Problem 9: Bon Voyage

Assigned: 23 November
Due: 17 December
Maximum Mark: 15 Points
Maximum Submission: 6 pages

A travel company seeks to determine the appropriate price point for a particular add-on to a travel package being sold online. The company serves four different destinations (A, B, C, and D). Travellers were offered the add-on at a randomly-chosen price of either £5, £10, or £20, and whether each customer accepted or declined the offer was recorded. Data are given in the file travel.csv.

1. Using a contingency table approach, confirm that the frequency at which different price points were offered to travellers was consistent among all four destinations. (Include the contingency table in your report and provide a p-value.)

2. Using a contingency table approach, confirm that the price offered to travellers is related to the frequency at which they accept the add-on. (Include the contingency table in your report and provide a p-value.)

3. Plot the proportion of travellers accepting the offer by price-point (for all destinations) as a bar plot. Include error bars corresponding to the ("exact") 95% confidence interval.

4. Plot the average add-on revenue generated per traveller by price-point (for all destinations) as a bar plot. Include error bars corresponding to the 95% confidence interval.

5. Based on the above analysis, what price point would you recommend? Can you be certain that this is the optimum choice of price point (and why or why not?)

6. Using a generalized regression analysis with an error family appropriate for the response variable in question, investigate whether there is evidence to suggest that the optimum price point may be different for travellers going to different destinations. Summarize your conclusion and provide a p-value.