SCIENCE AND REGULATION

# **Targeting Transparency**

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hen rules, taxes, or subsidies prove impractical as policy tools, governments increasingly employ "targeted transparency," compelling disclosure of information as an alternative means of achieving specific objectives. For example, the U.S. Affordable Care Act of 2010 requires calories be posted on menus to enlist both restaurants and patrons in the effort to reduce obesity. It is crucial to understand when and how such targeted transparency works, as well as when it is inappropriate. Research about its use and effectiveness has begun to take shape, drawing on social and behavioral scientists, economists, and legal scholars. We explore questions central to the performance of targeted transparency policies.

Targeted transparency differs from broader "right-to-know" and "open-government" policies that span from the 1966 Freedom of Information Act to the Obama Administration's "open-government" initiative encouraging officials to make existing data sets readily available and easy to parse as an end in itself (1, 2). Targeted transparency offers a more focused approach often used to introduce new scientific evidence of public risks into market choices. Government compels companies or agencies to disclose information in standardized formats to reduce specific risks, to ameliorate externalities arising from a failure of consumers or producers to fully consider social costs associated with a product, or to improve provision of public goods and services. Such policies are more light-handed than conventional regulation, relying on the power of information rather than on enforcement of rules and standards or financial inducements.

Transparency has been used as a policy tool at least since the 1906 Pure Food and Drug Act, to improve food safety, and the 1933 and 1934 Security and Exchange Acts, to reduce financial malfeasance. Study of targeted transparency as a distinct form of social policy is relatively new (3). We found that effective targeted transparency policies follow a demanding "action cycle" of information provision, use, and response (4). Con-

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sumers must see and comprehend new information and integrate it into choices of products and services; target companies must perceive and act on consumers' responses in ways that reduce risks, improve services, minimize corruption, or otherwise further a policy goal (4). Third parties may play critical roles, translating complex information into a form more readily used by individuals in market settings or acting through political or other nonmarket channels in response to disclosed information.

Many policies fail to satisfy these conditions. Consumers may not understand or be interested in new information, may not have the capacity to choose when given information, or may not act in accord with policymakers' aims. In cases where disclosure relies upon more collective responses, such as pollution emissions, third parties may have agendas not well aligned with the individuals they purport to represent. Target companies may not understand consumers' changed choices, or, if they do, many not act in accord with policy-makers' aims. The disclosure mandate itself may be flawed. As in other regulatory regimes, politics plays a role in framing targeted transparency; thus, information completeness, format, or timeliness may be compromised.

Disclosure systems erode over time if not designed to evolve as markets and scientific findings change. Ineffective disclosure requirements can be costly. Forcing companies to collect and disclose information can require substantial resources. Mandated disclosure of incomplete or out-of-date information can mislead consumers and create new risks.

#### **Three Emerging Questions**

When should government require disclosure? Some argue that government has only a small role to play in mandating transparency because market pressures create sufficient incentives for businesses to provide accurate information to consumers (5). But multiple consumer priorities—for example, new car prices, fuel economy, and safety—can make revelation of any single dimension skew consumer choices in ways that do not advance public goals (see the chart). Firms may underdisclose because disclosure is costly relative to private benefits. Consum-

Research explores how policy goals might be reached by simply requiring that information be made public.

ers may lack adequate baseline information about quality characteristics and variation to compare products and practices. The case for public intervention arises when such barriers to voluntary disclosure deprive the public of critical information about products or services (5, 6). This information asymmetry pushes markets away from socially optimal outcomes (7).

Even then, government-mandated transparency may not be appropriate or feasible. When no consensus metrics exist, when risks cannot be clearly communicated, or when agencies lack capacity to frame or oversee a targeted transparency system, policy-makers must search for other approaches. Standards- or market-based approaches may be more useful when policy-makers seek specific outcomes like adoption of certain safety practices. Banning substances may be a more appropriate approach when transparency would produce variable responses that perpetuate unacceptable hazards to the public, such as allowing mercury in food.

When and how do consumers respond to new information? Research suggests that people use cognitive "short-cuts"-streamlined paths of decision-making that can be useful but, at times, misleading. Individual failures to use or incorporate new information reflect cognitive errors because they lead to suboptimal decisions (8). For example, people may overreact to risks when they feel little control (e.g., flying in an airplane) but underestimate risks when they perceive control (e.g., riding a bicycle). The extent of such problems, and the influence of transparency formats in overcoming them, remains contentious. However, most acknowledge that some choices will be more affected by new information than others, such as decisions that are infrequent and involve unfamiliar alternatives and multiple priorities (e.g., a major medical procedure).

Research suggests that transparency systems can be designed to mitigate such problems. Some policies require user-friendly formats to make complex information comprehensible, e.g., five-star ratings for auto safety or restaurant hygiene grades. Some of these rating systems have proven highly effective (9). In some instances, nonprofit or for-profit third parties may be better equipped and more facile than government in translating complex information into usable formats. Private

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Updated labels for vehicle fuel efficiency and environmental impact. Adopted in 2011 by the U.S. Environmental Protection Agency and Department of Transportation, these illustrate key components of effective transparency: provide information on the policy objective in multiple forms, based on an understanding of how consumers think about fuel efficiency; provide a sense of how a car performs compared with other vehicles; and incorporate scientific information regarding environmental impacts not included in older labels.

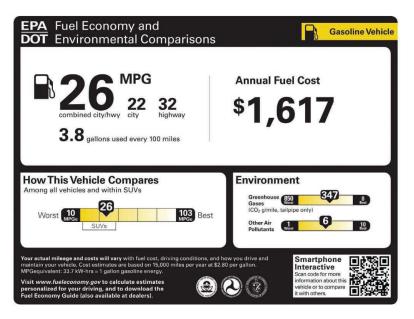
organizations rank schools; environmental groups rank polluters; consumer groups rank airline performance.

What factors influence whether target companies respond to disclosure by reducing risks or improving their practices? Recent research has investigated cases in which targeted transparency creates inappropriate incentives for businesses by focusing on one set of quality or risk dimensions versus others. When hospitals are compelled to disclose some, but not all, aspects of patient safety, for example, their actions may increase risks that are not reported or may discourage admission of high-risk patients (10). Companies or agencies may also try to avoid detection, appear as if they have complied or improved their performance, or raise some measures without altering underlying outcomes (e.g., "green washing," which appears to promote better environmental practice but actually changes very little). As with any high-stakes policies, transparency may lead to attempts to undermine the system politically or to bribe officials (11). Research also suggests the importance of preemptive responses by managers. When required to disclose toxic pollution, some chemical companies took steps to reduce such pollution before the public and press responded (12). Studies of the required disclosure of drinking water contaminants reveal preemptive responses by water-quality agencies (13).

### **Future Transparency Research and Policy**

As research continues on these questions, scholars and policy-makers must also focus on issues that have been neglected.

When to employ transparency versus other policy tools. Some recent policies aimed at discouraging consumption of food and drinks that contribute to obesity have, for example, introduced transparency measures,



whereas others have favored taxes and product bans. But little is known about the relative effectiveness of these actions. Socially beneficial defaults—"nudges"—may be useful when individuals invest little time in understanding risks associated with their choices, but researchers understand little about when those circumstances occur and the marginal efficacy of additional information (14, 15).

How to design policies that improve over time. Our research suggests that some transparency policies become more robust and effective over time, whereas others are reduced to costly and irrelevant disclosure exercises. Policies lose value when dynamics like gaming and regulatory capture undermine their purposes. They gain value when constituencies develop to fortify them or when companies gain competitive advantages from disclosures. Policies must evolve to account for advances in scientific knowledge and economic innovation. Recent transparency provisions designed to stabilize the financial system, for example, will become obsolete unless they are updated to address innovations in securitization, insurance, and derivative financial products.

How to harness information and communications technology. Traditional transparency policies have relied on limited and often outdated information, with data about autosafety defects, drug side effects, or food contaminants making their way to government offices only slowly. Many incidents escape current reporting channels.

Entrepreneurial efforts have begun to emerge. Cheap sensors enabled citizens to quickly create accurate maps of radiation levels near the Fukushima nuclear accident site in Japan to counter less-nuanced government models. Web sites where patients share medication experiences provide clues about drug safety and effectiveness as a supplement to clinical trials. Research should examine ways in which technologically enabled networks can complement or replace traditional transparency policies.

Targeted transparency policies seek to mobilize private decisions and market forces to reduce critical risks, to improve public services, and to minimize corruption. Research from a variety of disciplines, as well as experimentation by federal and state agencies,

remains essential to achieve the promise while avoiding the pitfalls of targeted transparency.

#### **References and Notes**

- 1. Office of the President, Fed. Regist. 74, 4685 (2009).
- 2. Office of the President, Fed. Regist. 76, 3825 (2011).
- Zeckhauser and Marks (16) and Sunstein (17) separately developed the idea that government-mandated disclosure of standardized information could influence corporate decisions concerning public health and safety. Tietenberg (18) and Graham (19) focused on disclosure strategies for pollution control. Gormley and Weimer examined the design and effectiveness of organizational report cards (20).
- A. Fung, M. Graham, D. Weil, Full Disclosure: The Perils and Promise of Transparency (Cambridge Univ. Press, New York. 2007).
- 5. D. Dranove, G. Z. Jin, J. Econ. Lit. 48, 935 (2010).
- 6. O. Board, J. Industr. Econ. 57, 197 (2009).
- 7. J. Stiglitz, Q. J. Econ. 115, 1441 (2000).
- 8. A. Tversky, D. Kahneman, Science 185, 1124 (1974).
- 9. G. Jin, P. Leslie, Q. J. Econ. 118, 409 (2003).
- D. Dranove, D. P. Kessler, M. McClellan, M. Satterthwaite, J. Polit. Econ. 111, 555 (2003).
- 11. D. E. Ho, Yale Law J. 122, 574 (2012).
- 12. J. Hamilton, *Regulation Through Revelation* (Cambridge Univ. Press, New York, 2005).
- 13. L. Bennear, S. Olmstead, *J. Environ. Econ. Manage.* **56**, 117 (2008).
- 14. R. Thaler, C. Sunstein, *Nudge: Improving Decisions About Health, Wealth, and Happiness* (Yale Univ. Press, New Haven, CT, 2008).
- Office of the President, Memorandum for the Heads of Executive Departments and Agencies: Informing Consumers through Smart Disclosure, 8 September 2011; www. whitehouse.gov/sites/default/files/omb/inforeg/for-agencies/informing-consumers-through-smart-disclosure.pdf
- R. Zeckhauser, D. Marks, in Wise Choices: Games, Decisions, and Negotiations, R. Zeckhauser, R. Keeney, J. Sebenius, Eds. (Harvard Business School Press, Boston, MA 1996)
- 17. C. Sunstein, Univ. Penn. Law Review. 147, 613 (1999).
- 18. T. Tietenberg, Environ. Resour. Econ. 11, 587 (1998).
- M. Graham, Democracy by Disclosure: The Rise of Technopopulism (Governance Institute/Brookings Institution Press, Washington, DC, 2002).
- 20. W. Gormely, D. Weimer, *Organizational Report Cards* (Harvard Univ. Press. Cambridge, MA, 1999).

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Editor's Summary

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