



# Tuck Forum

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India's hub-and-spoke  
health care system  
brings efficiency  
and lower costs.

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# Health Lessons From India



**Vijay Govindarajan**  
shows hows Indian  
hospitals reduce cost  
and improve care.

**T**he hospital of the future is operating now. And it's in India.

At a time when health care costs in the United States threaten to bankrupt the federal government, this new breed of Indian hospitals is performing the same medical procedures for 5 percent of the cost. That may not seem surprising—after all, wages in India are significantly lower than they are here—until you consider two points.

First, these hospitals are cheaper even when you control for wages. If doctors in India were paid the equivalent of U.S. wages, the cost of procedures would still be five times less. Second, the medical outcomes in these hospitals are as good, or in some cases even better, than those in the U.S.

Those were the surprising findings of Vijay Govindarajan, the Earl C. Daum 1924 Professor of International Business. In a study of nine Indian medical institutions to appear in *Harvard Business Review* in November, Govindarajan found that when it comes to health care innovation, they surpass the efforts of other institutions around the world.

Faced with the constraints of extreme poverty, these Indian hospitals have had to operate more nimbly and creatively in order to serve the vast number of poor people in need of medical care in the subcontinent. “Growing up in India, I could see firsthand that we had too many problems and too few resources,” says Govindarajan, author of the book *Reverse Innovation*. “The only way you can solve that challenge is through innovation.”



But how do they do it? Govindarajan identified three major trends that have allowed these Indian hospitals to cut costs without sacrificing quality of care. The first is something he calls a hub-and-spoke design. Traditionally, Indian hospitals, like those in the U.S. and Europe, were founded in major population centers. In order to reach the masses of people in need of care, however, they began opening smaller clinics in more rural areas feeding into the main hospital, similar to the way that regional air routes feed into major airline hubs.

This tightly coordinated web cuts costs by concentrating the most expensive equipment and expertise in the hub, rather than duplicating it in every village. At the same time, it also creates specialists at the hubs who perform high volumes of focused procedures, developing skills that help improve quality. By contrast, hospitals in the U.S. are spread out and uncoordinated, duplicating care in many places without high enough volume in any of them to provide critical mass of procedures. “We have too many hubs and not enough spokes,” says Govindarajan.

The second innovation that has led to the success of the Indian model is something Govindarajan calls task shifting. These hospitals transfer responsibility for routine tasks to lower-skilled workers, leaving more expert doctors to handle only the most complicated procedures. Again, necessity was the mother of invention: since India is dealing with a chronic shortage of highly skilled doctors, hospitals have had to maximize the duties they perform. Required to only perform the most technical part of an operation, doctors at these hospitals have become incredibly productive—for example, performing up to five to six surgeries per hour instead of the one to two surgeries common in the U.S.

This innovation has also reduced costs. After shifting tasks from doctors to nurse practitioners and nurses, some hospitals have even created a lower tier of paramedic workers with two years training to perform the most routine medical jobs. In one hospital, these workers now comprise more than half of the workforce. Compare that to the U.S. system, where the first cost-cutting move is often to lay off support staff, shifting more mundane tasks such as billing onto doctors overqualified for those duties.

Finally, the hospitals in India create efficiencies through good, old-fashioned frugality. “There is a lot of waste in U.S. hospitals,” says Govindarajan. “You walk into a hospital here and it looks like a four-star resort; half of the building has no relation to medical outcomes, and doctors are blissfully ignorant of costs.” By contrast, Indian hospitals are fanatical about wisely shepherding resources, for example sterilizing and reusing many surgical products that are routinely discarded in the states. A \$160 steel clamp used in heart surgery might be tossed after one use in the U.S., while one hospital in India will reuse it 50 to 60 times before throwing it away.

These hospitals have also pursued innovations in how they compensate doctors in order to reduce costly, unnecessary procedures. Instead of the fee-for-service model, which creates an incentive to perform more procedures whether a patient needs them or not, doctors at Indian hospitals are paid through fixed salaries—remaining the same no matter how many procedures are done—or team-based compensation, which uses peer pressure to incentivize fewer tests and procedures.

Taken as a whole, these innovations have created a system that bears more resemblance

to an assembly line than what we think of as a traditional health care model, says Govindarajan. But that’s not a bad thing. “People only thought that automobiles could be produced on assembly lines,” he says. “But it turns out health care can also be produced on an assembly line when people show us how it can be done.”

That may happen here sooner than we think. One renowned Indian heart surgeon is currently building a 2,000-bed “health city” employing these practices in the Cayman Islands, a short flight from the U.S. In the same way that Southwest revolutionized the airline industry by showing competitors that the same service could be provided more cheaply, Govindarajan believes that facilities such as these in and around the U.S. will put pressure on other institutions to innovate as well.

“Health care costs have always been a concern, but now they are paramount,” says Govindarajan. “Within 10 years they will become a crisis.” The example of these innovative hospitals from India could help alter that fate.

—Michael Blanding

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V. Govindarajan and R. Ramamurti, “Health Care Delivery Innovators in India,” *working paper*.

Ravi Ramamurti is the CBA Distinguished Professor of International Business and Strategy at the D’Amore-McKim School of Business.

# The Regulator's Dilemma



In a new working paper, professor of accounting **Phillip C. Stocken** shows that accounting standards and regulatory enforcement must be carefully coordinated to drive economic growth.

In a speech at the 2012 U.S. Innovation Summit, Patrick Gallagher, the undersecretary of commerce for standards and technology, argued for putting innovation at the center of the nation's economic agenda. "Well over half of the economic growth in this country since the end of World War II has been directly attributable to technological innovation," he reported. "It accounts for most of the positive difference in per capita income. It drives almost all of the growth in economic output and productivity."

It's fair to assert, therefore, that as the U.S. emerges from the Great Recession, it must create a welcoming environment for innovators and those who invest in them. For Tuck accounting professor Phillip C. Stocken, a crucial feature of this environment is the right combination of accounting standards and regulatory enforcement—

the technical parameters managers navigate when drumming up investments in new technology.

"When you read the popular press, you see the claim that economic development requires strict accounting standards and a high level of enforcement," Stocken says. "Yet when you talk to private equity investors, they claim that the cost of Sarbanes-Oxley has made it much more costly to exit their positions. That tends to stifle economic development."

To understand the nature of this dilemma and arrive at the optimal balance of standards and regulation, Stocken and Volker Laux, an accounting professor at the University of Texas at Austin, have written the working paper "Accounting Standards, Regulatory Enforcement, and Investment Decisions." They found that, depending on the circumstances, standards and enforcement should either move in the same direction (as compliments), or in opposing directions (as substitutes).

The paper presents a model familiar to the business world: a manager who has a contractual arrangement with his firm to find innovations and then secure outside funding to acquire the technology. The manager's compensation is predicated on his or her success in this endeavor. Such an arrangement, though common, creates a moral hazard—the manager might have an incentive to misreport on the profitability of an innovation, hoping to obtain investment capital despite facts that would deter investors. The challenge is to calibrate standards and enforcement to limit over-investment but still encourage innovation.

Working with this model, the authors arrived at mathematical proofs for a manager's behavior under two scenarios: when compliance with accounting standards is easy or hard to verify. For easily verifiable compliance—such as reporting when a purchase took place—Stocken and Laux found that standards and enforcement should be complimentary. For example, if standards are tightened, enforcement should be stricter too. Tighter standards make it harder for the manager to manipulate a report, and absent stricter enforcement, a manager would seek higher compensation from the firm for the trouble of producing a report that appears to comply. The authors call this the "compensation effect." This increases the firm's cost of doing business, which slows innovation. But if enforcement is also tightened, the manager has more fear of being audited, which leads him to produce a more accurate report and not seek extra compensation for the risk of being penalized.

Where compliance is difficult to verify—such as in recognizing an impairment in equipment—Stocken and Laux found that standards and enforcement should be substitutes. For example, if accounting standards are increased, the manager raises his own standards for what is reasonable to report. This is called the "deterrence effect," and it results in higher reporting quality—even without increasing enforcement. If enforcement is increased along with the standard, it imposes a high cost on the manager and he is discouraged from finding innovations; alternatively, the manager demands a higher performance bonus, which encourages manipulation to secure the bonus. "If you don't coordinate standards and regulation," Stocken explains, "you get this paradoxical result: heightening the level of noncompliance and reducing overall welfare."

Aside from advising domestic agencies on the interplay of standards and enforcement, these findings provide a counterpoint to advocates of harmonizing U.S. GAAP (generally accepted accounting principles) with international standards. "Our model argues that standards and regulations require careful coordination in order to maximize social welfare," Stocken says. "The problem with International Financial Regulation Standards is they were set in an environment with a different regulatory setting. To think that those standards could naturally be imported to the U.S., which has a different set of regulations, is problematic."

—Kirk Kardashian

*P. Stocken and V. Laux, "Accounting Standards, Regulatory Enforcement, and Investment Decisions," working paper.*

Volker Laux is an accounting professor at the University of Texas at Austin.

# Saving the Children, Not Just the Child



Marketing professor  
**Eesha Sharma**  
shows how charities can  
win donations without focusing  
on a single beneficiary.

Child Fund International's television commercials are hard to ignore. In one, actor Alan Sader sits on a bench outside a mud hut next to a thin girl, who looks wearily at the camera. "This little girl is Ellen," says Sader. "She tells me that her tummy aches from constant hunger. And tonight like many nights, she'll go to bed hungry again. Ellen is praying for a sponsor like you, just pick up the phone."

The emotional impact of such commercials is undeniable. Researchers have shown that people tend to give more to charities when their donations benefit a specific individual, rather than a class of beneficiaries—like all malnourished children in Central America, for example. Yet this phenomenon is problematic. Funneling donations to specific individuals isn't always feasible or efficient—particularly when beneficiaries are in remote areas or charities

are focused on issues like research or preventative aid.

New research by Eesha Sharma, an assistant professor of business administration at Tuck, and Vicki Morwitz at New York University's Stern School of Business, examines this issue. In particular, the researchers sought to uncover situations when people might give as generously to multiple recipients as to an individual like Ellen.

"There is diminished sensitivity to the value of life when the number of potential beneficiaries is larger," says Sharma. "People are more sympathetic to a single individual and that sympathy decreases when it's multiple beneficiaries—whether it's millions or just two."

In general, research has shown that many donors give to charity primarily because they form an emotional connection to the intended beneficiary. Since much research already shows that people will form a tighter emotional bond when donating to an individual (rather than a group), Sharma and Morwitz decided to focus on changing donors' perceptions of the efficacy of giving to multiple recipients.

To do this, they recruited individuals to participate in a series of laboratory experiments. In one of the experiments, participants were told that by giving money to UNICEF, their donations would be used to give either one child or multiple children the first vaccine out of a series of six—and that each vaccine significantly improved the health of the recipients. A second set of participants was given the same message but told that the first vaccine would only improve the health of its recipients if the other shots were administered.

What Sharma and Morwitz found was that participants showed increased emotional concern and generosity toward multiple beneficiaries in the scenario where participants were told their money would be more efficacious. Moreover, participants' concern was heightened to such a degree that their generosity to the multiple beneficiaries surpassed their generosity toward the single beneficiaries. Interestingly, donations to the single beneficiaries were actually lower when participants were given the more effective immunization scenario than the less effective one. The authors speculate that this finding may be because when people feel their donations will be more consequential, they will want to distribute it more widely.

In another experiment, the two researchers sought to determine if the generosity of donors to either single or multiple beneficiaries could be increased by helping the donors to feel like they generally make a positive impact in the world. First, participants were given an exercise in which they were asked to write about a task important to them that they either had or had not completed effectively in the past. They were then given a charitable donation scenario and asked to give to either one child or a group of eight children.

The results showed that when the subjects had been asked to recall and write about something they had failed, they were more likely to donate to a single child than the group of eight. But when they were asked to write about something they had done successfully, they chose to give to the group of children rather than the individual by a nearly two to one margin.

Much evidence suggests that it is not easy to increase giving to groups of people because giving is driven by emotional concern, which is muted for multiple beneficiaries. However, Sharma and Morwitz suggest that enhancing perceived efficacy might be one tool organizations can use to increase both emotional concern and giving to multiple beneficiaries. The findings could help charities that are unable to focus donors on single beneficiaries to raise money more effectively. "By boosting the perceived impact of a charitable organization, a pro-social initiative, or a given donor, appeals that focus on multiple beneficiaries can be more effective," says Sharma.

—Jason McLure

*E. Sharma and V. Morwitz, "Saving the Masses: The Impact of Perceived Efficacy on Charitable Giving to Single vs. Multiple Beneficiaries," under review at the journal Organizational Behavior and Human Decision Processes.*

Vicki Morwitz is the Harvey Golub Professor of Business Leadership at the Leonard N. Stern School of Business.

# What the Bankers Knew



When it comes to buying and selling their own homes, traders at the heart of the housing bubble did worse than most, says Tuck finance professor Ing-Haw Cheng.

As the United States still struggles to recover from the financial crisis of 2008, a lot of blame has been passed around for the proximate causes of the event. Some point to the 1999 repeal of the Glass-Steagall law as the watershed moment, as it allowed banks to recouple their deposit and investment functions, creating the opportunity for conflicts of interest. But deregulation is an amorphous enemy, so the public has been quick to blame investment bankers themselves. Many find it hard to imagine that bankers missed seeing large-scale problems in housing markets before others. Among the worst fears are that bankers knew they were creating toxic mortgage-backed securities but did so anyway because they stood to make a lot of money in fees and bonuses.

To assess whether those most involved in the market were aware that real estate prices were about to go over a cliff, Ing-Haw Cheng, an assistant professor of business administration at Tuck, decided to examine something the traders should have protected most vigilantly: their own pocketbooks. Along with Sahil Raina of the University of Michigan's Ross School of Business and Wei Xiong of Princeton University, Cheng researched the personal real estate transactions of hundreds of mid-level mortgage securities traders between 2003 and 2006, the period during which the real estate bubble was inflating.

They hypothesized that given the traders' inside knowledge, they should have been less likely to buy new homes during the run-up in prices, or more likely to divest or downsize any existing homes. This approach allowed the researchers to examine traders' beliefs, independent of any poorly-designed job incentives. They then compared the results with the real estate transactions of plausibly uninformed control groups consisting of lawyers and Wall Street stock analysts over the same time period.

Cheng and his co-authors found that those who dealt in mortgage-backed securities did worse in timing their own real estate transactions than those in the control groups. Those working in securitization were more likely to buy second houses or move into more expensive homes during the 2003–2006 price run-up than the average equity analyst or lawyer. Several of those homes were also subsequently sold at low prices during the bust.

One important nuance, Cheng offers, is that bankers may have been aware of problems with subprime

mortgage-backed securities, but still blind to the impending collapse of the broader real estate market. And this is despite their active participation in that broader market. "It was surprising to find that those working in the mortgage-backed securities industry showed a lack of cautiousness in their own real estate transactions, particularly since their human capital is tied to the health of the housing market," says Cheng. "They seemingly took extra money from bonuses and raises and put it into homes, without regard for the fact that house prices were high and that many would lose their jobs if housing markets cooled off. Needless to say, housing markets collapsed, and these bankers didn't make out too well."

The research also suggests that certain subgroups of those in the mortgage-backed securities industry may have been overly optimistic in their home purchases. For instance, those who lived in the fizziest real estate markets, who purchased second homes particularly aggressively, may have been influenced by the sentiment in those areas. Meanwhile, those who worked on the sell side, and at firms with particularly high exposure to the housing market, had poor performance in their home portfolios. These groups may have been influenced by group think—where the desire to minimize conflict within the group leads to support for incorrect decisions or inaccurate observations.

"Much of the discussion these days revolves around whether bankers knowingly deceived people," says Cheng. "There's little evidence that these bankers anticipated the broad crash in housing. Instead, we should be asking if bankers themselves got caught up in the hype of the bubble, blinding them to any warning signs they might have been able to see otherwise."

Cheng's work demonstrates financial firms' misguided incentives are only part of the story behind the trading in mortgage-backed securities during the run-up to the financial crisis. Those most heavily involved in the market showed their belief in the unsustainable pace of home price increases through their personal real estate transactions—and lost, just like everyone else.

—Jason McLure

*I.H. Cheng, S. Raina, and W. Xiong, "Wall Street and the Housing Bubble," working paper.*

Sahil Raina is a Ph.D. candidate at the Ross School of Business. Wei Xiong is a professor of economics at Princeton University.



# In Brief

## identifying the corporate type

Tuck associate professor Adam Kleinbaum has advice for multi-divisional corporations seeking to fill positions in their corporate offices: Look to the best social networkers in your line staff.

Kleinbaum and his co-researcher Toby Stuart, a professor of entrepreneurship and innovation at the Haas School of Business, advance this recommendation based on their recent study of email communications at an IT-based conglomerate with 29 divisions. Their study analyzed millions of email messages exchanged among more than 23,000 employees and compared the networks of the line staff to those of the corporate headquarters and its sales staff.

"Our results," the researchers write, "show that employees either sort or are selected into different roles based in part on the structure of their networks: employees with broader, sparser, more integrative networks are more likely to transition into the corporate staff."

That finding, they say, suggests that not only should a corporation have the right departmental structures in place to fully achieve its diversified corporate strategy, but it should also consider "populating those structures with the right people—namely 'corporate types' who are more prone to create broad networks."

A. Kleinbaum and T. Stuart, "Inside the Black Box of the Corporate Staff: Social Networks and the Implementation of Corporate Strategy" forthcoming in the *Strategic Management Journal*.

## reducing wait times and improving customer service

We're more apt to associate the term "caseworker" with social workers like psychologists and probation officers. But "if you look around," says Tuck operations management professor Robert Shumsky, "you see this caseworker system all over the place: people juggling multiple customers at the same time."

Theoretically, the case manager system is an efficient way to deploy human resources among customers who need one-on-one attention. In practice, it's difficult to determine the caseload that balances customer waiting times with quality of service and caseworker idleness.

"The empirical literature shows there tends to be a degradation of service as the caseload gets higher," Shumsky explains. So Shumsky and co-authors Fernanda Campello and Armann Ingolfsson set out to build a model that would account for the random nature of customer service interactions while

computing the optimal caseload given certain conditions. Their model is contained in a new working paper entitled "Queuing Models of Case Managers."

In the paper, the authors compare their model to the results from caseload heuristics commonly used by organizations. Often, those informal rules result in caseworkers being overloaded with clients or not busy enough. A detailed computer simulation can help managers arrive at the optimal caseloads, but that process is time consuming, taking as much as an hour or two.

The model developed by Shumsky and his co-authors is different. It uses a mathematical formula that can be solved quickly by a computer. Aside from proving itself more accurate than the common heuristics, and just as accurate as a simulation, the model takes less than a second per situation.

F. Campello, A. Ingolfsson, and R. Shumsky, "Queuing Models of Case Managers," working paper.

## shedding light on tax shelters

Corporate tax shelters began attracting extra scrutiny after the collapse of Enron Corp. in 2001. But even then, investors had little insight into the tax strategies of publicly-traded companies. That began to change in 2006, when the Financial Accounting Standards Board issued a new rule, known as FIN 48, requiring disclosure of the reserves companies set aside to cover potential losses from uncertain tax positions.

Was the size of those reserves an indication of tax strategies of dubious legality? To find out, Tuck associate professor Leslie Robinson and colleagues gained access to private corporate disclosures of tax shelter involvement made to the IRS Office of Tax Shelter Analysis from 2006 to 2009. Then they cross-referenced a company's non-public tax shelter disclosures against its publicly disclosed tax reserve.

In their recently published paper, "Do Publicly Disclosed Tax Reserves Tell Us About Privately Disclosed Tax Shelter Activity?", the authors show that publicly disclosed tax reserves are strongly correlated with tax shelter use. This provides investors and other firm stakeholders with more confidence to gauge whether a company is using tax shelters based on this new public disclosure.

P. Lisowsky, L. Robinson and A. Schmidt, "Do Publicly Disclosed Tax Reserves Tell Us About Privately Disclosed Tax Shelter Activity?" *Journal of Accounting Research*, 51(3): 583-629 and *Recovery Capacity Investments*

## on the web

WWW.TUCK.DARTMOUTH.EDU/RESEARCH



### For Fallen Brand Leaders, an Uphill Climb

New research from **Peter Golder** indicates that brand leadership is unlikely to be regained once lost.



### A Tale of Two Networks

A research project organized by Tuck's **Center for Global Business and Government** exposes students to the way faculty create new knowledge.

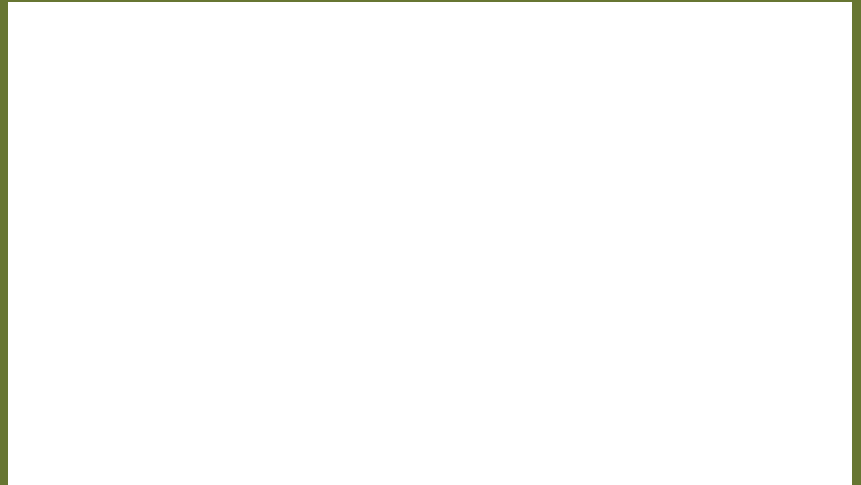


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## FIRST CLASS



### TUCK CENTER & INITIATIVE HIGHLIGHTS

### Glassmeyer/McNamee Center for Digital Strategies

Alva Taylor, an associate professor of business administration at Tuck, has been appointed faculty director of the Glassmeyer/McNamee Center for Digital Strategies (CDS). The Center, endowed by alumni and technology venture capitalists Ed Glassmeyer T'68 and Roger McNamee T'82, is dedicated to advancing the theory and practice of management in the digital, networked economy. Like other centers and initiatives at Tuck, the CDS fulfills its mission through scholarly research, dialog with executives, and curriculum innovation. In his new role, Taylor will join executive director Hans Brechbuhl and his administrative team. Taylor has been affiliated as a professor with the center for several years, focusing on digital business. In that context, he has conducted research in the areas of innovation in database management, computer networks, and video game development. Taylor's research examines organizational innovation processes, particularly the challenges of developing new products under technological change. His research has been published in the top strategy and management journals, including *Administrative Science Quarterly*, *Organization Science*, and the *Academy of Management Journal*.

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