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Hotel Sustainability:

Financial Analysis
Shines a Cautious Green Light

by Howard G. Chong, Ph.D.,
and Rohit Verma, Ph.D.

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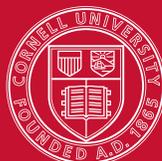
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EXECUTIVE SUMMARY

Hotels around the world have risen to the challenge of improving their sustainability and reducing their carbon footprint. Although many groups and customers are demanding sustainability, hotel operators are concerned about whether sustainable hotels increase or decrease their rates and bookings. To answer the question of whether going green hurts or helps revenues, this study used data provided by Sabre to determine the effect on bookings of widespread advertising of eco-certified hotels. Sabre’s Travelocity site uses an eco-friendly hotel label to flag hotels that have earned any of a dozen environmental certifications, including LEED and EnergyStar. Based on an analysis of millions of individual bookings in over 3,000 eco-certified hotels (and a comparison group of 6,000 properties), the study finds that, *on average*, booking revenue neither increased nor decreased for the certified hotels.

While this study doesn’t address the situation of any individual hotel, we can conclude that going green is compatible with existing quality standards of hotel service, and that advertising green status doesn’t hurt a hotel’s revenues. Earning a green certification does not automatically result in a large revenue bump nor a revenue fall. In short, green is not a “silver bullet” strategy. Finally, although the average effect is revenue neutral, individual properties have widely varied experiences with eco-certification, depending on their individual situation.

ABOUT THE AUTHORS

Howard G. Chong, Ph.D., is an assistant professor at the Cornell University School of Hotel Administration.

His doctorate is in agricultural and resource economics from the University of California, Berkeley. He teaches microeconomics and is developing courses on environmental economics and sustainability. His current research focuses on environmental and energy economics. His past research included studies of energy use in buildings of different ages, the impact of carbon markets on firms, and water markets. He is a faculty fellow at Cornell's Atkinson Center for a Sustainable Future. He gratefully acknowledges Sabre's support of this study.



Rohit Verma, Ph.D., is a professor of service operations management at the Cornell School of Hotel Administration. He served as the executive director of the Cornell Center for Hospitality Research during 2009–2012 and is currently the director of the school's Executive Master Program Development Project. Prior to joining the Cornell faculty, he was the George Eccles Professor of Management, David Eccles School of Business (DESB) at the University of Utah. He has also taught MBA and executive development classes at several universities around the world, including DePaul University, German Graduate School of Business and Law, Helsinki School of Economics, Indian School of Business, Norwegian School of Logistics, Nyenrode University, and University of Sydney. Verma has published over 50 articles in prestigious journals and serves on the editorial review boards of *Production and Operations Management*, *Cornell Hospitality Quarterly*, and *Journal of Service Research*. He has co-edited special issues of *Cornell Hospitality Quarterly*, *Decision Sciences*, *Journal of Operations Management*, and *Journal of Service Management*. He is the co-author of *Operations and Supply Chain Management for the 21st Century*, and co-editor of *Cornell School of Hotel Administration on Hospitality: Cutting Edge Thinking and Practice*, a professional reference book that includes works of several of his colleagues at Cornell.

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The global hotel industry has moved ahead with sustainability, and many hotels have earned certification for “green” operation. In addition to doing the right thing, hotels are responding to customer requests regarding sustainability programs and efforts to reduce carbon footprints, both as purchasers in the supply chain and as suppliers. There are many channels from sustainability to profitably including cost savings and operational efficiencies. For marketers and brand managers, the key question is how this status affects customer purchasing. Evidence has come out on both sides of this question. On the one hand, hotels might benefit because they align with their customers’ social values, but on the other hand, some guests might believe that “going green” is incompatible with their quality and service expectations.

This study begins to address one of these issues, using data from an immense database of booking data from Sabre. The question we examine is whether advertising an eco-certified hotel decreases or increases a hotel's bookings and rates. The study analyzes millions of bookings in over 9,000 hotels, mostly in North America, from 2011 through 2012, drawn from Sabre's Travelocity and GDS sales platforms. The database includes 3,000 eco-certified hotels. We look at bookings both before and after the hotel advertises its eco-certification, as compared to a control group. We find that, on average, booking revenues neither increased nor decreased, with large variation across individual hotels.

The "Green Gap"

In the broader green literature, there is evidence that consumers say they want green products but are generally not willing to pay for them. AC Nielsen dubbed this "The Green Gap."¹ In 2011, 83 percent of consumers said it's important for companies to have environmental programs, but only 22 percent said they'd pay more for those products. Joel Makower, sustainable business guru, goes so far as to declare green marketing dead, saying that for most products consumers have *not* been willing to vote with their feet for the environment.² This principle does not apply to such green successes as organic foods and hybrid cars, because, as Makower contends, these products directly affect the consumer's well-being (either through improved health or reduced gas costs). Building on this broad analysis of products, the question then becomes whether hotels, being an experience good, can get consumers to recognize and reward green efforts.

This research is the first to use market booking data to answer the question of eco-certification's value in the marketplace, in contrast to studies that primarily have used survey methods or individual case studies. So far, the record is mixed. Kang *et al.* use a survey to study increased willingness to pay for eco-hotels and find that some consumers are willing to pay more, especially those who hold stronger environmental values.³ Bohdanowicz studies attitudes and initiatives of hoteliers using a detailed survey in Sweden and Poland.⁴ She found that neither the hoteliers nor their customers put a particularly

high value on sustainability, but that situation seemed to be gradually changing.

These studies are particularly useful in uncovering mechanisms and moderators of green hotels, but market outcome data are needed to study the broader market. In short, we need to determine the effect of sustainability on hotels' average rates and quantities of rooms sold. In that regard, one notable exception to the heavy reliance on surveys is the study by Kuminoff, Zhang, and Rudi (2010), which uses market data (posted prices) of eco-certified hotels in Virginia and finds a \$9-\$26 price premium.⁵ In contrast to that cross-sectional study, the research described in this report uses time series panel data to look at the changes in hotel bookings using a change in how eco-certification is prominently displayed, leading to better identification of the effect.

Sustainability for hotels is a particularly rich topic, because of its many dimensions. This study concentrates on sustainability's market impact, in terms of revenues, prices, and rooms sold. This study does not look at cost savings, overall profitability, or other aspects of the hotel supply chain. The business case for cost savings is already well understood, and the hotel industry has focused primarily on cost savings as the first step of sustainability.⁶ This is consistent with the trend across all industries that cost savings are typically the first step in corporate sustainability.⁷ Other research focuses on messaging (Jameson and Brownell),⁸ environmental and sustainability reporting (Ricaurte),⁹ customer satisfaction and guests' perceptions of practices (Chong, Choy, and Verma),¹⁰ and standards making (Honey).¹¹

⁵ Nicolai V. Kuminoff, Congwen Zhang, and Jeta Rudi, "Are Travelers Willing to Pay a Premium to Stay at a "Green" Hotel? Evidence from an Internal Meta-Analysis of Hedonic Price Premia," *Agricultural & Resource Economics Review*, Vol. 39, No. 3 (2010), p. 468.

⁶ American Hotel and Lodging Association, "14 Minimum Guidelines for Going Green," and "AH&LA Green Resource Center," <http://www.ahla.com/Green.aspx?id=24562> and <http://www.ahla.com/green.aspx>.

⁷ Joel Makower and Cara Pike. *Strategies for the Green Economy: Opportunities and Challenges in the New World of Business* (Columbus, OH: McGraw-Hill, 2009).

⁸ Daphne Jameson and Judi Brownell, "Telling Your Hotel's "Green" Story: Developing an Effective Communication Strategy to Convey Environmental Values," *Cornell Hospitality Tools*, Center for Hospitality Research, Vol. 3, No. 2 (2012).

⁹ Eric Ricaurte, "Developing a Sustainability Measurement Framework for Hotels: Toward an Industry-wide Reporting Structure," *Cornell Hospitality Report*, Center for Hospitality Research. Vol. 11, No. 13 (2011).

¹⁰ Howard Chong, V. Choy, and Rohit Verma "The Impact of Environmental Sustainability Initiatives on Customer Satisfaction of Hotel Guests. Unpublished manuscript (2013).

¹¹ M. Honey, "Protecting Eden: Setting Green Standards for the Tourism Industry." *Environment: Science and Policy for Sustainable Development*. 45.6 (2003): 8-20.

¹ AC Nielsen. The Green Gap between Environmental Concerns and the Cash Register, published 8/31/2011. Viewed 7/14/2013, <http://www.nielsen.com/us/en/newswire/2011/the-green-gap-between-environmental-concerns-and-the-cash-register.html>.

² J. Makower, "Green Marketing Is Over. Let's Move On," published 5/16/2011. Viewed 7/14/2013. <http://www.greenbiz.com/blog/2011/05/16/green-marketing-over-lets-move?page=full>

³ K.H. Kang, L. Stein, C.Y. Heo, and S. Lee, "Consumers' willingness to pay for green initiatives of the hotel industry" *International Journal of Hospitality Management*, Vol. 31, No. 2 (2012), pp. 564-572.

⁴ P. Bohdanowicz, "Environmental Awareness and Initiatives in the Swedish and Polish Hotel Industries—Survey Results" *Hospitality Management*, Vol. 25 (2006), pp. 662-682.

Travelocity enhanced listing for eco-certified hotels



Eco-Certified Hotel

1 Luxor Hotel and Casino
1.855.315.5571



★★★★☆  1961 reviews
Las Vegas Strip, Las Vegas, NV

Specials: Receive \$20 in Food & Beverage Credit!

Compare up to 4

Use DEAL10 For Extra 10% OFF

\$82 \$136
Limited Time Offer - Save 40%
lowest per night avg

[Select Hotel](#)

2 Circus Circus Hotel and Casino
1.855.315.0545



★★★★☆  1260 reviews
Las Vegas Strip, Las Vegas, NV

Specials: Receive \$20 In Food & Beverage Credit! [Details ▶](#)

Compare up to 4

Use DEAL10 For Extra 10% OFF

\$37 \$61
Save 40%
lowest per night avg

[Select Hotel](#)

3 Golden Nugget Hotel and Casino
1.855.315.0516



★★★★☆  704 reviews
Fremont Street and Downtown Las Vegas, Las Vegas, NV

Specials: Enter Promo Code "DEAL10" for Added 10% Off [Details ▶](#)



Compare up to 4

Use DEAL10 For Extra 10% OFF

\$64 \$80
Book Now and Save 20%
lowest per night avg

[Select Hotel](#)

Data

Travelocity’s website has added a “green flag” for hotels that have earned a formal sustainability designation, as shown in Exhibit 1. As depicted in this search result from Travelocity.com, the listings include a conspicuous green leaf icon and the words “Eco-Friendly Hotel.” Approximately 5,000 hotels currently qualify as Eco-Friendly, and most searches will include some hotels that carry this green flag. If consumers value this attribute, we can expect that they will book eco-certified hotels more often. Hotel revenue managers dynamically adjust their prices, so the higher bookings may also appear as an



increase in price. If consumers dislike this attribute, on the other hand, consumers may book less or the hotel may have to decrease price to fill rooms.

The data used in this study are based on Sabre’s global distribution system (GDS) data. The joint study looks at the hotels in Sabre’s Eco-Certified Hotel Program, a one-of-a-kind program that includes 9,000+ hotels, all of which meet a third-party eco-certification using standards recognized by the Global Sustainable Tourism Council (GSTC), a major tourism sustainability industry group. Sabre’s and the GSTC’s combined efforts have visibly promoted sustainability across Sabre’s travel and tourism platform.

EXHIBIT 2

Hotel counts by eco-certification

	Not Eco-Certified	Eco-Certified
Atlanta	40	13
Austin	36	18
Boston	25	23
Calgary	31	33
Charlotte	30	9
Chicago	38	22
Dallas	50	20
Houston	67	20
Las Vegas	42	24
London	89	47
Los Angeles	22	9
Mississauga	25	15
Montreal	40	31
New York	45	15
Philadelphia	22	6
Phoenix	41	14
San Francisco	46	29
Seattle	33	15
Toronto	24	46
Washington	41	19
Total (Top 20 cities)	787	431
Total (all cities)	7,187	3727

The Eco-Friendly designation is given to a property that has earned any of several dozen certifications. The exact features that qualify a hotel for eco-certification vary according to the specific certification the hotel receives, but the important feature is that the consumer (decision-maker) sees the same advertising information regardless of certification program. Well-known example certifications are LEED and Energy Star (primarily in the U.S.A.) and the Green Tourism Business Scheme (GBTS, primarily in the U.K.). These standards have wide variation in features. Energy Star is completely focused on energy performance; LEED focuses on environmental features across several categories including energy, water use intensity, and site selection; and the broader GBTS includes environmental, cultural, and socio-economic impacts. The global green standards landscape is complicated by the fact that various regions and companies prefer different certifications, and, as a consequence, a unified global standard has not emerged. Sabre's initiative has tried to reduce the complexity for consumers by collapsing

EXHIBIT 3

Breakdown of eco-certification program participation ranges

Entire Period Eco-Certification Participation	Percentage of Hotels	Description
Jan 2011 to Aug 2012	49%	Full Period certified
Dec 2011 to Aug 2012	17%	Late 2011 certified
Nov 2011 to Aug 2012	8%	Late 2011 certified
Aug 2011 to Aug 2012	4%	Late 2011 certified
Other (42 categories)	22%	Other

all of these standards into one label on their sales platform. It is assumed that this program will affect consumers primarily through an adjustment of preferences based only on the "Eco-Friendly Hotel" icon.

The dataset includes bookings through the Sabre system for a period from January 2011 through August 2012. Hotel booking data are received for all eco-certified properties as well as a comparable set of two or three hotels of a similar service class and location for every green certified hotel. Booking data include the check-in date, the length of stay, the price paid, and the sales channel (that is, through Travelocity, Sabre's GDS, or another Sabre product). Hotels are identified by the city and a service quality level.¹²

Because hotel rates vary substantially by hotel location, season, and time of booking, and because the hotels in this set received their eco-certification at different times, the main analysis has been restricted to hotels in the top 20 cities and to short, midweek bookings in April 2011 and April 2012. Exhibit 2 displays information on hotel and booking characteristics for this study's data.

In addition to bookings, Sabre provided detailed information on when each hotel was eco-certified and that information was made available to consumers. As shown in the top row of Exhibit 3, 49 percent of eco-certified hotels were certified for the whole time period of the study. The next three rows show that the eco-certification of 29 percent of the hotels was displayed starting in late 2011. These hotels can be thought of as switchers; any change of their bookings from before and after certification constitutes a potential bump or hit to revenue precipitated by the change in advertising. Since the remaining eco-certification time range of the other 22 percent of the eco-certified hotels fell into 42 other categories, I dropped them from the analysis.

¹² Sabre uses Northwest Travel Media (NTM) ratings that are on a scale from 1 crown to 5 crowns. It approximately mirrors AAA diamond ratings.

Information displayed to purchasers depending on eco-certification entry timing

Eco-certification timing group	Displayed April 2011	Displayed April 2012	Change between 2012 and 2011.
Full-period certified	Green leaf	Green leaf & Sabre GDS	Added Sabre GDS display
Late-2011 certified	None	Green leaf & Sabre GDS	Added Travelocity green leaf and Sabre GDS display
Control Group	None	None	None

Additional statistical variation comes from the timing with which Sabre presented information to purchasers. Although Travelocity's green leaf was on display before the study period began, the larger Sabre GDS turned on its eco-certification flag in February 2012, in the midst of the study period. Keeping in mind that the green flag for the GDS transactions date only from February 2012, we were able to compare hotels during the two time periods. Exhibit 4 summarizes what was displayed to consumers and what changes were relevant to the group.

Methodology

We applied a differences-in-differences (DID) statistical methodology for this study. Widely used in economics and health research, DID can best be understood as being similar to a controlled experiment. There is a treatment group and a control group. Measurements are available both before and after an intervention. As a hypothetical example, consider two hotels that are identical, except that one is given an eco-certification label in February 2012. In this situation, one can simply compare the ADR between the hotels after February 2012. Identical hotels do not exist, of course, so similar hotels are used. To control for any potential differences, hotels are normalized using pre-intervention rates.

Here's a numerical example of how the differences-in-differences approach works. Say that the eco-certified hotel's rates increase from \$150 to \$200, whereas the control hotel's rates increase from \$175 to \$185. The DID methodology estimates the impact of the certification as \$40 (= \$50 - \$10). Another way to express this is that the eco-certified hotel increased \$40 in ADR relative to any changes in a control group.

As a caution, two tempting approaches must be avoided because they would lead to incorrect conclusions. We cannot compare the rate differences from before and after the certification (\$50), because common time differences, like seasonality or year-to-year common trends, have not been removed or controlled. Along the same lines, directly comparing rates for the eco-certified and non-eco-certified ho-

tels would also be incorrect (\$15=\$200-\$185), because that approach ignores any differences between the two hotels.

The analysis presented here includes both aspects of hotel revenue, rates (prices) and occupancy (quantity). We analyze ADR and booking counts separately and then combine them to look at the impact on revenue.

Econometric Equations

Two econometric equations are used in this analysis. The first, for prices, is:

$$ADR_{it} =$$

$$\beta [ECOGROUP_i \times year2012_t] + \gamma [city_i \times year2012_t] + TE_t + FE_i + \varepsilon_{it}$$

Where i represents a hotel and t represents time in days. Observations are individual bookings.

ADR_{it} represents the average daily rate for the booking. $ECOGROUP$ represents the categories of the timing of eco-certification (see Exhibit 3), $year2012$ indicates a booking in 2012, $city_i$ is an indicator of the city. TE_t represents daily time fixed effects specific for each check-in day, and FE_i represents a fixed effect for each hotel.

The coefficient of interest is β , which represents the "bump" in ADR between 2011 and 2012 attributable to the changes in eco-certification. This estimating equation has the following properties. It "zeroes out" the pre-existing differences across hotels that do not vary over time (including differences in hotel quality). It removes any common time trend, and each city is allowed a different common time trend.

The second estimating equation, for quantities, is:

$$Q_{it} =$$

$$\beta [ECOGROUP_i \times year2012_T] + \gamma [city_i \times year2012_T] + FE_i + \varepsilon_{iT}$$

All variables are the same as for the preceding equation except the following: T indexes the year (rather than a month), and Q_{iT} represents the cumulative number of room bookings for each year. Here again, the coefficient of interest is β , which is the "bump" in the quantity of bookings from eco-certification.

EXHIBIT 5**Main result #1: Eco-certification advertising impact on ADR and booking counts**

Eco-certified Group	ADR	Booking Count
Late-2011 certified	-\$3.5 ± 5.5	-42.9 ± 53.5
Full-period certified	-\$1.4 ± 2.9	-27.4 ± 38.6

Notes: Average daily rate for all bookings: \$208.58; Average number of bookings: 644.28 per hotel in April; Total bookings: 1.52 million; Reported ranges represent 95% confidence intervals.

EXHIBIT 6**Main result #2: Eco-certification advertising impact on ADR and booking counts, Travelocity only**

Eco-certified Group	ADR	Booking Count
Late 2011 certified	\$5.2 ± 8.2	-7.3 ± 22.4
Full Period certified	-\$2.6 ± 5.0	2.8 ± 15.3

Notes: Average daily rate for Travelocity bookings: \$133.06; Average number of Travelocity bookings: 87.48 per hotel in April; Total Travelocity bookings: 183,026; Reported ranges represent 95% confidence intervals.

EXHIBIT 7**Robustness check: Eco-certification impact including weekends and additional months**

Eco-certified Group	ADR	Booking Count
Late 2011 certified	\$3.1 ± 6.0	-25.9 ± 27.0
Full Period certified	-\$0.8 ± 2.6	-21.2 ± 22.4

Both are estimated with panel data methods with heteroskedasticity-robust standard errors.¹³

Main Results

The main results compare the eco-certified hotel groups to non eco-certified hotels in the largest twenty cities in the sample, controlling for hotel quality, location differences, and any trends specific to quality and location. Impact on ADR and booking counts are analyzed. Though point estimates are negative, none of the impacts is statistically significantly different from zero (Exhibit 5). To interpret one number, -\$3.50 is on a base of \$208.58 in average ADR. This 1.7-percent reduction is not a strong statistical signal.

A second main result runs the same analysis but restricts the analysis to bookings made through Travelocity. In this analysis (Exhibit 6), we would expect the impact to be zero for hotels certified for the full period of the study, because there was no change in how the eco-certification was advertised. Only in hotels certified in late 2011, the switchers, did the eco-certification change. The results show that

¹³ This is equivalent to ordinary least squares (OLS) with hotel specific dummy variables. See: Jeffrey M. Wooldridge, *Econometric Analysis of Cross Sectional and Panel Data* (Cambridge, MA: MIT Press, 2002).

for both groups, none of the impacts is statistically significantly different from zero. Interestingly, the point estimate on ADR is now positive, but with a wide margin of error. Note that booking count numbers should not be compared between the two regressions since there are fewer Travelocity bookings.

Robustness Checks

As a robustness check, I ran several other versions of the regression. First, both weekend and weekday bookings were analyzed for a longer time period of three months, from April through June in both 2011 and 2012, as shown in Exhibit 7. The same pattern of an average zero impact appears.

A second robustness check compares the effects on three cities. As shown in Exhibit 8 (next page), London, New York, and Toronto are the three cities with the most eco-certified hotels. In the case of London, results show that average daily rate was statistically significantly higher than zero with a point estimate of +\$26.1. Here we do find evidence of the eco-certification having a positive effect. In New York and Toronto, we again find an average impact of zero. These results highlight the potential wide variation in results across cities.

Robustness check: Comparison of major cities

City	ADR—Late 2011 Certified
London	\$26.1 ± 22.0
New York	-\$2.8 ± 11.0
Toronto	\$6.9 ± 27.8

Methodological Note

Other studies may compare green hotels to non-green hotels directly, which can be misleading. Green hotels tend to have higher rates because they operate in more upscale market segments. Studies with simple comparisons would typically find green hotels doing vastly better in rate than non-certified hotels. But that would be misleading, because the comparison would involve two entirely different groups of hotels, for example, upscale green hotels to economy non-green hotels. In contrast, the difference-in-differences statistical framework in this study accounts for these types of differences.

As a comparison to the DID approach, it is instructive to see how two common types of analyses would give misleading results. First, if one were to do a cross-sectional analysis, the impact of eco-certification on ADR for hotels certified in late 2011 would be $+\$25.6 \pm 1.2$, a strong positive result. Unfortunately, this is driven entirely from the fact that the eco-certified hotels have higher quality or are in locations with higher rates. An even more tempting approach (but equally incorrect) would be to do a before-and-after analysis of the switchers, which were certified late in 2011. After the eco-certification advertising switch turned on, one would find that their ADR went up $+\$7.9 \pm 6.1$, a positive result which is statistically significant. This result, however, is driven by a year-over-year trend, where ADR increased even for non-certified hotels.

Caveats and Conclusions

Under the assumption that these hotel booking data are representative of the market, the advertising of eco-certification has statistically zero impact on revenue for the hotel industry overall. Depending on their competitive situation, some hotels may see revenues increase and others may see declines. Though this outcome may disappoint extreme pessimists (green-doubters) and optimists (green-lovers), the pragmatist should see this as a green light to continue measured improvements in hotel environmental performance.

One silver lining from the study for environmental advocates is that, overall, going green has not hurt hotels. Some green pundits have asserted that there is a conflict between green operation and maintaining luxury guest standards. In this view, green programs are equated with sacrifice. General managers may be concerned about anecdotal evidence that going green will lose business. The study finds this not to be true overall after looking at the vast booking data set. This suggests that sustainability managers in hotels have appropriately adopted sustainability practices without disappointing customers.

This study looks at the overall average impact. Again, individual hotels may have different experiences with going green. Furthermore, individual customers may make choices about sustainability, but that may not be enough people to move the hotel market. Over time, the share of green consumers may change, and there is an established market segment that does incorporate environmental and social attributes into their decision making.¹⁴ Second, I also must note that the effects of eco-certification may be different in individual markets, so that California may be different from Florida. Not enough data regarding hotels that switch to eco-certified status are available to fully investigate the effect in individual regions. Third, this study looks at eco-certification as implemented. This is a broad program that is easy to understand (with a simple logo), but does not signify any specific attributes. Some hotels may have rooftop gardens while others may just have better air conditioners on the roof and insulation in the walls. An advertising program that highlights different features, especially hotel-specific programs aimed at local clientele, would likely have different effects. Last, green programs are still relatively new, and the impact of sustainability may increase as customer experience with sustainability grows.

It is important to recognize that eco-certification often occurs with other changes. Statistically, this is called a selection effect. Eco-certification may occur with major remodeling, as part of larger hotel strategy, or other capital investment. Green hotel upgrades may be a small part of something greater. For example, if eco-certification is the “cherry on top” of a major capital project, it will appear like eco-certification has a bigger effect than it really does. If instead, a struggling hotel utilizes a green strategy to help business (while allowing quality to fall), it may appear like

¹⁴ One segmentation is LOHAS, which can be researched at <http://www.lohas.com/about>. However, several segmentations exist. Approximately 10 to 20 percent of consumers are highly motivated “by health, the environment, social justice, personal development, and sustainable living.”

eco-certification has a negative effect, when the true culprit is falling quality.

These data, based on Sabre's GDS data, do not reflect all sales channels or customers. Anecdotally, group sales and green meetings have been especially important for hotels and this is where sustainability may play a bigger role. Direct hotel sales are also not included in this data set.

The results of this study shouldn't slow down hotels' move towards sustainability. If the hotel industry is consistent with the broader movement of sustainable business, the first projects are cautious and target cost-cutting. Though revenues overall may not have risen, as this study has indicated, cost savings from sustainability programs are still real benefits to the bottom line. Furthermore, strategists increasingly highlight ancillary benefits of sustainability to employee engagement, the broader brand, and innovation culture.¹⁵ Though there is no green "magic bullet" that supercharges revenues, sustainability's strategic role continues to play a big part in the hotel industry. ■

¹⁵ K. Haanaes, D. Arthur, B. Balagopal, M.T. Kong, I. Velken, and M. Hopkins, "First Look: The Second Annual Sustainability and Innovation Survey," *MIT Sloan Management Review*, Vol. 52, No. 2, (Winter 2011), pp. 77-83.

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