The New York Times

How Surveillance Changes Behavior: A Restaurant Workers Case Study

By Steve Lohr

Surveillance is certainly much in the news lately. Most notably, of course, there is the continuing outcry over the National Security Agency's call-tracking program, disclosed in the documents leaked by Edward Snowden.

But surveillance even surfaced as a subject in last week's televised debate among the Democratic candidates for mayor in New York. The office seekers were asked whether New York City should have more surveillance cameras. Six of the seven, card-carrying liberals all, replied without hesitation, yes. (Only Anthony Weiner said no.)

Most of the public discussion of surveillance technology and its use revolves around the question: Is it spooky or reassuring?

But another issue is the effect of surveillance on behavior. And a new research paper, published on Saturday, shows in detail how significant the surveillance effect can be.

The paper, "Cleaning House: The Impact of Information Technology Monitoring on Employee Theft and Productivity," is the work of three academics: Lamar Pierce, an associate professor at the Olin Business School at Washington University in St. Louis; Daniel Snow, an associate professor at the Marriott School at Brigham Young University; and Andrew McAfee, a research scientist at the Sloan School of Management at the Massachusetts Institute of Technology.

The researchers measured the impact of software that monitors employee-level theft and sales transactions, before and after the technology was installed, at 392 restaurants in 39 states. The restaurants were in five "casual dining" chains. The paper does not name the five, but it cites examples of the casual dining category including Applebee's, Chili's and Olive Garden.

Employee theft and fraud is a big problem, estimated at up to $200 billion a year across the economy. In the restaurant industry, analysts estimate the losses from employee theft at 1 percent of revenue. That does not seem like a lot, but restaurant profit margins are slender, typically 2 to 5 percent. So cutting down on theft can be an important contributor to a restaurant's financial health.

Most of the restaurant industry pays its servers low wages and they depend on tips. Employee turnover is high. In that environment, a certain amount of theft has long been regarded as a normal part of the business.

Unethical behavior runs the gamut. There is even a how-to book on the subject, published in 2004, "How To Burn Down the House: The Infamous Waiter and Bartender's Scam Bible by Two Bourbon Street Waiters." A simple example is a bartender's not charging for a round of drinks, and urging the customers to "take care of me" — with a large tip. Other tactics are more elaborate.

But monitoring software is now available to track all transactions and detect suspicious patterns. In the new study, the tracking software was NCR's Restaurant Guard product, and NCR provided the data. The software is intentionally set so that a restaurant manager gets only an electronic theft alert in cases that seem to clearly be misconduct. Otherwise, a manager might be mired in time-consuming detective work instead of running the restaurant.

(continued on next page)

The savings from the theft alerts themselves were modest, $108 a week per restaurant. However, after installing the monitoring software, the revenue per restaurant increased by an average of $2,982 a week, or about 7 percent.

The impact, the researchers say, came not from firing workers engaged in theft, but mostly from their changed behavior. Knowing they were being monitored, the servers not only pulled back on any unethical practices, but also channeled their efforts into, say, prompting customers to have that dessert or a second beer, raising revenue for the restaurant and tips for themselves.

"The same people who are stealing from you can be set up to succeed," said Mr. Pierce of Washington University.

In the research, the data sets were sizable. For example, there were more than 630,000 transactions by servers tracked and collected each week over the course of the project.

But more significant, the researchers say, is what the data analysis might contribute to fields of study like social psychology and behavioral economics — and the business discipline of human resources management.

In human resources, much emphasis is placed on employee selection: if you pick the right people, they will do the right thing. Instead, this research suggests that the surveillance effect on employee behavior is striking.

"What's surprising is the weird effectiveness of the intervention, once the monitoring technology is in place," said Mr. McAfee of M.I.T.

Not surprisingly, NCR is delighted by the results. "It validates the customer data we've seen," said Jeff Hindman, a vice president at NCR. "But this is done by outside experts with the academic standards and statistical rigor they bring to the analysis."

This article can be found at bits.blogs.nytimes.com

About the Author

Steve Lohr reports on technology, business and economics for *The New York Times*. He was a foreign correspondent for the Times for a decade and served brief stints as an editor, before covering technology, starting in the early 1990s.

In 2013, he was part of the team awarded the Pulitzer Prize for Explanatory Reporting "for its penetrating look into business practices by Apple and other technology companies that illustrates the darker side of a changing global economy for workers and consumers."

He has written for magazines including *The New York Times Magazine*, *The Atlantic Monthly* and *The Washington Monthly*. He is the author of a history of computer programming, "Go To: The Story of the Math Majors, Bridge Players, Engineers, Chess Wizards, Maverick Scientists and Iconoclasts — The Programmers Who Created the Software Revolution" (Basic Books, 2001; paperback, 2002).