



FALL 2006: **Social Enterprise**

Findings from Faculty Research at Columbia Business School

## Focus on Social Enterprise

### Small Loans on a Large Scale

Is microfinance the key to ending poverty in the developing world?

**M**icrofinance, an economic development model pioneered by Bangladesh's Grameen Bank in the 1970s, was once the realm of NGOs. But in recent years, private-sector financial institutions have discovered that making small loans to poor women can pay off. "I think there is a push toward private capital going toward the poorer sections of society," says Professor **Suresh Sundaresan**, "not because of a philanthropic motivation, but because it's good business."

Sundaresan and PhD student Sam Cheung examined the issues facing both lenders and borrowers in the microfinance market, using data collected by the Microfinance Information eXchange (MIX), a nonprofit that promotes information exchange in the industry. Sundaresan and Cheung found that microfinance institutions reporting their data to MIX have more than 28 million active borrowers. Worldwide, banks account for 52 percent of the dollar value of microloans and 31 percent of the active borrowers,

while NGOs account for 17 percent of the dollar value and 46 percent of the borrowers.

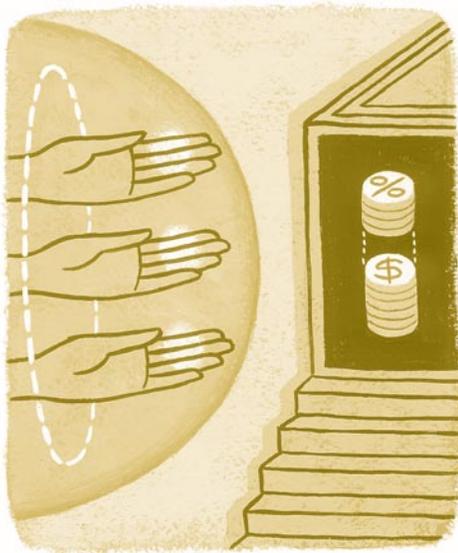
Microfinance is considered to be one of the most promising vehicles for economic development in poor countries. Most of the borrowers are female, and many microfinance institutions lend

exclusively to women. The loans are small—the average loan is \$848 in Latin America, \$483 in East Asia and just \$83 in South Asia—and the repayment rate is 90 percent, higher than that of high-yield corporate borrowers in the United States.

But does microfinance offer a realistic solution to the problem of poverty?

"You would normally think that a 1,000-rupee loan is not going to deliver a family out of poverty," Sundaresan says. "It'll help them to sustain themselves a little better. That may be a welfare improvement, but it's a long way from saying you've gotten out of the poverty trap. So the real point is scaling up."

**Small Loans** continued on page 2



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One of the biggest obstacles to achieving scale in microfinance is the administrative overhead, which drives up interest rates. Delivering small loans to a large number of borrowers is expensive, as is monitoring borrowers to make sure they are using the money productively. The average interest rate for a microloan ranges from 30 to 40 percent—a bargain compared to the 70 or 80 percent that borrowers might otherwise pay to a local loan shark but still much higher than corporate loan rates.

**B**y doing less monitoring, microfinance institutions could lower their interest rates without hurting their bottom line.

To find an optimal pricing structure for microloans, Sundaresan and Cheung built an interest rate model that incorporates the typical features of microloan contracts: (1) absence of collateral, (2) joint liability provisions, (3) penalties for default (such as exclusion from credit markets in the future) and (4) monitoring to ensure that funds are put to good use.

In a joint liability contract—the most common form of microloan—peer pressure replaces collateral as a motivator for repayment. Borrowers form groups and assume mutual responsibility for one another's loans. Since group members select their own partners, much of the burden of screening falls to the borrowers themselves.

Sundaresan and Cheung's research suggests that by doing less monitoring,

microfinance institutions (MFIs) could lower their interest rates without hurting their bottom line, provided other safeguards such as joint liability and a credible default penalty are in place. Joint liability reduces the unproductive use of loans and can provide a stronger safeguard against default than monitoring, which is much more expensive to implement. So less monitoring would improve the welfare of both lenders and borrowers.

"Suppose you do less monitoring," says Sundaresan. "Default will potentially go up. But then if the cost of the loan is going to go down, presumably more women will come to borrow. When more women come to borrow, the numbers are going to be in your favor because your portfolio is more diversified. So if you have all the safeguards in place, maybe you should ease off a bit on monitoring."

The researchers found that when borrowers fail to repay their loans in spite of those safeguards, it is often because of an aggregate shock such as a heavy monsoon or an unforeseen epidemic. So lenders could potentially lower their default rates—and their interest rates—by requiring borrowers to purchase microinsurance.

Many MFIs are reluctant to expand the scale of their operations because they don't know what will happen to their default rates. "Whatever default experience you have when you are catering to a thousand women might not hold true when you cater to a million women," Sundaresan says. The same question arises with regard to loan size. "I want to be able to say that this model can apply to 10,000-rupee loans without substantially increasing default," says Sundaresan, who has conducted field research on microloans in India. So far, he has been unable to find an MFI in India that is willing to test his model by experimenting with larger loan sizes.

Another impediment to scale is geographic distance and lack of information. Most MFIs serve a limited area

because long-distance lending imposes higher screening and monitoring costs. India's largest private bank, ICICI, is getting around this problem by partnering with small local financial institutions that have better information about prospective borrowers in remote villages. ICICI provides capital at a fixed rate to the local institutions, which lend it out at whatever price the market will bear. ICICI carries the loans on its books, but to give the local institutions an incentive for due diligence it requires them to cover the first 10 percent of any losses.

Even if more capital becomes available at lower interest rates, the fact remains that less than 10 percent of microloan borrowers turn out to be true entrepreneurs. Sundaresan tracked the borrowing patterns of nearly 50 women in two Indian villages over a period of five years. The real entrepreneurs borrowed larger amounts each year and gradually increased the scope of their economic activities, eventually pulling themselves out of poverty. Some of them now employ 100 to 200 other women.

For the other 90 percent of microloan borrowers, microfinance may offer only an incremental improvement in living standards. Still, in areas with large pools of unskilled labor, even a small infusion of capital can increase the welfare of a village or region—especially when the money is combined with education and technology. "The real issue," says Sundaresan, "is how do you deliver the capital in a scalable manner and at a rate that is reasonable?"

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#### Read More

Cheung, Sam, and Suresh Sundaresan. "Lending Without Access to Collateral: A Theory of Micro-loan Borrowing Rates." Working paper, Columbia Business School, 2006.

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**Suresh Sundaresan** is the Chase Manhattan Bank Foundation Professor of Financial Institutions at Columbia Business School.

## When Giving Is Cheap

A game reveals what lies beneath our most charitable impulses.

When a philanthropist pledges to match funds raised by a favorite charity, some donors give more money. Their altruism is motivated in part by a sense of economic efficiency: it would be a shame to let those matching funds go to waste. In a matching-fund scenario, donating money is “cheap”—an individual’s \$50 donation means the charity gets \$100. But how do people respond when giving is expensive? And what does their behavior suggest about their preferences for efficiency and equity?

Professor **Ray Fisman** has studied individuals’ giving preferences with Shachar Kariv of UC Berkeley and Daniel Markovits of Yale. In experiments using a computer game, the researchers presented students with 50 charts depicting donation budgets, with different scenarios for how the funds would be distributed. For each budget, students had to allocate the funds between themselves and another student. In some rounds, the receiver would receive more than \$1 for each dollar donated, so the giver could maximize the size of the pie by being generous. In other rounds, giving is expensive, so keeping more money for oneself maximizes the total sum.

After 50 rounds of this game, one round is picked at random to be the one that counts: the students receive a cash payout according to the allocations

made in that round. Each student is both a giver and a receiver. “At the end of the experiment, a student, on average, walks out with \$25,” says Fisman. “The difference between being selfish and altruistic can easily mean a difference of about \$25. So a student who has been very selfish and has been the beneficiary of a generous partner could wind up with \$50. And someone who’s been magnanimous and got paired with a selfish partner might not get enough to buy a cappuccino at Starbucks.”

Based on an individual’s choices over the 50 rounds of the game, the researchers can devise a mathematical function that describes that person’s giving behavior. “We’re interested in finding out how much people care about equity versus efficiency,” says Fisman. “We find that people have widely varying preferences, but they lean toward efficiency—that is, when it is cheap to give, they give more.”

But some subjects—including Fisman’s father, who played the game during its testing phase—had a strong preference for equitable distribution rather than maximum efficiency. “Every time it was cheap to donate money, my father would keep most of his budget,” an effort to prevent the receiver from winding up with a greater share of the pie, Fisman says. “And every time it was expensive to give, he would give most of it away. I wanted to make sure he understood the game, so I asked him why he was making these ‘inefficient’ allocations. He replied, ‘But I just want



to make sure we’re both equally well-off in the end.’ This fits perfectly with how I see my father behaving in the world outside the lab: he values equality, almost to a fault.”

The experiment adds to the growing body of research on why individuals sometimes abandon their own self-interest when making economic choices—that is, the economics of altruism.

“I really do think that people are projecting their identities onto this game,” Fisman says. “I think it’s instructive that when you have this sort of tradeoff spelled out very explicitly, people do show significant concern for others.”

### Read More

Fisman, Raymond, Shachar Kariv and Daniel Markovits. “Individual Preferences for Giving.” Working paper, Columbia Business School, 2006.

**Ray Fisman** is associate professor of finance and economics and research director for the Social Enterprise Program at Columbia Business School.

We’re interested in finding out how much people care about equity versus efficiency.

## Insuring Against Global Warming

How much should countries spend to avoid the uncertain risk of climate change?

For environmental scientists, the question isn't whether there will be global warming, but how much. The Earth's temperature may rise 3 degrees centigrade in the coming decades, some scientists estimate, while others say the increase might be double that or more. The effects may arrive within the next 20 years or possibly not until the end of the century. With such a wide range of variables, scientists have found it difficult to predict how global warming will change everyday life.

Professor **Geoffrey Heal**, working with Bengt Kristrom of SLU-Umeå (the Swedish University of Agricultural Sciences), examined how this uncertainty should factor into government decisions on prevention measures.

However, as Heal points out, waiting for certainty is not a practical solution. "Until the events have actually occurred, we don't know exactly what they will be," he says. "And at that point, it will be too late to take action to avoid them."

In fact, at least some of these changes have already arrived. A September report by a research team led by James Hansen, an adjunct professor in Columbia's Department of Earth and Environmental Sciences, showed that the Earth's temperature is the highest it has been since the end of the last Ice Age—about 12,000 years ago. And higher temperatures in the Indian and Pacific Oceans may translate into more El Niño weather anomalies, such as severe flooding.

Heal approached this policymaking problem by drawing upon ideas that are common in finance. Deciding to reduce emissions is similar to buying an insurance policy for one's house or car, he says. "There are lots of things in everyday life about which we're uncertain: I'm uncertain about whether my car will be stolen; I'm uncertain about whether I'll be taken sick," he says. "We live with all of these uncertainties, and we react to them by buying insurance. So one way of seeing the policies designed to reduce the emissions of greenhouse gases is to think of them as insurance—insurance against the worst possible outcomes that might occur if the more pessimistic models of climate change are correct."

To calculate how much a country should spend on insurance, Heal and his coresearcher came up with a formula that takes into account a nation's degree of risk aversion, the size of the risk it faces and its discount rate. The discount rate—a way to measure the relative weight of future and present costs—is particularly important, because much

One way of seeing the policies designed to reduce the emissions of greenhouse gases is to think of them as insurance.

of the impact of climate change won't be felt for decades. "One of the things that we found in this study is that what you pick as a discount factor matters a great deal," Heal says. The discount rate reflects how much less a country is willing to pay to prevent possible environmental damage that will occur 100 years from now, compared with five years from now.

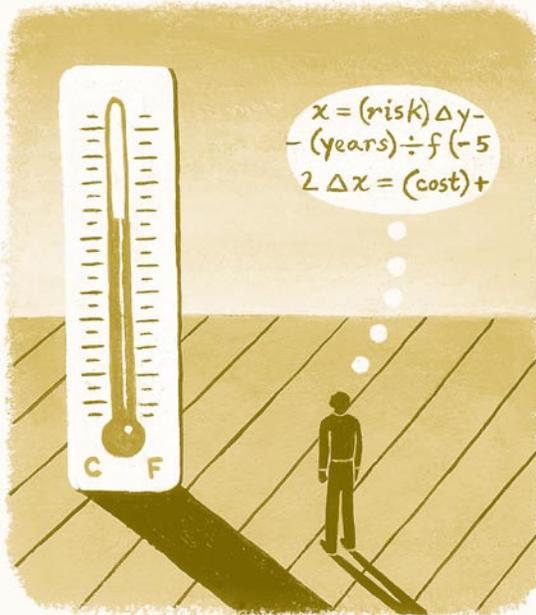
Applying this model to the United States and using a range of scientific estimates on climate change, Heal determined that it might be worth spending from 0.5 percent to 3 percent of national income to reduce the risk of global warming. For other countries, that figure might be higher. "The United States is less threatened by climate change than many other countries and also happens to be less risk-averse," Heal says. Since climate change is not an all-or-nothing scenario, a country can choose to spend more or less to cut emissions and constrain its risk.

"Uncertainty, risk and our attitudes towards risk really do matter in making policy decisions," Heal says. "They should be taken quite explicitly into account in formulating policy on climate change."

### Read More

Heal, Geoffrey, and Bengt Kristrom. "Uncertainty and Climate Change." Working paper, Columbia Business School, 2002.

**Geoffrey Heal** is the Paul Garrett Professor of Public Policy and Business Responsibility at Columbia Business School and a research scholar with the Earth Institute at Columbia University.



Most scientists blame the warming on car emissions and other greenhouse gases, which trap heat in the atmosphere. But since the extent of the problem is unclear and cutting back on emissions might be costly, some U.S. policymakers have argued against taking any action until the uncertainty is resolved.

## Preserving the Delaware

Analyzing the river as an inventory control system yields a solution to an ecological problem.

Two summers ago, at an end-of-season picnic near his summer home in the Catskills, Professor **Peter Kolesar** stopped to chat with members of a conservation group. The group wanted to protect trout in the upper Delaware River by changing the rules that govern its reservoir system, which supplies about half of New York City's water.

Kolesar, a dedicated fly fisherman who has spent much of his career figuring out ways to implement technology more efficiently, gave the group his card. "I thought I would put in an hour or two giving them some quick advice," he says. Instead, he has devoted thousands of hours to the project. Earlier this year, he formed a coalition that united several environmental groups behind the cause, and using advanced statistical analysis and computer simulation models, he devised a proposal to change the way the Delaware River is managed.

For decades, fishermen have complained about the policies governing the Delaware. The rules derive from a 1931 Supreme Court decree written by Oliver Wendell Holmes, Jr., which stated that New York City could divert up to an average of 440 million gallons of water a day from the Delaware River Basin for the city's use. To protect the downriver states of Pennsylvania, New Jersey and Delaware, the decree also required New York City to release enough water from its reservoirs to maintain a minimum flow at a gauge at Montague, N.J. In the 1950s, the agreement was modified to allow New York City to divert as much as 800 million gallons a day to meet the anticipated needs of its growing population.

At the time of the first decree, there wasn't much of a movement to advocate for the river's environmental interests. The plan left trout—a cold-water fish—particularly vulnerable during the summertime, when the river often has low flows. "The river heats up to

an extent in July and August that can very easily kill fish," Kolesar says. On some days, parts of the upper river look like little more than a tiny stream. The low flows expose the riverbanks and strand the insect population, the main food source for trout.

The current system allows the river flows to be highly erratic—posing an even greater threat to the trout and their insect prey, both of which require a steady supply of fresh water to survive. "The decree protected New York City and the down-basin states, but the river itself, particularly the upper river, got shortchanged," Kolesar says. "The upper river has ecological and environmental needs that are not being met."

Working in collaboration with Columbia's Earth Institute and Department of Earth and Environmental Engineering, Kolesar came up with a plan that addresses all of these problems. He calls his proposal an adaptive release policy because, unlike the current operating rules, it takes variable factors into consideration: the seasons, the water needs of trout and the amount of water in the reservoirs. "The basic strategy is, if you have more water, release more water," he says. "If you don't have a lot, you have to be more conservative. It's essentially a feedback mechanism, and that's what makes it work."

His proposal draws upon production principles that have been developed over the last 40 years for application in industry. Kolesar analyzed the Delaware as if it were a Toyota or Procter & Gamble plant. Like a manufacturer, the river is a system that faces a lot of variability, such as rainfall, temperature and the amount of water that has already accumulated. "If you were manufacturing cars or detergent, your issue would



be to control how much inventory you have," he says. "In this situation on the river, the water behind the dam is the inventory."

Kolesar and his conservation coalition—which includes the Nature Conservancy, the Delaware River Foundation and

Trout Unlimited—are now at a critical stage of talks with New York State, New Jersey, Pennsylvania, Delaware and New York City. The current operating rules expire in May, and the parties to the Supreme Court decree must unanimously decide by then how to move forward. While a number of the coalition's ideas have been adopted in principle, an agreement hasn't been finalized, and the recent floods on the Delaware have added new complexities to the negotiations.

Until that deadline, Kolesar will be in contact with representatives of New York City and the four state governments on an almost daily basis. "We've already had considerable success," he says. The mathematical models he developed helped convince authorities that his plan would preserve New York City's water supply even in the hypothetical drought of the century. "When we first presented our idea to New York City and New York State, they said it was an interesting theory but it would never work in practice," he says. "Showing that our plan really would maintain the water supply even in an extreme drought really turned their thinking around."

### Read More

Kolesar, Peter. "Adaptive Release Policies for the Upper Delaware River." Paper presented at the Delaware River Foundation's Day on the Delaware, Deposit, N.Y., August 11–12, 2006.

**Peter Kolesar** is professor emeritus of business and special lecturer in decision, risk and operations at Columbia Business School.

## Fixing Public Schools

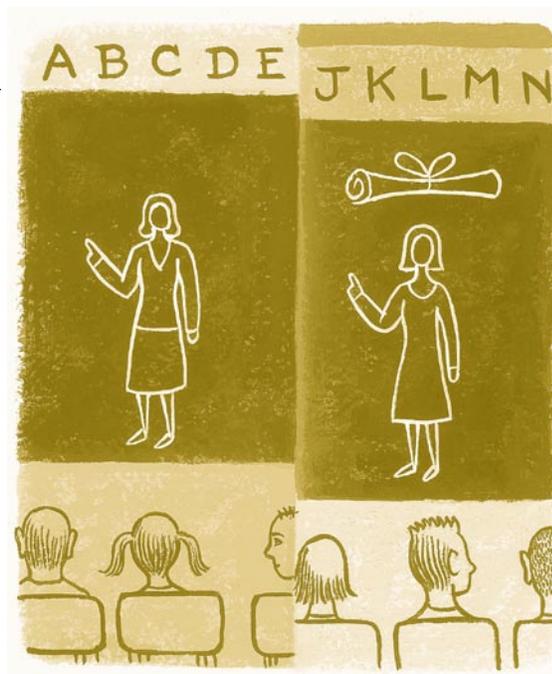
### Does teacher certification affect student performance?

In 2003, New York City fired several thousand uncertified teachers. The city was doing its best to comply with a state law, passed a few years earlier, that said only certified teachers could work in public schools. Professor **Jonah Rockoff** decided to take a look at the performance of these fired teachers. As it turned out, they weren't any less effective, on average, than the certified teachers who remained on staff.

For the past two years, Rockoff has studied the relationship between certification and teacher effectiveness. With his research partners, Thomas Kane of Harvard and Douglas Staiger of Dartmouth, he compared how similar students taught by traditionally certified, uncertified and alternatively certified teachers fared on standardized exams from 1999 to 2005. Because of its size and diversity, New York provided the perfect laboratory. "The good thing about New York City is we have so many data points," Rockoff says. "We can tell whether a result is statistically significant or not, even if it's very small."

Almost every state allows its districts to hire alternatively certified teachers, who account for about one-third of all new teachers hired in the United States each year. Though the rules differ by state, alternatively certified teachers typically must have a bachelor's degree, pass state exams, complete special training and, once they begin teaching, enroll in a master's degree program.

In New York, most alternatively certified teachers come from the Teaching Fellows program, which recruits professionals without any prior teaching experience, puts them through a teaching boot camp and sends them off to the classroom. The city also hires alternatively certified teachers through Teach for America, a nonprofit group that places teachers in school districts across the country, and international recruitment. Under the state's emergency provisions, New York is allowed



to hire alternatively certified teachers to cope with its perpetual teacher shortage. The city hired more than 50,000 new teachers during the years covered by the study.

To measure the effectiveness of the city's teachers, the researchers had to control for factors that might make one group of students perform better than another, such as the students' prior test scores. The study focused on grades four through eight, since all students in those grades must complete standardized city exams.

What they found challenged the conventional wisdom about teacher certification requirements. There were no major differences in performance among students taught by traditionally certified, alternatively certified or uncertified teachers. However, Rockoff and his colleagues found that there were wide disparities in effectiveness within each of the teacher groups.

"We're able to measure pretty accurately at the teacher level how students are performing," Rockoff says. "Having a highly effective teacher or having a mediocre teacher makes a large difference in student achievement." The difference between having a highly effective and a highly ineffective teacher is about one-quarter of a standard deviation, or about half of the achievement gap between students who are poor and those who are not.

The next step for Rockoff and his colleagues is predicting whether a teacher will be effective or not before the hiring decision is made. So far, researchers have had little success answering this question. For example, Rockoff examined teachers' college grade point averages and the selectivity of the undergraduate institutions they had attended. He found little evidence that either is linked to classroom performance, though these are important factors for being accepted into programs like Teach for America.

Rockoff is now working on a follow-up project with incoming New York teachers that will focus on many nontraditional measures, such as personality types and cognitive ability, that may be linked to effectiveness. He will also test whether it is possible to predict effectiveness by studying videotapes of teacher interviews or by observing teachers give a short lesson to a real class. Currently, candidates for both the Teaching Fellows and Teach for America programs must prepare a mock lesson, but they don't actually deliver the lesson to children.

For now, Rockoff suggests that school administrators and policymakers reassess their thinking on teacher qualifications. "Rather than worry about whether a particular teacher has certification or which program they come from, just be worried about whether they're highly effective or not," he says. "That's what really going to make a big difference in student achievement for a district or a school."

#### Read More

Kane, Thomas, Jonah Rockoff and Douglas Staiger. "What Does Certification Tell Us About Teacher Effectiveness? Evidence from New York City." Working paper, National Bureau of Economic Research, 2006.

**Jonah Rockoff** is assistant professor of finance and economics at Columbia Business School.

**THE IDEA:** The U.S. economy has become more stable in the past 25 years in part because the Federal Reserve has done a better job of responding to macroeconomic shocks.

**THE RESEARCH**

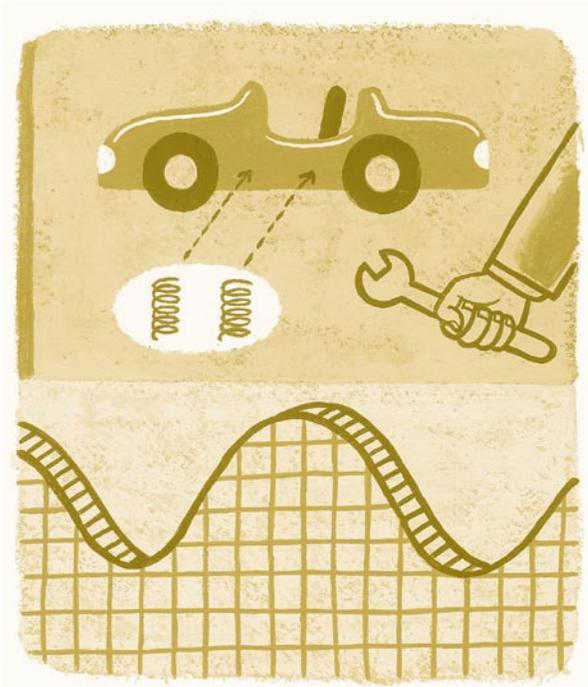
Since the early 1980s, monetary policy shocks—unexpected, exogenous changes in the Fed funds rate—have had a much smaller impact on output and inflation. Previous research suggests that the economy is less volatile because the shocks themselves are smaller. Another possible explanation is that technological and financial innovations have allowed firms and consumers to better cushion themselves from interest-rate fluctuations.

**Marc Giannoni** and Jean Boivin tested the hypothesis that the economy is more stable because the Federal Reserve has gotten better at responding to monetary shocks as well as supply-and-demand shocks. They estimated a

structural macroeconomic model to study the conduct and effects of monetary policy over four decades: 1959–79 and 1979–2002. The findings show that since the early 1980s the Fed has responded more systematically and decisively to fluctuations in economic conditions and inflation expectations.

Giannoni and Boivin conclude that the more stable economic environment is largely due to the Fed's aggressive inflation policy, which has mitigated the impact of economic shocks. The Fed's increased effectiveness played a key role in reducing the volatility of output and inflation, although changes in the size and nature of the shocks were another important factor. The researchers further found that the Fed's post-1980 policy toward supply shocks reduces inflation fluctuations but exacerbates output fluctuations, bringing output closer to its natural rate.

Since the early 1980s, the Fed has responded more systematically and decisively to fluctuations in economic conditions.



**PRACTICAL APPLICATIONS**

**Fed watchers, central bank economists and macroeconomic researchers**

This research can help you understand changes in the transmission of monetary policy to the economy and how the Fed's response to various shocks has changed since the oil-price shocks of the 1970s. These changes suggest that the Fed is now much more determined to combat inflation than it was in the 1970s.

**Read More**

Boivin, Jean, and Marc Giannoni. "Has Monetary Policy Become More Effective?" *Review of Economics and Statistics* 88, no. 3 (2006): 445–62.

**Marc Giannoni** is associate professor of finance and economics at Columbia Business School.

**THE IDEA:** A combinatorial auction—which allows vendors to simultaneously submit multiple bids with different combinations of services and products—reduces costs and improves quality.

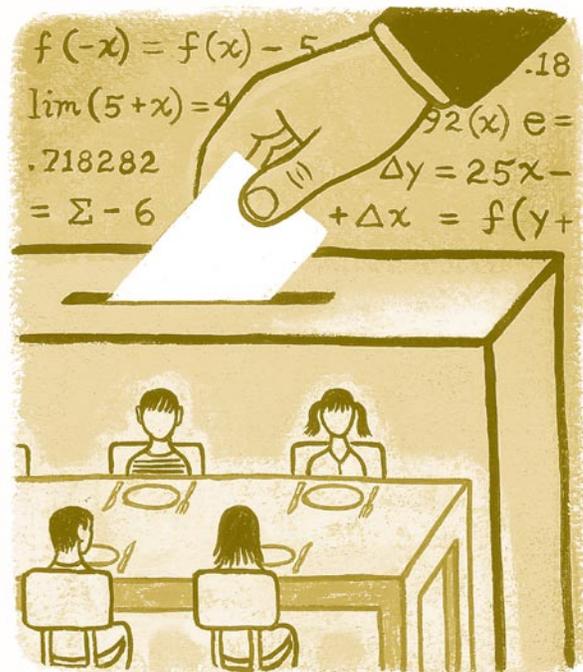
#### THE RESEARCH

Chile spends about \$180 million a year to feed more than 1.3 million children in its public schools. Until 1997, a government agency used a subjective and unwieldy process to award catering contracts for the country's educational system, which includes 14,000 schools in 13 geographic regions. Each potential vendor submitted a bid for a meal plan of its own design. The agency didn't make vendors compete on price, and thereby maximize value, as long as it could find bids that fit its budget.

**Gabriel Weintraub**, working with Rafael Epstein, Lysette Henríquez, Jaime Catalán and Cristián Martínez, designed a new programming model that awards contracts in an optimal manner. The new system assigns bids in a single-round, sealed-bid combinatorial auction. By allowing bids

**A**n auction saves the Chilean government about \$40 million a year, enough to feed 300,000 children.

for different combinations of school districts in various geographic regions, the process allows companies to take advantage of their economies of scale and scope—thereby reducing costs. On the most fundamental level, the model improved the process by making the awards process open and objective. It also standardized the requirements for meals contracts, making the bids readily comparable and making the firms compete on price.



#### PRACTICAL APPLICATIONS

##### Governments

By allowing firms to take advantage of their economies of scale through a combinatorial auction, you can procure a higher-quality product at a lower price. For example, this auction saves the Chilean government about \$40 million a year, enough to feed 300,000 children. You can adapt this model to suit any type of government procurement. Chile now uses a combinatorial auction to purchase optical lenses for children.

##### Firms

The flexibility of combinatorial auctions allows you to submit multiple bids that take advantage of your economies of scale, thereby increasing your profits. Because such auctions use objective criteria to award contracts, they can be a means of reducing corruption and favoritism in government procurement. Smaller firms can find increased opportunity to enter a market using this system.

#### Read More

Epstein, Rafael, Lysette Henríquez, Jaime Catalán, Gabriel Weintraub and Cristián Martínez. "A Combinatorial Auction Improves School Meals in Chile," *Interfaces* 32, no. 6 (2002): 1–14.

**Gabriel Weintraub** is assistant professor of decision, risk and operations at Columbia Business School.

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**THE IDEA:** Laws requiring polluters to disclose information about emissions aren't an effective way to regulate industry if the public can't use the information effectively.

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**THE RESEARCH**

Twenty years ago, the Environmental Protection Agency launched the Toxics Release Inventory, a public database that collects information about hazardous emissions from companies across the United States. The database was seen as an improvement over more costly methods to regulate industry. Rather than monitoring polluters, the agency could simply compile the data and punish firms that failed to report their emissions accurately. And by searching the database, communities could pressure local polluters to cut back on their release of chemicals such as benzene, lead and chromium.

**Chris Mayer**, working with Linda Bui, investigated whether the database was achieving its intended effect. Nationally, emissions fell about 40 percent from 1988 to 1999, suggesting that the database was a success. As a test case, Mayer and Bui examined how homeowners in Massachusetts, where the percentage decline in emissions was near the U.S. average, reacted to information about toxic emissions in their communities.

The researchers studied how changes in emissions affected home prices. This approach allowed Mayer and Bui to determine how homeowners valued a decrease in emissions. (The researchers studied local newspaper readership to control for access to emissions information.) Mayer and Bui found that emissions data didn't translate into a change in home prices. And if the public wasn't placing much of a value on this information, it was unlikely that access to it was inspiring a campaign to pressure local manufacturers to reduce pollution. Though the database had received widespread support from policymakers, it wasn't truly a market-based solution to emission reductions.



**PRACTICAL APPLICATIONS**

**Policymakers and regulators**

You can use this research to evaluate the potential effectiveness of right-to-know laws. While requiring firms to release data about their toxic emissions may be laudable, the data are of little value if the public isn't able to use them effectively. The findings contradict the underlying idea that an informed public alone can serve as industry regulators. If you are a policymaker who advocates disclosure rules as a way to keep industry in check, you can use these results to assess how communities can process information more effectively.

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**Read More**

Bui, Linda, and Christopher Mayer. "Regulation and Capitalization of Environmental Amenities: Evidence from the Toxic Release Inventory in Massachusetts." *Review of Economics and Statistics* 85, no. 3 (2003): 693–708.

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**Chris Mayer** is the Paul Milstein Professor of Real Estate and director of the Paul Milstein Center for Real Estate at Columbia Business School.

## Lending to the Poor

### Q & A with Patrick Bolton

#### How can credit markets in developed countries help low-income families break the cycle of poverty?

**T**he book you edited with Howard Rosenthal came out of a conference on credit markets for the poor in developed countries. How do the credit problems of poor people in countries like the United States differ from those in developing countries?

A lot of the work in developing countries that's attracted attention recently has to do with microcredit and group lending, which has been pretty successful in some countries. There have been some attempts at replicating similar experiments in the United States and other developed countries, and they don't seem to work in developed countries. So that's one important difference.

One finding that has really been a big eye-opener for me is a chapter by Timothy Bates on equal-opportunity lending programs. Most of the time these programs don't work well in two respects. First, they often don't reach the people they're intended to target. And second, when they do reach the people they're intended to target, often these people start businesses that end up being unsuccessful.

Often people who are approached to set up a business on very favorable lending terms may not have the skills to run a business. They may not have investment opportunities that are worth investing in. A better policy might be to direct them to training programs and encourage them to take on more qualified jobs rather than become entrepreneurs.

The presumption is that poor people are not able to become entrepreneurs because they are credit rationed and we're going to lend to them on more reasonable terms, and then magically that should set them up as successful entrepreneurs. I view Bates's chapter as having very broad lessons even for developing countries because we're

now being told that microcredit could be a model for lifting millions out of poverty. But it's a very specific model. It's a model where we make them become entrepreneurs of some kind. And the reality is not everybody is really able to be an entrepreneur.

The other point Bates makes is that these programs often aren't able to target truly poor people who are willing to take on a business. So they lend to people who could actually borrow from a bank but obviously prefer to borrow on subsidized terms. Money is channeled to these entrepreneurs, who are more likely to be successful. They are then pooled with the unsuccessful entrepreneurs and help justify the program because they raise the success rate. But in fact the funds are misdirected.

#### Can you talk a little bit about the credit options that are currently available to low-income households in the United States?

A big development that John Caskey discusses is the growth of payday lending. It's now overtaken pawnshop lending, and one of the companies operating payday lending is a large, publicly traded firm. The interest rates can be astronomical. The amounts borrowed at any one time are relatively small: \$200 or \$250. The mechanism is you sign a postdated check that you deposit against the loan.

There's been phenomenal growth in this market. You might think that the people who make use of this facility are just people who happen to have an unexpected, temporary cash shortfall. But this chapter highlights that often people are coming back on a regular basis. As with credit cards, most of the money gets made on so-called revolvers—people who roll over their debts. Eventually they may default, but



We're seeking to make small-scale entrepreneurs out of households that may not have the skills, the preferences or the appetite for risk taking.

— Patrick Bolton

in the meantime the lender has really made a lot of money.

You have to have a bank account to get a payday loan because you have to be able to write a check that you put as a deposit. And we know this is a highly profitable business to be in. Maybe we might be able to lower the cost of borrowing for some households if we increased entry into this market—particularly entry by banks themselves. Why aren't the banks offering this facility at lower rates to their own customers? I think there are banking regulations that probably make this impossible or unappealing. That would be an area that I would single out for possible regulatory reform.

#### Community lending organizations have proven to be very successful in Bangladesh and other developing countries. Why do those lending models seem to be less effective in the United States?

In a chapter called "Networks and Finance in Ethnic Neighborhoods," Robert Townsend compares access to credit in three ethnic communities: a predominantly African-American community in Chatham, a suburb of Chicago; a community of Hmong immigrants from Laos that emigrated to Minneapolis–St. Paul after the Vietnam War; and an ethnic Mexican community on the South Side of Chicago. What he finds is that there are large variations

across these three communities in how much informal community lending goes on. His chapter reveals just how important a role credit markets organized around community networks can play.

Social and cultural background plays an important role in fostering these community lending arrangements. One family member wants to start a business and is able to raise small amounts from a whole network of friends and relatives. So one very important variable is how close these family ties are. And in some of these communities there are very close-knit ties.

The reason more formal community lending programs don't work well in developed countries seems to be that they have only been tried in communities

### **Is microentrepreneurship a silver bullet for reducing poverty?**

That's a question I think nobody has an answer to. Some of these programs have been very successful, but the early programs in developing countries were subsidized in one form or another, and they were small-scale. I have no doubt that in most countries if you look for a community with the right ethnic and cultural background, you will be able to make it work. But the question is how can you scale this up? Can you scale this up to reach millions of households, millions of borrowers? That's a much harder goal, and I'm not sure that's ever going to be achievable.

The other thing that people haven't really paid enough attention to is what Bates's chapter focuses on for the United States. Is this really the right way of addressing poverty? We're seeking to make small-scale entrepreneurs out of households that may not have the skills, the preferences or the appetite for risk taking. If we used those subsidies for other types of interventions, we might be more successful. Another important issue is what's the psychological impact if you give someone a loan and tell them that you are doing them a special favor and then they fail in spite of getting preferential treatment? Haven't you made them even worse off than they were before?

### **Can you talk briefly about your own research on credit markets?**

What prompted our conference and the book is some earlier work I did with Howard Rosenthal on political intervention in debt contracts—interventions like debt moratoria or bailouts in an economic crisis. We study how these interventions come about. What kinds of political coalitions get formed to pass such legislation in the midst of a crisis? To what extent should you try and tie politicians' hands to prevent such political interventions? And what kind of intervention should you allow? What's better, a moratorium or a bailout? Who gets hurt? Who benefits?

People have often decried bailouts, saying that they encourage lenders to lend recklessly, which is true. But if your starting point is that you have credit rationing to begin with, then at the margin at least, that's a policy that goes in the right direction. For moratoria, it's the other way around. If you make it too easy to cancel debts ex post, then you undermine credit markets ex ante. And then the question is how do you want to organize the political process to limit those moratoria? What kind of majority rule should you have, and what kind of limits on the extent to which you can cancel debts?

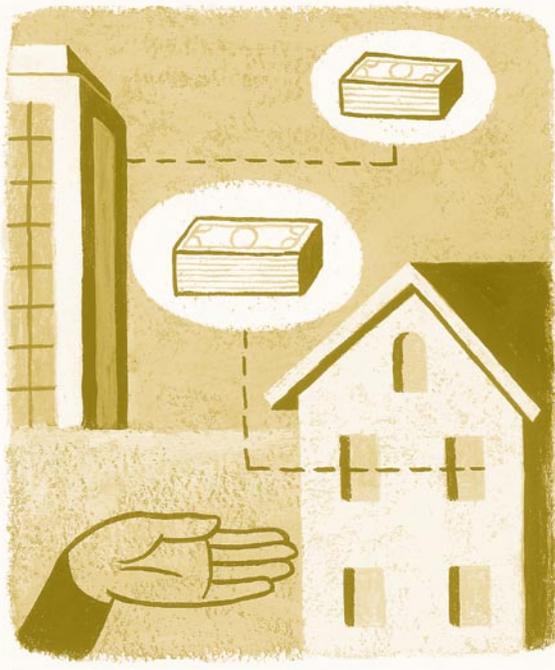
When you look at the political process, you find that the big innovations in credit markets always come after a crisis. The crisis creates a political constituency for intervention. So, for example, in the 19th century the United States passed a bankruptcy law following a crisis. When things improved people realized, well, we've overreacted, and the pendulum swung back in the other direction.

Does this mean that all forms of political intervention in credit markets are bad? Our study shows that, to the contrary, such political intervention can bring about improvements by helping complete debt contracts that often do not anticipate or contain adjustments for exceptionally hard economic slumps. For example, debt contracts in Louisiana did not contain any special provisions for a major catastrophe like Hurricane Katrina. We argue in our article that in such cases it is desirable both ex post and ex ante to allow for political intervention in the form of either bailouts or debt moratoria.

### **Read More**

Bolton, Patrick, and Howard Rosenthal, eds. *Credit Markets for the Poor*. Russell Sage Foundation: New York, 2005.

**Patrick Bolton** is the Barbara and David Zalaznick Professor of Business at Columbia Business School.



that were not that well integrated. The other factor may have to do with the costs of running these programs. In the United States, the geographical dispersion is so large that the costs of reaching people, handing out the money in small quantities and monitoring the loans swamps the returns that you might get. And unlike in developing countries, you have to compete with all sorts of other forms of lending, so the selection effect may be worse.

## A Return to the Banker's Honor Code

Q & A with Jonathan Knee

**Jonathan Knee wants to bring back the traditional values of investment banking's early days—before junk bonds, LBO funds and the Internet bubble changed everything.**

**I**n your new book, *The Accidental Investment Banker: Inside the Decade That Transformed Wall Street*, you talk about how the Internet boom in the 1990s transformed the world of investment banking.

For most of the last century, investment banking firms all bought into what Ron Chernow has described as the gentleman banker's code. This referred not only to how they dealt with each other but how they dealt with clients. Clients were for life—and actually, longer than life, since clients were handed down from one generation of bankers to the next. Indeed, the entire idea of calling on a new client or trying to steal a client was total anathema.

In my book, the diminutive former chimney sweep Sidney Weinberg, who

He was so devoted to clients that he would get off of a train if it served food produced by a competitor to one of his clients. In the current world, that kind of loyalty is seen as completely anachronistic.

Weinberg died in 1969 after having run Goldman Sachs for four decades. His son, John Weinberg, died in August. The heart of this book is really about how the investment banking world changed between the death of Sidney and the death of John.

### How did the culture start to change?

In the 1970s, several things happened that shifted the kind of business these firms conducted. This was the decade when the first M&A departments sprung up. Before, mergers and acquisitions were something that you frequently did for free for a long-standing client. Similarly, junk bonds as a business didn't exist before the early 1970s in a big way. These firms also started establishing their own LBO funds and investing their own money in deals. There's nothing evil about any of these changes, but each had, in its own way, an incremental impact on the culture.

In the context of junk bonds and M&A, the point is that firms used

to do business only with companies that met very rigorous criteria. Unless you were the quality of company that the firm wanted to be associated with, they wouldn't deal with you. Well, once you agree to be in the business



Firms once seriously asked whether they *should* underwrite a company, not just whether they *could*.

— Jonathan Knee

of selling companies—which is what M&A is—you'd be happy to sell many companies that are much smaller and less established, even if you wouldn't be happy to underwrite them in the public markets.

I interviewed a number of bankers who were in the early M&A group at one firm, and they talked about how their colleagues looked down on them for associating with these less highfalutin clients. And junk bonds, by definition, are for more speculative credits. So with M&A departments and junk bonds, the standard of who these institutions would do business with started to go down.

A subtler distinction is in establishing M&A as a separate business. Making it a separate business rather than part of the overall client relationship suddenly moved the focus of these institutions from relationships toward transactions. And with the establishment of LBO funds, these firms crossed an even more significant line. For the first time, these institutions were putting themselves at cross-purposes to their established clients. They could be in the position of competing to buy an asset for their own account that a long-standing firm client wanted to buy.

All of these tensions were managed reasonably well for many years, but the Internet boom changed the balance fundamentally.

**F**irms were faced with a very stark choice: they could let their market share decline, or they could let their standards decline. To a greater or lesser degree, everybody chose the latter.

ran Goldman Sachs for 40 years, is cast as the unlikely hero of the story. Weinberg was an iconic figure in early investment banking, and he believed that the role of the banker was to serve the client, the firm and the public.

### How did the boom upset the equilibrium?

With the arrival of Internet companies, the volume of business and the potential for profit exploded to such a dramatic degree that the firms were faced with a very stark choice: they could let their market share decline, or they could let their standards decline. To a greater or lesser degree, everybody chose the latter.

The standards decline affected how they managed conflicts, the quality of the firms they were willing to underwrite and the extent to which they were focused on the short term rather than the long term. It became overwhelming about the transaction rather than the long-term relationship. Everything went out of whack, and it profoundly undermined the perceptions of these institutions by both clients and employees.

### You refer to the attitude of bankers during this period by an acronym—IBG YBG.

That meant, “I’ll be gone, you’ll be gone.” It was something that people said on the high-yield floor, reflecting the sentiment that the ultimate fortunes of the companies being sponsored were someone else’s problem. This exemplified the basic failure of investment banks during the boom era. Firms once seriously asked whether they *should* underwrite a company, not just whether they *could*.

### Has the atmosphere improved, now that the good times have passed?

Most investment bankers want to do good by their clients, but different institutions have done a better or worse job at fixing the problems. Broadly, when the bust happened in the early 2000s, these institutions as a group did not take that as an opportunity to redress the excesses. Instead what you saw at most firms was incredible infighting over the few remaining scraps.

### Some reviewers have described your book as a tell-all. What sort of reaction have you received from colleagues?

A number of commentators have suggested that I’d never eat lunch in this



town again. But the interesting thing is that many investment bankers who have been around for a while are equally sentimental about what things used to be like and are equally frustrated about how things have become. So I’ve actually gotten a fair amount of positive feedback.

Also, I wanted to reach current investment bankers. Most investment bankers today have been in the business for five years or less. They have no historic context for what they do and why things are the way they are. Without historic context, it makes it much more difficult to make the right choices.

There are a lot of really good people in the industry. Some of these issues are structural, but many of the worst excesses are really the result of individual decisions by individual people. It’s really a question of what choices you

take. I wouldn’t have written the book if I didn’t think people could make better choices in the future.

### Read More

Knee, Jonathan. *The Accidental Investment Banker: Inside the Decade That Transformed Wall Street*. New York: Oxford University Press, 2006.

**Jonathan Knee** is director of the Media Program and adjunct professor of finance and economics at Columbia Business School and a senior managing director at Evercore Partners.

## Why Has Africa Been Left Out of the Business Revolution?



**William Duggan, who worked for two decades on the problem of poverty in Africa, advocates an alternative form of aid for the world's poorest countries.**

Africa today has the most extreme poverty in the world. How has the West responded to this human suffering? Thanks in part to celebrities like Bono and Angelina Jolie, calls for increasing aid to Africa are becoming popular, even sexy. Bill and Melinda Gates are using their fortune to fight disease in Africa, particularly AIDS. And Warren Buffett, a graduate of the School, recently announced that he would give more than \$30 billion to the Gates Foundation.

There's also a coordinated campaign to end poverty in Africa and other regions, a project called the United Nations Millennium Development Goals. These eight goals, which the UN hopes to achieve by 2015, include reducing extreme poverty by half, halting the spread of AIDS and ensuring universal primary education. Any role business might play appears only once on this list, in the very last item: a global partnership for development. By this, the UN means encouraging business to help with aid work, not business as an event in itself. The agents that are working toward these goals are governments and NGOs, not companies.

It's a noble effort, but does it work? Last year, the UN came out with its first five-year report on the Millennium project, and the picture was not very good. The UN has made little progress on any of these initiatives—because it didn't receive enough money, the report said.

After 40 years of aid that has climbed into the trillions, I think it's time to say that the lack of money isn't the real problem. The system just doesn't work. Sub-Saharan Africa is poorer now than

it was in 1960. But the UN report did include one encouraging note about the elimination of poverty. In the last five years, two countries that are not part of the Millennium project showed tremendous improvement: China and India. The reason, the report said, was the development of business institutions and the private sector in these countries.

I am an economic historian by training, and I cannot think of a single country in which the private sector has not been the key to prosperity. Malaria and AIDS have become diseases of poverty. Florida once had malaria but got rid of it through prosperity. Today, rich countries have protection from AIDS; poor countries get AIDS.

When trying to figure out how to help Africa, it helps to remember the tremendous success of the Marshall Plan. It pumped \$13 billion—the equivalent of \$80 billion in today's dollars—into European economies after World War II. The money was used not for charity but to support the private sector. The plan gave loans to businesses, and when these loans were repaid, the proceeds were used to rebuild the commercial infrastructure. Likewise, South Korea, Japan and Taiwan all benefited from massive private-sector aid programs after World War II.

Back in the 1960, development agencies tried to figure out how much capital poor African countries would need to finally take off. They came up with an enormous number and calculated further that the private sector was too small or too weak to absorb that capital. So they launched government-sector development programs, and these not only failed but squeezed out the private

sector where it was needed the most. The agencies had good intentions, but their strategy was fundamentally flawed.

The World Bank and the International Monetary Fund track business indicators around the world, such as how easy it is to start a business. In Canada, it takes two days. In New Zealand, it takes just two and a half hours. In Mozambique, it takes 153 days. Indicator by indicator, it's very clear that Mozambique is not interested in the business sector. Like most other African countries, Mozambique is very happy to get governmental and nongovernmental aid.

Many advocates for aid to Africa seem to be unaware of how important the private sector is for growth. The movie studios that made Jolie a millionaire are private companies, not NGOs. The same for the record companies that gave Bono his fortune. Gates and Buffett are masters of the private sector. They have forgotten how they themselves became rich.

This isn't to say that charity has no role in African development. But right now, only a tiny fraction of aid goes toward private-sector development. One very simple solution would be to increase that to 50 percent. If half of the aid that currently goes to Africa were spent on the development of the private sector and business institutions, Africa would be in much better shape. Frankly, time is running out.

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**William Duggan** is associate professor of management at Columbia Business School.

## How Can Rich Countries Best Promote Economic Development in the World's Poorest Nations?



**Paul Tierney, chairman of TechnoServe, an organization that provides technical assistance to entrepreneurs in developing countries, explains what works and what doesn't.**

The biggest impediment to the economic development of third world countries is their marginalization and isolation from the international marketplace. They have trouble “getting in the game” because of prejudicial trade policies, tariffs and other restrictions imposed by the developed countries. Changing those policies would allow people in poor countries to utilize their comparative advantages and lift themselves out of poverty.

The other overwhelming need in the developing world is for education and communication. When entrepreneurial people acquire knowledge and the means to communicate, they become economically competitive and can put their skills to work in their own countries. The more the world is knitted together, the more the knowledge that exists in one geographic area becomes available to other geographic areas.

A third area of great import to developing economies is market linkages so that producers of goods and services have contacts with exporters, end users and joint-venture partners. As these linkages increase, the rules of economic activity become more transparent, and corruption and illegal activity subside.

So what should the advanced countries be doing to help lift the developing world out of poverty? The aid channels that are most effective are finance and technical assistance to entrepreneurs in the private sectors of the poorest nations. In my work with TechnoServe, what we see in Africa, Latin America and India is a great potential entrepreneurial class that needs to be helped through technical assistance and capital.

The poorest countries of the world are still primarily agricultural economies. In sub-Saharan Africa, for example, a lot of people are producing basic crops like bananas, cashews and coffee. We've established sector specialists who understand what it takes to grow and process a cashew, for instance, and can apply best practices to countries with slightly different growing seasons or export patterns. In Mozambique and Tanzania and other countries in East Africa, that knowledge transfer has led to great efficiencies in the processing and export of cashews. We've tried to do the same thing with coffee and bananas, and we do it in partnership with large companies and successful entrepreneurs.

One thing that does not work is simply throwing money at a problem. Another is making grants without providing the proper training or the controls for monitoring the return on investments. I'm also very skeptical about aid that goes through governments. The U.S. aid budget often seems to be a disguise for pumping up U.S. exports or supplying military equipment to other countries.

I like the concept of the Millennium Challenge Corporation (MCC), which aims to reward countries that have been successful in their initial stages of economic development and democratic capitalism. But thus far very little money has been dispensed through the MCC, and because the aid is channeled through governments, it will likely be less effective than aid that is given directly to entrepreneurs and private-sector businesses.

Whenever a government provides assistance to another government, two political processes are engaged.

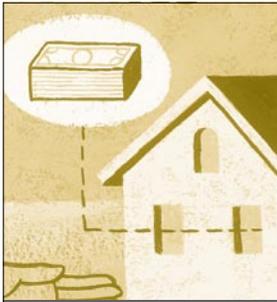
There's very little upside for either government. But there's a lot of downside, because the governments are accountable to their voters, so when mistakes are made someone makes an issue of it. At best, each side has to go through elaborate precautions in order to avoid the appearance of graft or corruption. At worst, corruption sets in and money is siphoned off to self-serving bureaucrats.

When aid is distributed through private-sector venture capitalists or small and medium-size lending or investing institutions, there's both upside and downside. The applicants for the money are quick to respond, and they get treated more fairly and less politically. Entrepreneurs react to incentives, and successful entrepreneurs become effective cultural and political change agents.

The United States could have a much greater impact in the developing world if it looked at aid as an investment instead of a charity program. The Enterprise Development Funds that the U.S. government set up in the 1990s to stimulate investment in Eastern Europe provide a successful model. Those funds relied on federal subsidies in the early stages and then grew into self-sustaining direct-investment vehicles. There is no reason why that approach, with some modifications, could not work equally well in the poorest countries of Africa, Latin America and Asia.

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**Paul Tierney** is adjunct professor of management, teaching in the Entrepreneurship Program, at Columbia Business School and chairman of Columbia University's SIPA Board of Advisors. He is also a general partner of Aperture Venture Partners and chairman of TechnoServe.



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## IN THIS ISSUE . . .

Can microcredit **help the poor in developed countries?** Does **teacher certification** matter? What motivates our **charitable impulses?** In this issue, Suresh Sundaresan, Jonah Rockoff and Ray Fisman take innovative approaches to social enterprise and public policy. Geoffrey Heal tackles the question of how much countries should pay to **insure against climate change**, while Peter Kolesar draws on his operations expertise to **save trout** in the Delaware River. In his new book, Jonathan Knee makes a rallying call to bring back the **investment banker's honor code**.

To read more about the ideas covered in this issue—and to explore research findings on other business topics—visit the Columbia Ideas at Work Web site.

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