

RESEARCH YOU CAN USE

A 'Natural Experiment'—Closing Broadway

"Correlation does not equal causation."

This truth is drilled into planning students in research methods courses. The opposite premise, that correlation proves causation, is a common logical fallacy in which two events that occur together are claimed to have a cause-and-effect relationship.

The statistical studies that populate planning journals, some of which have been featured in this column, establish correlations between, say, bicycle-friendly policies and rates of bicycling within communities ("The Perils of Causal Inference," May 2007) or between compact development and a host of good outcomes ("Compact Development and Good Outcomes," July 2009). These studies do not prove causation.

You could think of research methods in planning as having one overriding goal—to come as close to inferring causation as possible in the social sciences. As planners, we want to know that one action causes another, so we can change the world. Simple correlations are of little interest to us.

This is one reason that structural equation modeling is becoming popular among planning scholars. It moves us a few feet closer to cause-effect inference than does simple linear regression (see "Different Models of Metropolitan Economic Performance," June 2008). It also accounts for the appeal to planners of natural experiments, referring to a type of research design that shares many characteristics with controlled experiments in the physical sciences. One group gets a treatment, while another, roughly equivalent group does not. Outcomes for both groups are measured before and after the treatment while any differences can logically be attributed to it.

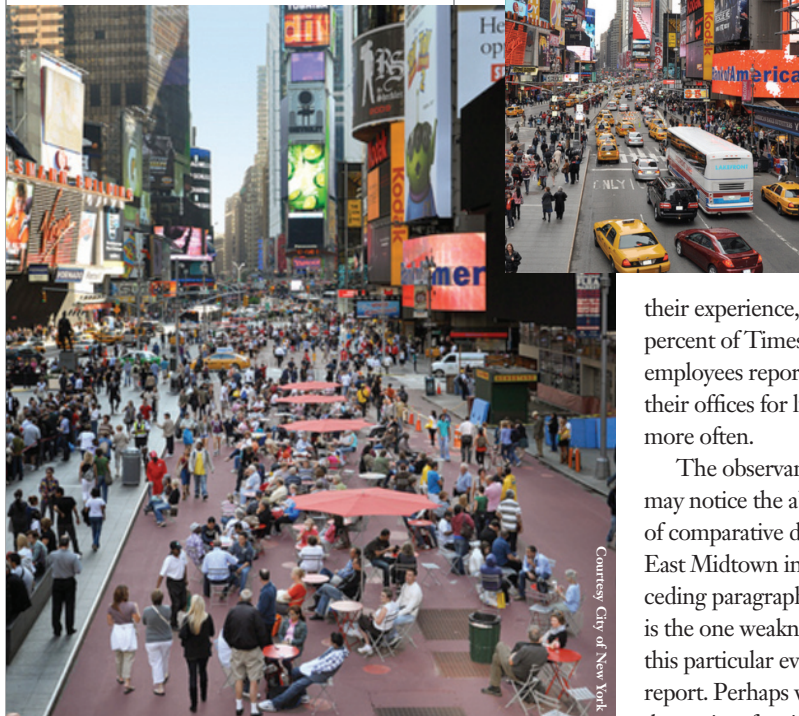
That brings us to New York City, where a natural experiment has just been completed by the local Department of Transportation under the leadership of Commissioner Janette Sadik-Khan, a true innovator. For a trial period, Broadway was closed to vehicular traffic and opened

to pedestrian traffic at Herald Square and Times Square. Outcomes were monitored before and after the closings for West Midtown and the comparison site, East Midtown. The results of the experiment are presented in the just-released *Green Light for Midtown Evaluation Report*.

Favorable results

The figures look good. Travel speed data taken from GPS systems installed in taxis in West Midtown showed a 17 percent improvement in northbound trips from the

area are down 63 percent, and pedestrian injuries are down 35 percent. The number of pedestrians walking along Broadway and Seventh Avenue in Times Square has increased by 11 percent. At Herald Square, pedestrian volume has increased by six percent. Forty-two percent of New York residents surveyed in Times Square say they do more shopping in the area since the changes took place, 70 percent of theatergoers say the plazas have had a positive effect on



Times Square before and after the closure.

fall of 2008 to the fall of 2009, compared with an eight percent improvement in East Midtown. The speed of southbound trips in the same area declined by two percent while East Midtown showed a three percent increase. The speed of eastbound trips in West Midtown improved by five percent, while westbound trips improved by nine percent last fall compared with a year earlier. East Midtown showed a two percent improvement for eastbound trips and seven percent for westbound trips.

Safety and pedestrian activity have also improved. According to crash data, injuries to motorists and passengers in the project

their experience, and 26 percent of Times Square employees report leaving their offices for lunch more often.

The observant reader may notice the absence of comparative data for East Midtown in the preceding paragraph. This is the one weakness of this particular evaluation report. Perhaps with such dramatic safety improve-

ments along Broadway, we can assume that nothing comparable occurred at the control site. But it would be nice to know for sure.

After years of hearing that pedestrian malls are a bad idea, it is good to have strong evidence to the contrary (albeit from a uniquely pedestrian-oriented place).

Reid Ewing

Ewing is a professor of city and metropolitan planning at the University of Utah and an associate editor of the *Journal of the American Planning Association*. He is also the lead author of *U.S. Traffic Calming Manual*, published in 2009 by APA Planners Press. Past columns are available at http://cmpweb.arch.utah.edu/research_projects/research-you-can-use. The *Green Light for Midtown Evaluation Report* can be found at www.nyc.gov/html/dot/downloads/pdf/broadway_report_final2010_web2.pdf.