Analysis of Movie Genre and Critical Reception

put your name here

September 28, 2022

Introduction

The dataset `movies.csv` contains 651 observations of different movies across 32 variables. The dataset was edited using the statistical programming language `R` to contain 28 variables, with 6 variables for year, month and day of release at theatres and on DVD collapsed into two date vectors, and other variables coerced to relevant formats (factor for categorical variables, and logical for binary variables).

Research Question

Do different genres receive varying critical appreciation? It was decided to compare the 5 most prominent movie genres ('Action and Adventure', 'Comedy', 'Documentary', 'Drama', 'Mystery and Suspense') with their critical ratings ('Rotten', 'Fresh', 'Certified Fresh') to determine if there is a statistically significant correlation between the two variables.

Analysis

A preliminary inspection of the data revealed an apparently non-random distribution of critical ratings according to genre. The tables below provide a summary of raw and proportional distributions.

Visualisation of the distribution of the data appears to confirm that certain categories are disproportionately unfavoured by critics.

Finally, a statistical test was performed on the data using chi square goodness of fit. The code used is detailed below.
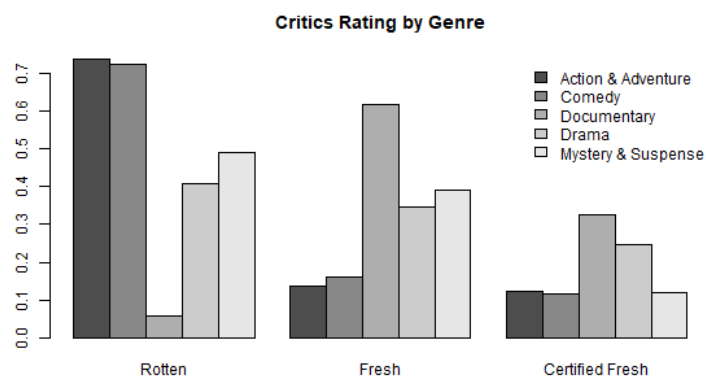
```
                critics_rating
genre              Rotten Fresh Certified Fresh
Action & Adventure    48    9                 8
Comedy                63   14                10
Documentary            3   32                17
Drama                124  106                75
Mystery & Suspense    29   23                 7
```

Figure 1: Contingency table

```
                critics_rating
genre              Rotten Fresh Certified Fresh
Action & Adventure  0.74  0.14              0.12
Comedy              0.72  0.16              0.11
Documentary         0.06  0.62              0.33
Drama               0.41  0.35              0.25
Mystery & Suspense  0.49  0.39              0.12
```

Figure 2: Proportion table along rows

Figure 3: Bar plot


```
chi < chisq.test(table(dat_mini$genre,
                       dat_mini$critics_rating))
```

The results of the test were as follows:

```
Pearson's Chi-squared test
```

```
data:  table(dat_mini$genre, dat_mini$critics_rating)
X-squared = 86.291, df = 8, p-value = 2.626e-15
```

Conclusion

In conclusion, we rejected the null hypothesis that critical reception is uncorrelated with movie genre. In particular, we note that Action and Adventure and Comedy are statistically more likely to receive rotten reviews, while documentaries are less likely to receive rotten reviews. Residuals are included below.

```
                     Rotten      Fresh Certified Fresh
Action & Adventure  3.1560462 -2.6273867      -1.4727857
Comedy              3.4564262 -2.6716327      -1.8710667
Documentary        -4.3372636  3.6924745       1.9215101
Drama              -1.6178245  0.7240656       1.5359432
Mystery & Suspense  0.2403660  0.8891806      -1.4781878
```