

Table 1: Vine Reviews

	star_rating	helpful_votes	total_votes
count	18512.000000	18512.000000	18512.000000
mean	4.135048	5.824654	7.212565
std	0.962940	37.449657	40.058811
min	1.000000	0.000000	0.000000
25%	4.000000	0.000000	0.000000
50%	4.000000	1.000000	2.000000
75%	5.000000	3.000000	5.000000
max	5.000000	2561.000000	2688.000000

Table 2: Non-Vine Reviews

	star_rating	helpful_votes	total_votes
count	3.075148e+06	3.075148e+06	3.075148e+06
mean	4.034911e+00	1.835739e+00	2.341779e+00
std	1.389569e+00	2.119184e+01	2.233693e+01
min	1.000000e+00	0.000000e+00	0.000000e+00
25%	3.000000e+00	0.000000e+00	0.000000e+00
50%	5.000000e+00	0.000000e+00	0.000000e+00
75%	5.000000e+00	1.000000e+00	1.000000e+00
max	5.000000e+00	1.278600e+04	1.294400e+04

Table 2: Comparison Table

Measure	Vine	Non-Vine	% Vine	% Non-Vine	Total
Count of Reviews	18,512	3,075,148	0.59%	99.40%	3,093,660
Count of 5-star Reviews	8,044	1,772,987	43.45%	57.66%	1,781,031
Mean Star-Rating	4.13	4.03			
Mean Helpful Votes	5.82	1.83			
Median Star Rating	4.00	5.00			
Median Helpful Votes	1.00	0			
Median Total Votes	2.0	0			

According to Amazon.com website: "Amazon Vine invites the most trusted reviewers on Amazon to post opinions about new and pre-release items to help their fellow customers make informed purchase decisions. Amazon invites customers to become Vine Voices based on their reviewer rank, which is a reflection of the quality and helpfulness of their reviews as judged by other Amazon customers. Amazon provides Vine members with free products that have been submitted to the program by participating vendors. Vine reviews are the independent opinions of the Vine Voices. The vendor cannot influence, modify or edit the reviews. Amazon does not modify or edit Vine reviews, as long as they comply with our [posting guidelines](#). A Vine review is identified with the green stripe Customer review from the Amazon Vine Program."

Vine Voices are the reviewers responsible for creating reviews in the Amazon Vine Program. The analysis seeks to find possible biases in

the Vine program reviews by comparing the Vine and non-Vine reviews for the Amazon Electronics dataset.

Firstly, it is important to note that there were only very few Vine reviews when compared to non-Vine reviews. Out of the 3,093,660 reviews in total for the dataset there were only 18,512 Vine reviews comprising a bit over half of a percent of the total reviews. In comparison, non-Vine reviews comprised 3,075,148 reviews or 99.41% of the total number of reviews.

5-Star Reviews

Of the Vine reviewers, 8,044 (43.45%) where 5-star reviews as compared to non-Vine reviewers where 1,772,987 (57.66%) were 5-star reviews. Based on these numbers, it appears that Vine reviewers are less generous with 5-star reviews than non-Vine reviewers.

Presumably, since Vine reviewers see themselves as a somewhat "professional" and "select" group who are chosen for the quality and helpfulness of their reviews this metric ties up with the goals of the program which notches a point for the quality and reliability of the Vine reviews.

Mean Star Rating

As for the mean star-rating, the Vine Voices had an average of 4.13 stars as compared to 4.03 stars for the non-Vine group indicating that while they give less 5-star reviews, on the average Vine Voices have a higher average rating compared to non-Vine reviewers. This could be an indication of bias and requires more study to determine the source of the difference.

Helpfulness of the Reviews and Total Votes

Based on the analysis, Vine reviews on the average get 5.82 "helpful" votes while non-Vine reviews only get 1.83 "helpful" votes. This metric squares with Amazon's goal of identifying reviewers whose reviews are judged by shoppers as being helpful. This again can indicate the reliability of the Vine reviews.

Additionally, on the average Vine reviews get more total votes (an average of 7.2 votes as compared to an average of just 2.4 votes for non-Vine reviews.

Conclusion:

It appears that based on 5-star reviews, votes of helpfulness and total votes garnered by Vine reviews compared to non-Vine reviews, there are indications that Vine reviews could be judged as more reliable by shoppers.