

Sunny, rainy, or cloudy: New study shows how weather impacts response to mobile ads

July 20 2017



Credit: Institute for Operations Research and the Management Sciences

Among the many factors that impact digital marketing and online advertising strategy, a new study in the INFORMS journal *Marketing Science* provides insight to a growing trend among firms and big brands ... weather-based advertising. According to the study, certain weather conditions are more amenable for consumer responses to mobile marketing efforts, while the tone of your ad content can either help or hurt such response depending on the current local weather.

As mobile users may have already noticed, many major

brands—including Burberry, Ace Hardware, Taco Bell, Delta Airlines, and Farmers Insurance—are currently leveraging weather-based promotions. Indeed, more than 200 others have partnered with the Weather Channel Company for targeted advertising and promotions.

The study, "Sunny, Rainy, and Cloudy with a Chance of Mobile Promotion Effectiveness," was conducted by Chenxi Li of Beihang University, Xueming Luo of Temple University, Cheng Zhang of Fudan University, and Xiaoyi Wang of Zhejiang University. The authors examined field experiment datasets with mobile platforms (SMS and APP) on two digital products (video-streaming and e-book reading) on over six million [mobile users](#) in 344 cities across China. They simultaneously tracked [weather conditions](#) at both daily and hourly rates across these cities, with a focus on sunny, cloudy and rainy weather.

The authors found that overall, consumer [response](#) to mobile promotions was 1.2 times higher and occurred 73 percent faster in sunny weather than in [cloudy weather](#). However, during raining conditions, that response was .9 times lower and 59 percent slower than during cloudy weather. Better-than-yesterday weather and better-than-forecast weather engender more purchase responses. A good deviation from the expected rainy or cloudy weather with relatively rare events of sunshine significantly boosts purchase responses to mobile promotions. In addition, compared with a neutral tone, the negative tone of prevention ad content hurts the initial [promotion](#) boost induced by sunshine, but improves the initial promotion drop induced by rainfall. The authors also ruled out the possibility that the results could arise purely because of different mobile usage behaviors during different weather conditions. Their results also took into account the effects of individual locations, temperature, humidity, visibility, air pressure, dew point, wind, and time of day.

"Obviously, although brand managers cannot control the mother-nature

weather, our findings are non-trivial because they suggest that brands can leverage the relevant, local weather information in mobile promotions. Firms should use the prevention-tone ad copy on rainy days and the simple neutral-tone ad copy on sunny days to attain greater bang for the buck," said Li.

"Given that consumers nowadays are inundated with and annoyed by irrelevant ads on their personal mobile devices and small screens, for marketers, these findings imply new opportunities of customer data analytics for more effective [weather](#)-based mobile targeting," Luo added.

More information: Chenxi Li et al. Sunny, Rainy, and Cloudy with a Chance of Mobile Promotion Effectiveness, *Marketing Science* (2017). [DOI: 10.1287/mksc.2017.1044](https://doi.org/10.1287/mksc.2017.1044)

Provided by Institute for Operations Research and the Management Sciences

Citation: Sunny, rainy, or cloudy: New study shows how weather impacts response to mobile ads (2017, July 20) retrieved 9 April 2024 from <https://phys.org/news/2017-07-sunny-rainy-cloudy-weather-impacts.html>

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