

# Twitter Predicts Box-Office Sales Better Than a Prediction Market

BY [Cliff Kuang](#) Thu Apr 1, 2010

Researchers at HP Labs discover that Twitter can predict, with astonishing accuracy, how well a movie will sell.

We've all got the vague intuition that Twitter allows you track, in real-time, what people are concerned about or obsessed with. But this is a little freaky: Two researchers at HP Labs, Sitaram Asur and Bernardo Huberman, [have discovered](#) that you can actually use Twitter mentions to predict how well a movie will do in its first couple weekends of release. What's more, the method works even better than the most accurate method currently in use, the [Hollywood Stock Exchange \(HSX\)](#).

Asur and Huberman started by monitoring movie mentions in 2.9 million tweets from 1.2 million users over three months. These included 24 movies in all, ranging from *Avatar* to *Twilight: New Moon*.

Then they took two different approaches, dealing with two very different performance metrics: the first weekend performance, which is largely built on buzz and the second weekend performance, which is largely built whether people actually like the movie.

To predict first weekend performance, they built a computer model, which factored in two variables: the rate of tweets around the release date and the number of theaters its released in. Lo and behold, that model was 97.3% accurate in predicting opening weekend box office. By contrast, the Hollywood Stock Exchange, which has been the gold standard for opening box-office predictions, had a 96.5% accuracy.

Meanwhile, to predict second-weekend performance, the authors created a ratio of positive tweets to negative ones. Then they blended that with the Tweet rate metric in another prediction algorithm. This time, the method was 94% accurate.

Is this B.S.? Stats guru Nate Silver, of [FiveThirtyEight.com](#), told FastCompany.com, "There is some promise here. Twitter is going to provide a more tangible gauge of excitement and engagement than something like a traditional survey, and it's obviously much more in real time." But he added a caveat: "I imagine it would do better for more upmarket films, since its users tend to be highly educated, and for films with older audiences, since Twitter will skew a bit older relative to what are often \*very\* young opening weekend demos."

He has a point: Asur and Huberman didn't release correlations for individual films, and it's not clear to what extent their findings are being driven by whales such as *Avatar* and *Twilight: New Moon*.

Still, it's astonishing that the Twitter data is so basic but powerful, when compared to the teeming complexity of the HSX prediction market; there, bettors typically rely on lots of variables, such as Hollywood's voluminous exit polls and focus group results, and intuitions about past performance, which the market then aggregates.

Of course, you'll note that performance difference between the Twitter method and the HSX is tiny. You won't see any Hollywood executives running for data mining software for Twitter anytime soon. But it does suggest another use: Why not use Twitter to forecast results for sales of products, video games, and everything else? In those cases, polling data and prediction markets don't exist and Twitter might just be the best predictive data set out there. According to Huberman, "The limits are getting enough of a conversation on topic." So just because something doesn't exist on Twitter doesn't mean it doesn't exist in the real world. (Hear that, Twitter freaks?) And in practice, only huge, buzzed about events might be open to this sort of analysis.

But what should be even more alluring to marketers: As Tech Review [points out](#), Twitter might be more than just a mirror of mass sentiment--the service might also influence it. In other words, could you actually make a product launch far more successful with a really smart Twitter strategy?