Q0. Which genre of movies is the best for home viewing?

Premise: Often times, when it comes to choosing a movie, the location plays an important role in which type of movie to pick. For instance, I feel that action and adventure is made for the ‘big screen’, but genres such as horror are best seen in the comfort of a dark corner of my room. I begin by examining DVD sales as an indicator of the home/big-screen worth of movies.

Construction:
Two views of discretized bar chart (each bar represents a movie), grouped by genre.
- Gross DVD sales
- Ratio of DVD sales to Production Budget
Color is mapped to production costs along a green hue.
Gray band represents one standard deviation from the mean.
The scale was mapped logarithmically for DVD/Budget axis because of outliers such as Paranormal Activity.

How to read the figure:
For the top figure:
Notice that high production-valued movies (depicted in dark green) fall almost entirely above the average DVD sales line across every genre (especially with Action, Adventure, and Comedy).

For the bottom figure:
Observe the distribution of movies along the dark band. These movies represent those that had a reasonably good turnout in DVD sales given their budget. Note that only Comedy, Drama, Horror have sizeable amounts of instances above the average line. However, with respect to these three genres, both Comedy and Drama have a sizable distribution in the lower half of the gray band, whereas Horror has the most instances within this area with respect to its sample size than any other genre.

Comparing both figures:
Note how although Action category has many more instances in the above average range, these movies are mapped to below average performance with respect to their production values. Notice how high production movies (dark green) largely above average in the first figure, lie mostly under the grey band of the second figure.

Reasoning:
I quickly suspected that DVD sales were not an accurate descriptor of home viewability with high production valued movies skewing the data. A collection of higher production-valued movies cluster at the top of each genre, skewing the data. In order to get a less-biased measure, I took the ratio of DVD Sales to Production Budget as an indicator of home viewability.

Several outliers appeared including low budget blockbusters such as Paranormal Activity. In order to better interpret along the data on a logarithmic scale, a dark standard deviation band was rendered to make visually apparent the distribution of movies that surpassed average performance (based on the aforementioned sales/production metric).

Conclusion: Horror, Comedy, and Drama have the highest turnout in DVD sales with respect to their budget. This suggests that films under these genres tend to do better in home viewing based on their production value.
Q1. Are third party ratings good indicators of home viewability? Theatre viewability?

**Premise:** This prior observation was dependent on the use of DVD Sales/Production Budget as an indicator of home-viewability. Using this same pattern with US Theatre Sales/Production, do third party raters like IMDB and Rotten Tomatoes favor one over the other?

US Theatre Sales = US Gross - US DVD Sales

**Construction:**

*** Only movies that were in the grey band from Figure 1 are included in this figure ***

This figure is to specifically see if ‘good’ home viewing movies map well to 3rd party raters.

2x2 Grid. Compares IMDB and Rotten Tomatoes to Home Viewing (top) to Theatre Viewing (bottom).

Filtered to three genres (Horror, Comedy, and Drama) and mapped to the color of the dot. Trend lines for each genres were plotted.

**How to read the figure:**

An ideal mapping from ratings to Theatre Viewability and Home Viewability would be a line on the y=x diagonal (lower earnings in theatre/home map to lower third party ratings and vice versa)
Note how IMDB has a strong positive correlation for Theater Horror versus a negative trend line in Home Horror. Home IMDB Comedy on the other hand has a strong positive trend line and a slight negative trend line.

<table>
<thead>
<tr>
<th></th>
<th>Comedy</th>
<th>Drama</th>
<th>Horror</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home - IMDB</td>
<td><strong>Strong Positive</strong></td>
<td>Weak Negative</td>
<td>Weak Negative</td>
</tr>
<tr>
<td>Home - RT</td>
<td><strong>Strong Positive</strong></td>
<td>Weak Negative</td>
<td><strong>Strong Negative</strong></td>
</tr>
<tr>
<td>Theatre - IMDB</td>
<td>Weak Negative</td>
<td>Weak Positive</td>
<td><strong>Strong Positive</strong></td>
</tr>
<tr>
<td>Theatre - RT</td>
<td>Weak Positive</td>
<td>Weak Positive</td>
<td>Weak Negative</td>
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The table above summarizes these observations.
IMDB Theatre and IMDB Home did have different trend lines.
Rotten Tomatoes Theatre and Rotten Tomatoes Home also had different trend lines.
IMDB and Rotten Tomato ratings showed a good association with Comedy Home Viewing.
Rotten Tomatoes did not match with our Horror Home Viewability Index.

**Reasoning:**
The reason that Theatre Viewing was plotted with the home viewing greyband values (1st deviation from average on the DVD/Budget measure) was to establish show the diversity in third party raters criteria. If Theatre and Home showed the same trend lines, then it would suggest that if its a good theatre movie, it is also a good home movie.

**Conclusion:**
Drama had the smallest change between both Theatre and Home Sales on both ratings. This implies that if it was classified as a good Home movie, it can also be classified as a good Theatre movie. Both Rotten Tomatoes and IMDB showed a positive trend for Comedy Home suggesting that these two party ratings are much better indicators of how good a Comedy movie will be at Home as opposed to the Theatre.
Horror appears to be the most misunderstood. Rotten Tomatoes has an inverse mapping (bad Rotten Tomatoes score, good Home movie). Not much can be drawn from the strong positive on Theatre, IMDB, Horror without looking at the rest of Theatre (outside the context of this visualization).

**Q2. How does popularity (good/bad) inform home viewability?**
Premise:
I noticed the below trend for IMDB Votes and the respective rating for a movie in Horror, Comedy, and Drama. The trend line suggests the more votes, the higher the score. I am interested to see how popularity (in the form of IMDB Votes) maps to the Home Viewing.

Construction:
*** Extreme outliers were removed for better viewability. An outliers was any point within genres that lay more than 2 deviations from the mean ***
Color maps to IMDB Rating.
How to read the figure:
Nodes closer to the vertical average and to the right are good home viewing movies. The particular area of interest is the intersection of the yellow and gray areas. Nodes in this area can be seen as having strong home viewability, but unpopular. Note especially that ratings (color of the nodes) are lighter in each genre in that region. Movies in the gray area suggest that they are below average popularity.

Reasoning:
The number of votes (or popularity of a movie) can alter the rating. This graph allows us to identify movies that are not hyped about (gray area) and identify behaviors.

Conclusion:
Comedy and Horror are either niche genres or they exhibit the “They are so bad, I want to buy it and show people how bad they are” behavior. The low ratings with unpopular movies and high DVD sales is a good indicator of this quirk.

As an overall conclusion, my exploration through the data led me to find that Horror, Drama, and Comedy are best seen at home; third party raters can only help out with Comedy; and Horror and Comedy are niche/so-bad-that-they-are-good genres.