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# KRANNERT SCHOOL OF MANAGEMENT

## Highlighting Management Department Faculty Research

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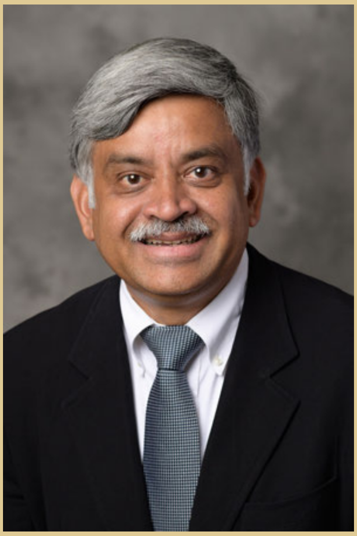
*by Ananth Iyer*

Department Head, Management Department



Welcome to the inaugural research newsletter showcasing faculty in the Management Department at the Krannert School of Management! Our faculty are involved in cutting edge research across all fields of business. In the pages that follow you will read a snapshot of what our amazing faculty are doing. You will learn about the impact of incentives and penalties on financial manipulation of reckless investing. Using data from an Italian highway, you will learn about the role of mandated electronic signs displaying upcoming gas station prices. You will read about the healthcare system – with one paper providing suggestions on how to match doctor couples to residency programs, and another examining whether the computerization of order entry frees up nurses to provide more care or less. With presidential elections looming, you can read about how to expand the role of battleground states and attract more attention from candidates. Finally, research on work-family policies suggests that it is time to understand how work place policies might assist employees in balancing their various roles, and our faculty can provide suggestions on how. As you browse through these articles, please note that they are the results of substantial research time and thought, and represent but a slice of the wonderful faculty researchers in the management department at Purdue University. Enjoy the learning!

# CAN HIGHER PENALTIES ACTUALLY ENCOURAGE GOOD COMPANIES TO MANIPULATE THEIR FINANCIAL REPORTS MORE?

*by Melvin Durai*

A study finds that while penalties on companies for misconduct in financial reporting help to improve investment efficiency, increasing such penalties may induce entrepreneurs with good projects to offer rosier pictures of their prospects.

In September 2018, Orlando-based SeaWorld Entertainment and its former CEO agreed to pay a penalty of more than $5 million to the Securities and Exchange Commission for misleading investors about the impact of the documentary film Blackfish on the company's reputation and business.


*Source:*
*Lin Nan, Xiaoyan Wen (2019) Penalties, Manipulation, and Investment Efficiency. Management Science 65(10):4878-4900.*

SeaWorld had failed to acknowledge, in a timely manner, that the 2013 film – critical of SeaWorld's treatment of its orcas – was partly responsible for declining attendance. As a result, SeaWorld's stock price plummeted, shareholders suffered significant losses and the SEC's hammer fell.  SeaWorld joined a long list of companies that have paid penalties to the SEC for financial reporting and disclosure violations.

Companies often face scrutiny and potential penalties when they perform poorly after raising expectations through glowing financial reports, laudatory press releases, or even hyperbolic tweets.  Penalty costs can be immense, going well beyond what's paid to the SEC. They can include settlements to class-action lawsuits, secondary liabilities, attorney fees, and reputational losses. Penalties can deter bad firms from financial manipulation, but higher penalties may actually encourage good firms to manipulate their reports more, according to a new study by Lin Nan, Associate Professor of Accounting at Purdue's Krannert School of Management, and Xiaoyan Wen, Assistant Professor of Accounting at TCU's Neeley School of Business.

The study, entitled "Penalties, Manipulation, and Investment Efficiency" and forthcoming in the journal *Management Science*, explores whether penalties imposed on companies that perform poorly following positive reports help to improve investment efficiency, creating an environment where good projects are funded and investors are protected from bad projects. Using a model to analyze various settings, Nan and Wen found that larger penalties induce good firms to manipulate their reports more in two particular scenarios: when a good firm has a much better chance of success than a bad firm and when the reimbursement proportion – the amount of any penalty that's returned to investors – is high.

Good firms are willing to manipulate more in these scenarios because they're confident of success and want to do everything they can to attract investors, Nan said.  That's a little counter-intuitive, but our model shows that sometimes it happens," she said.   "They know that they are good. They are on the right track. They want to show the world that they are on the right track."  Is this type of manipulation a bad thing? No, it's actually beneficial for good firms to show their best side, Nan said.  "The point is that manipulation does not always bring damage," she said. "Sometimes you want the truth. You want to manipulate to tell the truth."  However, there's always a chance that a good firm will fall short of expectations, incurring a penalty itself.  Whether such penalties, which could potentially cripple a good firm, create a healthier investment environment is a major focus of Nan's and Wen's study.

The researchers found that penalties are ideal when a good project has a far better chance of success than a bad project or when investors are reimbursed at a high rate through the penalties.  "The reimbursement plays a very interesting role here," Nan said. "If a large part of the penalty can be reimbursed to investors, then the investors are not as concerned, because even if they invest in the wrong project, they will still get reimbursed. The investors are more likely to fund a project."  But when the reimbursement rate is low and a good project's prospects aren't much better than a bad project's, it's best to impose no penalty.

This is particularly true in high-risk industries, Nan said. "If you impose a large penalty based on a good signal at an earlier date and a bad outcome, then you actually kill a lot of innovative ideas," she said. "Due to the high risk of failure, firms may be reluctant to innovate and investors reluctant to invest."

# LESSONS FROM AN ITALIAN HIGHWAY: WHEN DRIVERS LACK PRICE INFORMATION, THEY PAY CONSIDERABLY MORE AT THE PUMP

*by Melvin Durai*

Drivers are drawn to gas stations with lower prices, but because of frequent price changes and the difficulty of comparing prices among nearby stations, they can't be sure they're getting the best deal. In some situations, such as when drivers exit highways to visit gas stations, they may not have a clue what prices they'll encounter.

Gas stations derive a large portion of their market power from price uncertainty, according to a study by Federico Rossi, Assistant Professor of Marketing in Purdue University's Krannert School of Management, and Pradeep K. Chintagunta, Professor of Marketing in University of Chicago's Booth School of Business.

*Source:*
*Rossi, Federico and Chintagunta, Pradeep K., Price Uncertainty and Market Power in Retail Gasoline: The Case of an Italian Highway (March 22, 2018). Chicago Booth Research Paper No. 16-15*


One of the price signs installed along the Italian Highway. It displays gasoline and diesel prices of the next four stations along the road.

While previous studies have documented the connection between price information and market prices, the researchers are able to quantify the impact of consumers' price uncertainty on gas prices. Using data collected from an Italian highway, they find that when consumers lack price information, gas stations are able to charge 31.3 percent higher margins than when consumers are fully informed.

"There is a price for everything, even information," Rossi said. "Even information that sounds so intangible and difficult to quantify, it's something that you can quantify. You can even quantify how much it's worth to consumers to give them – versus not give them – price information." The study, entitled "Price Uncertainty and Market Power in Retail Gasoline: The Case of an Italian Highway" and published in the September-October 2018 issue of Marketing Science, shows how new electronic signs on Italian highways have affected gas prices and the shortcomings of such signs, creating a marketplace where some drivers are well-informed and others are uninformed.

In 2007, the Italian Parliament passed a law requiring large electronic signs to be installed on highways, each sign displaying the prices of a group of upcoming gas stations. By glancing at a sign, motorists can learn the prices of as many as four gas stations located on a highway segment, about 17 miles from each other. Before these signs were installed, drivers on the Autostrade – the Italian national system of motorways – could not view prices without pulling up to the pump. Unlike in the United States, individual gas stations aren't required to display their prices on large signs. Drivers needing gas have to leave the highway and enter a service area, where a particular gas station has a virtual monopoly.

While the new electronic signs have increased price information, their location before a group of gas stations and not before every gas station means that drivers who enter the highway just past the sign or between the stations will not know the prices. "You have two types of people inside the highway: some are knowledgeable and some are not knowledgeable," said Rossi, who analyzed data on traffic patterns, gas prices and reward programs. "The fact that you have people who are not knowledgeable drives up prices." Indeed, the researchers found that in highway segments where a larger proportion of traffic entered the highway past the sign, gas station prices were higher.

The researchers focused their study on Autostrada A14, the second longest Italian motorway, which runs from the southern city of Taranto to the northern city of Bologna. They chose this motorway because it consistently has four gas stations in each highway segment, with each electronic sign displaying eight prices (four for gas and four for diesel). Each sign also displays the logo of the company supplying gas to each station.

To measure the impact of varying degrees of price information on gas prices, the researchers simulated four scenarios. In the first scenario, before the 2007 law was passed, drivers have no prior price information and learn prices only when they enter a service area and stop at a pump. The second scenario is the current one on Autostrada A14, with a single electronic sign before every four stations. In the third scenario, each station has a single sign displaying the price at that station, as required in the United States. The fourth scenario, used as a benchmark, is one of perfect price information, where an electronic sign is installed before every gas station, displaying the prices at all four stations in each highway segment

The researchers found that gas stations are able to charge 31.3 percent higher margins in the first scenario, when consumers have no price information, compared to the fourth scenario, when they're fully informed. About two-thirds of this margin disappears in the second scenario, the mandated one on Italian highways. In terms of money, the researchers find that the current policy saves drivers €0.38 each time they take the highway.

One of the more interesting findings is that the third scenario, having one sign at each station as required in the United States, is almost as effective as having perfect price information (fourth scenario). Several factors contribute to this. One is that drivers often wait until their gas tanks are almost empty before filling up. They can't wait for the next station. Another factor is that consumers are loyal to particular stations and don't like to substitute one for another. "Giving information about the other gas station doesn't really change your mind, regardless of the price," Rossi said. "You really don't want to switch to that station." While installing more signs on Italian highways would be costly, they would easily pay for themselves in consumer savings within a few years, Rossi said.

*Gas stations are able to charge 31.3 percent higher margins in the first scenario, when consumers have no price information, compared to the fourth scenario, when they're fully informed*

# INCENTIVES FOR RECKLESS INVESTING? HOW CDO COLLATERAL MANAGERS CONTRIBUTED TO THE FINANCIAL CRISIS OF 2007 to 2009

*by Melvin Durai*

*Source: Chernenko, Sergey (2017). The front men of Wall Street: The role of CDO Collateral Managers in the CDO Boom and Bust. Journal of Finance 72(5): 1893-1936.*

Collateralized debt obligations (CDOs) and other structured products played a significant role in the credit boom of the early 2000s and the ensuing financial crisis of 2007 to 2009. Contributing to the economic disaster were the actions of a number of CDO collateral managers, who packed their products with inferior components: risky portions of private-label residential mortgage-backed securities (RMBS).

*Chernenko's findings suggest a way for regulators to track potential instability in a market.*

Research by Sergey Chernenko, Associate Professor of Finance in Purdue's Krannert School of Management, shows why these collateral managers were willing to risk their reputations and select low-quality collateral for their CDOs. Investment banks underwriting the low-rated securities offered an incentive that some could not resist: if they selected the securities for their CDOs, they'd be rewarded with more CDO management assignments.

"The collateral managers wanted to attract more business," said Chernenko, who conducted his research while working at Ohio State University. "The way to attract more business is to effectively cater to the investment banks who were underwriting these securities. What I tried to show is evidence that themanagers who were more willing to have their CDOs invest in securities that underwriters couldn't sell to anyone else appear to have been subsequently rewarded with more assignments of CDOs to manage."

From 2002 to 2007, about $661 billion worth of non-AAA-rated private-label RMBS worth were issued. During the same period, about $860 billion worth of CDOs were issued, the bulk of which was invested in asset-backed securities (ABS). In his paper "The Front Men of Wall Street: The Role of CDO Collateral Managers in the CDO Boom and Bust," published in the October 2017 issue of *The Journal of Finance*, Chernenko studies the identity, incentives and performance of collateral managers of ABS CDOs issued from 2002 to 2007. This paper fills a gap inacademic literature by illuminating the role of collateral managers in the financial crisis, while also adding to the growing body of literature on conflicts of interest in the securities market.

To conduct his research, Chernenko gathered information on 136 collateral managers from a variety of sources, including deal prospectuses, Standard and Poor's pre-sale and CDO manager focus reports, and the SEC's Form ADV. Chernenko finds evidence to support the view, popularized by Michael Lewis in his book The Big Short, that collateral managers acted as front men for the investment banks, engaging in a quid pro quo that impaired their independent judgement in selecting securities for their CDOs.

A number of SEC administrative proceedings and private lawsuits were brought against collateral managers, alleging that they misrepresented who would make collateral selection decisions. Most notable are those involving deals sponsored by Magnetar Capital, a suburban Chicago hedge fund. As reported by ProPublica reporters Jesse Eisenger and Jake Bernstein, who won a Pulitzer Prize for their coverage of the CDO industry, Magnetar sponsored tens of billions of dollars of new CDOs and at the same time placed bets, through credit default swaps, that portions of its own deals would fail. To increase the probability that the CDOs would fail and Magnetar would profit handsomely on the short bets, the hedge fund pressured CDO collateral managers to include riskier assets in their CDOs. The "Magnetar Trade," as the deals were known, were not illegal, according to Eisenger and Bernstein, but "illustrate the perverse incentives and reckless behavior that characterized the last days of the boom."

Chernenko notes in his paper that not all collateral managers were willing to abdicate their responsibility for selecting collateral. “Many worried about the possibility of negative reputational effects for their non-CDO businesses,” he writes. He cites the example of Ischus Capital Management, which was unwilling to invest in a portfolio of securities suggested by Magnetar, responding in an email that“we will not assemble a porfolio we are not proud of.” Lending credence to the frontman narrative, Chernenko finds that specialized managers in particular were willing to cater to CDO underwriters by investing in low-quality collateral that investment banks were unable to sell to anyone else.

Diversified managers were less likely to engage in bad deal-making and risk their reputations. They were concerned about harming the franchise value of their other businesses. As a result, they lostmarket share over time, but the CDOs that they assembled performed better than those of specialized managers. Not all diversified managers were able to maintain high standards. Chernenko’s research, while not ruling out alternative explanations, suggests that competition from specialized managers produced a “race to the bottom” that ensnared diversified managers as well, resulting in blemished reputations. Institutional investors punished such managers by withdrawing from mutual funds managed by firms whose reputations had been stained.

Reputational risks are more significant to many collateral managers than financial risk, Chernenko notes, because collateral managers do not necessarily invest in the CDOs that they manage and because a large portion of their management fees comes in the form of upfront and senior fees that do not depend much on the CDO’s performance.

Chernenko’s findings suggest a way for regulators to track potential instability in a market. In actively growing markets, if specialized managers' market share outpaces diversified managers' or if most of the activity is driven by new entrants who don’t have much reputation or franchise value at stake, that could be a sign of trouble ahead. "It could be just one of a number of different signals that regulators pay attention to," Chernenko said.

*Chernenko notes in his paper that not all collateral managers were willing to abdicate their responsibility for selecting collateral. “Many worried about the possibility of negative reputational effects for their non-CDO businesses,”*

# A NEW APPROACH TO MATCHING COUPLES TO RESIDENCY PROGRAMS

*by Melvin Durai*

Every year, about 20,000 seniors at U.S. medical schools eagerly await the third Friday of March. It's known as Match Day, the day when these soon-to-be doctors learn which hospitals they've been matched with for their residency training.

For more than 65 years, the matches have largely been made through the National Resident Match Program (NRPM), also known as The Match, which owes its longevity and high rate of participation to its effectiveness.

*Source:*
*Nguyen, Thành, and Rakesh Vohra. 2018. "Near-Feasible Stable Matchings with Couples." American Economic Review, 108 (11): 3154-69.*

*"Essentially by reallocating the jobs a little bit, we can make sure that the market is stable,"*

Doctors and hospitals submit lists of their top choices, known as "rank order lists," and the NRMP uses an algorithm to match them. The matching is considered stable if no doctor and hospital can both fare better (move to a higher preference on their lists) by matching with each other outside the NRPM. When individual doctors submit preference lists, the algorithm, based on the famous Gale-Shapley “deferred acceptance” method, can always find stable matches.

But it gets more complicated when couples are involved. In 2019, about 1,100 couples asked to be matched, hoping to attain positions in the same geographical location. Each couple links its rank order lists through NRMP, which matches them to the most preferred pair of programs where they've been offered positions. When couples enter the picture, stable matchings are not always possible. However, since the late 1990s, the Roth-Peranson algorithm, a modified version of the deferred acceptance algorithm, has been successful in producing stable matchings. The algorithm is first run without couples, then couples are added one at a time, and anyone displaced is allowed to re-enter.

The algorithm is still very heuristic," said Thanh Nguyen, Associate Professor of Quantitative Methods in Purdue's Krannert School of Management. "Theoretically, we don’t really understand why it works so well." Researchers attribute the success of this algorithm partly to its application in a large market with random preferences and a small proportion of couples. They've shown that when the proportion of couples increases, stable matchings are far less likely. This is important because the proportion of couples (or pairs) varies in other countries or other settings. Without stable matchings, participants may abandon the centralized market, triggering a string of departures that lead to the collapse of the market.

Nguyen and his co-author, Rakesh Vohra of University of Pennsylvania, have proposed an entirely different approach to couples matching, one that finds stable matchings regardless of market size, randomness and the proportion of couples. In their paper "Near-Feasible Stable Matchings with Couples," published in the November 2018 issue of The American Economic Review, they show that stable matchings can be achieved for couples by altering the initial capacities of hospitals.

It's not uncommon, they state, for hospitals to adjust their capacities. The NRMP lets a hospital choose an even or odd number of physician residents, which suggests that the hospital can reduce its capacity by one. Residency slots sometimes go unfilled or get transferred to another hospital, which also shows flexibility in the number of positions available.

The researchers use an algorithm that, unlike prior algorithms employed in matching problems, does not use the Gale-Shapley deferred acceptance algorithm. It instead uses a combination of Scarf's lemma and the iterative rounding method. They acknowledge that even a change of 2 slots can be dramatic at certain hospitals, particularly those in rural areas, where a small number of slots may be available. To mitigate this, they've designed their algorithm to preserve the capacity of a rural hospital if no couple applies to it.

Their initial simulations of the algorithm show that only a small proportion of the hospitals need to adjust their capacities for all the matches to be stable. In their first set of experiments, based on 200 randomly generated instances involving 270 doctors and 18 hospitals, they found that when the proportion of couples is 30 percent only 7.39 percent of hospitals need to adjust their capacity. Of those, 7.17 percent need to change by one position (up or down) and only 0.22 percent need to change by two positions.

Even when the proportion of couples increases to 90 percent, more than 75 percent of hospitals need not change their capacities, and only 2.53 percent need to make a change by 2 positions. "Essentially by reallocating the jobs a little bit, we can make sure that the market is stable," Nguyen said. What's also notable is that hospitals with low capacities are largely able to maintain their capacities. At a coupleproportion of 30 percent, only about 2 percent of hospitals with a capacity of 2 or smaller needed to change their capacities.

The researchers also conducted a set of experiments based on 1,000 incidents involving 500 doctors. The couples in these incidents had weakly responsive preferences and were thus known to produce stable matchings. These experiments allowed the researchers to see how their algorithm would perform in instances where stable matchings are known to exist. Their algorithm returned stable matchings in all cases. The Roth-Peranson algorithm, on the other hand, often fails to find stable matches when a high proportion of couples are involved.

Nguyen's and Vohra's methodology may be used to redesign the resident matching programs in countries where the proportion of couples is high. It can also be used in other settings, such as when siblings are choosing schools or when teachers are assigned to pairs of majors. "The methodology applies to a broad range of other problems," Nguyen said.

*Nguyen and his co-author, Rakesh Vohra of University of Pennsylvania, have proposed an entirely different approach to couples matching, one that finds stable matchings regardless of market size, randomness and the proportion of couples.*

# DOES TECHNOLOGY REPLACE NURSES? NOT NECESSARILY

*by Melvin Durai*

*Source:*
*Susan F. Lu, Huaxia Rui, Abraham Seidmann (2018) Does Technology Substitute for Nurses? Staffing Decisions in Nursing Homes. Management Science 64(4):1842-1859.*

Nurses have many duties, but none is more important than providing bedside care to patients. Even so, nurses have traditionally spent a large portion of their workdays on other tasks, including searching for supplies, filling out paperwork and ordering medicine.

In recent years, however, the adoption of technologies such as the computerized provider order entry (CPOE) has significantly eased the paperwork burden on nurses, giving them more time to spend on direct patient care. But information technology (IT)-enabled automation isn't always a boon to nurses.

*The substitution effect occurs when nursing labor is substituted by technology. The complementarity effect occurs when technology improves nurse productivity to such an extent that a nursing home can significantly boost its overall quality and market position by hiring more nurses. Technology magnifies the benefit of hiring even a single nurse.*

As a research study co-authored by Susan F. Lu, Associate Professor of Supply Chain & Operations Management in Purdue's Krannert School of Management, shows, some nurses may lose their jobs when automation arrives at their workplaces. But the reverse may happen at other healthcare facilities: new technology may spark the hiring of more nurses. It all depends on where the facility falls in the spectrum of quality. If it's already providing great care, it's more likely to cut nursing jobs when IT-enabled automation is adopted, but if it's on the lower end of the quality range, it's more likely to increase staffing.

Lu and her co-authors, Huaxia Rui and Abraham Seidmann of University of Rochester's Simon Business School, explain why this happens in their research study, entitled "Does Technology Substitute for Nurses? Staffing Decisions in Nursing Homes" and published in the April 2018 issue of *Management Science*. Focusing their study on nursing homes and using IT data from 2006 to 2012, the researchers found that licensed-nurse staffing levels in high-end nursing homes decrease by an average of 5.8 percent after the adoption of CPOE, whereas at low-end nursing homes, they increase by an average of 7.6 percent.

The interplay of two competing effects – substitution and complementarity – determines whether a nursing home will hire more licensed nurses or reduce its staff. The substitution effect occurs when nursing labor is substituted by technology. The complementarity effect occurs when technology improves nurse productivity to such an extent that a nursing home can significantly boost its overall quality and market position by hiring more nurses. Technology magnifies the benefit of hiring even a single nurse.

In low-end nursing homes, the complementarity effect dominates the substitution effect. The low-end nursing homes can use the advantage of technology adoption to improve their competitive advantage in the market," Lu said. "With the help of technology, their nurses are able to spend more time with patients at the bedside, which improves their care quality. Because of this, the quality of the nursing home improves and they can attract more patients, especially the profitable ones. As a result, they think that hiring more nurses is better for the development of the nursing home."

In high-end nursing homes, the complementarity effect isn't very strong, largely because their beds are already taken. "Even if they improve their quality, it doesn’t help them increase the number of lucrative patients," Lu said. "So they don't have great incentive to have higher quality than what they had before, because they're already at capacity."

With all their beds filled and little incentive to improve quality, these high-end nursing homes try to become more profitable by reducing costs. "They think they can reduce the number of nurses, but maintain their quality level with the help of technology," Lu said. "They have enough lucrative patients, so attracting more patients doesn't help them too much."  Not surprisingly, the researchers found that CPOE adoption increases the quality ratings of a nursing home by 6.9 percent. To make this determination, they used five-star quality ratings from 2008 to 2012 as their clinical quality measure. Developed by the Centers for Medicare & Medicaid Services (CMS), the ratings are based on 10 dimensions of resident clinical outcomes.

Another significant finding is that automation allows nursing homes to admit more Medicare and private-pay residents and fewer Medicaid residents. Medicare and private-pay residents are more profitable for nursing homes and expect higher quality care.  Using data from 2006 to 2012, the researchers determined that nursing homes with CPOE admitted 14.7 percent fewer Medicaid residents than nursing homes that hadn't yet adopted CPOE.  "When some nursing homes' quality improves, profitable patients will switch to high-quality homes," Lu said. "And less profitable patients will move to low-quality nursing homes. So in general, the market is in equilibrium."

CPOE adoption did not affect total admissions, only the assortment of residents at each nursing home. Finding beds in nursing homes has long been a challenge for Medicaid residents. Many have needed to put their names on waiting lists. Technology has not worsened this, Lu said. By improving the overall care quality in nursing homes, it has benefited Medicaid residents as well as others.

*The low-end nursing homes can use the advantage of technology adoption to improve their competitive advantage in the market and hire more nurses.*
*These high-end nursing homes try to become more profitable by hiring fewer nurses and reducing costs.*

# THE EDGE OF RISK: NOW IS THE TIME TO MOVE THE NEEDLE ON US WORK-FAMILY POLICIES

*by Ellen Kossek*
*Basil S. Turner Professor of Organizational Beharior/Human Resources*

The U.S. has been slower and less effective than many other countries in actively providing paid public and private sector policies supporting employees' child and elder care needs. Eighty-three percent of the U.S. workforce lacks access to paid family leave to care for a new baby or a sick family member. The economic impact of this trend is apparent: More than half of prime workforce age women with children under eighteen list child care barriers as the reason for lack of labor market participation.

A transforming workforce and growing competitive pressures in hiring and retaining skilled labor make now the perfect time to act — and some companies have advanced and advocated for strong, forward-thinking benefit programs. Still, the lack of a comprehensive national policy endangers not only the economy, but also society more broadly.

*Source: Ellen Kossek*
*Publisher: Brink*

## Lagging Behind Other Countries Among

41 countries included in a study, the U.S. is the only one that does not provide paid maternity, paternity or parental leave in any form to the general workforce population — leaving out over100 million workers who might benefit. The U.S.'s main family leave policy, the Family Medical Leave Act (FMLA), provides only 12 weeks of unpaid leave for an employee to care for a child, elder or themselves. But this policy doesn't effectively support parental labor force participation, as it is most frequently used for personal illness. Moreover, many parents simply cannot afford to use FMLA to take unpaid leave: They need the income to be able to provide for their families. Many parents today don't feel they can afford to cover rapidly rising child care costs.

Aside from the FMLA, the U.S. also relies on a patchwork system of voluntary private employer initiatives, such as paid parental leave and sick time and tax-free spending accounts for child care and elder care. However, many of these policies are offered primarily by larger employers — while small employers make up 98% of U.S. firms.

The U.S. is distinctive in its work-family policy approach. It has a minimalist government intervention, market-based employer approach, where an unregulated free-market economy — and little or no work-family policy regulation — are viewed as efficient. Within this system, employers have tremendous discretion to determine whether and the extent to which they will offer work-family policies such as paid parental leave. Caregiving decisions are often framed as the purview of individual employees.

On the other hand, countries with strong parental leave policies implemented alongside other strategic policy priorities, like gender equality, reap significant social benefits. Take Iceland, for example: 90% of fathers there take parental leave, and the country enjoys some of the highest participation rates of women in leadership roles in government. This approach mainstreams and destigmatizes parental leave-taking in national and corporate cultures.

## Economically Risky Workforce Trends

The costs of inaction are likely to mount in the near future, as demographic trends run their course. In 2018, more than a third of Americans were 55 and older, making elder care support for an aging baby boomer population a critical under-addressed risk. The potential problems range from stagnating national economic growth to saddling future generations of workers with growing tax burdens.

U.S. fertility rates are now at a 32-year low as women are having fewer babies. This means that it is increasingly less likely that the U.S will have enough population growth to replace retiring workers in the labor force, straining social security, health care and other social service funds. Historically, the U.S. has been able to help combat these workforce gaps with foreign-born immigrants — but now immigration rates are also showing signs of slowing. Shortages of skilled workers are likely to rise.

Relegating work-family policy to voluntary employers presents long-term risks to labor-force quality, the economy and the nation's family and worker health. Worse yet, there is a looming under-addressed risk of growing shortages of caregiving workers, which may impact future labor market participation of employees with elder and child care demands. In the U.S., child care and elder care workers are paid near-poverty wages — the median annual wage for child care workers was $23,240 in 2018 — making it an unattractive and economically unsustainable career for many. The problem is compounded by the lack of a national policy that increases the labor supply of qualified child and elder care workers.

In contrast, in some European Union countries, care for infants and toddlers (and increasingly, the aging workforce) is a public good. Public training and employment and income subsidization of caregivers such as child care workers is common. Another potential solution is to adopt policies that give employees the right to request a flexible schedule. There is a growing science of best practices in this area, which can help guide employers who are unsure of how to implement flexible work schedules effectively in ways that promote equity and productivity.

## Silicon Valley Noblesse Oblige?

Work-life inequality is growing. The ability to access and use benefits that support a healthy work-life balance is increasingly stratified between labor force segments. Many workers in minimum wage jobs cannot access flex time to match their children's school schedules or get paid sick leave to go to the doctor for themselves or their children. Middle-income nurses and unionized workers work in scheduling systems where they have inflexible shifts. Upper-income managers and professionals work 60 to 70 hour weeks, often losing female talent at senior leadership levels. We need a way to support the work-life needs of these diverse labor force segments.

Family-focused policies are critical elements of talent attraction and retention strategies — not to mention their importance in terms of social responsibility — and big companies have started to recognize this. One Silicon Valley firm now gives up to 52 weeks off for maternity leave. Others are allowing women to freeze their eggs or helping mothers freeze and fly-in their breast milk while traveling. These are great policies. But they are also just Band-Aids on the outer bounds of the widening gap between the biggest companies that can afford to implement competitive policies and average employers in the U.S. And relegating the U.S. national work-family policy to the voluntary noblesse oblige of employers — even progressive ones — presents long-term risks to labor-force quality, the economy and the nation's family and worker health.

Some workplace policies, such as flexible work schedules, can have the potential to increase employer competitiveness, improve talent attraction, absenteeism and retention. But broader policy change is likely to have commensurately wider-reaching implications: Improving access to paid family leave and other work-family policies, such as increasing the supply of caregivers or employee access to workplace flexibility without job jeopardy, will have long-term benefits for our society.

## The Time Is Now to Improve Work-Family Policies

Last month the U.S. House Ways and Means Committee held its first public hearing (ever!) on paid family leave, a policy that a majority of Americans support. Not acting to adopt paid family leave and other policies — such as the right to request a flexible schedule to take a child to the doctor, refuse overtime or manage child care — is a risk not only to the economy, but to the well-being of families, workers and future generations.

Even if we take action now, we may find it difficult to catch up in terms of organizational learning of how to implement paid leave or flexibility policies more effectively. Research shows that U.S. employers have sometimes been slow to fully implement work-family policies and give access to employees across different job groups. Moreover, policies are sometimes underused due to career-oriented employees fearing stigma or worried about job security; this can lead to a divergence between policy and the actual culture fostered in the workplace.

Many other employers and nations around the globe are ahead of the U.S. on work-family policy. But this shouldn't be a deterrent. At a time when many employers face hypercompetitive global markets, adapting to the transformation of work and family relationships and pushing for broader change that does the same can be a competitive advantage.

# EXPANDING THE BATTLEGROUND: A COMPETITIVE APPROACH TO PRESIDENTIAL ELECTION REFORM

*by Eric Nelson*

With numerous candidates already in line for the 2020 Democratic presidential primaries, the discussion among most political pundits centers on which challenger has the best potential to secure the 270 electoral votes needed in the general election to unseat the incumbent and presumptive Republican nominee, President Donald Trump.

It's also a reminder to citizens that U.S. presidents aren't chosen by direct election, but by the Electoral College, which in 2000 and 2016 awarded the government's executive branch to candidates who actually lost the popular vote.

*Source: Shai Vardi*
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Shai Vardi, an Assistant Professor of Management Information Systems at the Purdue University Krannert School of Management, presents a competitive alternative to the current system in a working paper titled “Expanding the Battleground: A Bipartisan Approach to Presidential Election Reform.”

In its present form, the Electoral College consists of 538 electors, with each state allotted one elector for each of its members in the House of Representatives plus another two electors for its Senators. In campaign terms, states like Indiana and California that traditionally vote for one party over another are considered “safe states.” Those that could tip the scales toward the 270 majority are considered “battleground states.” “Almost all states use the winner-take-all method of allocating their electoral votes. As a result, battleground states make millions of dollars during each presidential election while safe states get virtually nothing,” Vardi says.

In the 2012 presidential election, for example, the Romney and Obama campaigns spent nearly $900 million on TV ads alone, with more than 96 percent of the money going to that year’s 10 battleground states and their 126 electoral votes — Florida, Virginia, Ohio, North Carolina, Colorado, Iowa, Nevada, Wisconsin, New Hampshire and Michigan. In comparison, the remaining 40 safe states and the District of Columbia garnered only $30 million in campaign spending for their 412 electoral votes. “Trump and Clinton spent almost 2.4 billion dollars on the 2016 race, with almost all of the money again ending up in battleground states,” Vardi says. “The benefits to battleground states don’t end on election day, however. Incumbent presidents target federal dollars to battleground states, pressure government agencies to shorten processing time for awards, and even engage in strategic trade protectionism.”

In addition to campaign spending, safe states also come up short in terms of influence at a time when being heard by candidates is increasingly important to voters. For example, Democratic candidates do not campaign in Indiana because it’s considered a “red state” that typically awards all of its 11 electoral votes to the Republican nominee. Likewise, Republican candidates overlook Indiana as they are all but guaranteed to win all of its electoral votes whether they campaign there or not. "Although money and political influence are strong motivators, they are insufficient to make safe states convert to a new system,” Vardi says. “In order to be feasible, a new system would need to be unbiased toward both parties and also meet other criteria that many legislators consider important, such as supporting a two-party system and requiring a wide distribution of popular support to be elected president.”

Vardi acknowledges that creating a “new system” for presidential elections won’t be easy. According to the National Archives and Records Administration, more than 700 proposals to reform or eliminate the Electoral College have been introduced in Congress over the past 200 years, all of which have failed. “The idea of states assigning their electoral votes in proportion to the statewide popular vote isn’t new. It is often called the proportional plan, but past implementation efforts have been ad-hoc,” he says.

Inspired by game theory, Vardi presents a more objective alternative that he calls the “competitive plan.” In it, each state would assign its electoral votes in proportion to the statewide popular vote in a way that ensures that there are very few ties. Votes of candidates who do not pass a threshold are allocated to the candidate that received the most votes in that state. “Assume that in a state with four electors, the Republican candidate receives 62 percent of the popular vote and the Democratic candidate receives 38 percent,” he explains. “How should the electoral votes be allocated? Under the standard interpretation of the proportional plan, the state would allocate two votes to both candidates. Under the competitive plan, it would allocate three to the Republican candidate and one to the Democratic candidate.”

To verify that his plan wouldn’t offer a partisan advantage to either a Republican or Democratic candidate, Vardi analyzed every presidential election since 1900. Surprisingly, he found that the same candidates would have won had the competitive plan been used instead of the winner-take-all method.

So, what’s the incentive to switch if the outcome would be the same? “The benefits of the competitive plan to safe states are clear,” Vardi says. “They would become more relevant to the candidates and receive more attention and money. What’s unclear is how to reach that goal. A constitutional amendment seems unlikely, and states wouldn’t want to change unilaterally as they would in essence be ‘giving away’ votes to the other party.” Indiana, for example, will likely give all 11 of its electoral votes to the Republican candidate in 2020. If it transitioned to the competitive plan, however, the state would likely grant between three and five votes to the Democratic candidate.

To further incentivize his proposed system, Vardi developed an algorithm to find pairs of safe states that would “cancel each other out” if they transitioned to the competitive plan together, as well as a suggested order for doing so. Once again, he verified that if the states transitioned to the competitive plan two at a time according to the suggested order, at no point in the process would it have had any effect on the outcome of the 30 presidential elections included in the study.

“Besides making them more attractive to candidates without creating bias toward either party, pairing up politically balanced states would be in the best interest of their voters,” he says. “Once all of the safe states have transitioned to the competitive plan, it seems likely that the battleground states would also transition, but even if they don’t, their slice of the campaign-spending pie would be much smaller.”

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