly due to higher fertility, large net inflows of immigrants, and lower life expectancy, economic growth will be depressed by only 0.3 percent a year.

Changes in the support ratio may also curtail economic growth in China. Between 1972 and 2012 the support ratio is

Chart 2

### Supporting roles

Aging is leading to declining support ratios in high-income economies. In low-income economies support ratios will rise for some time.



Source: Lee and Mason (forthcoming).

Note: AUT=Austria; BRA=Brazil; CHL=Chile; CHN=China; CRI=Costa Rica; DEU=Germany; ESP=Spain; FIN=Finland; HUN=Hungary; IDN=Indonesia; IND=India; JPN=Japan; KEN=Kenya; KOR=Korea; MEX=Mexico; NGA=Nigeria; PHL=Philippines; SVN=Slovenia; SWE=Sweden; THA=Thailand; TWN=Taiwan Province of China; URY=Uruguay; USA=United States.

projected to increase by 0.8 percent a year, but is projected to decline by 0.4 percent a year between 2012 and 2050.

In many poor countries, however, where fertility began to decline later and has not proceeded as far, support ratios are rising and raising economic growth. In India, for example, the support ratio will continue to rise until 2040, and the net effect through 2050 will be to raise per capita income growth by 0.2 percent a year.

### Who will pay the price?

Changes in the support ratio capture the first-round effects of population aging. But the full economic consequences depend on how a nation's individuals, families, and governments plan for and respond to population aging.

One of the most important choices societies make is how to fund old-age consumption—by delaying retirement, by relying more on the family, by increasing public transfers to the elderly, or by accumulating more assets.



The life cycle deficit of the elderly—that is, the difference between what they consume and what they produce—is funded in a variety of ways (see Chart 3). The elderly in countries such as the Philippines near the apex labeled “Assets” fund the deficit almost entirely using assets. Those in countries such as Austria, Hungary, Slovenia, and Sweden near the vertex labeled “Public Transfers” fund their deficits through public pensions, public health care, and public long-

## Older populations mean fewer children to share the cost, so each child has a greater support burden on average.

term care. It is perhaps surprising that there are no countries near the “Family Transfers” vertex, since it is a common view that the elderly in poor traditional societies are supported by their adult children. As data become available for more than the 18 countries shown in the chart, it is possible that this picture will change. In any event, the figure shows that in some Asian economies such as Taiwan Province of China, Korea, and Thailand, the elderly do receive important support from their children in addition to other sources.

Countries on a line joining two vertices fund their deficits through a mixture of the two sources. We see that the elderly in most countries, including Japan, the United States, all countries in Europe, and some in Latin America, fund their deficits

by some combination of assets and public transfers, and rely little on family transfers. In some countries that are far outside the triangle to the right, the elderly make large net transfers to their younger family members, as in Mexico and Brazil.

To the extent that elders fund their consumption by continuing to work, population aging raises dependency less and has a smaller effect on the support ratio. But the elderly rarely provide for more than a third of their total consumption through labor income, and the more they derive support from transfers—public or private—the less they work. When elders rely on their adult children for support, older populations mean fewer children to share the cost, so each child has a greater support burden on average. The situation is similar when elders rely on pay-as-you-go public pensions. In older populations, fewer workers pay the taxes that fund pension benefits for the elderly, so either taxes must be raised or benefits lowered.

When the elderly rely more heavily on their own accumulated assets, the burden on the younger generations is alleviated. Indeed, when the elderly hold a disproportionately large share of assets, population aging raises asset holdings per capita. In a closed economy this boosts the productivity of labor and wages but reduces the rate of return to capital. In an open economy, the assets will be invested abroad if domestic wages rise and profit rates fall, raising asset income in the home country. This tendency of population aging to raise the capital intensity of an economy or to generate increased asset income is known as the *second dividend*.

### Postponing retirement

Longer lives—adding years at the end of the life cycle, when most people are no longer working but are consuming heavily—mean countries’ consumption rises faster than income. But because health at older ages is generally improving, raising the retirement age can be an appealing option to help restore government budget balances.

How much longer would people have to work if the aim is to completely offset the decline in the support ratio between 2010 and 2050 through longer working lives alone?

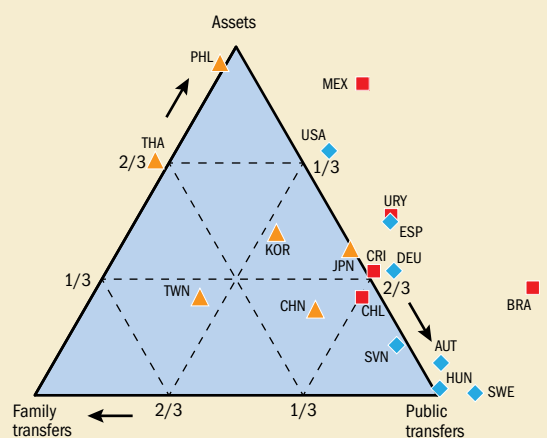
In countries such as Mexico and Brazil, a very small net change in their support ratio (see Chart 2)—slight postponements of one and three years, respectively—would be sufficient. Such changes in the retirement age are politically feasible: people are living longer so it makes sense that they would also work longer. In countries that will see more aging in the next four decades, such as Finland, Sweden, and China, six years would be required, and seven for the United States. Countries that are aging most rapidly would require larger postponements: eight years for Japan, nine for Germany, and ten for Spain and Korea. For these countries especially, postponing retirement would need to be one of several steps.

Because aging in all these countries reflects not only longer life but also low fertility—which causes slower population growth—the increases in retirement age to offset population aging can be much larger or smaller than the simple projected increases in life expectancy.

Chart 3

### How to spend more than you earn

The elderly in most economies finance their old age by assets and public transfers.



Population aging reduces the sustainable level of consumption, other things equal, as is shown by falling support ratios (see Chart 2). But other things will not be equal.

First, consider the second dividend. If the national saving rate remained the same, the slower labor force growth that accompanies population aging would mean more capital or asset income per worker, offsetting much of the increased support burden. Longer life may lead individuals and institutional pension providers to raise life cycle saving to provide for consumption during a longer retirement, unless they instead choose to work longer, which would offset the declines in the support ratio. Because people who have fewer children tend to spend more on themselves and want to continue spending at that level even after retirement, lower fertility may require higher savings. However, increased public or private transfer obligations might also cause national savings to decline.

If these various adjustments to labor supply and assets are not enough to offset the decline in the support ratio, other adjustments must be made. One option is to reduce consumption further, thereby increasing saving rates and assets. Another is to further increase labor effort, perhaps by postponing retirement in response to changing public pension incentives or in response to increased difficulty in funding retirement at the desired level from personal savings (see box).

Yet another possibility is to increase investment in the human capital of workers. Low fertility has been the main driver of population aging, and low fertility has been found, in theory and in empirical analysis, to go hand in hand with increased public and private investment in human capital per child (Lee and Mason, forthcoming, and 2010). In this case there are fewer workers but each is more productive.

Population aging will certainly challenge public and private budgets in many ways, but through a combination of reduced consumption, postponed retirement, increased asset holdings, and greater investment in human capital, it should be possible to meet this challenge without catastrophic consequences. ■

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## Geriatric Deadbeats

**Old folks may be less willing to repay sovereign debts**

*Ali Alich*

AS THE NUMBER of older voters relative to younger ones increases around the globe, the creditworthiness of borrowing countries could decline—resulting in less external lending and more sovereign debt defaults.

Because lenders cannot easily confiscate a government's assets in the case of a default, they must rely almost completely on the creditworthiness of a sovereign in deciding whether to make a loan. To the many factors affecting a nation's creditworthiness—such as macroeconomic strength and past debt-payment record—lenders must add aging.

Studies have shown that a country's willingness to repay is as important as whether it has the resources to repay. This willingness deteriorates as voters age because they have a shorter period to benefit from their country's access to international capital markets and become more likely to opt for default on current debt. Moreover, older voters generally benefit more from public resources—such as pension and health care benefits—which could shrink if debt is repaid. If the old are a majority, they might force default, even if it is not optimal for the country as a whole. Lenders will take this into account and reduce new lending to an aging country.

There is some empirical support for the notion that aging increases the probability of default on sovereign debt, but more work is needed to draw strong conclusions. Alich (2008) uses a panel of about 75 countries that have had at least one episode of sovereign default during 1975–2003 and shows that, on average, younger countries (those with a higher percentage of people ages 15 to 59 years) are less likely to default.

Now if the old are altruistic and care about their children as much as themselves, they will not vote for default with its negative consequences for future generations. But Altonji, Hayashi, and Kotlikoff (1997) have shown that altruism does not hold at the overall level in the United States—although there are few studies of this sort for most other countries.

How can countries with aging populations improve their credit profile? They can collateralize more of their debt, using assets in the lending country or a third country; lower the external debt ceiling, which would reduce the incentive to default; or move toward a fully funded structure and reduce the dependence of social security and old-age health benefits on public resources.

They should do so as soon as possible—before their populations age! ■

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# Beyond

Philippe Karam, Dirk Muir, Joana Pereira, and Anita Tuladhar

SINCE 1990, public pension spending has increased in an amount equal to 1¼ percent of gross domestic product (GDP) in the advanced economies in the Group of 20 (G-20). And a continuously aging population will cause further increases averaging about 1 percent of GDP in both advanced and emerging economies over the next 20 years (see Chart 1). Advanced economies that have not substantially changed their traditional pay-as-you-go pension systems are projected to experience larger spending increases than advanced economies that have legislated pension reform.

Among emerging economies, those with relatively high spending in 2010 are projected to experience the steepest increase in outlays over the next 20 years. In countries that do not cover a large segment of the elderly, such as China and India, the projected increase is much less severe, but could rise more rapidly if their systems expand to cover a larger share of the population. Moreover, advanced economies are experiencing sharp growth in the aged population now, but that will change after 2030, when emerging economies will experience a faster pace of aging.

A number of countries have already reformed their pension systems, and spending pressures seem sure to force more to do so. Globally, the number of people over 65 relative to the working-age population (the old-age dependency ratio) is projected to double between 2009 and 2050, putting enormous strains on public pension systems, largely pay-as-you-go plans that are financed by current workers, who expect future generations to fund their retirement.

Further reforms appear inevitable. How and when countries implement reforms, then, is not only a matter of fairness to current and future retirees. The choice will significantly affect economies—nationally and globally. Moreover, whether countries make those reforms individually or in coordination with other nations is also important to macroeconomic performance, given cross-border trade and investment linkages.

## What can be done

There are three major ways countries can change pension systems to reduce costs:

- **Raise the retirement age:** Lifetime benefits paid to retirees are reduced. This encourages workers to remain in the labor force longer, which means they earn more over their lifetime. The increase in lifetime income could lead workers to save less and consume more during their working years. In addition, the increased fiscal savings from reduced pension payments will have long-term positive effects on GDP growth by lowering the cost of capital and encouraging investment.

# Retirees

How countries change their pension systems and whether they do it in tandem have major implications for global economic health

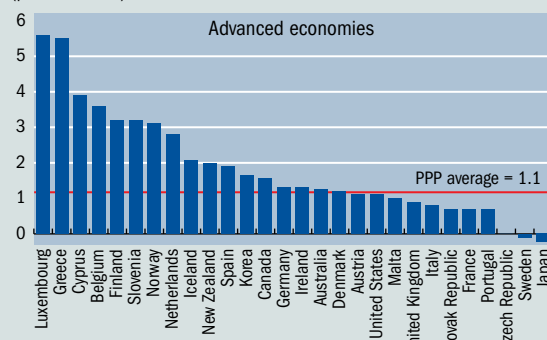
- **Reduce pension benefits:** To avoid a sharp reduction in income and consumption in retirement, workers would likely boost savings. Consumption would fall in the short to medium term, but investment would increase over the long term.

Chart 1

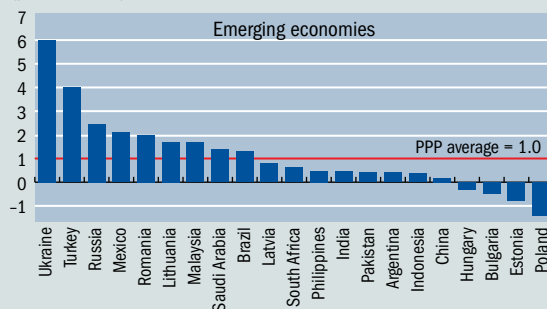
## Cost of aging

Public pension outlays will grow by an average of slightly more than 1 percent of GDP by 2030 in both advanced and emerging economies.

(percent of GDP)



(percent of GDP)



Sources: Country authorities; European Commission; Organization for Economic Cooperation and Development; International Labor Organization; and IMF staff estimates.

Note: Data are calculated using purchasing power parity (PPP) exchange rates. PPP average is the average of public pension outlays as a percent of GDP across countries, weighted by the PPP value of their GDP, rather than the dollar value of their GDP.





### • *Increase workers' contribution rates:*

Because higher rates reduce income, households might be less motivated to work, which could depress economic activity in both the short and long term.

We use the IMF's Global Integrated Monetary and Fiscal Model (GIMF) to quantify the effects of reforms to pay-as-you-go public pension systems worldwide. The model contains two types of households—those that are *liquidity constrained* and live paycheck to paycheck and better-off *optimizers* that have savings—and assumes that households with savings plans have a 20-year horizon (see box). Because the model counts debt issued by the government as savings, it

allows for a meaningful discussion of the short- and long-term macroeconomic implications of the various reform options. We group the world into five broad regions: the United States, the euro area, Japan, emerging Asia (including China, India, and Korea), and the rest of the world.

### Raising the retirement age

In this scenario, countries raise the retirement age enough to stabilize pension spending over the next three to four decades at the same share of GDP as in 2014 (see Table 1). Differences in required retirement age increases stem from two sources: projections of the gap between the funding available and what is needed for public pensions and the spending and taxing measures required to stabilize debt-to-GDP ratios so that interest payments will not absorb large amounts of government revenues. Japan will not require additional reforms.

### A look at the model

The Global Integrated Monetary and Fiscal Model (GIMF) is widely used at the IMF as a framework for analyzing the short- and long-term effects of public pension reform (Kumhof and others, 2010). The GIMF is constructed in a way that permits researchers to analyze how government policies must be adjusted to achieve fiscal sustainability in countries facing demographic changes. It identifies meaningful medium- and long-term effects of government debt on private investment and captures important life-cycle income patterns, including age-dependent labor productivity.

The multicountry structure of the GIMF allows economists to analyze global interdependence and spillover effects. In this model, the world consists of the United States, the euro area, Japan, emerging Asia, and the rest of the world, and there are two major sources of international linkages. First, there is a full accounting of trade between each region. Second, the flow of goods allows the model to determine current accounts, which are simply the flows of global savings and investment, equilibrated in the long run by the global interest rate. Each region has:

- Two sets of households: "Liquidity constrained" households have little if any savings and can consume only out of

Table 1

### Postponing retirement

To stabilize pension spending at the 2014 percentage of GDP level will require raising the age of full pension eligibility everywhere except Japan.

|         | United States | Japan | Euro area | Emerging Asia | Rest of world |
|---------|---------------|-------|-----------|---------------|---------------|
| 2015–30 | +2.5          | 0     | +1.5      | +1.0          | +3.0          |
| 2030–50 | 0             | 0     | +0.5      | +0.5          | +1.5          |

Sources: IMF (2010); and IMF staff estimates.

Note: Table identifies the number of years the retirement age must be raised in the specified time period.

Chart 2 illustrates some of the effects on the United States, including concurrent government spending reductions, if that nation were the only one to increase the retirement age. First, *a delay in retirement means people will work longer*. This leads to higher household income, which puts upward pressure on consumption. Moreover, the higher level of available labor increases the productive capacity of the economy, leading to higher GDP in the long run.

Second, *the government's budget deficit improves markedly*, by close to 3 percentage points of GDP after 30 years and 2.2 percentage points in the long run. That means the debt-to-GDP ratio declines by roughly 43 percentage points in the long run. The savings supply increases globally, leading to lower investment costs, represented by the real world interest rate. Investment is stimulated worldwide, and global productive capacity rises.

Third, workers and their families *reduce their savings and demand for assets during their working years, while increasing consumption*. There are some offsetting effects. The lower government debt is perceived as a decline in net wealth for households that save, and the decline in benefits depresses consumption. Taken in combination with the upward pres-

their current labor income. In the advanced economies, about 25 percent of households fall into this category; in the rest of the world up to 50 percent are among these poorer households. "Optimizing" households can save and choose their working hours and level of consumption (and by extension, their saving rate). These households are assumed to plan for a 20-year horizon on average and, furthermore, face declining labor productivity as they age. For the current generation, government debt is wealth—they are not concerned with saving for future generations to pay off government debt accumulated today. This means that increasing government debt will reduce global savings, which, in the long run, affects the world savings and investment balance and increases world interest rates.

- Firms that are managed in accordance with the preference of their owners: they are forward-looking, but plan only for the next 20 years.

- A government that includes a central bank, which most often pursues some sort of price stability and, perhaps, employment stability, by controlling the interest rate. The government also tries to target a certain level of debt in the long run, while trying to stabilize the economy during the business cycle by allowing the deficit to fall as GDP grows more strongly (and vice versa).

sure of higher income, consumption is only slightly higher than before the reforms were implemented.

When reform is undertaken in each of the three other regions that have notable challenges to their pension systems—the euro area, emerging Asia, and the rest of the world—the results are similar. However, effects vary depending on how much the working age must be extended, the savings achieved by the government as it reduces its pension spending, and the effect of the increase in public savings on the amount of savings available worldwide, with a dampening effect on the global real interest rate.

## Reducing benefits

If governments opt to *reduce pension benefit payments*, the economic rewards would unfold over time—after the short-term initial toll of fiscal tightening on aggregate demand. Although in the United States consumption drops about 1 percent in the short term, this is largely outweighed by the persistent benefits of lower real interest rates and a rise in GDP, which settles at a higher level in the long run, by almost 0.5 percent.

The reduction in benefits has a direct negative effect on consumption. It is immediate for the households with little or no

savings, because they consume out of current income. Even the better-off households that save are affected, but more gradually, because their expected stock of lifetime wealth is lower. These households will reduce consumption accordingly.

By reducing benefits, the government lowers its deficit, which also implies an increase in global net savings. Therefore, real world interest rates decline moderately, beginning in the 10th year, before they hit a trough at close to  $-0.4$  percentage point after 40 years. The reduction in the global real interest rate means that all countries experience stronger investment and a permanent increase in GDP.

As with the increase in the retirement age, when the other three regions carry out the same reform, they achieve the same results, but to differing degrees, depending on how much impact a given reduction in benefits in a region has on the global real interest rate.

## Raising contribution rates

The third potential reform, *increasing contribution rates*, is equivalent to an increase in the labor income tax rate in our framework. Higher labor taxes reduce the income households have to spend. This spending reduction is heightened

in regions where households with little or no savings constitute a larger share of the economy, because they consume solely out of their after-tax income. The better-off households that save can adjust their flow of income based on their pool of savings. The effect on income of raising contribution rates is similar to cutting benefits—in both scenarios household spending falls. However, labor income taxes also distort more fundamental decisions, such as how much households are willing to work. Tax increases make households less willing to work, which reduces the productive capacity of the economy, leading to lower real GDP.

Increasing contribution rates then produces a more severe short-term loss of real GDP than cutting benefits. For the United States, real GDP declines by about 0.7 percent by the 10th year. There are significant long-term losses because of the negative effect on potential output as a result of these taxes. Moreover, when governments raise contribution rates, the consequent decline in the real world interest rate does not play as effective a role in raising real GDP in the long run; real GDP falls by 0.4 percent rather than rising 0.4 percent when pension benefits are cut. The story is the same in the euro area, emerging Asia, and the other countries.

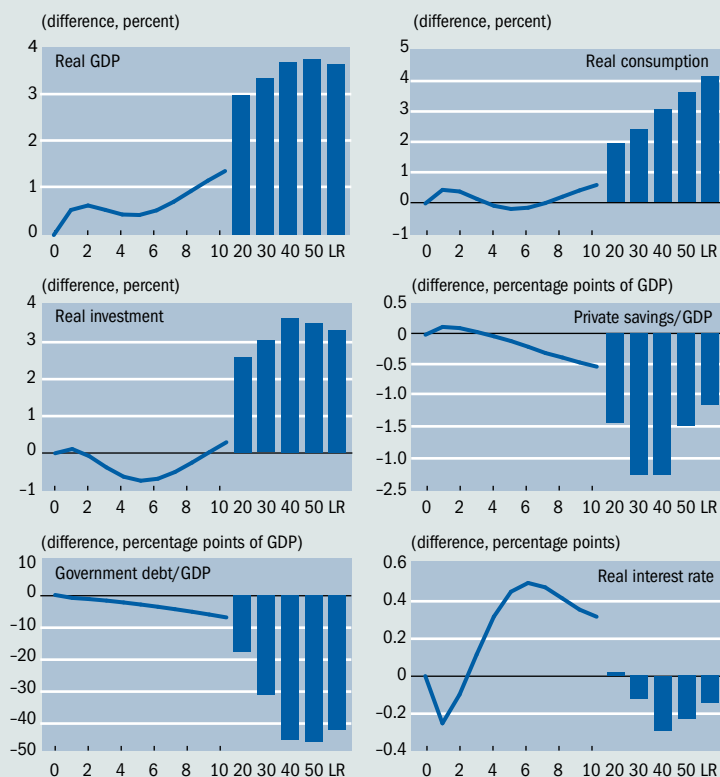
## When reform happens everywhere

So far, we have considered reforms in each region of the world only in isolation. Although it is in each region's interest to

Chart 2

### Working longer boosts economy

If the United States alone raised the retirement age by 2.5 years, the effects on the economy would be large compared with no change in the retirement age.



Source: IMF staff calculations.

Note: The charts show a continuous change in the six indicators for the first 10 years after the increase in the retirement age, and then snapshots at years 20, 30, 40, 50, and over the long run (LR).

Table 2

**More bang for the buck**

When countries or regions simultaneously increase retirement ages to contain pension costs, the long-run beneficial economic effects are far greater than if a region acts independently. Japan does not need to increase its retirement age.

|                        | United States | Japan | Euro area | Emerging Asia | Rest of world |
|------------------------|---------------|-------|-----------|---------------|---------------|
| <b>All together</b>    |               |       |           |               |               |
| Real GDP               | 5.4           | 7.9   | 2.1       | 7.2           | 13.5          |
| Real interest rate     | -0.7          | -0.7  | -0.7      | -0.7          | -0.7          |
| Government debt to GDP | -53.6         | -64.8 | 0.0       | -21.2         | -77.1         |
| <b>United States</b>   |               |       |           |               |               |
| Real GDP               | 3.6           | 0.3   | 0.4       | 0.5           | 0.5           |
| Real interest rate     | -0.1          | -0.1  | -0.1      | -0.1          | -0.1          |
| Government debt to GDP | -43.0         | 0.0   | 0.0       | 0.0           | 0.0           |
| <b>Euro area</b>       |               |       |           |               |               |
| Real GDP               | 0.4           | 5.7   | 0.4       | 0.6           | 0.8           |
| Real interest rate     | -0.1          | -0.1  | -0.1      | -0.1          | -0.1          |
| Government debt to GDP | 0.0           | -47.4 | 0.0       | 0.0           | 0.0           |
| <b>Emerging Asia</b>   |               |       |           |               |               |
| Real GDP               | 0.1           | 0.1   | 0.1       | 3.4           | 0.2           |
| Real interest rate     | -0.1          | -0.1  | -0.1      | -0.1          | -0.1          |
| Government debt to GDP | 0.0           | 0.0   | 0.0       | -13.5         | 0.0           |
| <b>Rest of world</b>   |               |       |           |               |               |
| Real GDP               | 1.0           | 1.3   | 0.9       | 2.2           | 11.7          |
| Real interest rate     | -0.2          | -0.2  | -0.2      | -0.2          | -0.2          |
| Government debt to GDP | 0.0           | 0.0   | 0.0       | 0.0           | -67.0         |

Source: Authors' calculations

Note: The table shows the change from a baseline at which no country raises its retirement age. The real GDP and real interest rate are the percentage difference between the baseline and the specific scenario. Government debt to GDP represents the difference in percentage points of GDP between the baseline and the various scenarios. The years after 2050 are considered to be the long run.

pursue reform regardless of what other regions do, there is a clear advantage to global policy cooperation. When individual countries act, the effects of their policy measures will often leak across their borders, which can benefit other regions but reduces the domestic impact. When all countries reform simultaneously, the leakages serve instead to magnify the effects of the reforms.

The magnified effects of simultaneous public pension reform in all regions are best illustrated by the case of increased retirement age. Table 2 shows the effect of reform on real GDP, the real interest rate, and the government debt-to-GDP ratio. The effects on all three are clearly better when policy action is cooperative (first set of rows) than when action is taken individually (second through fifth sets of rows).

When pension reform is simultaneous, the real world interest rate changes more over time than when regions engage in reform alone, which in the long run leads to greater effects on capital accumulation and potential and actual output levels. And the lower real interest rate is the key driver of improved global fiscal positions.

Our results depend on many assumptions about the nature of the reforms and the model itself. Here are three examples of different results we can generate:

- If there is a smaller increase in labor supplied in response to an increase in retirement age, the future increase in real GDP is also smaller.

- Had we assumed a shorter planning horizon for households, there would be a larger initial drop in consumption but a higher level of real GDP in the medium term, driven by a boost in investment resulting from an increase in labor.

- If the planning horizon is much longer, the global real interest rate becomes substantially less responsive to the level of savings. Neither short-term nor long-term consumption behavior changes significantly, and productive capacity, in turn, is less responsive. Lack of an interest rate response minimizes the fiscal benefits of a coordinated global policy.

## When all countries reform simultaneously, the leakages serve instead to magnify the effects of the reforms.

### Beneficial effects

The pension reform with the most positive long-term economic effects is one that extends people's working years. Raising the retirement age effectively increases the size of the active labor force relative to the retiree population. It helps boost domestic demand in the short run but also eases the pressure on governments to cut pension benefits—which can lead to increased private savings and further depress fragile domestic demand in the short run—or to raise contribution rates—which can discourage work. We also find that the impact on real GDP of a cooperative approach to age-related fiscal reform is greater than when only one region undertakes reform. In terms of public finances, our results generally show that stabilizing the GDP share of age-related expenditures leads to a sizable decline in the debt-to-GDP ratio.

Bold action to reduce future age-related spending (preferably by raising the retirement age) can significantly improve medium-term fiscal sustainability, particularly if such reforms are enacted in a cooperative fashion. ■

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Elderly women in old-age home in Bhopal, India.

# How Ready for Pensioners?

**A new index assesses which countries are the best prepared and which are the worst prepared when it comes to meeting retirees' needs**

*Neil Howe and Richard Jackson*

**T**HE WORLD is on the threshold of a stunning demographic transformation brought about by falling fertility and rising life expectancy. *Global aging* promises to affect every dimension of economic, social, and political life—from the shape of the family to the shape of the world order. Perhaps most fatefully, it could throw into question the ability of many countries to provide a decent standard of living for the old without imposing a crushing burden on the young.

Which countries are most prepared to meet the challenge? And which countries are least prepared? *The Global Aging Preparedness (GAP) Index*, developed by the [Center for Strategic and International Studies](#) (Jackson, Howe, and Nakashima, 2010), provides a new analytical tool for assessing the progress that countries worldwide are making in preparing for global aging, and particularly the old-age dependency dimension of the challenge as the number of elderly relative to the working-age population continues to grow.

The GAP Index finds that with a few exceptions the countries best prepared to meet the promises they have made to retirees are those that have promised them the least.

## **A look at 20 countries**

The GAP Index covers 20 countries, including most major developed economies and a selection of economically important emerging markets. The projections extend through the

year 2040 to capture the full impact of the demographic transformation sweeping the world. The overall GAP Index consists of two separate sub-indices: a *fiscal sustainability index* and an *income adequacy index*. These sub-indices in turn are based on indicators grouped into distinct categories, each dealing with a different dimension of the challenge.

On the fiscal side, the GAP Index includes three indicator categories: public burden, fiscal room, and benefit dependence. The public burden category measures the projected magnitude of total government benefits to the elderly, defined as adults ages 60 or older. The fiscal room category measures the ability of countries to accommodate their growing old-age dependency burdens by raising taxes, cutting other spending, borrowing, or some combination thereof. The benefit dependence category measures the degree to which the elderly rely on government benefits in different countries. The assumption is that the more dependent the elderly are on those benefits, the greater the likelihood of political resistance to enacting new cost-cutting reforms or even to following through on reforms that have already been enacted but are not yet fully in effect.

On the adequacy side, there are also three indicator categories: total income, income vulnerability, and family support. The total income category measures the overall level of and trend in the living standard of the elderly relative to the nonelderly in each country, based on projections that

reflect the effect of changes in government benefit programs, private pension provision, and labor-force participation rates. The income vulnerability category measures the relative level of and trend in the living standard of middle-income elders, a group that will be disproportionately affected by changes in the generosity of retirement income systems. It also takes into account the extent of elderly poverty in each country. The family support category measures the strength of family support networks, which play a crucial role in retirement security in many emerging markets and some developed countries.

Both sub-indices measure the performance of countries relative to each other rather than against some absolute standard of “preparedness.” We considered establishing such a standard but concluded that any benchmark would be arbitrary. There is no real consensus within countries, much less across countries, about what constitutes an acceptable old-age benefit burden on workers or an acceptable living standard for retirees. But almost everyone would agree that the lower the burden on workers and the higher the relative living standard of retirees, the better prepared the country is. For each of the sub-indices, the country rankings are calculated as follows. We first tabulate the results for individual indicators, ranked from 1 (best) to 20 (worst). We then transform the indicator results into index values, and combine the index values into category scores. Finally, we combine the category scores into overall scores and rankings for each of the two sub-indices.

Table 1

### Ready or not

The Global Aging Preparedness Index assesses how well prepared 20 major countries are to maintain a decent living standard for future retirees without overburdening workers.

| Fiscal Sustainability Index  | Income Adequacy Index   |
|--|---|
| This index ranks countries according to the projected burden of their old-age benefit systems. | This index ranks countries according to the projected living standard of the elderly. |
| 1 India  | 1 Netherlands   |
| 2 Mexico   | 2 Brazil  |
| 3 Chile  | 3 United States   |
| 4 China  | 4 Germany   |
| 5 Russia   | 5 United Kingdom  |
| 6 Poland   | 6 Australia   |
| 7 Australia  | 7 Sweden  |
| 8 Japan  | 8 Chile   |
| 9 Canada   | 9 Spain   |
| 10 Sweden  | 10 India  |
| 11 United States   | 11 Canada   |
| 12 Korea   | 12 Japan  |
| 11 Switzerland   | 11 Poland   |
| 14 Germany   | 14 Switzerland  |
| 15 United Kingdom  | 15 Russia   |
| 16 Italy   | 16 France   |
| 17 France  | 17 Italy  |
| 18 Brazil  | 18 China  |
| 19 Netherlands   | 19 Korea  |
| 20 Spain   | 20 Mexico   |

Source: Jackson, Howe, and Nakashima (2010).

### A crucial lesson

The GAP Index contains some good news and some bad news.

The bad news is that very few countries score well on both dimensions of aging preparedness (see Table 1). Three of the seven highest-ranking countries on the fiscal sustainability index (Mexico, China, Russia) are among the seven lowest-ranking countries on the income adequacy index. Four of the seven highest-ranking countries on the income adequacy index (Netherlands, Brazil, Germany, United Kingdom) are among the seven lowest-ranking countries on the fiscal sustainability index. Not surprisingly, it is the developed countries, with their expansive welfare states, that tend to score better on income adequacy than on fiscal sustainability. In the emerging economies—Brazil being a notable exception—the trade-off is usually the reverse.

## Most developed economies . . . must significantly reduce the generosity of their old-age benefit systems to stave off fiscal catastrophe.

Two countries score near the bottom of both sub-indices: France and Italy. To rein in the rising cost of their pay-as-you-go old-age benefit promises, these countries have enacted pension reforms that drastically reduce the generosity of the public “deal” that future retirees can expect to receive. According to the GAP Index projections, the income of middle-income elderly in both countries is due to fall by roughly 15 percent relative to the income of middle-income working-age adults over the next three decades. But France and Italy spend so much on old age benefits and have so little fiscal room to accommodate future benefit growth that, even after reforms, they remain on a fiscally unsustainable course: both countries are moving toward retirement systems that are simultaneously inadequate and unaffordable.

The good news is that a few countries are successfully meeting the challenge. Australia, which combines means-tested public old-age income support with a large, mandatory, and fully funded private pension system, ranks well into the top half of both sub-indices. So does Chile, which has a similar mix of retirement policies.

Several other countries, moreover, are moving in the right direction. Like France and Italy, Germany and Sweden have scheduled deep reductions in the generosity of future government pension provision. But unlike France and Italy, they are on track to fill in the resulting gap in elderly income by increasing funded pension savings and extending work lives. Although their fiscal burdens remain high, they have been reduced to well beneath what they would have been without undermining the living standard of the elderly.

This contrast points to a crucial lesson. Most developed economies—as well as a few emerging economies, such as Brazil and Korea—must significantly reduce the generosity of their old-age benefit systems to stave off fiscal catastrophe. But unless reforms also provide for other sources of income sup-

Table 2

### What's a country to do?

To balance the trade-off between fiscal sustainability and adequate income for seniors, many countries need to make policy changes. The importance and urgency of those changes vary from country to country.

Reform guide key: ● = Not a priority ● = Low priority ●●● = Significant priority ●●●●● = High priority

|                | Reduce public pension benefits | Reduce health-care cost growth | Extend work lives | Increase funded pension savings | Strengthen poverty floors | Increase fertility rates | Increase immigration |
|----------------|--------------------------------|--------------------------------|-------------------|---------------------------------|---------------------------|--------------------------|----------------------|
| Australia      | ●●                             | ●●●                            | ●●                | ●                               | ●●●                       | ●●                       | ●                    |
| Brazil         | ●●●●                           | ●●                             | ●●                | ●●●                             | ●                         | ●●                       | ●●                   |
| Canada         | ●●                             | ●●●                            | ●●                | ●                               | ●                         | ●●●                      | ●●                   |
| Chile          | ●●                             | ●                              | ●●                | ●●                              | ●●                        | ●●                       | ●●                   |
| China          | ●●                             | ●                              | ●●●               | ●●●                             | ●●●●                      | ●●●                      | ●●                   |
| France         | ●●●●                           | ●●●●                           | ●●●●              | ●●●●                            | ●                         | ●●                       | ●●                   |
| Germany        | ●●●●                           | ●●●                            | ●●●●              | ●●●                             | ●                         | ●●●●                     | ●●●●                 |
| India          | ●                              | ●                              | ●●●               | ●●●                             | ●●●                       | ●                        | ●                    |
| Italy          | ●●●●                           | ●●●                            | ●●●●              | ●●●                             | ●●                        | ●●●●                     | ●                    |
| Japan          | ●●●●                           | ●●●                            | ●                 | ●●●                             | ●●●                       | ●●●●                     | ●●●●                 |
| Korea          | ●●                             | ●●                             | ●                 | ●●●●                            | ●●●●                      | ●●●●                     | ●●●●                 |
| Mexico         | ●                              | ●                              | ●                 | ●●●                             | ●●●●                      | ●                        | ●●                   |
| Netherlands    | ●●●                            | ●●●●                           | ●●●               | ●                               | ●                         | ●●●●                     | ●●●                  |
| Poland         | ●●●●                           | ●                              | ●●●               | ●●●                             | ●                         | ●●●●                     | ●●●                  |
| Russia         | ●●                             | ●                              | ●●●               | ●●●                             | ●●                        | ●●●●                     | ●●                   |
| Spain          | ●●●●                           | ●●●                            | ●●●●              | ●●●●                            | ●●●                       | ●●●●                     | ●●●                  |
| Sweden         | ●●●                            | ●●●                            | ●●                | ●●                              | ●                         | ●●                       | ●                    |
| Switzerland    | ●●                             | ●●●                            | ●●                | ●                               | ●●                        | ●●●●                     | ●●                   |
| United Kingdom | ●●                             | ●●●                            | ●●●               | ●●                              | ●●                        | ●●                       | ●                    |
| United States  | ●●                             | ●●●●                           | ●                 | ●●                              | ●●●                       | ●                        | ●                    |

Source: Jackson, Howe, and Nakashima (2010).

port to fill in the resulting gap in elderly income, the reductions are unlikely to be socially and politically sustainable. This is especially true in Europe, where the level of elderly dependence on public benefits is very high. In France, Germany, Italy, and Spain, over 70 percent of the income of the typical elderly person comes in the form of a government check.

### Policy matters

The GAP Index results also make clear that demography is not necessarily destiny. The aging trend in France, which has one of the highest fertility rates in Europe, is no more severe than in Australia or Canada, yet France ranks near the bottom of both sub-indices. Japan, despite its massive age wave, ranks in the middle of both sub-indices. That's because it has relatively modest per capita government pension benefits, which helps minimize the fiscal burden on the young, and large percentages of elderly who are still working or who live in multigenerational households, which helps boost the income of the old.

In short, policy matters. The GAP Index includes a reform guide that assesses the urgency and potential payoff of seven key reform strategies in each country, from reducing government pension benefits and health care cost growth to extending work lives, increasing funded retirement savings, strengthening old-age poverty floors, and increasing fertility rates and immigration (see Table 2). Most of the data used to assess the relative importance of the seven strategies are generated by the GAP Index model. The divisions between different priority levels, however, are based on our judgment.

We conclude that two strategies in particular, extend-

ing work lives and increasing funded pension savings, are especially important, because they allow countries to escape or at least mitigate the trade-off between fiscal sustainability and income adequacy. They represent the best means—indeed, the only means—by which countries can maintain or improve the living standard of the old without putting a new tax or family burden on the young.

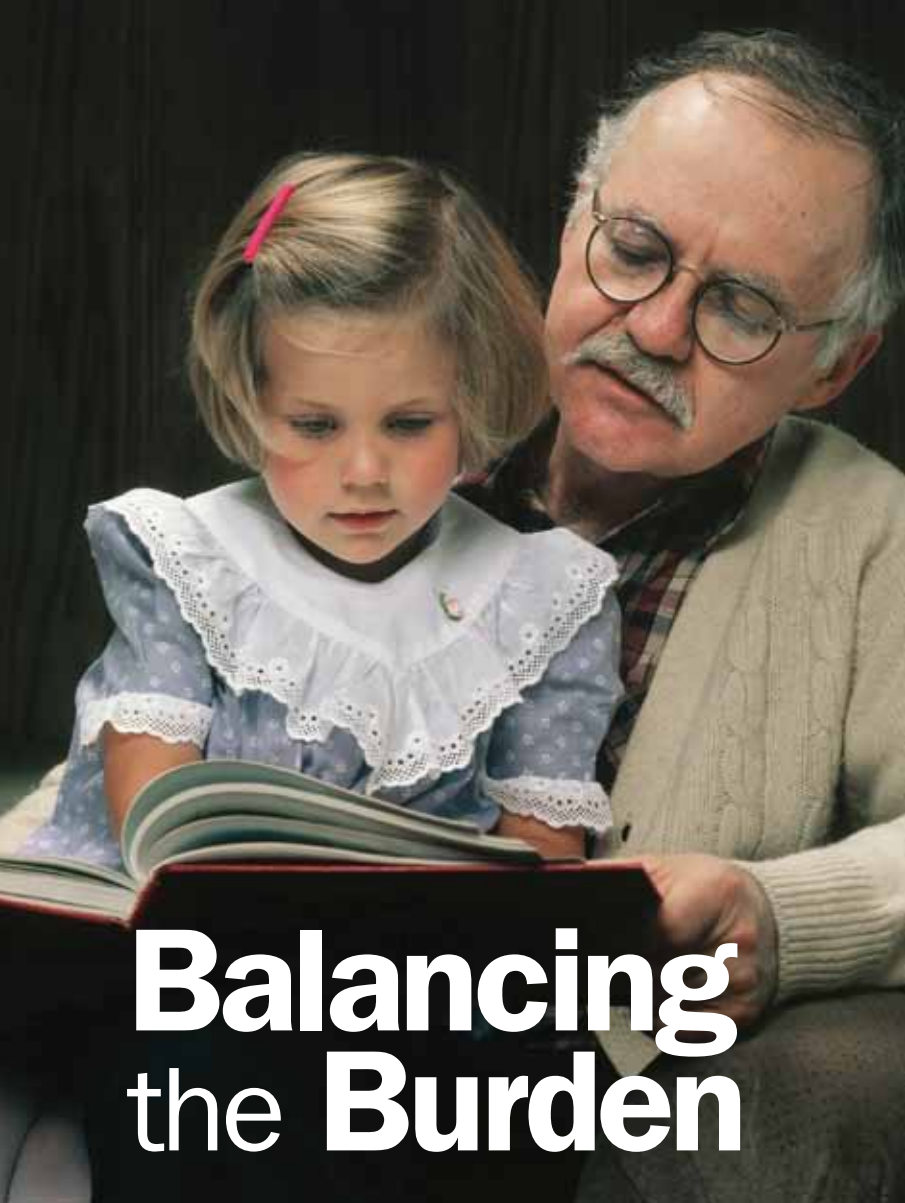
With much of the world still reeling from the recent global economic crisis, many policy leaders may conclude that now is not the right time to address the long-term challenge of global aging. This would be a mistake. The economic crisis has made timely action more urgent. It has drastically reduced the fiscal room that most countries have to accommodate rising old-age benefit costs, while leaving many elderly people more vulnerable. There is also the critical issue of confidence. The public and the markets increasingly worry that governments have lost control over their fiscal future. In light of this, taking credible steps to address the long-term aging challenge may be a necessary part of ensuring near-term recovery as well. ■

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# Balancing the Burden

**The costs of benefits for current retirees fall more on future Americans than on future Italians**

*Nicoletta Batini and Giovanni Callegari*

**W**E MAY BE HAPPY that we are living longer, but as populations age, organized societies discover two large drawbacks to longer lives.

The first is financial. Health care and retirement costs rise as the number of people over 65 grows faster than the working-age population. This increase in the so-called old-age dependency ratio (OADR) means fewer working-age people to pay for the health and pension benefits of a growing older population. Recently, the growing OADR has been aggravated by sharply rising health care and drug prices, which are expected to continue soaring worldwide at rates well above the expected growth in nominal income.

The second drawback has to do with equity across generations. Aging distorts the net contributions that younger and older citizens make to a country's coffers. As the per-

centage of elderly goes up, the likelihood grows that current workers and their children (and their as-yet unborn children) will pay increasing amounts of their lifetime incomes to today's seniors, while the probability decreases that they will enjoy similar benefits when they get old.

Traditional analysis of the costs of age-related spending has tended to focus on its financial aspects and the exploding debt-to-gross domestic product scenarios that accompany them. Less attention has been paid to the implications of aging for generational equity. A key reason is the difficulty of computing the cost of the increase in age-related spending for each generation. Such calculations are hard to make because a large part of a country's spending liabilities consists of commitments to future transfers (under entitlement programs), which can change. As a result, traditional fiscal indicators such as the current imbalance between a country's revenue and spending or the stock of government debt cannot measure whether future generations will have a fiscal burden equal to current or past generations.

## Measuring generational equity

It is possible to compute how much each member of past, living, or future generations gains or loses through a country's spending and taxing system by calculating the difference between all taxes paid by that individual during his or her life and all the government transfers that he or she has received and will receive. The methodology is called "generational accounting," a concept originally developed by Laurence J. Kotlikoff, Alan J. Auerbach, and Jagadeesh Gokhale in 1991, and assumes that taxes and benefits are unchanged for current

generations for the rest of their lives and that someone (that is, future generations) must eventually pay for the country's excesses (that is, the country never goes into default).

These generational accounts can be used to assess the fiscal burden current generations are placing on future generations, and represent an alternative to using the federal budget deficit to gauge intergenerational policy. Generational accounts can also be used to calculate the policy changes required to achieve a generationally balanced—and therefore sustainable—fiscal (spending and taxing) policy, one that imposes equal lifetime net tax rates on today's newborns and future generations.

Calculating generational accounts starts with the idea that the sum of future government consumption spending has to be equal to all future net taxes (that is, taxes minus transfers, all adjusted to reflect the value of future payments in cur-

rent terms) plus current government net wealth. Using data from official surveys, it is possible to compute individual generational accounts—that is, the value in today's dollar terms of individual taxes minus transfers for each current and future generation. Accounts for men usually differ markedly from those for women because men tend to earn more money, pay proportionally higher taxes, and receive fewer transfers targeted at children. Men also tend to live shorter lives and be sick more often than women. These income and health differences affect benefits received during old age, especially health care benefits, and give rise to different profiles of the incidence of taxes and transfers across gender and age. The last step in the calculation of the generational accounts requires transforming these profiles into per capita terms. To do that, population projections are combined with long-term tax and transfer projections to generate per capita lifetime net tax burdens by age and gender.

This article uses generational accounting methodology—relying on estimates from the [U.S. Congressional Budget Office](#) and the [Italian National Statistics Office](#)—to look at the United States and Italy, two countries at similar levels of development but with different degrees of population aging. For example,

- To date, Italy has undergone a considerably stronger demographic change than the United States. Projections from the United Nations indicate that the OADR in the United States, now 0.22, is projected to be 0.38 in 2050; Italy's current OADR, by contrast, is 0.33 and will grow to 0.66 by 2050.

- In the United States, the generational imbalance is deepened by the continuing drop in government revenues. Because this is not being matched by a reduction in spending, it portends a redistribution of taxes from current to future generations. The situation is aggravated by the rapid increase (both actual and projected) in health care costs.

- Italy long ago embarked on widespread reforms of its entitlement programs, which has increased the nation's ability to pay for them, but the United States has yet to change mandatory spending in ways that are conducive to fiscal solvency.

In a sense, then, the United States and Italy find themselves not just in different stages of the aging process but also in different phases of the solution to the problems aging brings. In the United States, aging issues (including rapid growth in health care costs) are expected to have their heaviest impact on future deficits. Italy, on the other hand, is already in the thick of things. Age-related spending in Italy is expected to

Table 1

### Who gets what?

Those alive today in the United States will pay less in taxes than they receive in benefits, while the unborn will pay the price.

| Age in 2010        | Real net income received (billion dollars) |
|--------------------|--|
| 0                  | 111.0                                      |
| 5                  | 92.3                                       |
| 10                 | 75.0                                       |
| 15                 | 52.6                                       |
| 20                 | 30.4                                       |
| 25                 | 19.6                                       |
| 30                 | 31.4                                       |
| 35                 | 56.7                                       |
| 40                 | 89.5                                       |
| 45                 | 124.3                                      |
| 50                 | 169.6                                      |
| 55                 | 229.7                                      |
| 60                 | 291.8                                      |
| 65                 | 332.7                                      |
| 70                 | 305.0                                      |
| 75                 | 268.6                                      |
| 80                 | 236.1                                      |
| 85                 | 203.2                                      |
| 90                 | 164.7                                      |
| Future generations | -387.9                                     |

Sources: U.S. Congressional Budget Office; and IMF staff calculations.  
Note: Estimates are based on a constant real interest rate of 3 percent between 2010 and 2084 and assume current policies remain in effect. Net income is benefits received minus taxes paid over a lifetime, in 2010 dollars.

stabilize in the short and medium term, about the time the United States should see its costs exploding.

### Accounting for the United States

Applying the generational accounting methods to the United States (see Tables 1 and 2), we find several key messages (Batini, Callegari, and Guerreiro, 2011):

- Under current policies, the U.S. generational imbalance is large. Current generations are net receivers of public resources, while future generations of Americans are expected to foot the bill.

- The only way to reduce the burden on future generations is for Americans today to pay more in taxes and receive fewer entitlement benefits (such as Social Security payments). This would reduce the expected increase in the deficit and spread the adjustment equally across future generations. If these changes are not implemented soon, a typical American in the future might face net tax rates at least 21.5 percentage points higher than today. The longer changes are delayed, the bigger the needed adjustments.

- Under current conditions (assuming no changes in tax or entitlement law), the main drivers of the U.S. generational imbalance are the 2001 and 2003 tax cuts (recently extended until 2012) and the projected rapid increase in health care spending. The global financial crisis is estimated to have had a very limited impact on the imbalance. By contrast, the projected acceleration in the growth of entitlement spending and the reduction in tax revenues will be permanent unless laws change.

The U.S. health care reform of 2010, while marginally altering the overall imbalance, creates a substantial redistribution to today's working generations because it increases costs for young people and future generations.

These results show a substantial increase in the burden on future generations compared with previous estimates of U.S. generational accounts (for example, Gokhale, Page, and Sturrock, 1999), mostly because of the deterioration in U.S. public finances following the 2001, 2003, and 2010 tax cuts and the 2006 extension of Medicare benefits to include prescription drugs.

### What Italians must pay

In Italy, the results indicate an elevated degree of intergenerational unfairness, based on 2006 data, the latest available. But there has been much less deterioration in Italian finances than in U.S. finances since 2006, and the financial crisis did not have a major effect on U.S. financial or generational balances. The data therefore point to an imbalance

that is considerably smaller than that in the United States (Rizza and Tommasino, 2008):

- If we express the generational accounts in terms of implicit lifetime net tax rates, future generations in Italy will have to pay a rate that is 8.3 percentage points higher than what current generations pay, compared with the 21.5 percentage points in the United States.

- Unlike the United States, where most of the generational imbalance is explained by today's relatively low tax revenues and the projected sharp increases in health care spending, in Italy the main driver of the imbalance is pension spending, mostly due to the rising OADR. In 2010 there were three Italians of working age for every older Italian. That ratio will shrink to 1.5 by 2050. There are currently 4.6 working-age Americans for every older American, and although this ratio too will decline, reaching 2.6 to 1 in 2050, it will be at a more sustainable level than in Italy. Although important in absolute terms, compared with the United States, health care costs are a relatively minor issue in Italy from a fiscal and generational point of view. Were it not for population aging, Italy would not have to raise taxes to achieve generational balance; in fact, a tax cut of 4.4 percent would be called for to ensure generational balance.

- The estimate of the generational imbalance in Italy has varied considerably over time. The required adjustment in the net tax rate fell considerably after the pension reforms adopted during the first half of the 1990s, which included an increase in the pension eligibility age, a return to a contribution-based system, and the introduction of voluntary private insurance systems. But that adjustment increased during the past decade because during the early 2000s the country missed some of its fiscal targets, making government debt fall more slowly than anticipated. There was also a delay in the implementation of pension reform.

Table 2

### Taxing consequences

Under current policies, people born today in the United States will have a negative net tax rate (receiving more in transfer payments such as Social Security and Medicare than they pay in taxes). Future generations will pay a steep tax rate as a result—21.5 percentage points more. Changes in policies and events can affect that differential.

|  | Just born<br>(percent) | Unborn<br>(percent) | Difference<br>(percentage points) |
|--|------------------------|---------------------|-----------------------------------|
| Current policies                                     | -4.8                   | 16.7                | 21.5                              |
| Excluding effects of health care reforms             | -5.0                   | 16.6                | 21.5                              |
| Excluding effects of global financial crisis         | -4.8                   | 16.6                | 21.4                              |
| No extension of 2001, 2003, and real estate tax cuts | -2.7                   | 15.4                | 18.0                              |
| No excessive growth in health care costs             | 4.4                    | 12.1                | 7.8                               |

Sources: U.S. Congressional Budget Office; and IMF staff calculations.

Note: Projections assume a real interest rate of 3 percent throughout. The net tax rate is calculated in percent of the net present value of income from labor. The difference between the "Just born" net tax rate and the "Unborn" net tax rate is the intergenerational burden. No excessive growth in health care costs means that the growth rate of health care spending per beneficiary is no greater than the per capita growth of output.

Italy shows that much can be done to cope with age-related spending, even when a population is aging rapidly. Commitment to reform is a crucial part of the solution. Because pension reforms cross generations, policies to reduce the unfairness imposed on some generations by specific welfare systems must be embedded in strong institutional mechanisms. Those mechanisms can include fiscal rules that force the solvency of the pension system by accounting for population aging and independent institutions that guarantee the implementation of the reforms over time and changing legis-

## Italy shows that much can be done to cope with age-related spending, even when a population is aging rapidly.

latures. Italy's experience shows that these mechanisms can weather changes in government and political powers, including those dictated by the change in the median voter age.

The internal debate over how to reform entitlement programs in a way that is economically sustainable and politically feasible is still in its infancy in the United States. The United States should heed the lessons learned by countries with older populations, such as Italy, and look to international best practices on how to contain health care spending for an aging population. Rising medical costs are an even more daunting issue and must be dealt with soon. Indeed, the analysis of the U.S. generational accounts shows that the cost of waiting for health care reforms could be very high. ■

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# Financial Repression

**Governments are once again finding ways to manipulate markets to hold down the cost of financing debt**

*Carmen M. Reinhart,  
Jacob F. Kirkegaard, and  
M. Belen Sbrancia*



**W**ITH PUBLIC and private debt at record or near-record levels, reducing public deficits and debt is likely to remain at the forefront of policy discussions in most advanced economies for the foreseeable future (Reinhart and Rogoff, 2010). Throughout history, the ratio of debt to gross domestic product (GDP) has been reduced in a variety of ways, including

- economic growth;
- substantive fiscal (spending and taxing) adjustments, such as austerity plans;
- explicit default or restructuring of private and/or public debt;
- sudden surprise bursts in inflation (which reduce the real value of the debt); and
- financial repression—that is, official policies that direct to government use (and usually at below-market rates) funds that would otherwise go to other borrowers (see Box 1).

Because these debt reduction channels are not mutually exclusive, debt reductions have often combined more than one of these avenues. Financial repression played an important role in reducing debt-to-GDP ratios after World War II, and it has recently reemerged, along with large increases in public debts, in advanced economies.

Financial repression is most successful in liquidating debts when accompanied by a steady dose of inflation, and, like inflation alone, it only works with debts denominated in domestic currency. Low nominal interest rates help reduce

debt servicing costs, while a high incidence of negative real interest rates liquidates or erodes the real value of government debt. Inflation need not take market participants entirely by surprise and need not be very high (by historical standards).

## Box 1

### Features of financial repression

Financial repression occurs when governments implement policies to channel to themselves funds that in a deregulated market environment would go elsewhere. Policies include directed lending to the government by captive domestic audiences (such as pension funds or domestic banks), explicit or implicit caps on interest rates, regulation of cross-border capital movements, and (generally) a tighter connection between government and banks, either explicitly through public ownership of some of the banks or through heavy “moral suasion.” Financial repression is also sometimes associated with relatively high reserve requirements (or liquidity requirements), securities transaction taxes, prohibition of gold purchases, or the placement of significant amounts of government debt that is nonmarketable. In the current policy discussion, financial repression issues come under the broad umbrella of “macroprudential regulation,” which refers to government efforts to ensure the health of an entire financial system.

# Redux

We suggest that the large public and private debts in advanced economies and the perceived dangers of currency misalignments and overvaluation in emerging markets facing surges in capital inflows are interacting to produce a “home bias” in finance and a resurgence of financial repression. While emerging markets may increasingly look to financial regulatory measures to keep international capital *out*, advanced economies have incentives to keep capital *in* and create a captive domestic audience to finance the existing public debt. Concerned about potential overheating, rising inflationary pressures, and related competitiveness issues, emerging market economies are altering their regulatory frameworks to deter foreign investors in their eternal quest for higher yields. This offers advanced and emerging market economies a common ground to agree on increased regulation and/or restrictions on international financial flows and, more broadly, the return to more tightly regulated domestic financial environments—in other words, financial repression. Governments do not call these actions financial repression, of course, but characterize them as part of “macroprudential regulation,” which is designed to ensure the overall health of the financial system.

## Keeping rates low

One of the main goals of financial repression is to keep nominal interest rates lower than they would be in more competitive markets. Other things equal, this reduces the government’s interest expenses for a given stock of debt and

contributes to deficit reduction. However, when financial repression produces negative real interest rates (nominal rates below the inflation rate), it reduces or liquidates existing debts and becomes the equivalent of a tax—a transfer from creditors (savers) to borrowers, including the government (Reinhart and Sbrancia, 2011).

But this financial repression tax is unlike income, consumption, or sales taxes. The rate is determined by financial regulations and inflation performance, which are opaque compared with more visible and often highly politicized fis-

**This financial repression tax is unlike income, consumption, or sales taxes.**

cal measures. Given that deficit reduction usually involves highly unpopular expenditure reductions and/or tax increases, authorities seeking to reduce outstanding debts may find the stealthier financial repression tax more politically palatable.

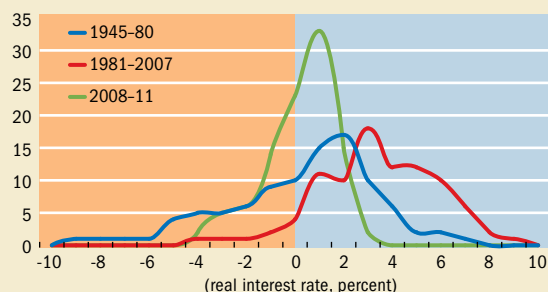
Liberal capital market regulations and international capital mobility had their heyday under the gold standard prior to World War I. But they began to wane after World War I, with the Great Depression and World War II putting the final nails in the coffin of *laissez-faire* banking. After World War II the Bretton Woods arrangement of fixed exchange rates and tightly controlled domestic and international capital markets was put in place. The result was a combination of very low nominal interest rates and inflationary spurts of varying

Chart 1

### Real rates

In the three and a half decades following World War II and the three years since the global crisis, real rates, as exemplified by those on treasury bills from advanced economies, were on average negative.

(share of observations, percent)



Sources: Reinhart and Sbrancia (2011); IMF, *International Financial Statistics*; and authors' calculations.

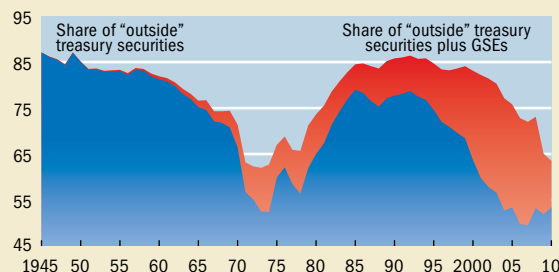
Note: The economies represented are Australia, Belgium, Canada, Finland, France, Germany, Greece, Ireland, Italy, Japan, New Zealand, Sweden, the United Kingdom, and the United States. Interest rates for 2011 reflect monthly observations through February.

Chart 2

### Private players retreat

Official players, mainly the U.S. Federal Reserve and foreign central banks, are buying an increasing share of marketable U.S. Treasury securities as well as those issued by government-sponsored enterprises (GSEs) such as Fannie Mae and Freddie Mac.

(percent of total)



Sources: Federal Reserve, Flow of Funds; and authors' calculations.

Note: The outstanding stock of U.S. Treasury securities plus GSEs comprises Treasury credit market instruments (bills, notes, bonds) plus GSE issues plus GSE-backed mortgage pools minus savings bonds and budget agency securities. Outside marketable securities are those tallied above minus holdings by the rest of the world and the Federal Reserve.

degrees across the advanced economies (which here include Australia, Belgium, Canada, Finland, France, Germany, Greece, Ireland, Italy, Japan, New Zealand, Sweden, the United Kingdom, and the United States). Real interest rates in both advanced and emerging economies were markedly negative—whether on treasury bills (see Chart 1), central bank discount rates, deposits, or loans—and remained consistently lower (negative on average) in the ensuing three and a half decades. Binding interest rate ceilings on deposits (which kept real deposit rates even lower than the negative real rates on treasury bills) induced domestic savers to hold government bonds. That this was occurring nearly everywhere at the time helped delay the emergence of leakages from investors seeking higher yields.

Although another era of freer capital mobility began around 1980, the outbreak of the recent financial crisis again sent real interest rates in advanced economies increasingly negative. In the past four years, real rates in 21 advanced economies have been negative about half the time and below 1 percent about 82 percent of the time. This overall turn to lower real interest rates occurred despite the high rates investors have demanded on securities in several countries that have been teetering on the verge of default or restructuring. Real central bank discount rates and bank deposit rates have also been markedly lower since 2007.

### Nonmarket forces

Undoubtedly, a critical factor explaining the high incidence of negative real interest rates was the aggressively expansive monetary policy (and, more broadly, official central bank intervention) in many advanced and emerging economies during the crisis. This raises the broad question of the extent to which current interest rates reflect the stance of official large players in financial markets rather than market conditions. A large role for nonmarket forces in interest rate determination is a key feature of financial repression.

#### Eliminating debt

Financial repression can wipe out large quantities of government debt in what has been called the liquidation effect. This has an effect equivalent to increasing government revenues and has been used by emerging and advanced economies.

| Country        | Period              | Liquidation effect revenues as a percent of |              |
|----------------|---------------------|---|--------------|
|                |                     | Gross domestic product                      | Tax revenues |
| Argentina      | 1944–74             | 3.2   | 19.3         |
| Australia      | 1945–68, 1971, 1978 | 5.1   | 20.3         |
| Belgium        | 1945–74             | 2.5   | 18.6         |
| India          | 1949–80             | 1.5   | 27.2         |
| Ireland        | 1965–90             | 2.0   | 10.3         |
| Italy          | 1945–70             | 5.3   | 127.5        |
| South Africa   | 1945–74             | 1.2   | 8.9          |
| Sweden         | 1945–65, 1984–90    | 0.9   | 6.5          |
| United Kingdom | 1945–80             | 3.6   | 26.0         |
| United States  | 1945–90             | 3.2   | 18.9         |

Source: Reinhart and Sbrancia (2011).

In the U.S. Treasury market, the rising role of official—that is, U.S. or foreign central bank—players (or, conversely, the shrinking role of private or *outside* market players) is made plain in Chart 2. It shows the evolution of the share of outside marketable [U.S. Treasury](#) securities plus securities of government-sponsored enterprises (GSEs) such as [Fannie Mae](#) and [Freddie Mac](#) from 1945 through 2010. Outside securities are essentially those that are not held by other governments or

## The outbreak of the recent financial crisis again sent real interest rates in advanced economies increasingly negative.

the [U.S. Federal Reserve](#). The combination of Federal Reserve purchases of securities and, more importantly, record purchases of U.S. Treasury securities and GSEs by foreign central banks (notably China, but also emerging Asia and other emerging economies) has left the share of outside marketable treasury securities as of 2010 at nearly 50 percent of the total issued without GSEs and about 65 percent when GSEs are included. This is the lowest share since the expansive U.S. monetary policy stance during the breakdown of the Bretton Woods system in the early 1970s. The post-Bretton Woods era (like the present) was one of rising oil, gold, and commodity prices, negative real interest rates, currency turmoil, and eventually higher inflation.

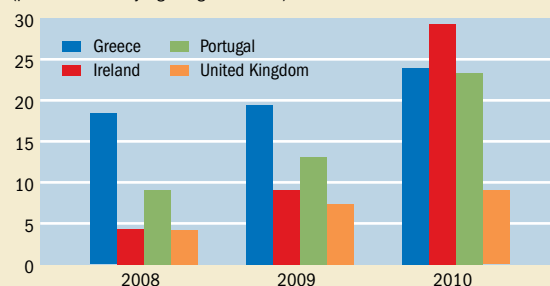
The situation is similar in the United Kingdom. The [Bank of England's](#) quantitative easing policies since the crisis (in which the central bank bought U.K. government debt, as well as other financial assets), coupled with the October 2009 requirement that commercial banks hold a higher share of U.K. securities (gilts) to satisfy tougher liquidity standards,

Chart 3

#### Buying domestic

Under government pressure, Greek, Irish, Portuguese and U.K. banks have sharply increased their holdings of domestic public debt.

(percent of country's gross general debt)



Sources: Kirkegaard and Reinhart (2011); and IMF, *World Economic Outlook*.

Note: Holdings include both general government loans and securities. Totals do not include European Central Bank purchases of Greek, Irish, and Portuguese bonds—which, through March 2011, account for about 12 percent of the combined general government debt of the three countries. Totals do not include government debt holdings by pension funds.



## Captive markets

*Governments in advanced economies have taken many steps in recent years to create or grow demand for public debt or to directly access private savings. Among them are:*

**France, 2010:** *Conversion of a pension reserve fund to a captive buyer of French official debt.* The French government liquidated the [Fonds de Reserve Pour Les Retraites](#) (FFR), designed to provide long-term financial support to the pension system, and shifted the €37 billion FFR to paying an annual €2.1 billion to the government agency [Caisse d'Amortissement de la Dette Sociale](#) (CADES) from 2011 to 2024. In 2024, all remaining assets in FFR will be transferred to the CADES. This has meant a radical shift in FFR's asset allocation from longer-term to shorter-term instruments and, for the duration of its lifespan, made the FFR a large captive buyer of French government bonds.

**Ireland, 2010:** *Use of the national pension reserve to recapitalize banks.* As a result of the banking crisis, Ireland's [National Pension Reserve Fund](#) (NPRF) may have to contribute up to €17.5 billion to recapitalize Ireland's banks. The NPRF was set up in 2001 to help finance the long-term costs of Ireland's social welfare and public service pensions after 2025. However, a 2010 law directed the NPRF to invest in Irish government securities and provides the legal authority for the Irish government to fund capital expenditure from the NPRF during 2011–13. The Irish government also proposed funding jobs programs through a 0.5 percent levy on private pension funds.

**Japan, 2010:** *Reversal of privatization of Japan Post and an increase in deposit ceilings.* The new government reversed the 2007 plan to privatize Japan Post, the nation's post office that also runs such a massive savings system that it is the world's largest financial conglomerate, with more than ¥300 trillion in assets. The new law also doubled the amount that depositors can save at Japan Post Bank to ¥20 million and raised the life insurance coverage limit at Japan Post Insurance Co. from ¥13 million to ¥25 million. Because Japan Post traditionally

allocates roughly 75 percent of its assets to Japanese government bonds, and because consumers are likely to transfer deposits to a company certain to enjoy a government guarantee, the reversal of the Japan Post privatization increases the capacity of a captive customer of Japanese government debt.

**Portugal, 2010:** *Transfer of the previously privatized Portugal Telecom pension scheme back to the Portuguese government.* The government was immediately able to book €2.8 billion in extra revenues, about 1.6 percent of gross domestic product. As a result, the Portuguese government narrowed its 2010 budget deficit sufficiently to appear to be in line with annual [European Union](#) deficit reduction targets.

**Spain, 2010:** *Interest rate ceilings on deposits.* The [Ministry of Finance](#) required institutions offering deposit interest rates the ministry determines to be above market rates to double their contributions to the [Deposit Guarantee Fund](#).

**United Kingdom, 2009:** *Increase in required holdings of government bonds.* The [Financial Services Authority](#) required U.K. banks, investment banks, and subsidiaries or branches of foreign institutions to hold more high-quality government securities and cut their reliance on short-term funding by 20 percent in the first year alone. **2011:** *Royal Mail privatization.* The U.K. Treasury is projected to receive a transfer of £23.5 billion in assets ahead of privatization and £29.5 billion in liabilities.

Since 2008, many emerging market countries have taken one or more steps to control the flow of foreign capital into their economies, including Brazil, 2008, 2009, and 2010; Czech Republic, 2008; Hungary, 2011; Indonesia, 2010; Korea, 2009, 2010; Peru, 2009, 2010; Philippines, 2010; Poland, 2011; Russia, 2010, 2011; South Africa, 2010; Thailand, 2010; and Turkey, 2010.

Sources: Kirkegaard and Reinhart (2011); and Magud, Reinhart, and Rogoff (2011).

have reduced the share of outside gilts to about 70 percent of the total outstanding. If foreign official holdings (by central banks) were added, the share of outside gilts would be considerably lower and closer to that of the U.S. treasury market.

The [European Central Bank](#) (ECB) bond purchases of debt issued by Greece, Ireland, and Portugal totaled more than \$100 billion between May 2010 and March 2011 and account for about 12 percent of the combined general government debts of the three troubled sovereigns.

Central banks have become bigger players than ever in purchases of government debt—a situation that could continue for the indefinite future. Fear that their currencies will appreciate (with attendant ill effects on international competitiveness) drives central banks in many emerging markets to purchase U.S. government bonds on a large scale. In other words, markets for government bonds are increasingly populated by non-market players, calling into question the information content of bond prices relative to their underlying risk profile, which is a common feature in financially repressed systems.

## The liquidation effect

We quantified the post–World War II wipeout of mountains of public debt in the advanced economies by measuring the so-called *liquidation effect*, the amount of government debt reduction wrought by financial repression (Reinhart and Sbrancia, 2011).

To determine how much debt is liquidated by financial repression requires reconstruction of a government's debt profile over time. Such a reconstruction is needed because of the complicated structure of government debt, which varies enormously across and within countries over time. The overall cost of debt financing for the government is shaped by differences in coupon rates, maturity and the distribution of marketable and nonmarketable debt, and securitized debt versus loans from financial institutions.

The reconstructed debt portfolio must reflect the actual shares of debt across the range of maturities as well as the shares of marketable versus nonmarketable debt. It also must include calculating an aggregate nominal interest rate and a real interest rate (adjusted by the consumer price index).

A year in which liquidation occurs is one in which the real rate of interest on the portfolio is negative. This is a conservative definition. A more comprehensive definition would include periods where the real interest rate on government debt was below a real market rate.

This definition captures the savings to the government from having a negative real interest rate on government debt. These savings can be thought of as a revenue equivalent for the government, which, like regular budgetary revenues, can be expressed as a share of GDP or as a share of recorded tax revenues to provide standard measures of the liquidation effect across countries and over time. The savings (or revenue) to the government from the liquidation effect are equal to the real (negative) interest rate times the tax base. The tax base in this case is the stock of domestic government debt outstanding.

## The liquidation effect occurred in at least a quarter of the years between 1945 and 1980 in the United States and considerably more often in other countries.

The liquidation effect occurred in at least a quarter of the years between 1945 and 1980 in the United States and considerably more often in other countries (see table). The magnitude of savings to the governments was often large and never trivial.

For the United States and the United Kingdom, the annual liquidation effect amounted on average to between 3 and 4 percent of GDP a year. Annual deficit reduction of this magnitude quickly accumulates (even without any compounding) over the course of a decade. For Australia and Italy, which recorded higher inflation rates, the liquidation effect was larger (about 5 percent a year). These estimates, which are conservative, highlight the significant role played by financial repression on debt reduction during the decades after World War II.

### Repression today

One thing advanced economies have in abundance today is government debt, with the attendant policy challenge of finding prospective buyers for it. As noted, massive purchases of government debt by central banks around the world have kept nominal and real interest rates low. In addition, the latest international bank regulatory standards ([Basel III](#)) encourage banks to hold government debt by giving it preferential treatment for satisfying capital requirements.

Other approaches to creating or expanding demand for government debt may be more direct (see Box 2). For example, at the height of the financial crisis U.K. banks were required to hold a larger share of gilts in their portfolio. Greek, Irish,

and Portuguese banks have already liquidated a substantial fraction of their foreign assets and used the proceeds to buy domestic public debt (see Chart 3). Thus the process by which debts are being placed at below market interest rates in pension funds and other more captive domestic financial institutions is already under way in several European countries. Spain has recently reintroduced a de facto form of interest rate ceilings on bank deposits. Similar trends are developing in Eastern Europe.

Moreover, the use of capital controls by emerging markets hoping to control destabilizing inflows (hot money), potential overheating, rising inflationary pressures, and related competitiveness issues have found far greater acceptance in the international community than at any time since the breakdown of the Bretton Woods system. Indeed, many emerging markets have already begun to use such policies.

Evaluating the relative merits of these highly diverse policies is beyond the scope of this article but certainly warrants further research.

### What tomorrow holds

Financial repression contributed to rapid debt reduction following World War II. At present, the levels of public debt in many advanced economies are at their highest levels since that time. Some governments face the prospect of debt restructuring. Public and private *external* borrowing (which is a relatively volatile source of funding) is at a historic high. It seems probable that policymakers for some time to come will be preoccupied with debt reduction, debt management, and efforts to keep debt servicing costs at a reasonable level. In this setting, financial repression, with its dual aims of keeping interest rates low and creating or maintaining captive domestic audiences, will continue to find renewed favor, and the measures and developments we have described and discussed are likely to be only the tip of a very large iceberg. ■

*Carmen M. Reinhart and Jacob F. Kirkegaard are Fellows at the Peterson Institute for International Economics, and M. Belen Sbrancia is a graduate student at the University of Maryland.*

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Lobbyists on Capitol Hill, Washington, D.C.

**A strong connection exists between financial industry lobbying and favorable financial legislation**

# Making Friends

*Deniz Igan and Prachi Mishra*

**A**T THE END OF 2007—as markets grappled with the early stages of what would become the worst financial crisis in the post–World War II era and a severe recession seized the U.S. economy—*The Wall Street Journal* reported that two of the largest mortgage lenders in the United States had spent millions of dollars on political donations, campaign contributions, and lobbying activities from 2002 through 2006 (Simpson, 2007).

Ameriquest Mortgage and Countrywide Financial fought anti-predatory-lending legislation in Georgia and New Jersey and fended off similar laws in other states and at the federal level, according to the *Journal*. In other words, the financial industry fought, and defeated, measures that might have allowed for a timely regulatory response to

some of the reckless lending practices and consequent rise in delinquencies and foreclosures that most think played a pivotal role in igniting the crisis. The [Center for Public Integrity](#)—a nonprofit Washington, D.C.–based investigative reporting organization—in 2009 linked subprime originators, most of which are now bankrupt, to lobbying against tighter regulation of the mortgage market (Center for Public Integrity, 2009). In fact, banks continued to lobby intensively against tighter regulation and financial regulatory reform, even as the industry struggled financially and suffered from negative publicity regarding its role in the economic crisis (Labaton, 2009).

As these anecdotes suggest, regulatory failure, in which the political influence of the financial industry played a part, may



have contributed to the 2007 meltdown in the U.S. mortgage market, which by fall 2008 had escalated from a localized U.S. crisis to the worst episode of global financial instability since the Great Depression of the 1930s.

To go beyond anecdotes and systematically study how much lobbying and campaign contributions affected U.S. financial legislation in the years preceding the crisis, we developed a new data set of U.S. financial companies' politically targeted activities during 1999–2006 (Igan and Mishra, forthcoming). We found that lobbying expenditures by the U.S. financial industry were directly associated with how legislators voted on key bills in the years before the crisis—and that bills proposing regulation that the industry considered unfavorable were far less likely to pass than bills proposing financial deregulation. We chose to focus on the United States not because lobbying doesn't take place in other countries, but because U.S. transparency laws make it possible to gather the necessary details on political spending and lobbying for such analysis.

### Lobbying and legislation

Questions about the role of regulation and other government activity in financial crises are not new. From a theoretical perspective, government regulation of the financial sector is well justified as a response to market failures brought about as a result of moral hazard, asymmetric information, or systemic risk (Goodhart and others, 1998). Yet in practice, many argue, such government action contributes to rather than mitigates episodes of financial instability. That's because politics and political pressure often interfere with the design and implementation of specific regulations, leading to unintended results (Johnson, 2009; Calomiris, 2009). In other words, private agents can alter the course of government action and manipulate policymakers to obtain unjustifiable profits and tailor the financial regulatory landscape to fit their needs.

But it can often be difficult to study these outside pressures within a formal framework using a broad sample of financial crisis episodes absent detailed information on the political activities of the financial sector. As a result, there has been little formal study of the relationship between the political economy and the alleged regulatory failures that may have contributed to financial crises. The recent global financial crisis presents a good opportunity to take a closer look at this relationship thanks to detailed information for the United States, the epicenter of the recent crisis. In recent work with our colleague Thierry Tresselt we looked at the association between lobbying activities and risk taking by financial institutions in the run-up to the crisis (Igan, Mishra, and Tresselt, forthcoming). We found that lenders that lobbied heavily between 2000 and 2006 tended to engage in risky lending practices more often than other institutions over the same period and suffered worse outcomes during the crisis.

Mian, Sufi, and Trebbi (2010a) look at congressional voting patterns on two key pieces of legislation that shaped the regulatory response *after* the crisis. They also studied six bills *before* the crisis and found that aggregate campaign contributions from the financial industry played a significant role in the vote results for these bills (Mian, Sufi, and Trebbi, 2010b).

### Finding the facts

We use a comprehensive data set of financial companies' politically targeted activities during 2000–06. Specifically, we ask the following question: Did lobbying activity by the finance, insurance, and real estate industries directly affect politicians' voting behavior, and hence the passage of financial regulation bills? In other words, did the politically targeted activities of these industries help them obtain the desired outcome on the proposed bills and thus contribute to the alleged regulatory failure? In addition, did legislators' connections with the financial industry, which we dub Wall Street, and lobbyists, which we call K Street (where many lobbyists have offices), alter their voting behavior?

We gathered the following information:

- firm-level data on lobbying expenditures targeted toward specific bills and particular government entities;
- detailed information on 51 bills related to financial regulation, including whether they were passed by the House, the Senate, or both; whether they were enacted into law; and whether the targeted legislators voted in favor or against; and
- information on the professional backgrounds of legislators and lobbyists, to pin down their network connections established through, among other things, employment and schools attended.

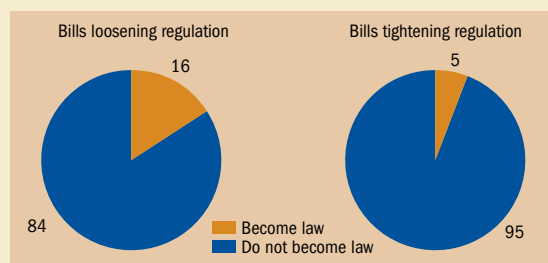
Then we looked at legislation. First, we examined whether the probability that a bill will ultimately be signed into law depends on how favorable or unfavorable it is to the financial industry. We studied the bills in detail and classified each as “lax”—that is, promoting deregulation—or “tight”—less favorable to the financial industry. During 2000–06, a bill less favorable to the financial industry was three times less likely to become law than one promoting deregulation (see Chart 1). Importantly, two key pieces of legislation that pro-

Chart 1

#### Pass or fail

Of the 19 major bills seeking to tighten financial regulation between 2000 and 2006, only 5 percent became law, while 16 percent of the 32 bills that loosened regulation were signed into law.

(percent)



Source: Igan and Mishra (forthcoming).

Note: Bills are considered loose or tight based on the rules they would impose on financial institutions in such areas as accounting standards, bankruptcy procedures, initiatives to promote home ownership (including down payment requirements), anti-predatory-lending strictures, and reform of the federal housing finance system.

moted lax lending in mortgage markets—the [American Homeownership and Economic Opportunity Act of 2000](#) and [the American Dream Downpayment Act of 2003](#)—were signed into law during the period.

Next, we explored whether the vote of individual legislators on a particular bill is linked to the lobbying expenditures of firms affected by the bill and to the network connections those lawmakers share with the lobbyists and the financial industry. Three main findings emerge from the empirical analysis (see Chart 2).

First, there was a clear association between the money affected financial firms spent on lobbying and the way legislators voted on the key bills considered before the crisis. The more intense the lobbying, the more likely legislators were to vote for deregulation. Moreover, lobbying was more likely to garner votes for deregulation from conservative legislators.

Second, network connections between politicians and lobbyists who worked on a specific bill also influenced voting patterns. If a lobbyist had worked for a legislator in the past, the legislator was very likely to vote in favor of lax regulation.

Third, the amount of money spent lobbying a legislator who already has strong connections to K Street surprisingly seems to have had little effect on the likelihood of a vote for deregulation. Spending an extra dollar on lobbying was less effective if the lobbyist was already connected to the lawmaker. This suggests that spending more on lobbying isn't much help to firms with well-connected lobbyists.

Certain shortcomings of the data and the empirical analysis are worth mentioning. First, we recognize that we do not have a very precise measure of lobbying efforts at the bill level—there is no breakdown of firm-level lobbying expen-

ditures across bills. We checked to be sure the findings hold up under various assumptions about how firms allocated lobbying expenditures to particular bills. Second, lobbying by interest groups other than the financial industry may influence voting behavior. Therefore we included in the analysis spending by consumer organizations. Last, bills' original provisions are often diluted dramatically during the legislative process. We do not include information on how lobbying can lead to changes—for the most part weakening—in bills' provisions.

These findings support the notion that lobbying and network connections played an important role in shaping the financial regulatory landscape. Therefore, financial reform proposals should not be considered apart from these political factors. The precise policy response depends on the motivation behind the lobbying. Economic theory suggests that lobbying can be motivated by rent seeking or a desire to reveal information. But, based on our findings, it is hard to identify exactly what drove the financial industry's lobbying efforts. For example, if lobbyists specialized in such rent-seeking activities as preferential treatment for their clients, it would be justifiable to curtail lobbying for its socially undesirable outcome. If, however, lenders lobbied mainly to offer information to policymakers and promote innovation, lobbying would be considered a socially beneficial way to help lawmakers make knowledgeable decisions. ■

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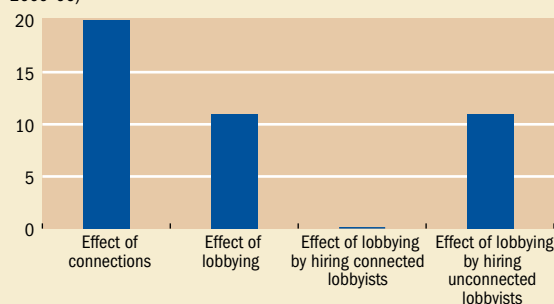
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Chart 2

#### To tip the balance

The amount of lobbying and the level of connections between legislators and the financial industry increased the probability of votes favorable to financial industry positions. Only when lobbying by already connected lobbyists increased was there no effect on voting.

(increase in probability of vote favorable to financial industry position, percent, 2000–06)



Source: Authors' calculations.

Note: Results are based on a data set that includes 787 members of the U.S. Senate and/or House of Representatives (not all of whom were in office the entire period) and 500 lobbyists. A favorable vote is one against legislation that would tighten regulations on the financial industry and an unfavorable vote is one in favor of tightening. Connected lobbyists are those who have previously worked for a legislator.



# Esprit de Currency

*Douglas A. Irwin*

**The IMF and  
WTO must  
pull together  
to iron out  
exchange rate  
policy disputes**

**T**HE INTERNATIONAL monetary system and the international trading system are usually considered distinct entities that serve different functions. But exchange rate policy and trade policy are highly interrelated. Tensions between the two have been evident throughout history—such as during the Great Depression and the Bretton Woods era—and may become increasingly apparent in the years to come. The membership of the [International Monetary Fund](#) (IMF) and the [World Trade Organization](#) (WTO) will have to work together to defuse disputes over exchange rate policy—most notably between the United States and China—that could spill over and adversely affect trade relations.

## **Depression-era protectionism**

The Great Depression of the 1930s is a prime example—albeit rarely so recognized—of how exchange rate policies can create difficulties for trade policy. That decade saw a virulent outbreak of protectionist trade policies that contributed to a collapse of world trade. In fact, higher trade barriers accounted

for about half of the 25 percent decline in the volume of global trade between 1929 and 1932 and stunted the growth of trade for the remainder of the decade.

Yet countries varied significantly in the extent to which they increased tariffs and imposed import quotas. A key factor in determining a country's trade policy response was not—perhaps surprisingly—the degree to which it suffered from falling output and rising unemployment, but rather its exchange rate policy under the gold standard ([Eichengreen and Irwin, 2010](#); [Irwin, 2012](#)). Under the gold standard, a country's monetary policy was largely determined by the amount of gold reserves held by its central bank. With each country defining the value of its domestic currency in terms of gold, countries that operated on the gold standard also had fixed exchange rates with one another.

In the late 1920s, the United States and France began attracting gold from the rest of the world, but their central banks did not expand their money supplies as they accumulated reserves. This constituted a deflation-



ary shock to the world economy that contributed to the Great Depression. Other countries faced the choice of reducing their gold outflows and addressing their balance of payments difficulties either by changing their exchange rate or by imposing import controls. Depending on their commitment to the gold standard, countries chose either to keep the exchange rate fixed and restrict trade or to let the exchange rate go and keep trade open.

For example, countries such as France that opted to stay on the gold standard adopted many more trade restrictions than did other countries. Furthermore, because central banks in countries with a fixed exchange rate had to focus on maintaining exchange rate parity, they were unable to use monetary policy to reverse deflation and relieve the financial distress of the period—thereby prolonging the Great Depression.

By contrast, countries that abandoned the gold standard and allowed their currencies to depreciate—for example, Sweden—not only were able to avoid much of the damaging protectionism of the period, but also were free to use expansionary monetary policies to help end the Depression.

### Wrong lessons

Unfortunately, the architects of the post–World War II international economic order did not always draw the right lessons from this period. Instead of recognizing that flexible exchange rates allowed for an independent monetary response to national economic conditions, most economists and policymakers recoiled at what they perceived to be the currency turmoil of the 1930s. Because countries left the gold standard at different times, the exchange rate changes were large and abrupt, jolting world trade and financial markets. Because fixed exchange rates were considered the norm, these changes came to be labeled “competitive devaluations,” implying that they were a beggar-my-neighbor policy used by countries to improve their competitive position at the expense of others’.

But to call these changes competitive devaluation misrepresents the historical experience. Countries did not deliberately devalue their currencies in the 1930s to give their exports a competitive advantage. Instead, countries fought the exchange market pressure on their currency by raising interest rates and borrowing emergency reserves from other central banks in a valiant effort to prop up their currency’s value. Facing a massive loss of gold reserves, most countries were ultimately forced to allow their currency to fall in value or to impose exchange controls to stop the loss of gold and foreign exchange reserves.

For example, the September 1931 decision by the [Bank of England](#) to abandon the gold standard and allow the pound to fall in value was not a step that it deliberately chose to give British exporters an advantage in world trade. Rather, the bank resisted the selling pressure on the pound for many weeks, but eventually decided that it was a losing battle. Officials concluded that the fight to keep the pound at gold parity was no longer worth the loss of additional gold and foreign exchange reserves.

Britain’s reluctance to allow its currency to fall in value was shared by other countries too. For all practical purposes, the

notion that countries engaged in competitive devaluation during the 1930s is simply erroneous.

Yet the most frequently drawn lesson from the period was that fixed exchange rates were necessary to provide monetary stability and avoid chaotic exchange rate movements. Ragnar Nurkse’s influential *International Currency Experience*, published in 1944 by the League of Nations, warned that floating exchange rates would be destabilizing and would seriously disrupt international trade. And John Maynard Keynes was skeptical that exchange rate adjustments could resolve payments imbalances, so he proposed quantitative import restrictions to help do the job.

### Postwar policy

These perceptions led government officials at the 1944 Bretton Woods conference to establish a system of “fixed but adjustable” exchange rates so that the turmoil of the 1930s would not be repeated. The Bretton Woods agreement acknowledged that countries might have to change the value of their currency in the face of persistent balance of payments problems, so exchange rates were adjustable in principle. But such changes were discouraged and countries were reluctant to

## Postwar policymakers sought to combine fixed exchange rates with trade liberalization, even though these two policies had conflicted in the past.

change their parity in practice. The IMF was created to provide countries with short-term financing so that they would not have to resort to disruptive exchange rate changes when they encountered balance of payments difficulties. The IMF’s [Articles of Agreement](#) required that countries “avoid manipulating exchange rates or the international monetary system to prevent effective balance of payments adjustment or to gain an unfair competitive advantage over other members.”

At the same time, governments wanted to do away with the protectionist measures that blocked the flow of world trade. To prevent a repeat of the damaging protectionism experienced in the 1930s, the United States led about two dozen other countries in establishing the [General Agreement on Tariffs and Trade](#) (GATT) in 1947. The GATT set out rules for conducting trade policy, and the participating countries negotiated the first multilateral reductions in tariff barriers after the war.

Thus, postwar policymakers sought to combine fixed exchange rates with trade liberalization, even though these two policies had conflicted in the past when countries were faced with balance of payments difficulties. This created built-in tension between the international monetary system,

represented by the IMF, and the international trading system, represented by the GATT. By discouraging exchange rate changes, the Bretton Woods system pushed countries toward imposing import restrictions to facilitate balance of payments adjustment. [Article XII of the GATT](#) concedes that countries may restrict imports on balance of payments grounds, stating that “any contracting party, in order to safeguard its external financial position and its balance of payments, may restrict the quantity or value of merchandise permitted to be imported. . . . [the] import restrictions instituted, maintained or intensified by a contracting party under this Article shall not exceed those necessary: (i) to forestall

## Import surcharges proved ineffective in providing a long-term solution to the underlying balance of payments problem.

the imminent threat of, or to stop, a serious decline in its monetary reserves, or (ii) in the case of a contracting party with very low monetary reserves, to achieve a reasonable rate of increase in its reserves.”

### Limits on imports

As these texts suggest, the IMF’s desire to limit exchange rate changes trumped the GATT’s desire to reduce trade barriers. Consequently, countries were reluctant to change the value of their currency during the 1950s and 1960s and they often turned to import restrictions instead. Between 1955 and 1971, nine advanced economies—including Canada, France, Sweden, and the United Kingdom—used import surcharges to address balance of payments problems in the hope of avoiding exchange rate changes. For example, in October 1964, Britain imposed a 15 percent import surcharge to defend the fixed exchange rate. This was reduced to 10 percent in February 1965 and was finally eliminated in November 1966. By contrast, in August 1971, the United States imposed a 10 percent surcharge on imports—dropped four months later—to force an exchange rate change and address the undervaluation of foreign currencies against the dollar.

Although these measures were temporary, lasting from a few months to several years, the import surcharges had significant effects on trade. They usually consisted of a 5 to 15 percent tariff on selected or dutiable imports. By contrast, under the Kennedy Round of GATT negotiations—the only significant tariff reductions negotiated during the Bretton Woods period (1963–67)—the European Economic Community (predecessor of the [European Union](#)) reduced its average tariff on nonagricultural dutiable imports by only about 5 percentage points. Of course, the import surcharges were temporary, whereas the Kennedy Round cuts were permanent, but the surcharges still provoked sharp criticism and were a source of friction among trading partners.

Furthermore, the import surcharges proved ineffective in providing a long-term solution to the underlying balance of payments problem. They usually delayed but almost never averted an eventual devaluation. Examples include the French devaluation in 1958, the British devaluation in 1967, and the French devaluation in 1969. Fortunately, since the policies were substitutes for one another, import surcharges were lifted once the exchange rate changes helped improve the country’s balance of payments position.

### Trading off

Since 1973, most major currencies have operated largely in a floating exchange rate regime in which the foreign exchange market determines the prices of various currencies. But many developing economies have chosen to maintain fixed or pegged exchange rates. The postwar trade policy experience of developing economies under fixed exchange rates was even more problematic than it had been for advanced economies. Although the goal of fixed rates was to provide monetary discipline and curb inflation, they often did so imperfectly, resulting in an overvalued currency. Developing economies then turned to import controls, such as quantitative restrictions and exchange controls, to compensate for the overvaluation and relieve pressure on the balance of payments ([Schatz and Tarr, 2002](#)). Although such controls tended to build up over time and succeed in restricting imports, they almost always failed to prevent an eventual devaluation. The devaluation should have permitted the import controls to be removed, but the controls often remained in place for an extended period because they sheltered some domestic producers who now had a stake in perpetuating them.

In the 1990s, transition economies in eastern Europe faced the same trade-offs between their exchange rate policy and their trade policy. The former communist countries of Bulgaria, the Czech Republic, Hungary, Poland, and Romania aimed to stabilize their nominal exchange rates, but failed to contain domestic inflation or improve their productivity. As a result, their currencies became overvalued. Rather than adjust the nominal exchange rate, these countries resorted to import surcharges and other trade restrictions. These policies disrupted their foreign trade without solving the underlying balance of payments problems that arose because of a misaligned exchange rate ([Drabek and Brada, 1998](#)).

### Currency wars

Today, with the uneven economic recovery after the global financial crisis of 2008–09, there are fears that “currency manipulation” will lead to “currency wars.” The main target of such concerns is China, whose accumulation of more than \$3 trillion in foreign exchange reserves has led to charges that it is deliberately undervaluing the renminbi. This has led to pressure in the United States and Europe to impose trade sanctions against China for failing to allow its currency to adjust to market forces. Recent empirical studies suggest that currency undervaluation increases the likelihood of WTO disputes ([Copelovitch and Pevehouse, 2011](#)). Indeed, somewhat reminiscent of the 1971 U.S. import surcharge, legislation has been proposed in the U.S.

Congress that would force action against countries that manipulate their exchange rate against the dollar to gain an unfair competitive advantage in trade.

Unfortunately, both the IMF and the WTO (which succeeded the GATT as global trade arbiter in 1995) are ill-equipped to deal with such problems. The GATT text requires that it defer to the advice of the IMF with regard to any issue relating to exchange rate arrangements, foreign exchange reserves, the balance of payments, and the like. In

## Left unresolved, these tensions over exchange rate policy could give rise to unilateral action.

1977, the IMF membership agreed that “protracted large-scale intervention in one direction in exchange markets” might constitute evidence that a country was manipulating its currency. In the past, IMF surveillance on exchange rate matters has been weak because officials have been reluctant to criticize important member countries’ exchange rate policy (Mussa, 2008). The most recent [IMF staff report on China](#) (IMF, 2010) notes that the renminbi is “substantially below the level that is consistent with medium-term fundamentals” and that “a stronger renminbi is needed.” But even if it were to conclude that a violation of its agreements had occurred, the IMF has no means of enforcing its finding or compelling a country to change its policy.

By contrast, the WTO has an enforcement mechanism—trade retaliation—that comes out of its dispute settlement system. This has led countries to probe the texts of various WTO agreements in search of support for action against others on the basis of exchange rate disputes. Yet the provisions of these agreements offer little hope to countries seeking to take action against the exchange rate policies of others. Although [Article XV of the GATT](#) states that countries “shall not, by exchange action, frustrate the intent of the provisions” of the agreement, that is likely a reference to exchange controls, not exchange rate policy. The WTO’s agreement on Subsidies and Countervailing Measures prohibits certain types of export subsidies, but government policies that affect the exchange rate are not actionable under this accord. And the WTO provision against the “nullification and impairment” of the trade-liberalizing intent of the agreement is untested when it comes to a case involving exchange rates, but it also appears to be a slender reed on which to base a legal case.

This weakness in the IMF and WTO provisions regarding exchange rates does not mean that the underlying problem goes away. Rather, it means that disputes over exchange rate policies could fester without resolution at the multilateral level. That in turn increases the likelihood of a buildup of domestic political pressures and unilateral action on trade,

outside of the existing institutional architecture, to address the situation. For example, as noted earlier, members of the U.S. Congress have again introduced legislation that would require an emergency tariff surcharge on imports from countries found to have “fundamentally misaligned” currencies. In March of this year, U.S. Treasury Secretary Timothy Geithner warned that “asymmetry in exchange rate policies creates a lot of tension,” including “protectionist pressures.” While China’s currency has appreciated in real terms, due to higher domestic inflation, and its current account surplus has fallen, such political pressures have yet to abate, perhaps because of the lackluster U.S. economic recovery. Yet the United States is not alone; many developing countries share a concern that protectionist pressures can arise because of misaligned fixed exchange rates.

Left unresolved, these tensions over exchange rate policy could give rise to unilateral action. This would not only undermine the credibility of the international institutions that have responsibility in this area, but could lead to damaging retaliation that would be difficult to contain and further harm a weakened world economy. The solution is for the international community, in particular the IMF and the WTO, to work out new rules to help defuse current and future disputes over exchange rate policy and clarify the conditions under which trade sanctions might be considered an appropriate remedy. ■

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# Lowering the Cost of

**Reducing transaction costs can put more money in the pockets of migrants and their families**



Bangladeshi woman holding money.

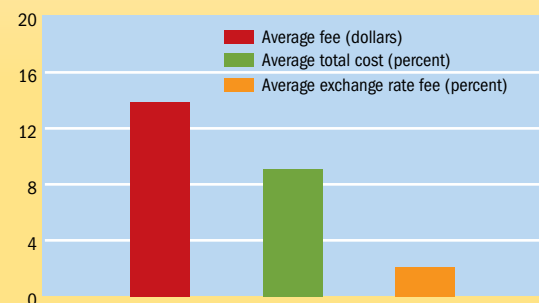
**I**NTERNATIONAL remittances to developing countries reached \$325 billion in 2010. These transfers, mostly from migrant workers to their home countries, are one of the largest flows of capital to developing countries, often representing as much as 35 percent of gross domestic product in the recipient nation. But it costs a lot to send this money home—often as much as 20 percent of the amount being sent. Reducing remittance costs has therefore recently become part of the development agenda of both the Group of Eight and Group of 20 leading economies. To make pricing more transparent, the [World Bank](#) has created a database on the cost of sending and receiving small amounts of money from one country to another. It costs over 47 percent to send \$200 from Tanzania to Kenya, the most expensive corridor, but just 4.6 percent to send the same amount from Singapore to Bangladesh, the least expensive one. If the cost of sending remittances could be reduced by 5 percentage points, remittance recipients could receive over \$16 billion more each year.

## Sticker shock

An important factor in high remittance prices is a lack of transparency in the market. It is difficult for consumers to compare prices because several variables make up remittance prices. The cost of a remittance transaction typically consists of a fee charged by the service provider and a currency-conversion fee for delivery of local currency to the beneficiary in another country. Other factors include exclusivity agreements that limit competition, ill-designed regulation that creates high barriers to entry, and limitations on access to payment systems.

**The average cost of sending \$200 is 9 percent, or \$18.**

(global average price, 2011:Q1)

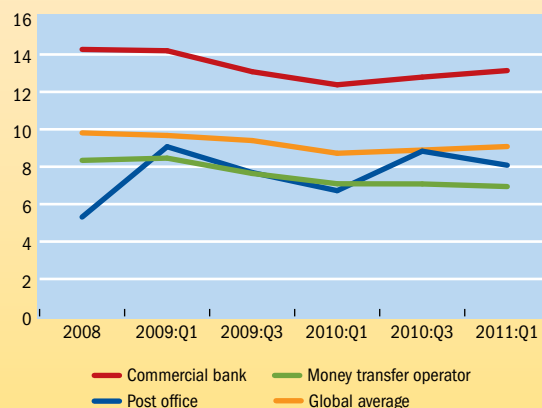


## Location, location, location

Remittance costs vary widely between different service providers. Commercial banks, at 13 percent, remain the most expensive option for sending money unless they have dedicated remittance services. At 7 percent, specialized money transfer operators are the cheapest option.

### Commercial banks are the costliest for sending remittances.

(average total cost of sending \$200, percent)



# Sending Money Home

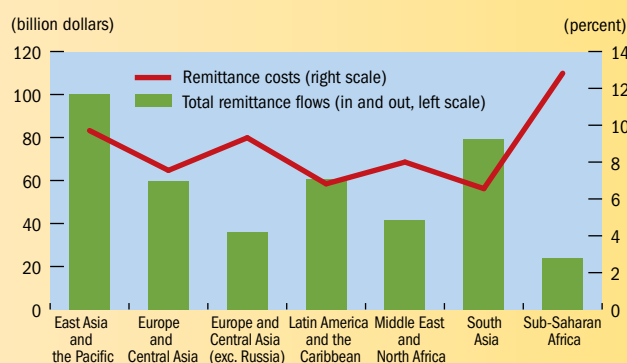


Street vendors in Makeni, Sierra Leone.

## Bigger is better

Remittance costs tend to be lower in large markets than in small markets. The East Asia and Pacific region remains an exception, where the high cost of sending to the Pacific islands drives up the average. However, large markets in the region, such as the Philippines, Indonesia, Thailand, and Vietnam, have remittance costs below 10 percent. Remittances to sub-Saharan Africa cost the most. Sub-Saharan Africa also has the least efficient retail payment systems and regulation that creates high barriers to entry. In addition, high currency volatility over the past six months caused foreign exchange margins to rise, which drove up remittance prices.

## Remittance costs are lower in large markets than in small markets.



## Competition matters

Improving competition in the remittance market could significantly reduce fees. The World Bank provides technical assistance in such areas as payment infrastructure, legal framework, and oversight that has helped eliminate inefficiencies in many markets.

Government efforts to reform the system must parallel market changes, such as the introduction of new technologies and changes to the operating model of service providers.

*Prepared by Kai Schmitz and Isaku Endo of the Payment System Development Group of the World Bank. The data are from the Remittance Prices Worldwide Database, which provides information on 200 remittance corridors, available at <http://remittanceprices.worldbank.org>*



# Closing the Jobs Gap

**High youth unemployment  
contributes to widespread unrest  
in the Middle East**

Yasser Abdih

**E**VER SINCE Tunisian street vendor Mohamed Bouazizi's death from self-immolation in January, the world's attention has been drawn to the spreading unrest in the Middle East. Bouazizi's dramatic suicide and the ensuing turmoil served as a wake-up call to policymakers, who didn't foresee such an abrupt end to the status quo.

In hindsight, it's clear that many Middle Eastern societies were resting atop massive fault lines. While the unrest in these countries stemmed partly from political repression, unsustainable economic issues, such as high youth unemployment, were also simmering below the surface.

Labor market data for the region are scarce, but available statistics covering six countries—Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia—indicate that average unemployment has remained around 12 percent for the past two decades. In 2008, despite faster growth for eight consecutive years, unemployment rates for these countries averaged 11 percent, the highest regional rate in the world. And, at 48 percent, the percentage of people in the job market (the combined labor force participation rate) is much lower in these countries than in any other region.

High unemployment in these countries, together with low labor force participation rates, has resulted in very low ratios of employment to working-age population. With less than 45 percent of working-age people actually employed, this regional rate is the lowest for any region in the world (see Chart 1).

Unemployment in the region is largely a youth phenomenon. Young people, ages 15 to 24, account for 40 percent or more of the unemployed in Jordan, Lebanon, Morocco, and Tunisia, and nearly 60 percent in Syria and Egypt. The average unemployment rate among youth in these nations was 27 percent in 2008, higher than in any other region in the world (see Chart 2). In contrast to most of the world, joblessness in many Middle Eastern countries tends to increase with schooling: the unemployment rate among those with college degrees exceeds 15 percent in Egypt, Jordan, and Tunisia.



Students of Amman University, Jordan.

Such levels of unemployment imply substantial social and economic costs. In part because of the paucity of job prospects at home, people have left these countries in large numbers, with the estimated number of migrant workers abroad equivalent to about 16 percent of the combined labor force present in these six countries. But workers from Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia are now facing reduced prospects abroad given the sharply higher unemployment in advanced economies and a trend toward the nationalization of the labor force in the Gulf Cooperation Council countries. With greater competitive pressure from other emerging markets, the region increasingly cannot afford the status quo.

Looking ahead, the region faces a daunting challenge. To provide jobs for those now jobless as well as new entrants to the labor force, these countries have to increase employment by an estimated 18½ million full-time positions over the period 2008–20. Even this, however, would leave the ratio of employment to working-age population at about 49 percent—lower than that currently observed in any other region.

## Underlying causes

Why is unemployment so persistently high in these six countries?

In part, the answer lies in *demographics*. Over the past decade, the combined labor force of Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia has grown at an average annual rate of 2.7 percent, faster than in any other region of the world, save Africa. The labor force growth is expected to slow gradually over the next decade, but will continue to outpace most other regions. Approximately 10 million new





entrants are expected to join the labor force in the coming decade, compared with 13½ million in the previous decade. Demographic pressures, in other words, are not expected to let up anytime soon.

There is also a *serious mismatch between the skills young people possess and those that firms seek*. While these Middle Eastern countries are educating a growing portion of their

youth, firms regularly cite the lack of suitable skills among job applicants as a constraint to hiring, and unemployment rates are highest among the most educated. This suggests that education systems are failing to produce graduates with marketable job skills.

*Overly stringent hiring and firing regulations* in most of the region also play a role. In Egypt, for example, severance payments for established employees (including the cost of advance notice requirements) amount to 132 weeks' worth of their final salaries. In Syria and Morocco, these payments are equivalent to 80 weeks and 85 weeks, respectively (World Bank, 2008)—much higher than the average 38.6 weeks in the East Asia and Pacific Region and 25.8 weeks in the developed world (Dhillon and Yousef, 2009). With such a high cost of firing, firms are discouraged from hiring in the first place.

Finally, there is the problem of a *bloated public sector*, which lures job seekers with its greater job security, higher wages, and more generous benefits. The dominant role of the public sector as an employer in the region has distorted labor market outcomes and diverted resources from a potentially more dynamic private sector. Government hiring practices have typically inflated wage expectations and placed a premium on diplomas over actual skills, influencing education choices and contributing to skill mismatches.

### Quick wins

How can governments deal with high unemployment? Any number of measures could have an immediate effect. Some of these steps would also bring long-term benefits.

Governments can

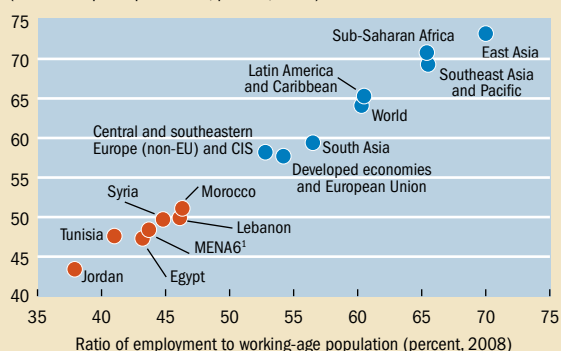
- **Invest in infrastructure:** Investment in infrastructure, such as transportation, water and sanitation, and energy, has the potential to generate new jobs, even in the short run.

Chart 1

#### Low participation

Fewer than 45 percent of working-age people in the MENA<sup>6</sup> region are actually employed—the lowest rate for any region in the world.

(labor force participation rate, percent, 2008)



Sources: International Labor Organization; national authorities; IMF, *World Economic Outlook*; and IMF staff estimates.

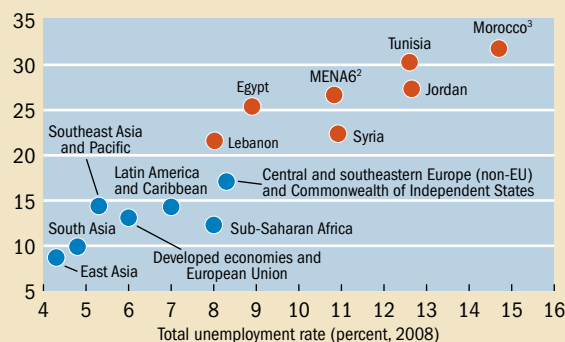
<sup>6</sup>MENA6 countries are Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia.

Chart 2

#### The young and the jobless

Youth unemployment is a chronic problem in many Middle Eastern countries.

(youth unemployment, percent, 2008)<sup>1</sup>



Sources: International Labor Organization; national authorities; IMF, *World Economic Outlook*; and IMF staff estimates.

<sup>1</sup>Or most recent earlier year for which data are available.

<sup>2</sup>MENA6 countries are Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia.

<sup>3</sup>Total and youth unemployment rates for Morocco reflect data from the *Urban Labor Force Survey*.

Based on evidence from Latin America and the Caribbean, Egypt could generate as many as 87,000 new jobs and Tunisia up to 18,000 in the short term by spending 1 percent of gross domestic product on infrastructure. To have an immediate effect, policymakers could put in motion labor-intensive infrastructure projects that are already in the pipeline. This strategy would not just provide employment for workers in the short term, but would also enhance the countries' long-term growth through the benefits of the improved infrastructure.

- **Support private-sector activity:** To encourage job creation, policymakers could give tax incentives or provide credit guarantees to small and medium-sized enterprises that are viable and labor intensive, as was done in many emerging markets and transition economies during the global financial crisis. They could also make it easier for these firms to obtain loans.

- **Scale up promising training programs:** The region offers a growing range of youth-oriented training programs, such as the [Education for Employment Foundation](#) (EFE), which currently operates in several countries in the area, including Egypt, Jordan, and Morocco. EFE works with corporations and industries to assess demand for skills and provide tailored training programs for young people. Through in-class and on-the-job training, EFE has proved successful in both skills development and job placement. Policymakers should seek to scale up and replicate such programs.

- **Invest in new training programs:** Policymakers may want to invest in new, innovative training programs, keeping in mind that it will take time to reap the benefits. They could look to the experience of Latin American countries, where programs that are demand driven, offer on-the-job training, focus on both hard and soft skill formation, and monitor performance have improved the employment prospects and earnings of their participants.

## Balancing current and future needs

When designing short-term solutions to youth unemployment, however, governments have to ensure that these policies do not hamper the long-term goals of sustainable job creation and productive skill formation.

The ongoing social and political turmoil may tempt governments to hastily create unneeded public sector jobs. Such a move, which may be difficult to reverse later, would distort labor market incentives and divert resources from the private sector. And giving subsidies to the educated unemployed youth—while well intentioned and providing short-term relief—might only serve to reinforce skills mismatches for future labor market entrants if the qualification for such subsidies is based solely on diplomas and credentials.

While governments can take steps to boost employment quickly, they should also put in place comprehensive job strategies to address the underlying causes of unemployment. These strategies would aim to foster growth that benefits all segments of society, enhance skill formation, and provide adequate social protection to workers and job seekers.

To foster inclusive growth, governments in the region have a number of options. Foremost among them is creating an environment that fosters a *level playing field* for everyone.

People, particularly youths, should have equal opportunities to acquire a good education, compete for high-quality jobs, become entrepreneurs, access credit, and buy land. Ensuring greater equality of opportunity and broader sharing of the benefits of economic reform would lay the foundation for a sustainable improvement in living standards.

Governments can also improve the business climate. Making changes to create a *business environment that is more conducive to investment and competition*—including cutting red tape for business start-ups, strengthening property rights legislation, and enhancing contract enforcement—would help unlock the region's employment potential. Improving the business climate would also help move educated young workers out of the informal sector—where they have few protections, usually earn low wages, and engage in low-growth-generating activities—and into the formal sector.

There are large numbers of expatriates from the region in Europe, the United States, and the six countries of the [Gulf Cooperation Council](#), many of whom have advanced degrees and years of experience in competitive environments. *Calling on the skilled diaspora* and reversing brain drain would increase the supply of skilled labor, thereby helping domestic economies grow and compete globally. Returning members of the diaspora would bring with them their skills, capital, marketing know-how, and innovative ideas. They could open businesses and factories and hire from the pool of the unemployed. Improvements in the business environment, better governance, and better enforcement of intellectual and property rights would help bring back overseas talent, as would tax and financial incentives.

Countries in the region have been trading far below their potential. According to recent analysis by the World Economic Forum, trade policies in Egypt, Jordan, Lebanon, Morocco, Syria, and Tunisia are among the most restrictive in the world. These countries' tariffs—averaging approximately 12 percent—are nearly double those of emerging Asia. By *liberalizing external trade and opening up domestic markets*, the region could boost output growth and labor demand. Lowering tariffs, diversifying trade toward fast-growing emerging markets, and increasing intraregional trade would be steps in the right direction.

## Making education pay off

To address the root causes of skills mismatches, educators and governments can

- **Realign curricula with private-sector needs:** Policymakers can scale up initiatives that better equip students with skills and knowledge required by the private sector. One such initiative is Injaz, a partnership between ministries of education and the private sector that gets business leaders to teach marketable skills to high school and college students, including basic business skills, teamwork, leadership skills, and entrepreneurial thinking. Injaz was launched in Jordan in 1999, but has now spread to a dozen countries.

- **Change university admission policies:** Universities' admissions policies could influence skill formation at lower levels of education by making it mandatory for prospec-

tive college students to exhibit skills such as writing, critical thinking, and problem solving. Those requirements would give incentives to parents, educators, and students to go beyond rote learning at the primary and secondary levels.

• **Reform public sector hiring practices and compensation policies:** Public sector hiring should place more emphasis on skills and competition and less on paper qualifications. Governments could introduce interviews and tests that evaluate a range of skills beyond what is currently being tested. Moreover, strengthening the link between compensation and performance and implementing merit-based promotion policies would also give young people greater incentives to form the right skills (Salehi-Isfahani and Dhillon, 2008).

Any long-term jobs strategy should promote worker protection while at the same time preserving labor market flexibility—a feature that is ultimately in the worker's interest.

The region's overly rigid labor rules (such as large severance packages), while intended to protect employees, actually impede job creation in the formal sector and end up driving firms into the informal economy. Policymakers should aim to relax these regulations while preserving the right to collective bargaining and providing effective social protections, including unemployment insurance, for workers and job seekers. Relaxing labor market regulations would enable the private sector to respond more flexibly to market signals and

increase the employment response of other reforms, such as trade liberalization.

Much can be done to improve the currently dismal employment prospects of young people in the Middle East. Short-term actions are desirable, given the urgent need to satisfy the legitimate demands of the region's youth. But such measures are no substitute for a comprehensive long-term employment strategy that reorients education, improves the business climate, and dismantles the obstacles that prevent firms from hiring. ■

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# Shaken to the Core

## The economic impact of the disaster in Japan is far reaching

Stephan Danninger and Kenneth Kang

**A**S JAPAN EMBARKS on the long and arduous path to reconstruction and recovery from the devastating March 2011 earthquake and tsunami that claimed more than 23,000 lives (as of May 23) and caused damage estimated at \$200–\$300 billion, the disaster could yet prove to be a watershed for the world's third-largest economy.

The economic impact of the disaster is being felt far beyond the immediate vicinity of the quake. Across the ocean at the DARCARS Toyota dealership in Silver Spring, Maryland, seven thousand miles from the source of the earthquake, sales manager Constantin Nicorescu is contemplating the possibility of running out of cars to sell.

"At the moment we are selling overflow inventory from last year, but [if things continue this way], we'll run out of cars in 2 to 2½ months' time," said Nicorescu.

Shortages in integrated circuit systems and vehicle microcontrollers—the computers that control many of the car engines' electronic functions—have forced production lines into an involuntary slowdown. Toyota has already announced that normal production is unlikely to resume before September 2011.

Typically, the DARCARS dealership receives 300 cars a month. In the next few months, it has been told to expect only 12 to 15 percent of normal inventory, or about 40 cars.

### Japan and the global supply chain

The impact of the quake on vehicle production lines illustrates the highly integrated nature of the global supply chain, Japan's role in that chain, and its importance in a few key industries—notably, vehicle manufacturing and electronics.

For example, [Renesas Electronics Corporation](#) is the world's number one supplier of microcontrollers and produces 30 to 60 percent of car microcontrollers and integrated circuit systems. With factories located in one of the country's manufacturing hubs in the Tohoku region—the northeastern part of the largest Japanese island—the company suffered a severe blow when the quake and tsunami temporarily knocked out several of its semiconductor plants.

So complex and specialized has vehicle assembly become—a modern-day car requires some 30,000 to 40,000 different



Devastation in Japan after the March 2011 earthquake and tsunami.

parts—that under the *kanban* “just-in-time” lean inventory system, the absence of a single key component can shut down an entire production line.

The production network in Japan and around the world has become much more sophisticated and interlinked, and thus more vulnerable to a disruption in the supply chain, compared with 15 years ago. So the economic consequences of the quake and tsunami have had a ripple effect on the wider region.

Asian economies are also highly integrated through cross-border production networks with Japan, which is an important supplier of machinery equipment and electrical and semiconductor components. For example, Japan accounts for about 10 to 15 percent of value-added production in Malaysia, Thailand, and Taiwan Province of China.

Although Japan manufactures goods higher up the value chain than competitors like Korea and Taiwan Province of China, the concern is that over time, if Japanese suppliers fail to reestablish production, it could lose market share to those rivals.

But even as some firms scramble to mitigate the effects of one of the costliest natural disasters on record, the overall impact on the global economy is likely to be limited. Although Japan is the world's third-largest economy, with nearly 9 percent of global gross domestic product (GDP), its share in global trade is lower at about 5 percent.

Naturally it is Japan itself that has borne the brunt of not only the human cost of the disaster, but also its economic effects. Immediately following the quake, both industrial production and exports plunged. Firms in the affected region suspended operations and Japanese consumers reined in spending as concerns grew over the problem at the Fukushima nuclear power plant, with worries about electricity shortages also weighing down confidence.

Three months after the quake, signs of recovery are gradually emerging. Japanese manufacturers are forecasting that production will turn around in the coming months, albeit at a moderate pace. Major corporations such as Honda and Sony have restarted factory lines at reduced levels, and the Tokyo Electricity Power Company has raised its power supply forecast, relieving some worries about power shortages while efforts to stabilize the damaged Fukushima plant continue.



As the situation stabilizes, attention has shifted to broader questions about the likely impact of the disaster on Japan's long-term economic outlook. What will be the shape of the post-earthquake recovery? What are the key risks facing the country's economy and, perhaps most important, what policies might help ensure a vigorous upturn and put in place the seeds of future growth?

### Back to the future

History provides some guidance. The 1995 Kobe earthquake also hit an important production center, and it affected an area that accounted for about the same amount of economic output as the region affected by this year's disaster (about 4 percent of GDP). The experience from Kobe and other large-scale disasters would suggest a "V-shaped" recovery: a sharp initial slowdown followed by a recovery supported by reconstruction spending.

But historical precedents and the comparison with Kobe are of only limited use. Despite the devastating nature of many recent natural disasters in advanced economies, whether Hurricane Katrina in the United States in 2005 or the recent floods in Australia, the catastrophe that overwhelmed Japan's northeast coast is exceptional for its size and scope.

Compared with Kobe, the economic damage this time around is much greater: 3 to 5 percent of GDP, nearly double that caused by the 1995 earthquake. This year's quake also disrupted the power supply to the Kanto region around Tokyo, which accounts for nearly 40 percent of the nation's economy, raising the risk of power shortfalls during the summer months, when demand typically rises. Unlike Kobe, where supply constraints were addressed quickly, the possibility of a deterioration in the nuclear or electricity situation continues. Such uncertainties can start to affect public confidence and weaken demand; firms may be forced to cut earnings or lay off workers, and households facing greater financial uncertainty may choose to save rather than spend.

Research suggests that such shocks can generate sharp recessions (and recoveries) as firms become cautious about spending amid heightened uncertainty. Given the particular circumstances of the more recent disaster, this time the recovery could prove more gradual as low confidence pulls down any incipient resurgence. Compounding the difficulties are Japan's recent history of anemic growth, high levels of government debt, and mild deflation.

But forceful macroeconomic and financial policies can play a vital role not only in supporting reconstruction and sustaining the recovery—by offsetting private weakness and boosting confidence—but also in pointing to a possible strategy for addressing longer-term challenges and helping the country escape the grip of its economic malaise.

The will of the authorities was on display immediately after the quake. The Bank of Japan moved quickly to maintain stability in the financial markets, while the Financial Services Agency ensured that affected residents had access to their money and banking services. The government also moved swiftly to pass the first of a series of supplementary budgets to repair damaged infrastructure.

Now, in dealing with the disaster, Japan's authorities will have to walk a fine line between short-term increased public spending to repair damaged infrastructure and longer-term reforms to improve the country's fiscal position by paying down its high level of debt.

The two aims need not be contradictory. While reconstruction spending will likely add to the deficit, the size will be manageable and the spending temporary. To maintain public confidence, it will be important to link the reconstruction spending to a clear strategy for bringing down public debt over the medium term. Even after the emergency funding is paid off, Japan will continue to need substantial funding to address rapidly rising social security costs. It will have to reduce public spending, increase taxes, or both.

### A valuable tax

One possible measure to meet the costs of the recovery, and contribute to fiscal sustainability in the long term, is an incremental increase in the consumption tax, an obvious candidate for reform. At 5 percent, Japan has one of the lowest value-added tax (VAT) rates in the world. Raising the rate gradually, say over a 10-year period, could bring the country closer to its European counterparts with VAT rates of about 20 percent.

In addition to its current low rate, other reasons to select this tax for reform include its inherent efficiency (it is a simple tax with a broad base and a uniform rate) and its generational equity: it is fair for the present generation to pay off the debt it has generated rather than shelving it for later generations to confront. An increase in the consumption tax combined with reforms to social security and other entitlement spending would go a long way toward strengthening Japan's fiscal position.

If there is a grain of comfort to be reaped from the devastating events of March, it is that the authorities could use this opportunity to harness Japan's celebrated social solidarity to secure the country's fiscal future. One survey by a mainstream Japanese newspaper found that 58 percent of respondents favored higher taxes to pay for reconstruction. Why not similar backing for the long-term economic well-being of the country?

The devastation from the Great East Japan Earthquake is exceptional, but the strong fundamentals of the Japanese economy remain unchanged: its advanced technology, highly skilled labor force, large domestic savings, and role in the global economy continue to be a boon. The key for policies is to harness these assets to generate a quick and vibrant recovery while at the same time steadily pursuing reforms to bring down Japan's public debt and sow the seeds for future robust growth. ■

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# Bankers on the Beach

*Maria Gonzalez and Alfred Schipke*

**Financial flows to offshore financial centers, when properly managed, can contribute to economic growth**

**O**FFSHORE FINANCIAL centers (OFCs)—which specialize in supplying financial services to non-resident companies and individuals in exchange for low taxes, stability, and secrecy—are under scrutiny, whether they like it or not.

Host countries see such activities as a source of growth and a legitimate area for economic diversification. For critics, OFCs are a stark reflection of the severe problems—including tax evasion and money laundering—triggered by the lack of transparency and regulation that comes with unfettered globalization. For this reason, several international bodies, including the [Financial Stability Board](#) (FSB), the [Financial Action Task Force](#) (FATF), and the Global Forum/Organization for [Economic Cooperation and Development](#) (OECD), have launched or reinvigorated initiatives to strengthen the tax and financial regulatory policies under which OFCs operate.

#### **Broad reach**

Many OFCs attract large foreign financial flows, and OFCs' financial sectors often exceed the size of their respective host

economies. OFCs' financial services operate through a variety of instruments, ranging from international banking and insurance to the structured investment vehicles that were at the center of the 2008–09 global economic and financial crisis (see Box 1; [Lane and Milesi-Ferretti, 2010](#); and [Hines, 2010](#)).

OFCs need to compete with onshore institutions. On the one hand, to attract business, they tend to offer low- or zero-taxation schemes that appeal to firms seeking to cut their tax bills. To some degree, this tax competition can facilitate better resource allocation. These efforts are sometimes supported by international tax treaties. On the other hand, OFCs are cost competitive, because they frequently operate under relatively weaker regulatory and supervisory financial standards—standards that are set by the host jurisdictions. This lax operational environment translates into lower administrative and operating costs but may not be fully consistent with international best practices.

Explicit secrecy rules and weak legal and administrative frameworks—which implicitly offer identity discretion to investors—have



also attracted business from those seeking outright tax evasion and money laundering, raising strong concerns in the international community.

OFCs' attractive financial and tax features have allowed them to capture a large and growing part of global financial flows. Indeed, 40 countries and territories hosting OFCs (Rose and Spiegel, 2007) held assets and liabilities of about \$5 trillion at the end of 2009 (see Chart 1). To put this in perspective, cross-border assets and liabilities held by the United States, Germany, and France combined amounted to \$8 trillion.

While OFCs are present in most parts of the world, those located in the Caribbean region account for more than half of all OFC financial transactions. And within the Caribbean, the largest OFCs are located in nonsovereign territories—in particular, the Cayman Islands, a British overseas territory (see Chart 2).

### Sticking to the rules

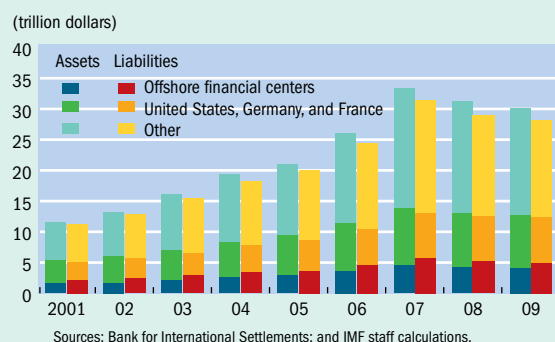
The significant financial flows handled by OFCs have long attracted attention to their activities. Because of this, the international community—through bodies such as the Global Forum/OECD, FSB, or FATF—has increased pressure on OFCs by launching initiatives to improve their adherence to international standards. Indeed, since the late 1980s, the international community has stressed that OFCs should follow increasingly strict prudential and supervisory financial standards, prevent money laundering, and limit opportunities for tax evasion and aggressive tax minimization schemes.

The 2008–09 global economic crisis renewed the debate on OFCs and the perception that they too must abide by the rules. As policymakers become increasingly aware that financial regulatory loopholes can undermine the stability of the global financial system, there has been a push to ensure that OFCs adhere to international standards. As in the case of onshore Ponzi schemes (for example, the Bernard Madoff

Chart 1

### Counting for more

Offshore financial centers are holding increasingly large amounts of global assets and liabilities.



scandal in 2008) in G-20 countries, there are also prominent examples of financial scams operated through OFCs (such as the Allen Stanford fraud, which led to the collapse of the Bank of Antigua in early 2009) raising awareness about the need to strengthen regulatory systems operating in OFCs. In addition, policymakers in advanced economies have been trying to address their growing fiscal challenges by closing legal loopholes that facilitate tax evasion, including a variety of mechanisms that rely on OFCs (see Box 2).

Current global initiatives on OFCs can be classified into four categories (see Chart 3):

**reducing outright tax evasion**, an initiative led by the Global Forum on Transparency and Exchange of Information and the OECD;

**limiting legal tax avoidance**, including a drive to establish global corporate tax policies led by individual advanced economies (G-20) and the OECD;

#### Box 1

### At your service

Offshore financial centers (OFCs) offer a menu of financial services.

**International banking:** Individuals and corporations in politically or economically unstable countries protect their assets by placing them overseas and avoiding scrutiny.

**Headquarters services:** For certain types of firms, there are legal and tax advantages to incorporating in an OFC. According to the [U.S. Government Accountability Office \(GAO, 2008\)](#), about 732 companies trading on U.S. stock exchanges, including Coca-Cola, Oracle, and Seagate Technology, reported to the [U.S. Securities and Exchange Commission](#) that they are incorporated in the Cayman Islands. Some firms opt to locate their head office in an OFC, with onshore activities being conducted by affiliates of the offshore headquarters.

**Foreign direct investment:** OFCs play an important role in the internal organization of multinational firms. For instance, the financial management and treasury operations of multina-

tionals typically include offshore affiliates that support certain transactions, such as new acquisitions or mergers, or that permit foreign direct investment to be financed with debt rather than equity.

**Structured finance:** Before the 2008–09 economic crisis, many banks and hedge funds used OFCs for off-balance-sheet activities such as the so-called special purpose vehicles or structured investment vehicles. These vehicles were typically funded in onshore financial markets and purchased onshore assets.

**Insurance:** Commercial operations may establish an insurance company in an OFC to manage risk and minimize taxes, or onshore insurance companies may establish an offshore company to reinsure certain risks and reduce the onshore company's reserve and capital requirements.

**Collective investment schemes:** OFCs have participated in the hedge fund industry by housing feeder funds that gather clients' contributions, which are then managed by onshore master funds. In addition, leveraged feeder funds may borrow from offshore and onshore banks.

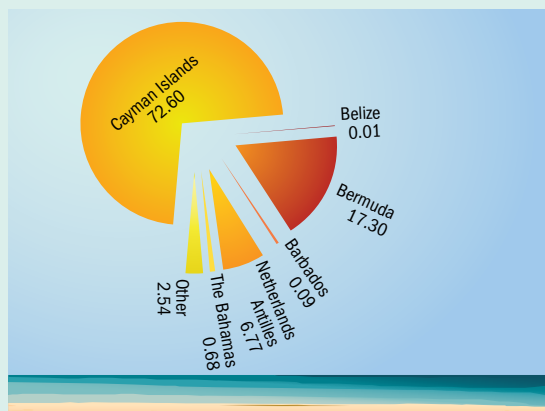


Chart 2

### A place in the sun

Offshore financial centers (OFCs) are largely Caribbean based, with nearly three-quarters of the financial flows finding a home in the Cayman Islands.

(percent of total Caribbean OFCs' portfolio liabilities, 2009)



Source: IMF, Coordinated Portfolio Investment Survey.

*eliminating regulatory loopholes for financial institutions*, which is spearheaded by the FSB; and

*strengthening the fight against money laundering and financing of terrorism*, led by the FATF with support from the IMF.

These four initiatives share many objectives—such as compliance with regulatory standards and transparency—but also have potentially adverse economic implications for OFCs. For example, reducing financial transactions could lower OFCs' fiscal revenue, employment levels, and growth. This could happen for two main reasons. First, as OFCs update their regulations, they may become unable to offer secrecy arrangements or low-cost services. So changes that would have the unquestionable benefit of raising standards and reducing illegal activities performed through OFCs could also scare away some of their legitimate transactions. Second, a generalized “poor reputation effect” could spread across all OFCs, even those that are making efforts to comply with the

Box 2

### Avoiding the tax man

A company can avoid taxes by establishing an offshoot in a low-tax jurisdiction such as an offshore financial center and having the entity engage in transactions with headquarters. This can shift corporate income—which is usually taxable—into the low-tax jurisdiction.

Tax evaders use tax havens in three ways:

**Hiding income:** receiving income in cash or another nontraceable form, and depositing it in an account in a tax haven (or having the payer deposit the money directly into an offshore account), without declaring the income in the home country;

**Hiding investment income:** depositing legal money in an offshore account but not declaring the interest or other investment income that is derived from it; and

**Shifting taxable income:** setting up a company in a tax haven and making payments to this company for non-existent services or purchases whose price is exaggerated—known as aggressive transfer pricing—to shift taxable income to the tax haven.

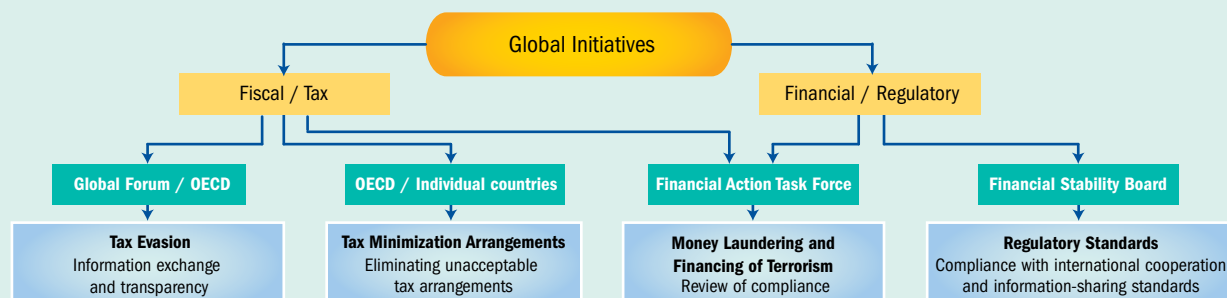
international standards and attract legitimate business. The authorities in OFC-hosting jurisdictions are concerned that global action against the industry via mechanisms such as black/gray listings to reflect compliance with international standards (“naming and shaming” practices) or the application of sanctions could increase these risks.

Moreover, the intensified international push against the troublesome features of OFCs—while clearly critical to global financial and fiscal stability—has been gathering steam while some smaller jurisdictions hosting OFCs are still suffering from the 2008–09 financial crisis and facing a more challenging economic outlook. Indeed, because of a tepid recovery in OFCs' key markets in Europe and the United States, tourism—an essential economic activity in most OFCs—has been lagging, and many countries that relied primarily on foreign visitors to fuel their economies are searching for new sources of growth. In this quest, OFCs continue to see the provision of offshore financial services as an important alternative for economic activity.

Chart 3

### Divide and conquer

International institutions share responsibility for enforcing compliance with standards.



## Fringe benefits

Higher capital inflows to OFCs can contribute to higher economic growth in the host jurisdiction as well as other benefits such as fiscal revenues and employment. Offshore institutions sometimes pay taxes and fees for activities such as registration and renewal operating license fees that can help sustain the public finances of their hosts, although this practice varies widely across hosting jurisdictions, which often forgo taxes and fees to attract OFCs. More important are the direct employment opportunities for local labor as well as spillovers to other sectors, including services such as tourism and infrastructure—OFCs often require upgrading of telecommunication and transportation.

Our research confirms that higher inflows to OFCs have a small positive impact on hosts' economic growth (Gonzalez and others, forthcoming). These results hold whether or not the host is classified by the OECD as a tax haven.

## Our research confirms that higher inflows to OFCs have a small positive impact on hosts' economic growth.

### Capital likes rules

High regulatory standards have a positive impact on capital inflows. There is some evidence that countries/jurisdictions that applied stronger regulatory standards (measured by the [World Bank's Worldwide Governance Indicators](#)) benefited from higher portfolio investment flows in 2000–08. Thus, jurisdictions seeking to rely on offshore sectors as part of their development strategy are well advised to adopt strong regulatory standards. Being a tax haven alone does not guarantee capital flows; strong regulations that inspire confidence are a crucial factor.

Countries or territories that do not comply with international standards (particularly, those singled out by the OECD Global Forum on Transparency and Exchange of Information covering the availability, access, and exchange of information) were less successful in attracting flows during 2008–09. Initially, these standards required OFCs to sign a minimum of 12 bilateral tax agreements to exchange tax information. Evidence suggests that countries that were black- or gray-listed as part of the global initiative, for example, enjoyed a lower share of global total capital flows than those that were compliant, or white-listed (see Box 3). In other words, those OFCs that worked hardest to quickly align their regulations and laws with international standards benefited from their positive reputation.

Many countries or territories hosting OFCs have moved forcefully to demonstrate their commitment to the international standards set by the ongoing global initiatives. For instance, while many of the Caribbean countries and territories were initially black- or gray-listed, all but one had by May 2011 signed the 12 tax information and exchange agreements required by the Global Forum/OECD to be moved to

Box 3

### Black and white

To foster compliance with international tax standards, the Global Forum/OECD in 2009 used “naming and shaming”—classifying countries based on whether or not they were deemed to be complying with internationally agreed-on tax standards. If a country received a clean bill of health it was put on a white list. A country that had committed to the tax standards but had not yet implemented them found itself on a gray list. Countries that did not even commit to the standards ended up on a black list. Following the publication of the list, countries could move from the gray to the white list by signing at least 12 tax information and exchange agreements with other countries/jurisdictions. Both the FATF and the FSB might employ this approach in the future.

the white list. And OFCs are making efforts to increase compliance in other areas too.

OFCs might want to consider moving up the value chain by specializing in skills and regulation to retain or even increase flows—and hence their economic benefits. At the same time, jurisdictions with significant or expanding OFC activities should proactively ensure compliance with international standards. Because complying with increasingly higher standards is costly, countries and territories might want to evaluate the benefits and costs of providing OFC services. The smallest and most resource-constrained jurisdictions might want to take advantage of economies of scale and collaborate among themselves or create a regional body to provide accurate information about changing global standard requirements and technical assistance. ■

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# What Are Economic Models?

How economists try to simulate reality

Sam Ouliaris

**T**HE MODERN ECONOMY is a complex machine. Its job is to allocate limited resources and distribute output among a large number of agents—mainly individuals, firms, and governments—allowing for the possibility that each agent’s action can directly (or indirectly) affect other agents’ actions.

Adam Smith labeled the machine the “invisible hand.” In *The Wealth of Nations*, published in 1776, Smith, widely considered the father of economics, emphasized the economy’s self-regulating nature—that agents independently seeking their own gain may produce the best overall result for society as well. Today’s economists build models—road maps of reality, if you will—to enhance our understanding of the invisible hand.

As economies allocate goods and services, they emit measurable signals that suggest there is order driving the complexity. For example, the annual output of advanced economies oscillates around an upward trend. There also seems to be a negative relationship between inflation and the rate of unemployment in the short term. At the other extreme, equity prices seem to be stubbornly unpredictable.

Economists call such empirical regularities “stylized facts.” Given the complexity of the economy, each stylized fact is a pleasant surprise that invites a formal explanation. Learning more about the process that generates these stylized facts should help economists and policymakers understand the inner workings of the economy. They may then be able to use this knowledge to nudge the economy toward a more desired outcome (for example, avoiding a global financial crisis).

## Interpreting reality

An economic model is a simplified description of reality, designed to yield hypotheses about economic behavior that can be tested. An important feature of an economic model is that it is necessarily subjective in design because there are no objective measures of economic outcomes. Different economists will make different judgments about what is needed to explain their interpretations of reality.

There are two broad classes of economic models—theoretical and empirical. Theoretical models seek to derive verifiable implications about economic behavior under the assumption that agents maximize specific objectives subject to constraints that are well defined in

the model (for example, an agent’s budget). They provide qualitative answers to specific questions—such as the implications of asymmetric information (when one side to a transaction knows more than the other) or how best to handle market failures.

In contrast, empirical models aim to verify the qualitative predictions of theoretical models and convert these predictions to precise, numerical outcomes. For example, a theoretical model of an agent’s consumption behavior would generally suggest a positive relationship between expenditure and income. The empirical adaptation of the theoretical model would attempt to assign a numerical value to the average amount expenditure increases when income increases.

Economic models generally consist of a set of mathematical equations that describe a theory of economic behavior. The aim of model builders is to include enough equations to provide useful clues about how rational agents behave or how an economy works (see box). The structure of the equations reflects the model builder’s attempt to simplify reality—for example, by assuming an infinite number of competitors and market participants with perfect foresight. Economic models can be quite simple in practice: the demand for apples, for example, is inversely

## A useful model

The standard model of supply and demand taught in introductory economics is a good example of a useful economic model. Its basic purpose is to explain and analyze prices and quantities traded in a competitive market. The model’s equations determine the level of supply and demand as a function of price and other variables (for example, income). The market-clearing price is determined by the requirement that supply equal demand at that price. Demand is usually set to decline and supply to increase with price, yielding a system that moves toward the market-clearing price—that is, equilibrium—without intervention. The supply-demand model can explain changes, for example, in the global equilibrium price of gold. Did the gold price change because demand changed or because of a one-time increase in supply, such as an exceptional sale of central bank gold stockpiles?

related to price if all other influences remain constant. The less expensive the apples, the more are demanded. Or models can be rather complex: some models that seek to predict the real level of output of an economy use thousands of complex formulations that go by such names as “nonlinear, interconnected differential equations.”

Economic models can also be classified in terms of the regularities they are designed to explain or the questions they seek to answer. For example, some models explain the economy’s ups and downs around an evolving long-run path, focusing on the demand for goods and services without being too exact about the sources of growth in the long run. Other models are designed to focus on structural issues, such as the impact of trade reforms on long-term production levels, ignoring short-term oscillations. Economists also build models to study “what-if” scenarios, such as the impact on the overall economy of introducing a value-added tax.

### How economists build empirical models

Despite their diversity, empirical economic models have features in common. Each will allow for inputs, or exogenous variables, which do not need to be explained by the model. These include policy variables, such as government spending and tax rates, or nonpolicy variables, like the weather. Then there are the outputs, called dependent variables (for example, the inflation rate), which the model will seek to explain when some or all of the exogenous variables come into play.

Every empirical model will also have coefficients that determine how a dependent variable changes when an input changes (for example, the responsiveness of household consumption to a \$100 decrease in income tax). Such coefficients are usually estimated (assigned numbers) based on historical data. Last, empirical model builders add a catchall variable to each behavioral equation to account for idiosyncrasies of economic behavior at the individual level. (In the example above, agents will not respond identically to a \$100 tax rebate.)

There are, however, fundamental differences among economists regarding how an empirical model’s equations should be derived. Some economists insist that the equations must assume maximizing behavior (for example, an agent chooses its future consumption to maximize its level of satisfaction subject to its budget), efficient markets, and forward-looking behavior. Agents’ expectations and how they react to policy changes play a vital role in the resulting equations. Consequently, users of the model should be able to track the effect of specific policy changes without having to worry about whether the change itself alters agents’ behavior.

Other economists favor a more nuanced approach. Their preferred equations reflect, in part, what their own experience has taught them about observed data. Economists that build models this way are, in essence, questioning the realism of the behavioral constructs in the more formally derived models. Incorporating experience, however, often means it’s impossible to untangle the effect of specific shocks or predict

the impact of a policy change because the underlying equations do not explicitly account for changes in agent behavior. The gain, these same economists would argue, is that they do a better job of prediction (especially for the near term).

### What makes a good economic model?

Irrespective of the approach, the scientific method (lots of sciences, such as physics and meteorology, create models) requires that every model yield precise and verifiable implications about the economic phenomena it is trying to explain. Formal evaluation involves testing the model’s key implications and assessing its ability to reproduce stylized facts. Economists use many tools to test their models, including case studies, lab-based experimental studies, and statistics.

Still, the randomness of economic data often gets in the way, so economists must be precise when saying that a model “successfully explains” something. From a forecasting perspective that means errors are unpredictable and irrelevant (zero) on average. When two or more models satisfy this condition, economists generally use the volatility of the forecast errors to break the tie—smaller volatility is generally preferred.

An objective signal that an empirical model needs to be revised is if it produces systematic forecasting errors. Systematic errors imply that one or more equations of the model are incorrect. Understanding why such errors arise is an important part of the regular assessment economists make of models.

### Why models fail

All economic models, no matter how complicated, are subjective approximations of reality designed to explain observed phenomena. It follows that the model’s predictions must be tempered by the randomness of the underlying data it seeks to explain and by the validity of the theories used to derive its equations.

A good example is the ongoing debate over existing models’ failure to predict or untangle the reasons for the recent global financial crisis. Insufficient attention to the links between overall demand, wealth, and—in particular—excessive financial risk taking has been blamed. In the next few years there will be considerable research into uncovering and understanding the lessons from the crisis. This research will add new behavioral equations to current economic models. It will also entail modifying existing equations (for example, those that deal with household saving behavior) to link them to the new equations modeling the financial sector. The true test of the enhanced model will be its ability to consistently flag levels of financial risk that require a preemptive policy response.

No economic model can be a perfect description of reality. But the very process of constructing, testing, and revising models forces economists and policymakers to tighten their views about how an economy works. This in turn promotes scientific debate over what drives economic behavior and what should (or should not) be done to deal with market failures. Adam Smith would probably approve. ■

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# Emerging Challenges

## Emerging markets must adapt to the new global reality by building on their economic success

**I**N THE WAKE of the recent crisis, a two-speed recovery shifted global economic growth from advanced to emerging and developing economies.

While gross domestic product (GDP) in advanced economies grew on average 3 percent in 2010, emerging and developing economies grew 7.2 percent. The IMF forecasts that the two-speed trend will continue this year. Advanced economies are projected to grow 2.5 percent and emerging and developing economies 6.5 percent, their consumption surging too. In absolute terms, emerging and developing economies will consume \$1.7 trillion more in goods and services this year than last year.

Naturally, the rapid growth in emerging markets is swiftly lifting their importance in the global economy. They account for nearly two-thirds of the total growth in global output in the past two years, compared with one-third in the 1960s. Their contribution to foreign trade is also large and increasing, even though advanced economies trade almost twice as much.

The growing heft of emerging market economies is part of a long-term trend. In each of the past five decades, the growth rate of emerging and developing economies exceeded that of advanced economies—at times by a large margin. As a result, at the end of last year emerging and developing economies accounted for 48 percent of global output (measured in terms of purchasing power parity—using the exchange rate at which the currency of one country must be converted into that of another country to buy the same amount of goods and services in each country).

The trend may well continue for a while (see chart). The overall economic conditions in emerging economies are quite favorable: relatively

small fiscal deficits, manageable public debt, stable banking systems, low cyclical unemployment, and strong growth momentum. In contrast, many advanced economies are facing serious challenges that stem from big government deficits, large public debt, problems in their banking systems, high unemployment rates, and weak growth. In addition, recent structural changes in emerging economies support the three key drivers of growth: the labor force is growing at a rapid pace and populations are urbanizing, investment is growing with support from ample foreign capital, and productivity is increasing as production moves up the value-added chain. If current trends continue, in two decades annual global output will more than double, from \$78 trillion to \$176 trillion (in today's money), of which \$61 trillion in additional output will come from emerging and developing economies, while advanced economies' contribution will be about \$37 trillion.

### Major shifts in global economy

Strong demand and supply growth are taking place in economies whose populations are much bigger than those of advanced economies. Three billion people live in Brazil, Russia, India, and China—the so-called BRICs—alone, compared with 1 billion in advanced economies. When all emerging and developing economies are combined, they account for 85 percent of the world's population. Incomes of large numbers of people are rising rapidly and causing tectonic shifts in major aspects of the global economy:

- **Food:** Global demand for food is rapidly rising as large numbers of people enjoy higher per capita incomes, allowing them to buy more nutritious foods. Demand is rising for basic foodstuffs and for food products with higher value added.

- **Nonfood commodities:** The need for better housing and transportation and more energy is placing tremendous upward demand pressure on nonrenewable resources, such as petroleum and metals. The numbers are staggering. During the past 10 years, while global oil consumption increased by 13.5 percent, oil consumption in emerging markets increased

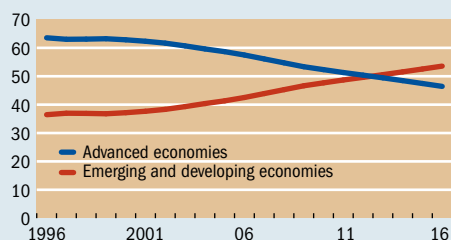


*Min Zhu is Special Advisor to the IMF's Managing Director.*

### Crossing paths

Emerging and developing economies' share of world gross domestic product (GDP) will exceed that of advanced economies starting in 2013.

(percent of world GDP, based on purchasing power parity)



Source: IMF, World Economic Outlook database.

by 39 percent—and their share of global consumption grew from one-third to one-half. And almost all the additional global demand for copper, lead, nickel, tin, and zinc came from major emerging market economies. During the next five years, for example, emerging markets' share of global copper consumption is projected to jump to three-quarters from only one-third a decade ago.

- **Capital flows:** Although emerging and developing economies account for almost half of world GDP, they hold only 19 percent of world financial assets. As money chases growth and opportunity, global financial and capital flows are shifting toward emerging market economies. The movement of only 1 percent of financial assets in advanced economies into emerging markets is equivalent to the current flow of foreign direct investment from advanced economies into emerging markets. Indeed, capital flows from the United States to emerging markets increased from an annualized \$300 billion during 2006–07 to an estimated \$550 billion in 2010, while flows to advanced economies declined from \$900 billion during 2006–07 to \$600 billion in 2010. Strong capital inflows are putting upward pressure on consumption and asset prices in emerging markets, and risk is building in the financial sector.

- **Patterns of production:** Global manufacturing production patterns are shifting. Emerging market economies are producing more high-technology machinery and equipment, and low-technology manufacturing is increasingly moving to lower-income countries.

- **Trade:** Global trade patterns will gravitate toward emerging markets. Emerging market economies' strong growth both in production and in domestic consumption will lead to more trade with advanced economies and, notably, among themselves.

- **Environment:** The toll on the environment is growing. Pollution is visible in the air and water, and the potential consequences will be devastating if the world does not reduce its carbon footprint.

## Broad changes needed

Only with deep structural changes in growth models, policies, and lifestyles can emerging market economies address the long-term challenges they face.

*A growth model that depends on demand from advanced economies will no longer serve emerging markets well.* Emerging markets should shift their focus from growth led by external demand to internally generated, supply-driven growth. Policies should follow and pay particular attention to the supply side. Emerging markets should take the following steps:

- Make every effort to continue increasing their agricultural output to cope with the surge in demand for food. This will require not only supporting investment in agriculture, but also encouraging research and development to promote innovation and productivity growth in the agricultural sector.

- Pay particular attention to their service sector, because it creates employment at a sustainable pace. Policies should be geared toward opening, not closing, markets to competition, as has been customary in many economies. In particular, governments should refrain from excessively protecting

small businesses, at the expense of consumers. In particular, governments should actively dismantle monopolies so that anyone who wants to enter a market can do so, which would boost efficiency and reduce price pressures.

- Invest heavily to eliminate bottlenecks. For the government this means investing in infrastructure, especially in transportation and energy, and ensuring entry and exit to all markets so that firms can take advantage of business opportunities. This also means educating and training workers to increase efficient use of capital and to boost household incomes. Investing in the application of established and new technologies will also help boost productivity.

Macroeconomic stability is paramount for other policies to work effectively. So *emerging markets need to maintain strong fiscal, financial, and external buffers and implement good macrofinancial policies.* Emerging markets must also continually improve institutions with a view to designing and implementing better policies.

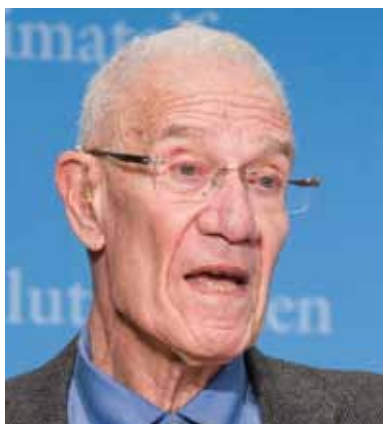
There are two areas I think are critical for the future of emerging markets: building viable pension and health care systems and reforming financial systems. As populations grow, pension systems in most emerging markets will put an undue burden on the next generation or, if benefits are reduced, risk pushing large pockets of the population back into poverty. Similarly, major reforms are needed to broaden access to higher-quality health care. There are both successful and unsuccessful examples of pension and medical care reform in advanced economies, and emerging markets should learn from these examples and design systems to fit their own circumstances.

Emerging markets should also reform their financial systems, which are at the center of economic activity—channeling countries' savings into investment, which is the key component of growth. Financial institutions also play an important role in facilitating capital flows from abroad, which are expected to remain strong in the medium term in response to favorable growth opportunities in emerging markets. Reforms are needed to ensure that the financial sector serves the economy rather than the other way around and that losses are not socialized while gains are privatized.

Finally, and perhaps most fundamentally, *there is a need to foster a lifestyle that is more respectful of the earth and its finite resources.* For example, most of us need to use less energy, use it more efficiently, and produce it more cleanly. We also need to be much more mindful of what we consume and how we consume it. It is very difficult to change such behavior, but governments can create the right incentives by pricing carbon correctly, including the environmental cost of our activities in the system of national accounts, and adding the true value of ecosystems into our national wealth calculations.

For most emerging and developing economies the past two years were great, and the future looks rosy. But there is no guarantee that the good times will last. In fact, that bright future will probably not materialize if the challenges I have outlined are not given priority and addressed satisfactorily. Modern history is replete with sobering cases of policy paralysis and ensuing lost years and decades. ■

# Rethinking Economics in a Changed World



Robert Solow



Michael Spence



Joseph Stiglitz

*Camilla Andersen*

## Three Nobel laureates discuss what the crisis has taught us

**T**WO AND A HALF years after the collapse of Lehman Brothers triggered the worst global financial crisis since the 1930s, some of the biggest names in economics came together at the invitation of the IMF to discuss what we have learned—and what we need to do differently.

The crisis was a wake-up call for theorists and policymakers. Economic models and policy tools—and how they are used—must adapt to changes in the global economic and financial system.

“The crisis has clearly shown both the limits of markets and the limits of government intervention. It is time to take stock and draw a first set of lessons,” Olivier Blanchard, the IMF’s Chief Economist, told more than 300 academics, journalists, and civil society activists who recently gathered at IMF headquarters in Washington, D.C., for the conference.

*F&D* interviewed three Nobel laureates in economics who participated in the conference: Professor Michael Spence of [Stanford University](#), Professor Joseph Stiglitz of [Columbia University](#), and Robert Solow, pro-

fessor emeritus at the [Massachusetts Institute of Technology](#).

Here is what they had to say on some of the most hotly debated topics in economics today.

### ***F&D*: What lessons have we learned from the crisis?**

**STIGLITZ:** At a very high level of analysis there is a realization that markets are not necessarily efficient and stable on their own. Many economists had believed that to be the case before the crisis.

Another widespread belief was that keeping inflation low and stable was necessary, and almost sufficient, for maintaining high growth and good economic performance. Clearly, that is wrong as well.

But perhaps the most striking lesson—not so much for policy but for economic analysis—is that the models that were used before the crisis neither predicted the crisis nor gave us a framework for responding to the crisis when it happened.

So in a sense, for an economist, this is a very exciting time, because it means there’s a lot of work to be done.



**F&D:** How has the crisis changed the thinking on monetary policy?

**SPENCE:** My takeaway of the general discussion is that inflation continues to be an important policy target, but it can't be the exclusive focus of central banks.

If one is worried about the stability of systems as complex as our financial systems, focusing on inflation, I think, is quite clearly not enough.

**SOLOW:** The simple dependence on conventional monetary policy, not to be abandoned of course, seems to have come to its limits, and one has to move on even to direct fiscal policy or to innovative ways of dealing with money and credit.

An interesting idea with direct policy implications is to rethink the way the credit mechanism mediates between savers and investors and puts credit to productive use. That is terribly important, both nationally and internationally.

In [the United States] right now, the credit mechanism for small or medium-sized enterprises has frozen.

**STIGLITZ:** Before the crisis, there was, in some circles, the view that fiscal policy was not as effective as monetary policy. The only limitation to that would be when interest rates came down to zero—then monetary policy couldn't work, and that was thought to be a weird and almost-never-to-occur circumstance.

Well, we're now living in that very circumstance. And we're back in a situation where, really, fiscal policy does matter.

**F&D:** What role do you see for fiscal policy today?

### Stiglitz on how to reform the financial system

**F&D:** What should be done about the financial sector?

There is a recognition that in the aftermath of the crisis we haven't really created a more stable financial system—that, to too large an extent, we're going back to where we were before the crisis. And in some ways, things are worse.

They are worse in two ways. First, we have a more concentrated banking system, especially here in the United States. And, second, the problem of moral hazard is at a heightened level. The banks know that when push comes to shove, any bank that is very big will be rescued.

So we actually have not succeeded in repairing our financial system. And the vulnerability is, in some ways, even greater. And our capacity to respond to a crisis is lessened because of the rising debt and deficits that have come as a result of the crisis itself.

The implication is that we really need to get back to work to try to design a regulatory system, including making sure that we both limit the size of the too-big-to-fail banks and level the playing field.

**F&D:** What would such regulation look like?

Regulation should be global in nature. But if we cannot get a global agreement, it is necessary for countries to go ahead and protect themselves.

Banks have to be organized as subsidiaries, not branches, so that each government has enough control of its own

**SPENCE:** I think that the fiscal situation presents risks and has to be sorted out. I imagine we'll muddle through, but maybe we won't and we'll have a kind of minicrisis either in Europe or America or both.

**SOLOW:** On the fiscal policy side, there is a lot of latent power. The limitations are primarily political. We have created an enormous increase in public debt in the United States: that's pretty clear. And we are certainly not at the limits of the pos-

**“Growth will struggle back, but the employment problem will remain.”**

*Michael Spence*

sibility of public debt, because the federal government at the moment doesn't have any trouble selling its bonds.

But any aggressive fiscal policy would entail still a bigger buildup of debt, which will have to be settled in the longer run.

**STIGLITZ:** One of the lessons that came out very strongly was that fiscal policy works—that when the economy is weak, government spending can actually stimulate the economy.

The IMF played a very constructive role in this crisis of reminding many people that what we need now is stimulation, reminding people that some of the earlier results about

banking system. It will not be a full solution, but we will move away from the single-market concept to the realization that as long as we do not have a full global regulatory system, each country has a responsibility to its own citizens and its economy.

The second important point is that cross-border flows can be very destabilizing. One of the major sources of disturbances—particularly to developing countries—are unstable, short-term capital flows, and that implies that any government wishing to try to create a more stable economy has to think very deeply about capital account management. That involves using a broad range of tools, from prudential banking regulations to exchange-rate interventions, taxes, and possibly even controls.

So we are seeing a big change in the mind-set of how we think about these cross-border flows.

**F&D:** Does the IMF have a role to play?

Oh, very much. The best way of doing the regulation is global. Because, in the absence of global rules, there is going to be regulatory arbitrage.

If we want to create a stable financial system, we all have to raise our standards. That, in a sense, was the biggest lesson of the crisis—that each country pursuing its own interest does not necessarily lead to the well-being of the global economy. There is, therefore, a need for this kind of coordination.

## Spence on the importance of emerging markets

### F&D: What does the future hold for emerging markets?

Emerging markets responded to the crisis extremely well. They recovered faster than any of us expected and are back, for the most part, to precrisis levels of growth. And it looks like that is sustainable, even if the advanced countries are limping along.

A major downturn in Europe or North America would at least put a dent in their growth rate, but there has been partial decoupling.

This would not have been true 10 years ago. It is a function of the rising aggregate size of the emerging markets in the global economy. Their rising incomes make domestic production more interesting, and trade between emerging markets is high and rising. All these developments are increasing their ability to sustain growth on their own.

### F&D: What are the main challenges facing this group of countries?

Inflation is a very important problem. The rising commodity prices are a major headache because they have a bigger impact on inflation in the developing countries and they have an adverse distributional impact. In many developing countries,

deficit policies were wrong. Deficit spending is what is needed. Austerity too early could bring us back into an economic downturn.

### F&D: What are the prospects for reviving growth?

**SPENCE:** Growth will struggle back, but the employment problem will remain. For the first time in the postwar period—which is when the emerging economies rejoined the party—growth and employment in the advanced countries are going to diverge. So we can't assume that employment will come back

poor people spend as much as 50 percent of their income on food. If you have a major increase in the price of food, the de facto effect is to reduce incomes among the most vulnerable people. That is a very important concern.

So one of the lessons of the crisis for the emerging markets is that they need to pay more attention to prebuilt mechanisms that allow them to redistribute income or provide support in the face of shocks.

The alternative is to adopt policies that are not ideal. To give you an example, during the last food price spike just before the crisis hit, India—which, along with Thailand, is one of the two largest exporters of rice in the world—imposed export controls. Now the Indians are very sophisticated and they knew perfectly well that was not the right answer. But they did not have another way to protect the poorer parts of the population from the commodity price spike.

So I think you will see these defensive measures in general are going to get a higher priority in emerging markets. They have also learned bitter lessons in the crisis in the late 1990s, and it has stood them in good stead in this round: low external debt, fiscal health for the most part, and reserves as self-insurance.

or that income distribution will go the way we want it to in the advanced countries just because growth is coming back.

The reason is that growth is going to happen in the tradable sector, in areas where advanced countries have a comparative advantage that is narrowing as various parts of those global supply chains move elsewhere. I think we are in for a period in which we have to deal separately with employment opportunities—with income distribution on the one hand and growth on the other.

**SOLOW:** The easiest way to encourage growth and employment in the United States might be to look for ways in which the government or the private financial system can be induced to extend credit to small and medium-sized businesses, which right now can't get credit and are not expanding employment.

**STIGLITZ:** In order to recover in a robust and stable way, we have to get global growth going. And that really has to do with how the whole global system works. An important part of that is the global reserve system. Figuring out how to replace the current dollar-based system with a global system is extraordinarily important.

One approach to that is augmenting the SDR [special drawing rights] system, which the IMF manages. [The SDR is an international reserve asset created by the IMF in 1969 to supplement its member countries' official reserves.] There are proposals now to issue SDRs on a regular basis so they may be used in a countercyclical way and for addressing global needs such as climate change and financing for developing countries. ■

*Camilla Andersen is a Senior Editor on the staff of [Finance & Development](#).*

## Solow on the importance of education

### F&D: What is needed to put people back to work?

The role of education in the economic growth of middle-income and low-income countries is an important issue.

We economists tend to measure education by input, not output. We count how many years people have been in school. Instead of worrying so much about quantities of education, we ought to be thinking about the content of the education. What is it that primary school or secondary school kids in poor and middle-income countries need to know? This is not necessarily what they are being taught.

And by the way, the same holds for advanced countries and the United States. We measure our success in generating an educated population in terms of the fraction of the age group that is in college. I would be very interested in other kinds of postsecondary education that are skills-based and would equip people for the jobs that are likely to be available.

That is going to require that employers be involved in the planning of that sort of education. For the United States, and perhaps for much of the world, that is a wholly new idea.

# Looking under the Hood



## Bank capital ratios have improved since the crisis, but mainly because banks are lending less

SINCE THE START of the global financial crisis in 2008, the health of the banking sector, as measured by capital adequacy ratios (CARs), has rebounded in all regions.

From 2003 to 2010—even during the crisis—all regions show CARs comfortably above the minimum 8 percent set by the Basel Accords, which established international banking rules on how much capital banks need to set aside. Before the crisis, capital ratios remained stable in most regions—in advanced economies, developing Asia, Latin America, and sub-Saharan Africa—and showed a declining trend (from relatively high levels) in central Europe, the Commonwealth of Independent States, and the Middle East. After the financial crisis, CARs increased steadily in all regions except the Middle East and central Europe.

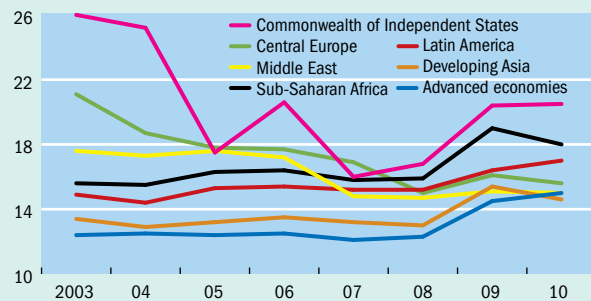
How was this achieved? In most advanced economies, while there was some increase in equity, banks improved CARs by limiting credit to their customers and shifting the composition of their portfolios to low-risk assets such as gov-

ernment securities. Other regions show an increase in both the capital base and banks' exposure.

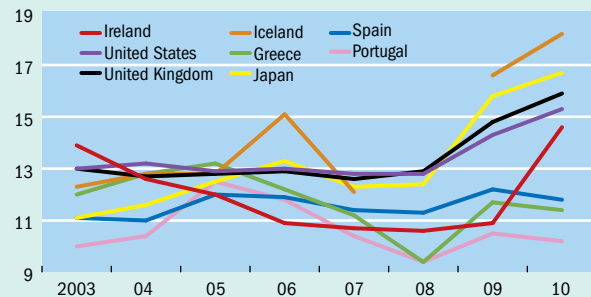
Looking at national averages, the deterioration of banking system solvency is evident for countries hit particularly hard by the crisis, with averages for Greece and Portugal barely above the minimum 8 percent in 2008. The CAR for Iceland—an early victim of the financial crisis—hovered slightly above 12 percent until 2007, when the financial crisis wiped out more than 80 percent of that country's banking system assets. After the restructuring of Iceland's financial system, the ratio increased to more than 18 percent in 2010. CARs for the United States, the United Kingdom, and Japan show a similar pattern to that of the advanced country group—that is, stable values until 2008 followed by a steady increase.

### Bank capital ratios have improved since the start of the crisis.

(ratio of bank regulatory capital to risk-weighted assets, medians)



(ratio of bank regulatory capital to risk-weighted assets, averages)



Sources: IMF, Financial Soundness Indicators database; and national authorities.  
Note: Because of the financial crisis, Iceland did not publish financial ratios for 2008.

### Tuning up CARs

Capital requirements are designed to ensure that banks hold enough resources to absorb shocks to their balance sheets. A standard measure of the health of individual banks is their capital adequacy ratio (CAR). Introduced in 1988 with the Basel I Accord, the CAR is calculated as the total regulatory capital of a bank divided by its risk-weighted assets. The Basel II revision refined the calculation of risk weights and incorporated three major components of risk: credit, operational, and market risk.

Because the CAR is designed to gauge the solvency of individual institutions, country averages may hide outliers facing financing difficulties. Furthermore, risk might be underestimated by both the financial institutions and the supervisors, resulting in CARs that overvalue the soundness of the banking system. Other factors, such as liquidity or foreign exchange risks, may also impair the viability of financial institutions.

### About the database

The CARs were calculated from the financial soundness indicators (FSIs) submitted by countries for dissemination on the IMF's website (<http://fsi.imf.org>) and from data collected from official websites. The entire data set for the years 2005–10 was published as Table 1 of the FSIs accompanying the April 2011 *Global Financial Stability Report* (<http://fsi.imf.org/fsitable.aspx>). Countries are grouped by regions according to the classification in the IMF's *World Economic Outlook*.

Prepared by José M. Cartas and Ricardo Cervantes of the IMF's Statistics Department.



## Letting the Evidence Speak



*Abhijit Banerjee and Esther Duflo*

### Poor Economics

#### A Radical Rethinking of the Way to Fight Global Poverty

Public Affairs, New York, 2011, 336 pp., \$26.99 (cloth).

**T**he most significant increase in understanding in development economics in recent years has come from the growth of randomized control trials (RCTs) to learn about the behavior of individuals in poor countries. The intellectual entrepreneurs and founders of RCTs, Abhijit Banerjee and Esther Duflo, have synthesized a large number of results and proceeded to draw inferences for policies designed to lift the poor out of poverty in this eminently readable and important book.

As their name implies, RCTs study the responses of various groups of individuals or firms, controlling for other characteristics that influence behavior, when confronted with a new set of circumstances. For example, researchers in Kenya offered mosquito nets at prices ranging from somewhat subsidized to free, to ascertain how sensitive the use of the protective nets was to price (very sensitive to price but not sensitive to users' income).

Behavior in the areas of public health, teacher school attendance, household saving and borrowing (especially microcredit), setup and expansion of small businesses, children's school enrollment, and much else are reported. In examining these and other issues, Banerjee and Duflo often start with an anecdotal report of the behavior of (or circumstances and

issues confronting) a poor individual. They then draw inferences about behavior and report on the results of RCTs, which shed light on poor people's responses to different incentives, and draw conclusions as to the most effective policies for fighting poverty.

The book's analytical framework asks whether emergence from poverty is relatively linear: As people get less poor, are they more able to continue to improve their situation or does something akin to a "poverty trap" call for a "big push" to propel them across a threshold beyond which they can progress on their own? The authors view the results of RCTs as generally supporting the big push approach.

Based on the evidence accumulated through their results and inferences about behavior, Banerjee and Duflo provide a large number of policy prescriptions. For example, regarding the health sector, they conclude that "inexpensive" medical technologies are "low hanging fruit." These include "getting children immunized, deworming drugs, tetanus shots for would-be mothers, provision of vitamin B to fight against blindness, iron pills and iron-fortified flour against anemia."

The book's overall conclusion about health care is worth quoting: "The primary goal of health-care policy in poor countries should be to make it as easy as possible for the poor to obtain preventive health care . . . Free Chlorin dispensers should be put next to water sources; parents should be rewarded for immunizing their children; children should be given free deworming medicines and nutritional supplements at school and there should be public investment in water and sanitation infrastructure."

Even if their only concern were health care, the authors' wish list is so long that it raises the question of cost. But Banerjee and Duflo have many more policy prescriptions for other aspects of social policy. They point out the high risks to which the poor are subject, and the absence of insurance options for them, and conclude "there is thus a clear role for government action. The government should pay a part of insurance premiums for the poor." The authors also endorse cash transfers to encourage

staying in school, regulation of banks to require lending to "priority sectors," universal school enrollment, more infrastructure investment (especially in villages where the poor live), provision of "good jobs" to enable escape from the poverty trap, and much more.

Because good jobs tend to be in cities, the authors call not only for the creation of such jobs (although beyond requiring banks to extend credit to medium-sized firms, they do not say how), but for subsidized migration to urban areas. Given that most places have more migrants than available good jobs, the macroeconomics of this prescription is questionable.

There is no doubt that many of the programs Banerjee and Duflo advocate, if effectively implemented, would be worthwhile. But two major questions, and some minor ones, remain. First, can all these policies be carried out within a stable fiscal/macroeconomic framework? If not, the usual questions about relative rates of return arise and are not adequately addressed. Second, given the failure to date of governments, nongovernmental organizations, and others in these areas, is it possible to hope that the policies they advocate could be carried out without the same problems (most of the benefits going to the wealthy, inability to keep teachers in the classrooms, for example)?

The unaddressed question is how governments could finance these measures in the interim (not to mention tax collection on future enhanced incomes to recover some costs).

Banerjee and Duflo convincingly show that there is much waste in existing programs. But that does not prove that competent doctors can appear overnight or that closing (unattended) medical clinics will free up sufficient resources to finance the authors' recommendations. And, for some recommendations, the problem is even starker: one of the clear needs of poor countries is a better-functioning financial system. Yet the authors would move in the opposite direction, with more credit directed to medium-sized enterprises (to create good jobs) and to microfinance. But even when it comes to recommenda-

tions that appear eminently sensible, with limited resources the quantities of each of these public goods to be provided are subject to tough choices.

The second major question is how to implement these policies. The authors are well aware of government failures in current programs designed to help the poor. But despite their worthwhile prescriptions (transparency, more women in decision-making bodies, for example)

for directing spending to more effective programs, they acknowledge that progress would be incremental.

In sum, this book is a must-read for everyone concerned about the poor in developing countries and policies to improve their lot. The evidence from RCTs and the critiques of current policies are invaluable. Turning some of their findings into policy by re-allocating current resources can certainly

yield large benefits, but the desirability of many of their policy conclusions is worth examining (particularly, credit rationing and subsidies for insurance and migration), as are the trade-offs, relative costs, and macroeconomic implications.

**Anne O. Krueger**

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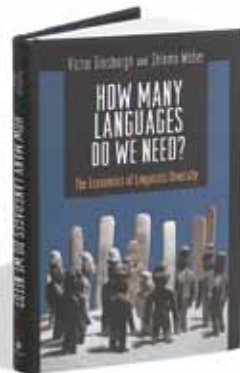
## Speaking in Tongues

**Victor Ginsburgh and Shlomo Weber**

**How Many Languages Do We Need?**

**The Economics of Linguistic Diversity**

Princeton University Press, Princeton, New Jersey, 2010, 232 pp., \$35 (cloth).



In this scrupulously researched study, Belgian economist Victor Ginsburgh, whose native language is Swahili, and game theorist Shlomo Weber, a Canadian citizen who is a native Russian speaker, assess the costs and benefits of the vast number of languages currently in use across the globe.

It is commonly assumed that a reduction in the number of languages improves efficiency. Although no one knows the exact number of living languages, the figure is astonishingly large—a sensible estimate would be 6,000–7,000. But half the world's population has one out of a mere eleven of these as a first language.

Most developed economies are in countries where a single language predominates; in countries where there is great linguistic diversity there tends also to be much bureaucracy and wastefulness. The nonprofit SIL International, which maintains a database of the world's languages, reports that 278 are currently used in Cameroon; the figures for Chad, Nigeria, and Papua New Guinea are, respectively, 131, 514, and 830. It is easy to see how this kind of linguistic multiplicity might impede economic development—for instance,

by hampering geographical and social mobility and by obstructing many citizens' access to key legal services.

Utopian thinkers have long imagined that technology and political planning will one day end civilization's linguistic tension

and confusion. Today there is support for the idea of establishing English as the global lingua franca. Indeed, many believe it already is. Yet the dominance of one language leads to the erosion of others—potentially a catastrophe for the world's linguistic and cultural ecosystem. Ginsburgh and Weber quote the playwright Ariel Dorfman, born in Chile but now a U.S. citizen: “The ascendancy of English, like so many phenomena associated with globalization, leaves too many invisible losers, too many people silenced.”

Ginsburgh and Weber often write in a highly technical fashion, scrutinizing such matters as cladistic distance, ethnolinguistic fractionalization, and dichotomous disenfranchisement indices. Yet this analysis is presented crisply, and there are plenty of well-chosen snippets from commentators including Mario Vargas Llosa and Amartya Sen. The discussion embraces not only the costs of translation and Joseph Greenberg's classic attempts to quantify diversity, but also the quirks of Finnish private investors and the Eurovision Song Contest.

The book's most thought-provoking section is the last, a case study of lin-

guistic policy within the European Union. It is here that Ginsburgh and Weber engage most clearly with practicalities and come closest to answering their original question: How many languages do we need?

Each year the European Union spends well over a billion euros on translation and interpretation. Staff in these two areas account for a tenth of the European Commission's workforce. As membership in the European Union continues to expand, the costs will increase. Linguistic compromise, when it happens, tends to favor English. But, interestingly, in this environment monoglot native English speakers may be ineffectual, because they fail to recognize the different linguistic needs (such as for fewer colloquialisms and archaic idioms) of those who are not native speakers of English.

Ginsburgh and Weber rightly say that it is hard to maintain a balance between policies that achieve efficiency and policies that respect cultural traditions. They suggest it might be reasonable for the European Union to adopt six working languages—English, French, German, Italian, Spanish, and Polish.

Reform of the European Union's linguistic workings calls for collaboration, which touches on a fundamental issue of the book: the vexed question of what the “we” in the book's title really means. It is a pronoun that implies togetherness. It is an appeal for community. But it evokes widely differing solidarities, bonds, and priorities. In any debate about language (or politics), “we” is hard to come by, as this book makes very clear.

**Henry Hitchings**

*Author of several books, including  
[The Language Wars](#)*

## Too Adaptable to Fail

Tim Harford deservedly has legions of fans thanks to his columns in the *Financial Times*, his BBC radio show “More or Less,” and his previous books. *Adapt* will surely win him more admirers. It is a thoroughly enjoyable guide to the application of models borrowed from biology to the world of business and the economy, with many entertaining examples described with the author’s characteristic deftness and style.

The book’s ideas on adaptation draw on evolution through variation and selection and the role of network theory. Formal evolutionary economics models exist, and the idea that business is a struggle for survival makes intuitive sense.

In the case of economics and business, evolution is a metaphor, but it would not surprise me if human social behavior in this area turns out to be tightly linked to the fundamental rules of life. This is an exciting avenue of study for economists.

Harford’s contribution is to explain through a wide range of examples how variation, adaptation, and selection work. He emphasizes the importance of allowing small failures to avert the catastrophic failures that can result from centralized decision making. Examples range from the military—the tactics of the U.S. Army in Iraq—to the commercial—space travel businesses in the Mojave Desert and the biotech industry. So, for example, commanders at headquarters lacked the information they needed about conditions on the ground for their tactics in Iraq to succeed, but local commanders could adapt tactics to the specific conditions.

He also discusses the role of experiments in economics, particularly in the development field. Harford advocates an experimental approach, which, he argues, gives researchers detailed information and moreover instills in them the humility to acknowledge what fails and what succeeds.

The key element in all Harford’s examples is making use of widely dispersed information—“a complex world is full of knowledge that is localized

and fleeting.” The failure of central planning due to its inability to master all relevant information, in contrast to the success of markets, is well known. The more complex the environment, the greater the need for decentralized decision making.



Tim Harford

### Adapt

#### Why Success Always Starts with Failure

Farrar, Straus and Giroux, New York, 2011, 320 pp., \$27 (cloth).

This lesson needs to be constantly relearned, given the evident preference—of dominant businesses in any market and companies’ senior executives—for centralized power. As a former member of the U.K. Competition Commission, I would have liked the author to point out explicitly that the importance of experimentation and small failures is why competition policy matters so much. Experimentation and small failures bring about variation and governance structures that permit dissent.

Harford does temper his enthusiasm for unconstrained innovation by noting that innovation increasingly often requires significant funding and organization. Facebook, famously started in a Harvard dorm room with little capital, is an exception, he argues. More often, inventions leading to new patents require a large research team and much funding, whether the innovation is a new medication or a video game. This makes parallel innovation, with many doomed to fail, too costly, he sug-

gests. There are many circumstances in which that is true, but the examples given in *Adapt* feature highly concentrated industries where the “cost” of innovation, whether it involves regulation or rents, is a barrier to entry benefiting the incumbents. (Another recently published book, *The Master Switch* by Tim Wu, offers some good examples of the lost fruits of “wasteful” parallel innovation when dominant firms elbow out the competition.)

*Adapt* changes tack in its final section to look at network models and contagion in the context of disasters (nuclear meltdowns, oil rig explosions) and banking. This too is a field where economists are using models applied in the natural sciences—looking at contagion or population dynamics, for example. These models also seem intuitively well suited to explain some economic phenomena, as reflected in the popular terminology of “business ecology.” The financial crisis is an obvious candidate for this kind of modeling. The Bank of England’s financial stability director, Andrew Haldane, and ecologist Sir Robert May, formerly the U.K. government’s chief scientist, have worked together to analyze the systemic frailties of the financial system (see the January 20, 2001, issue of *Nature*).

The final chapter, “Adapting and You,” is a letdown. No doubt it was requested by the publisher: this kind of homespun advice supposedly sells books. I would have preferred “Adapting and Public Policy,” because the book touches on policy implications only in the context of development experiments. But this is a small complaint.

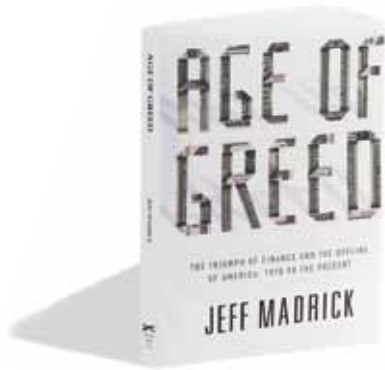
It is a real gift to be able to bring these novel (to economics) models to light with vivid stories, and Harford has something of the Malcolm Gladwell knack for making the complex seem not only straightforward but inevitable. *Adapt* is a terrific read.

**Diane Coyle**

*Author of The Economics of Enough: How to Run the Economy as if the Future Matters and head of the consulting firm Enlightenment Economics*



## Masters of the Universe



Jeff Madrick

### Age of Greed

#### The Triumph of Finance and the Decline of America, 1970 to the Present

Alfred A. Knopf, New York, 2011, 496 pp., \$30 (cloth).

Jeff Madrick, one of America's most energetic and entertaining popular economics writers, brings his talents to a series of economic and financial portraits covering the past 40 years. The subjects include Walter Wriston, Milton Friedman, Richard Nixon, Alan Greenspan, Paul Volcker, George Soros, and Angelo Mozilo. The reader will spot a common theme: the irresponsible careening of American thought and practice into an unjustified worship of finance, and the move away from the view that the federal government is our friend. That said, each chapter stands on its own.

The chapter on Milton Friedman interested me most, in part because I am an economist and in part because there is no strong biography of the subject. On the positive side, it is engaging, and Madrick composes a compelling narrative of Friedman's work as a policy entrepreneur. I read it avidly and it met the ultimate reading test: I wished it were longer.

That said, I found numerous points to object to. The chapter is titled "Milton Friedman, Proselytizer," and there is a good deal of (fascinating) information about Friedman's early years as a "fanatically religious" Jew. One is left with a picture of Friedman as a rather clever but irresponsible

simplifier and dogmatist. There is not a comparable discussion of Friedman's role in insisting on good empirical work and the testing and falsifiability of economics propositions, his building of the [University of Chicago](#) department with first-rate scholars and future Nobel laureates, and the numerous times he changed his mind on economic issues, including on monetary theory and policy. Friedman was much more a scientist and a skeptic than this essay lets on.

There are also particular errors and omissions. The discussion of Friedman's desire to eliminate social programs does not mention that he wanted to replace them with a guaranteed annual income. It is wrong to claim that "the instability of velocity is what finally undid monetarism in the 1980s" when volatile interest rates were a much bigger problem, and in open economies such as Switzerland the exchange rate became the issue

**The reader will spot a common theme: the irresponsible careening of American thought and practice into an unjustified worship of finance.**

(monetary velocity moves in strange ways but it does so slowly). Few economists would agree with Madrick's claim that "Friedman and Schwartz . . . made little advance over what was already known" or that their *Monetary History* had little empirical basis. Contrary to Madrick's view, it is now widely accepted that inflation—or at least ongoing inflation, as Friedman made clear—is always a monetary phenomenon. These aren't mere accidental oversights; they contribute to a

systematic downgrading of Friedman's legacy of scholarly depth and impact.

The book does not come to terms with the fact that, during much of this period, the world was in the grip of a statist economic ideology that virtually enslaved some very large countries, such as the USSR and China, and in a milder form almost ruined some others, such as Great Britain and much of the developing world. Many of the figures on tap, especially the earlier ones, cannot be understood outside of that broader context.

The least interesting essays are those about the best known figures. Is there really more to say about Jimmy Carter or Richard Nixon or Alan Greenspan in a few pages? Does it do justice to any of the trio to cram Ted Turner, Sam Walton, and Steve Ross into a single chapter?

The genesis of the book puzzles me. Plenty of the chapters are based entirely on secondary sources, and well-known ones. Why not focus on those figures whom the author interviewed or otherwise researched in an archival manner? At the same time, the book isn't polemic enough to serve as a useful rogues' gallery. There is not enough tying together of themes and trends for this to be a useful text or introduction to the period, and these essays could have been published separately.

To be sure, one can sympathize with Madrick's view that the economic and political ascendancy of finance has been undesirable. But I would have preferred that he start with a few simple facts. When did this happen? (It starts in the early 1980s, by income measures.) Why did it happen and what were the broader, non-personal forces behind that trend? Why did politics embrace finance rather than fearing it? With a simple story in place, the importance of each figure chosen would be clear. As it stands, this is a vividly written book with some interesting bits but no clear sense of purpose.

**Tyler Cowen**

*Professor of Economics  
George Mason University*

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