

Economist Finds More Pluses Than Minuses in Restaurant Letter Grades

Letter grading of restaurants following inspection has substantial short-term benefits—as well as some drawbacks—according to Stanford University economist Phillip Leslie.

Mr. Leslie, who is assistant professor of strategic management at Stanford, has been studying the impact of Los Angeles County's report card-style letter grading, which went into effect in 1998.

"The lesson for counties is that it's always better to provide more information," Leslie told *Food Protection Report (FPR)*.

His interest was in the effect that letter grades, prominently displayed on L.A. County restaurant windows, would have on consumers and the market in general.

"For an economist, this was an ideal case study. There was a sudden, dramatic change in the amount of information provided to the consumer, and we could then compare the before-and-after effects."

Leslie obtained county data on every restaurant inspection two years before and one year after the start of letter grading. He also reviewed restaurants' revenues during each quarter over the same period by analyzing sales tax data.

Finally, working with colleague Ginger Zhe Jin, assistant professor of economics at the University of Maryland, he analyzed hospitalization data from the California Office of Statewide Health Planning and Development to compare the number of food-related hospitalizations in Los Angeles County with those in the rest of California, as well as with the number of non-food-related hospitalizations in Los Angeles County.

Leslie found that letter grading resulted in a dramatic improvement in restaurant inspection scores. "We found that scores went up. About 25 percent of restaurants would have earned an A rating prior to 1998. Within a year after the new county law went into effect, well over 50 percent of restaurants scored an A," he said.

In addition, he discovered that consumers tended to choose restaurants with good grades. Specifically, Leslie found that establishments earning an A obtained an average of 5.7 percent higher revenue than before the grade cards were required. B-grade restaurants experienced an 0.7 percent increase. For C-grade restaurants, revenue decreased by 1 percent.

"After the grade cards came in, revenue was very sensitive to what grade a restaurant got," Leslie said. He could not calculate profits, however, since profits equal revenue minus cost, and he had no data on the costs restaurants had to incur to get an A rating.

More dramatically, the research revealed that grade cards caused a 20 percent decrease in the number of food-related hospitalizations in Los Angeles County, while a slight increase was seen elsewhere in the state, suggesting that the restaurants' improved cleanliness resulted in fewer illnesses. "We are convinced that the grade cards had a positive effect on health outcomes," Leslie said.

The research findings were originally released last year in the *Quarterly Journal of Economics*. Leslie is currently working on

follow-up research that looks at what happened with hospitalizations for three years after grade cards were issued. "The positive impact on food-related hospitalizations seems to be sustained for all three years," he said. But he said it's not clear whether the benefits will be sustained in the long run.

Inflated Grade Scores Can Be a Problem

The analysis also suggested some massaging of the scores. For example, after the grade cards went into effect, a lot of restaurants scored exactly 90 during inspections, which is the minimum score for an A.

"Almost no restaurants in our analysis received an 88 or 89," Leslie said.

The researchers considered whether restaurants were simply exerting the minimum effort needed to get an A. "The problem with that hypothesis is that you have to assume restaurants have the ability to target a score of 90, which is highly unlikely," Leslie said.

A more plausible explanation, he believes, is that inspectors sometimes give restaurants higher scores than they deserve. "If you talk to inspectors, they will tell you stories of managers getting fired for getting a B grade. Some inspectors feel pressured by restaurants to give them an A when they are only a point or two below the cutoff. Inspectors give restaurants a break; it's human nature. The unfortunate truth is a lot of that is going on," Leslie said.

As a partial remedy, he suggested that grade cards could reflect the letter and the actual points scored. That approach would create separate problems, however. "All of a sudden, it will matter to restaurants if you get a 95 instead of a 90, so there is going to be additional pressure on inspectors over every single violation point," he said.

Industry Criticizes Letter Grades

The Golden Gate Restaurant Association has faulted Leslie's results because his finding of declines in food-related hospitalizations doesn't take into account the impact of food safety educational efforts by state and industry.

The industry also argues that letter grades are misleading and not a true reflection of long-term restaurant operations. Leslie said his findings disprove that contention. "Improvements that restaurants make with respect to physical equipment or structure, such as well-functioning refrigerators or better ventilation, are clearly long-lasting. Grade cards are especially informative about these changes. Our research shows that the grade cards cause a decrease in the incidence of hygiene violations related to the structural aspects of restaurants."

Statistically speaking, Leslie explained, although there is a small variation over time in hygiene scores at individual restaurants, there is a larger variation in hygiene quality across different restaurants.

"This is fundamentally why grade cards are more informative for consumers than they are likely to be misleading," he said.

"I don't understand why restaurants are opposed to letter grades," he added.

Leslie did have a final word of caution: "Grade cards are one tool for improving restaurant hygiene quality. They should not be seen as a substitute for training restaurant employees in safe food-handling practices or for having frequent inspections."

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Air Pollution Is a Serious Cardiovascular Risk

Exposure to air pollution contributes to the development of cardiovascular diseases, according to a new American Heart Association scientific statement. The statement was published in the June 1 print issue of *Circulation: Journal of the American Heart Association*.

"The increase in relative risk for heart disease due to air pollution for an individual is small compared with the impact of established cardiovascular risk factors such as high blood pressure or high cholesterol. Nevertheless, this is a serious public health problem because of the enormous number of people affected and because exposure to air pollution occurs over an entire lifetime," said Robert D. Brook, M.D., lead author of the statement and an assistant professor of medicine in the Division of Cardiovascular Medicine at the University of Michigan in Ann Arbor.

Previously, the American Heart Association had not drawn firm conclusions about the long-term effects of chronic exposure to different pollutants on heart disease and stroke because of flaws in the research design and methodology of many pollution studies.

For the new scientific statement, the association's experts conducted a comprehensive review of the literature on air pollution and cardiovascular disease. The statement focuses on particulate-matter pollution and reaffirms the dangers of environmental tobacco smoke—called secondhand smoke—as an air pollutant. Particulate matter (PM), also known as particle pollution, is composed of solid and liquid particles within the air.

The statement referenced several significant studies.

"A recent report from the American Cancer Society study cohort found that long-term exposure to fine-particulate air pollution at levels that occur in North America increased the risk for cardiovascular mortality. The risk increased by 12 percent for every increase of 10 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$) in fine-particle concentration," Brook said.

He said that long term, levels of fine-particulate matter can vary among North American cities by as much as 30–40 $\mu\text{g}/\text{m}^3$.

"The largest portion of this increased mortality rate was accounted for by ischemic heart diseases (i.e., coronary attacks); however, other causes also were increased, such as heart failure and fatal arrhythmias," he said.

The statement cited another study that suggested a person's exposure to the harmful components of air pollution may vary as much within a single city as across different cities. After studying 5,000 adults for eight years, the researchers of that study also found that exposure to traffic-related air pollutants was more highly related to mortality than were citywide background levels. For example,

those who lived near a major road were more likely to die of a cardiovascular event.

The panel drew several conclusions about pollution:

- Prolonged exposure to elevated levels of particle pollution is a factor in reducing overall life expectancy by a few years.
- Short-term exposure to elevated levels of particle pollution is associated with the increased risk of death due to a cardiovascular event.
- Hospital admissions for several cardiovascular and pulmonary diseases are increased in response to higher concentrations of particle pollution.

The panel recommends that people with heart disease, cardiovascular risk factors, diabetes, or pulmonary disease limit outdoor activities when pollution is high, in accordance with U.S. Environmental Protection Agency (U.S. EPA) Air Quality Index recommendations.

During the last decade, epidemiological studies conducted worldwide have shown that elderly patients, people with underlying heart or lung disease, populations of lower socioeconomic status, and people with diabetes may be at particularly increased risk of incurring cardiovascular disease from air pollution.

All Americans should be aware of the potentially hazardous cardiovascular health effects of air pollution, according to the scientific statement. U.S. EPA provides daily information about ozone and particulate-matter levels for more than 150 cities at www.epa.gov/airnow.

"Health care providers and at-risk patients should be educated about the health risks related to air pollution and about the availability of daily air pollution updates," Brook said.

Air pollution is composed of many environmental factors, such as carbon monoxide, nitrates, sulfur dioxide, ozone, lead, secondhand tobacco smoke, and particulate matter. Particulate matter can be generated from vehicle emissions, tire fragmentation and road dust, power generation and industrial combustion, smelting and other metal processing, construction and demolition activities, residential wood burning, windblown soil, pollens, molds, forest fires, volcanic emissions, and sea spray.

Secondhand smoke is the single largest contributor to indoor air pollution when a smoker is present, according to the statement. Studies of secondhand smoke indicate that air pollution in general can affect the heart and circulatory system. Previous research has established that exposure to the secondhand smoke of just one cigarette per day accelerates the progression of atherosclerosis (hardening of the arteries), so the panel finds it plausible that even low doses of air pollution could have negative effects on coronary functions.

The statement noted that more research is needed to determine the underlying biological mechanisms and pathophysiological pathways that may contribute to the development of cardiovascular disease and to identify the toxicities of various air pollutants. The statement detailed several areas for future research.

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