

The Big Idea



# SMARTER INFORMATION, SMARTER CONSUMERS

Changes in technology and disclosure rules will help shoppers make better decisions. Get ready for the rise of the “choice engine.”

by Richard H. Thaler and Will Tucker



**LAST YEAR**, the two of us helped organize a White House summit on information disclosure policy. The preparatory material we sent out before the summit to the more than 300 registrants from over 60 federal agencies started with two sentences of event reminders and then informed attendees that they would get the healthy lunch option unless they requested an alternative.

Just 10 lines later we explained: "Healthy options for lunch may include, but are not limited to, a bean sprout and soy-cheese sandwich on gluten-free soda bread." In the final sentence of the information packet, we offered a "special reward" to anyone who sent us an e-mail with the subject line Full Disclosure.

Fully 80% of attendees neglected to opt out of the unappealing lunch option, and only 1% earned their reward. When we informed the group on the morning of the summit that most people had "selected" a soy-cheese sandwich for lunch, there was an audible groan. To their relief, we were joking, and lunch actually consisted of moderately tasty turkey and tuna sandwiches. But the experiment bore out our prediction that many audience members—highly educated policy experts and government officials—would not absorb all the information we had sent them and thus would fail to arrive at decisions that maximized their self-interest. By unwittingly signing up for the soy-cheese sandwich and missing out on rewards, the summit attendees weren't being unusually careless, unintelligent, or self-destructive. They were just being human.

Disclosures far wordier and more complex than our soy-cheese warning are an everyday part of life for citizens and consumers in the world's wealthier countries—especially in the fine-print-strangled United States. We are constantly confronted with information that is highly important but extremely hard to navigate or understand. Repeated attempts to improve disclosure, including efforts to translate complex contracts into "plain English," have met with only modest success. This is not a reflection of the talent or effort of those trying to implement such changes. Rather, it indicates the fundamental difficulty of explaining anything complex in simple terms. Most people find it difficult to write instruc-

tions explaining how to tie a pair of shoelaces. Try it yourself and see.

We believe, though, that a potent mix of modern technology and new government policy is about to transform disclosure—and with it the workings of many parts of the economy. Increasingly, government-owned data and private-company disclosures will be made available in machine-readable formats, spurring the growth of new services we call "choice engines"—technologies that interpret this data.

For businesses, this can be both a threat and a huge opportunity. Firms that gain market share through deception and obfuscation—or just by taking advantage of consumer laziness—may lose out as better disclosure makes markets more efficient. Firms that are providing high-value products at reasonable prices should thrive. The biggest winners will be those that build products and services using the vast new data resources—in particular, choice engines that help consumers make better decisions.

If this sounds too good—or scary—to be true, consider the history of GPS, the now-ubiquitous system that helps us find our way. Although we now take the technology for granted, it didn't begin to take off until 2000, when the U.S. government ordered the military to stop scrambling select data from Department of Defense satellites. The change made the data freely available to the public, and entrepreneurs took it from there. Now a shopper's smartphone can access coupons for nearby stores, and a golfer's watch can measure the distance to the next green. GPS innovation has been a disaster for companies that sell printed maps, but for consumers and the economy as a whole it's been a boon. Todd Park, the U.S. chief technology officer, recently estimated that GPS added \$90 billion in value to the U.S. economy in 2011 alone. We believe that the rise of

**Idea in Brief**

**Complex disclosures of product-safety information, service charges, and government data are a part of life in the world's wealthier countries.**

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private-company disclosures will be made available in machine-readable formats, spurring the growth of new "choice engines" that interpret this data.

These choice engines will empower consumers in new ways, giving them the ability to comparison shop

more easily and make better choices. This will create big opportunities for firms that provide high-value products at reasonable prices—even as it makes life tougher for those that profit from fine print.

choice engines will have an even greater and more transformative effect on the economy and on consumers' lives.

**Open Government**

The share-the-data approach at the heart of the GPS success is now official policy throughout the U.S. government. In 2009, on his first full day in office, President Obama issued a memo on Transparency and Open Government, stating that information collected and held by the government is a national asset and directing agencies to "disclose information rapidly in forms that the public can readily find and use." Following early initiatives such as [data.gov](#) (a web-based clearinghouse for machine-readable government data sets), the administration began to establish a policy framework for how consumers and businesses interact with and disclose information about products and services. In the United Kingdom, the coalition government led by David Cameron has embarked on a similar effort.

In its second term, the Obama administration is likely to accelerate these efforts. But they should be embraced by Republicans, too, and by governments everywhere. By combining unprecedented access to data and technological advances, policy makers and business leaders have the opportunity to unleash a rare virtuous circle that benefits consumers, incumbent businesses, and entrepreneurs. No modern economy can afford to leave that value on the table.

An early entrepreneurial success illustrates how quickly this new open-government approach to disclosure can pay off. In 2008, two brothers from San Diego, Mike and Ryan Alfred, launched a business

called BrightScope, with the goal of rating employer-sponsored defined-contribution retirement plans, known in the U.S. as 401(k)s. The Department of Labor, which regulates these plans, requires employers to file a form each year providing detailed plan information. There was just one problem: The completed forms were stored in a building in Washington, DC, and BrightScope could retrieve them only by filing a Freedom of Information Act request for each company's form and then waiting for paper packages to arrive at its office by mail. Building up a database of firms this way was slow going. Six months after the Open Government executive order, however, BrightScope received a CD containing the data from all those forms. The Alfred brothers quickly hired 15 more people and started rating the 401(k) plans of every employer with more than 100 employees (a size BrightScope itself may soon reach).

Interesting things happen when an independent source starts rating a company's performance. For example, when BrightScope gave a poor mark to one retirement plan because of high fees, competing asset managers and plan administrators targeted the plan, offering lower-cost, higher-grade alternatives. After a board member checked out his company's BrightScope score, he was so disappointed that he brought it up at the next board meeting. There is a lesson here: When firms are required to disclose things, they sometimes discover vulnerabilities about themselves that can be remedied.

By mid-2010, nearly 30 agencies and departments had submitted or revised Open Government plans and begun to release "high-value data sets," such as Food and Drug Administration recalls, State

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Department travel warnings, and airport on-time performance reports. At our White House summit, the (soy-cheese-free) lunch session was filled with demonstrations from start-ups like BrightScope. After each demo we asked the entrepreneurs, "What data set would you want to have access to, and what would you do with it?" Their answers highlighted numerous potential opportunities in health care, finance, energy, education, and other sectors. We expect to see many new businesses starting up as the era of smart disclosure and choice engines kicks into high gear.

### Smart Disclosure in the Private Sector

As policy makers turn their attention to the private sector, they're using a similar approach to disclosure—with, if anything, even bigger implications. Ironically, the potential gains to businesses and consumers will come about in part because of the increasing difficulty in making wise decisions about ever-more-complicated products and services. The good news is that we have smartphones that can do things we could barely have imagined a decade ago. The bad news is that we can't understand our monthly smartphone bills. By making the necessary data available to choice engines, we can get the most out of all the new variety we face, from complex mortgages to smart electricity meters. Just as Amazon and Netflix can help you decide which book to read or movie to watch, other choice engines can help you with decisions that have much higher stakes.

Sometimes the mere disclosure of unsavory product characteristics is enough to change the behavior of firms and individuals. After the Food and Drug Administration required the disclosure of trans-fat content on nutrition facts labels, in 2006, a study of 229 Americans showed a 58% decrease in the levels of trans-fatty acids found in participants' arteries, along with corresponding changes in how companies produced and advertised products.

But even subtle changes in how information is presented can have significant and predictable impacts on how people process and act on it. Labeling a food 90% fat free can have a different effect than calling it 10% fat. There is some evidence that if retirement-plan statements were to present savings in terms of the monthly income that would be available in retirement rather than the current account balance, people would increase their contribution rate. Research also shows that financial professionals give better ratings to investments with aesthetically pleasing annual reports than to those with less attractive reports that contain exactly the same data. In fact, a spiffy report impresses the finance pros as much as a 20% increase in annual revenues does.

"People don't always make the sensible decisions that they would wish to make," the Nobel laureate and behavioral economics pioneer Daniel Kahneman told us. "They're influenced by all sorts of superficial things, and they procrastinate and don't read the small print. You've got to create situations that allow them to make better decisions for themselves."

## The goal of a good electronic-disclosure regime should be to ensure that consumers know what they're getting and can compare products.

In the U.S., federal laws and regulations require the disclosure of product, service, and other information in many domains. Sometimes disclosures are statements that must be displayed on a product ("Warning: Cigarettes Cause Strokes and Heart Disease"). In other cases, disclosures are numbers, from price (interest rates on mortgages) to basic product characteristics (calories) to government ratings (crash safety scores). In still other cases, disclosures are notifications sent when companies or institutions take certain actions (charging overdraft fees or holding elections at publicly traded companies).

Unfortunately, disclosure and regulatory policies have generally been written with the implicit assumption that as long as the costs of obtaining information are relatively low, the structure and format of disclosure are relatively unimportant. The burden of deciphering and understanding disclosed information is left to consumers.

And when many complex factors must be taken into account, consumers find it especially difficult to find the product or service that best suits their needs. Neither of us could tell you what our average and peak mobile phone and data usage are (though

## What Smart Disclosure Looks Like

By encouraging the release of government information, corporate disclosures, and customer usage data in machine-readable form, policy makers are enabling the rise of new “choice engines” that help consumers and businesses make better-informed decisions.



### BRIGHTSCOPE

FOUNDED 2008  
SAN DIEGO, CA  
50+ EMPLOYEES

BrightScope uses data that employers are required to submit to the U.S. Department of Labor to grade 401(k) retirement plans. The company now reviews and analyzes over 45,000 plans, calculating and publishing a single numerical score for each one. It also publishes distribution rankings for funds, letting asset managers, companies, and individuals see how their plans compare with other options.

[www.brightscope.com](http://www.brightscope.com)



### TESCO

FOUNDED 1919  
CHESHUNT, UK  
500,000+ EMPLOYEES

Tesco, one of the world's largest retailers, is planning to roll out a service that will provide customers who use its loyalty cards with simple access to their own shopping history; the service will also include planning and goal-setting functions. Tesco will most likely offer this data via proprietary smartphone apps, at least at first. The retailer is moving to provide customer access to personal data before the UK government requires it.

[www.tesco.com](http://www.tesco.com)



### FIRSTFUEL

FOUNDED 2010  
BOSTON, MA  
40 EMPLOYEES

FirstFuel analyzes energy consumption data provided by U.S. utilities as part of the Green Button initiative to help business owners improve energy efficiency. In what it calls a “zero touch” energy audit, the company analyzes a year of hourly energy consumption data and provides benchmarks and customized retrofit recommendations. FirstFuel was recently selected by the Department of Defense to benchmark and recommend savings for as many as 300,000 buildings.

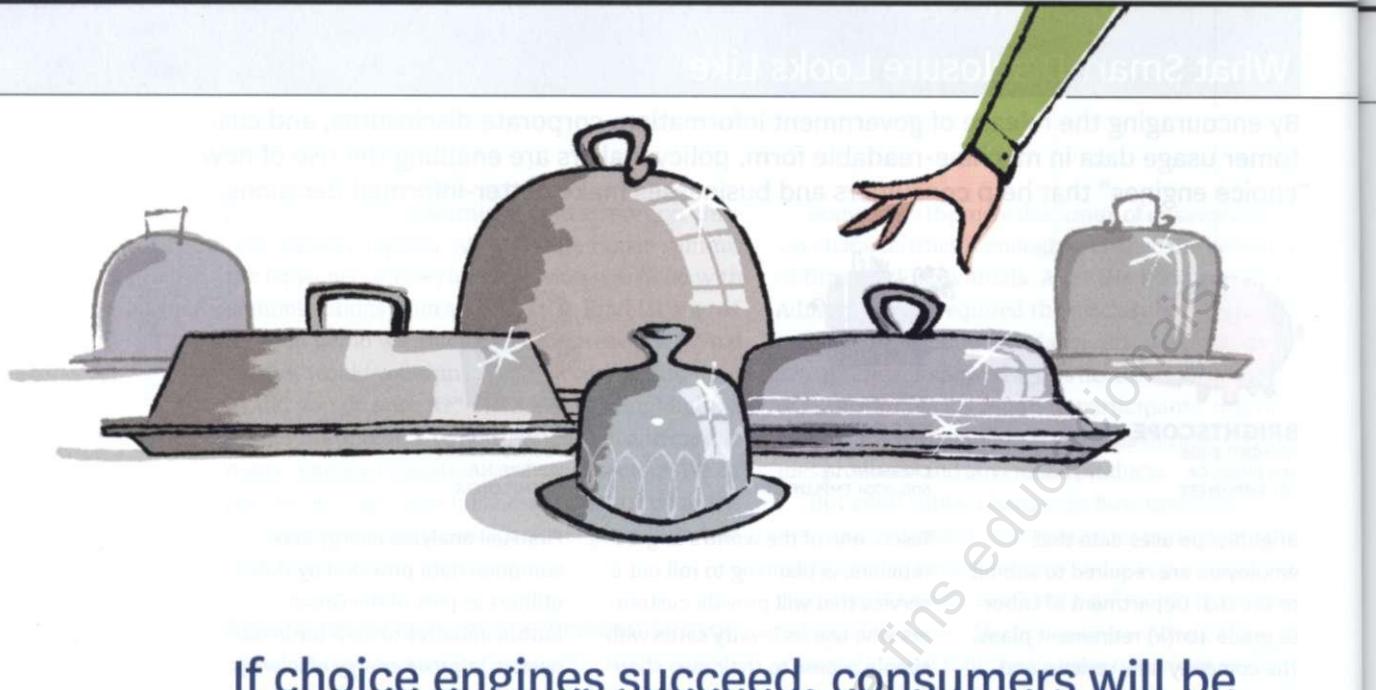
[www.firstfuel.com](http://www.firstfuel.com)

our providers certainly could)—much less whether another provider would give us a better deal or better service (though we suspect that's so). Even when the stakes are potentially much higher, such as choosing a mortgage, most people take the first offer they're given, even though a bit of shopping could save them thousands of dollars. Companies thus have real incentives to invest time, energy, and talent in competing through obfuscation. When firms can gain market share that way—by hiding product characteristics in the plain sight of fine print, for instance—market efficiency, other firms, and consumers all suffer.

The goal of a good electronic-disclosure regime should be to ensure that consumers know what they're getting and can compare products. The better consumers are able to understand the features and prices of the products and services they buy, the less regulators need to interfere. In the 2008 book *Nudge*, one of us (Thaler) and the legal scholar Cass Sunstein put forward the Record, Evaluate, and Compare Alternative Prices (RECAP) framework.

Both the Obama administration and the Cameron government have adopted versions of this idea—and had the good sense to think of snappier names. The U.S. calls it Smart Disclosure—defined as the “timely release of complex information and data in standardized, machine-readable formats in ways that enable consumers to make informed decisions.” The British effort, which for now focuses on individual banking, energy, and mobile phone usage data, is called “midata.”

In 2011, the Consumer Privacy Bill of Rights established the right of consumers to access their personal data. And the idea is spreading. A recent report by the World Economic Forum titled “Rethinking Personal Data” argues that personal information represents a new asset class—one that will power and grow the estimated \$4.1 trillion worldwide economic impact of the internet. The U.S. Smart Disclosure and UK midata regimes, which tie ownership and access to personal data to the existing regulatory structure of disclosure, may serve as models for data policies around the world.



If choice engines succeed, consumers will be able to search for credit cards, cell phone plans, or even mortgages as easily and effectively as they search today for airplane tickets.

### Choice Engines

Whatever you may choose to call it, smart disclosure falls into four broad categories: (1) government release of data it collects on products and services; (2) government release to individuals of their personal data (such as Social Security contributions and tax returns); (3) government-facilitated electronic disclosure by private sector companies of price or attribute data on products and services; and (4) government-facilitated release to consumers of personal data held by the companies providing the products and services.

So far, successes have come in the first two categories. Sometimes all it takes is for a government agency to find a better way to get information to the citizens it serves. For example, the Veterans Administration's Blue Button initiative allows veterans to download their VA hospital records on a smartphone or computer using a simple app that can be downloaded from the VA website. More often, as with GPS, the real breakthroughs come when entrepreneurs find innovative ways to package and use government data. When cities began making the location of trains and buses available in real time, app developers were quick to launch products for commuters. Next steps will include entrepreneurs' creating apps that use data disclosed by private companies—on labels on pill bottles, in snail-mailed credit card of-

fers, or on cereal-box ingredient lists, for example—to revolutionize the way consumers and businesses make decisions.

To be sure, Americans already do much of their consumer research and shopping online. Consider the travel industry. Travel agents have been largely replaced by websites, such as Expedia and Travelocity, that allow customers to quickly search for and purchase flights and hotels. These services are complemented by aggregators, such as Kayak, that search airline websites and choice engines to find the best price, and thus help keep the travel website market highly competitive.

Choice engines may have different business models: Those that sell tickets typically make money from commissions, whereas aggregators, which do not directly sell anything, generate revenue from advertising. Although these services are not perfect—for example, it can be hard to find out what the fee will be for taking along a heavy suitcase on a plane trip or parking your car at a hotel—most would agree that they have made shopping in the online travel market much easier for consumers. Full implementation of smart disclosure would further improve this market, by making all fees as transparent as the price of a flight or a hotel room.

And travel sites are just the beginning. Not sure whether you should buy a new laptop now or wait

until the price drops? Go to [Decide.com](#). Worried that a subscription you no longer want will automatically renew? Sign up for BillGuard, a service that monitors your bank and credit card statements and sends you alerts about recurring charges. Want to make sure your purchases meet certain environmental and social consciousness standards? Use GoodGuide to help you pick products ranging from sunscreen to peanut butter. Third-party intermediaries like these are competing with one another to present consumers with relevant information in user-friendly ways. If they succeed, consumers will be able to search for credit cards, checking accounts, or even mortgages as easily and effectively as they search today for airplane tickets.

It is not a lack of technology that has kept many choice engines from making the leap from beta testing to market disruption. (Four in five Americans use the internet, and half have smartphones; worldwide, there are over a billion smartphones in use, a number expected to double in three years.) Nor is it lack of demand for information, or lack of innovative ideas or hardworking entrepreneurs to implement them. It's not the price of data storage and processing power; that keeps dropping, algorithms keep getting more powerful, and the internet reaches more people every day. The missing ingredient is easy access to data.

In many contexts, such as choosing the right calling plan, a choice engine needs two kinds of data. The first is the terms of the sale: prices, penalties, length of time to pay, and so forth. The second is usage data. It is not possible to pick a calling plan without knowing all the ways you use your smartphone and how your behavior is likely to change when you upgrade to a phone that offers more ways to consume data. Sure enough, entrepreneurs have built choice engines, such as BillShrink, that analyze your cell-phone-usage data and provide a cost-saving recommendation for your next contract. But today, you need to give BillShrink your username and password at your wireless company's website—something many customers are reluctant to do. Even then, BillShrink may have to "scrape" pricing data from the websites of competing service providers. Generating personalized recommendations can be difficult if prices change often or if they vary, as in the case of credit cards, depending on customers' credit score. This is where a modern market-based approach to regulation can jump-start the choice-engine industry.

The logical next step is for the pages of fine print that we now call disclosure to be replaced by machine-readable files in standardized formats. Instead of providing microscopic gobbledegook, sellers should be required to report the details of their prices and contractual terms in a manner that choice engines can digest, translate, and analyze. The SEC started down this path in 2009 by requiring corporations, mutual funds, and credit-rating agencies to report information in extensible Business Reporting Language (XBRL), a move that simultaneously reduced the costs of compliance for firms and cut the costs of accessing information for analysts, auditors, investors, and regulators. The standard-format data are also used to improve investment decision making. Other regulators should require the same kind of disclosure in their domains, from calling plans to credit cards to mortgages.

Regarding disclosure of personal data, a useful principle is that if a firm is collecting usage data on an individual, that person has a right to access the data. That is consistent with current efforts to ensure consumer privacy in the United States, the UK, and elsewhere. In Britain, consumers already have the right to receive their data in an "intelligible" format. Unfortunately, businesses have for the most part chosen to interpret "intelligible" to mean "in a large printed document that is of little use to anyone." Parliament is now considering a law that would replace "intelligible" with "machine-readable and uploadable." Such a change would greatly improve regulatory effectiveness and create new business opportunities.

Consider one example: grocery store shoppers' clubs. Many stores offer customers discounts on certain items as an incentive to join. Stores benefit by learning about customers' purchasing habits—knowledge they can use, for example, to target coupons. But this data could also have a multitude of uses for customers. Have a family member allergic to gluten? Get a choice engine to analyze your food purchases and highlight items to avoid. Want to lose weight? Get a choice engine to suggest which foods to drop and what to replace them with. Tesco, the largest supermarket chain in Britain, recently announced a program that allows members of its shoppers' club to make use of their own data.

We think access like this is the wave of the future—and the possibilities are limitless. When consumers have access to and control of their personal data, companies will begin to respond to the demands of

individuals instead of aggregate markets—a theme of Doc Searls's book *The Intention Economy*, where he argues that consumer demand will increasingly drive supply.

Of course, any mention of disclosure of user data raises the important issues of privacy and data security. Companies that provide data to their customers are already required to do so in a secure manner, so giving consumers access to their own usage data should not be a threat to their privacy. In many cases, having access to such information allows consumers to verify its accuracy. That is not to say that there are not significant security concerns that firms and governments need to address. For instance, if several family members make use of the same shoppers'

## Regulations

The challenge for policy makers will be to develop measures that improve smart disclosure without imposing significant costs on firms. It makes sense, for example, to start with large, technologically sophisticated companies. The direct costs of compliance for them should be minimal in most cases.

On the plus side for industry, clearer and more-functional information disclosures could reduce or eliminate the need for endless cycles of regulation—and help level the playing field. As a general rule, consumer complaints about specific fees, and political demands that such fees be banned, are most strident when disclosure of them has been buried in fine print. By making all fees transparent, a regulator

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club card, the seller should give individual shoppers the ability to opt out of tracking for specific purchases, and everyone should be allowed to opt out altogether.

Efforts to incorporate personal data into new choice engines are already under way. In the United States, the Green Button initiative is an industry-led effort in response to a White House challenge to give consumers online access to personal energy-usage data. At last count, 35 utilities serving 36 million homes and businesses have committed to or are implementing Green Button, and more than 30 companies are developing tools to leverage its data. The data could become the currency of a smart grid—technology to help the \$1.2 trillion utilities industry predict and react to spikes in energy demand. That would spawn new jobs at third-party developers and help businesses and households lower their energy costs.

Firms that move early to prepare for and be a part of these initiatives will be best positioned to benefit, because they'll have the opportunity to shape data standards. The utilities participating in Green Button, along with grocery stores such as Tesco, are already establishing data interoperability, security, and privacy safeguards, which will provide excellent opportunities to test such disclosures in real-world settings.

can spend fewer resources telling firms which fees are allowed and which are not, and instead concentrate on the broader issues of making markets open and competitive and stimulating job growth.

It is also important to consider how the regulation of choice engines can further smart disclosure. A bad outcome would be if we were to simply switch the source of obfuscation from seller to choice engine. A primary principle of regulation should be ensuring that choice engines' business models are transparent. For instance, consumers should be informed if a choice engine gets commissions from service providers. Also, regulators should reserve the right to monitor and audit recommendations. Ideally, this market would be self-regulating, with both consumers and aggregators keeping the choice engines honest.

In markets where consumers experience firsthand the quality of the product or service they buy (such as hotels and restaurants), choice engines have strong incentives to prevent sellers from manipulating published reviews—and in fact, they already devote significant resources to doing just that (think of Yelp's sting operations). In other markets, such as those for calling plans or mortgages, consumers are unlikely to have any direct way of determining whether they've been given the best possible deal. Here, too, private sector organizations—either for-

profit aggregators or nonprofits such as Consumer Reports—could use tactics like secret shoppers to see what kind of advice choice engines are providing. Still, consumer agencies would need the authority to audit the advice if there is reason to suspect that it is biased. Finally, regulators of choice engines must not impede innovation. Electronic disclosure is, by its nature, flexible and adaptable. Those properties must be exploited to accommodate new products and services, as when the introduction of the iPhone allowed cell phone users to buy songs on their phones.

There is another issue that may require regulatory intervention. Ever notice that mattresses usually have long, complicated names like the "Ultra soft yet firm plush posture-friendly fit-for-a-queen deluxe..."? Those names are not just marketing hype. Mattress makers have long thwarted comparison shoppers by giving identical mattresses sold by different retailers unique names and product identification codes. It's nearly impossible to compare the mattress you see at Macy's with the one you try at Joe's Mattress Warehouse. Also, this allows Joe to guarantee that he will never be undersold, since no one is selling the "same" mattress at a lower price. Manufacturers give major retailers this friendly treatment for other products as well, such as flat-screen TVs.

For mortgages—where the price is the only attribute that consumers care about (who wants a plush mortgage?)—this form of obfuscation is not a problem. In the retail sector, though, there can be no doubt that it makes markets less efficient. In principle, smart disclosure could solve this problem if manufacturers were required to identify which products are equivalent, but in practice any such rule can be evaded by making inexpensive cosmetic changes to the models sold to large retailers, rendering the new versions technically unique. We think this problem deserves more attention, and hope technology and ambitious choice-engine entrepreneurs can solve it.

### Empowering Consumers

We have many more options than our grandparents did. At one time, all telephones were black and came with dials, all mortgages (in the U.S., at least) were of the 30-year fixed-rate variety, and you paid for stuff with cash. Even then, consumers struggled with decisions. Smartphones, adjustable rate mortgages, and credit cards provide us with more options but also make it much harder to sift through the choices and make good decisions.

Technology offers society an opportunity to help consumers make the best of the rich variety of options available to them. The key is to use data to empower consumers via smart disclosure. Smart disclosure alone won't make people better decision makers—but it will get machines and complex options working for consumers, just as big data can help companies improve business strategy. This policy innovation has the potential to be a win-win-win: Consumers can win by getting the products and pricing plans that best suit their preferences, essentially reducing their cost of living. Businesses can win by competing on high-quality products at good prices, without the risk of losing out to less scrupulous firms that compete through deception. And entrepreneurs and innovators can win by devising new ways of serving consumers.

There's another potential benefit as well. Better disclosure and the accompanying growth of choice engines offer the prospect of revolutionizing the way governments interact with citizens and businesses. According to estimates by the Office of Management and Budget, the U.S. government requires individuals and companies to spend about nine billion hours (that's about 38 hours per adult) filling out paperwork each year. Right now, much of that information and disclosure sits on paper forms or in indecipherable computer language. Technology and some relatively small policy changes can cut the paperwork burden substantially while increasing the amount of useful information that the government collects. For example, students in the U.S. can now use a data retrieval tool to prepopulate federal student aid applications with tax return information provided electronically by the Internal Revenue Service, dramatically simplifying a once-onerous task. This saves prospective students several hours of torture and can remove a barrier for low-income students who wish to continue their education past high school. We expect to see many more innovations like this over the long term.

The rise of choice engines will do more than create super shoppers. It will make markets more efficient, create new businesses, and improve the way governments serve their citizens. Big stuff. ☐

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