

# Market Research

## on BBC



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## **Executive Summary**

The BBC is facing declining popularity and questions regarding impartiality, with younger viewers turning to subscription services like Netflix. To address these issues, the BBC aims to demonstrate its ability to produce content that appeals to all audiences, showcase the value of the license fee, and leverage social media to create and promote content. Research aims include understanding how audiences value BBC's products and services, measuring impartiality perceptions, researching the image of the BBC compared to commercial rivals, and identifying prospects for the BBC to create new social media content for younger audiences. Proposed further research includes a different approach of analyzing content engagement, researching a hybrid funding model, and reimagining content for younger audiences.

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## **2. Background:**

The BBC is the world's oldest national broadcaster, founded in 1922, headquartered in London's Broadcasting House. It offers news, sports, movies, and series which could be accessed via TV channels, BBC iPlayer and social media platforms. Moreover, it operates radio networks. Its primary funding comes from the TV license fee, making up 71% of its total income in 2021/22.

## **3. Problem Definition:**

YouGov figures show that the popularity of BBC's TV programmes is declining, with Netflix being the most popular TV channel followed by others and then BBC One. This could be attributed to the quality and relevance of the BBC's products and services. The impartiality of BBC news journalists is in question, with less than half of British people believing them to be impartial and honest according to YouGov in 2019. Allegedly, the government's setting of the license fee may influence the BBC's impartiality, leading to pressure on editorial decisions on sensitive political issues. Additionally, the license fee is regressive and unfair for low-income households. Younger viewers of the BBC are being attracted to subscription services like Netflix and Disney+ which invest heavily in original content.

## **4. Overall Objectives of BBC**

1. Demonstrating to both the public and the government its ability to produce content that appeals to all audiences across the UK
2. Showcase the value of the license fee as a funding model and convince viewers that is a good value for money.
3. Leverage social media to create new content and promote its existing output.

## **5. Research Aims (RA) , Research Objectives (RO) & Proposed Research Design**

1. RA1. To comprehend how different audiences value the BBC and its numerous outputs

### **RO1.1 (Quantitative - Factor Analysis):**

- To understand how audiences value BBC and its product and services by identifying the underlying factors that influence perceptions of BBC and its product and services.

RO1.2 (Quantitative - 1-way ANOVA):

- To understand how audiences with different income level influence the its rating on reasonableness of price of license fee

RO1.3 (Qualitative - Focus Group Discussion (FGD) + Questionnaire):

- To understand the preferences for audiences of different age, gender, ethnicity, geographic location, income and education level on type of news, sports, movies or series, documentaries

2. RA2. To measure impartiality perceptions among various audiences

RO2.1(Quantitative - 2-Way ANOVA ):

- Investigate the relationship between rating for perception of impartiality with gender and education level.

RO2.2(Qualitative - FGD + Questionnaire):

- To understand the audiences' perceptions of impartiality in BBC programmes.

3. RA3. To research the image of the BBC in comparison to commercial rivals, such as Netflix, across different attributes, including value for money

RO3.1 (Quantitative - Conjoint Analysis + Questionnaire) :

- To understand how much consumers are willing to pay for BBC compared to other companies by identifying how consumers make trade-off between price and product attributes including brand

RO3.2(Qualitative - Conjoint Analysis + Questionnaire)) :

- To understand what kind of attributes maximize utility for potential improvement.

4. To ascertain how 18-24 year olds engage with the BBC and social media, with the aim of identifying any prospects for the BBC to create new social media content

RO4.1(Qualitative - FGD + Questionnaire ):

- To comprehend the social media behavior of younger generations, including their preferred platforms, frequency of use, and the kind of content they interact with.

## **6. Data collection**

### **6.1 Criteria for choosing participants**

The data collection for this study will involve adult residents aged between 18 to 75 from 12 regions in the UK. Individuals above the age of 75 or those who do not own a TV or radio will be excluded due to the exemption from paying TV license fee.

### **6.2 Selecting sample size for questionnaire**

For 95% confidence interval with tolerance of sampling error of 2%, minimum sample size for BBC audiences,  $n$  is as follows:

$$n \geq \frac{Z_{\alpha/2}^2 \pi(1 - \pi)}{e^2}$$

$$n \geq \frac{1.96^2(0.5)(1 - 0.5)}{0.02^2}$$

$$n \geq 2401$$

which satisfies the condition that each 12 regions in the UK should have a minimum sample size of 200.  $12(200) = 2400$ . When  $\pi$  is unknown,  $\pi$  is set to be 0.5, as this value gives the maximum possible standard error.

Since the population size for non-BBC audiences is unknown, assume  $n$  is also 2401.

### **6.3.1 Questionnaire**

To reach existing license fee payers, distribute questionnaires via email and postal addresses obtained from the database, accounting for both tech-savvy and non tech-savvy individuals. For non-license fee payers, questionnaires can be distributed via online advertisements, social media platforms, or university campuses.

A pilot test will be conducted on a small sample of 30 respondents from the sampling frame to identify and address potential issues related to question sensitivity and wording ambiguity to prevent participants from feeling uncomfortable and confused while doing the questionnaire.

### **6.3.2 Questionnaire involving BBC audiences**

Proportionate stratified random sampling involves dividing license fee payers (population) in a database, into strata based on specific characteristics such as age, gender, and education level. Within each stratum, a simple random sample is then selected. The strata must be mutually exclusive and collectively exhaustive, and the sample size from each stratum is proportional to the size of the stratum in the overall population. This method ensures that each stratum is adequately represented, and accurate estimations can be made for the entire population.

**Table for Proportional Stratified Sampling in London**

Age	Education Level	E1	E2	E3	E4	E5	E6	E7
		Gender						
18 - 24	F							
	M							
25 - 34	F							
	M							
35 - 44	F							
	M							
45 - 54	F							
	M							
55 - 64	F							
	M							
65- 75	F							
	M							

### **6.3.3 Questionnaire involving non-BBC audiences**

Quota sampling is a non-probability sampling that involves setting quotas for specific control characteristics, such as age, gender, and education, to match the population's proportion. This ensures that the sample composition reflects the population's diversity with respect to these characteristics. In the second stage of the process, sample elements are selected based on convenience.

**Table for Population Composition and Sample Composition**

	Population Composition	Sample Composition	
Control Characteristic	Percentage	Percentage	Number
Gender			
Female	x	x	
Male	y	y	
Total	100	100	
Age			
18 - 24	a	a	
25 - 34	b	b	
35 - 44	c	c	
45 - 54	d	d	
55 - 64	e	e	
65- 75	f	f	
Total	100	100	
Education Level			
E1	g	g	
E2	h	h	
E3	i	i	
E4	j	j	
E5	k	k	
E6	l	l	
E7	m	m	
Total	100	100	

#### 6.3.4. Draft Questionnaire

## BBC Survey

This description is not shown to participant: If participants choose "no" for "do you own a TV or radio ?"or "other" for age and region, it will go to the end of questionnaire.

[Sign in to Google](#) to save your progress. [Learn more](#)

\* Indicates required question

Do you own a TV or radio? \*

- Yes
- No

What is your age? \*

- 18-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-75
- Other: \_\_\_\_\_

From which countries or region of the UK do you originate? \*

- England
- Wales
- Scotland
- Northern Ireland
- English Regions: North East
- English Regions: North West
- English Regions: Yorkshire and The Humber
- English Regions: East Midlands
- English Regions: West Midlands
- English Regions: East of England
- English Regions: London
- English Regions: South East
- English Regions: South West
- Other: \_\_\_\_\_

What is your gender? \*

- Male
- Female
- Non-Binary
- Prefer not to say

Which race or ethnicity best describes you? \*

- Asian or Asian British
- Black, Black British, Caribbean or African
- Mixed or multiple ethnic groups
- White
- Other Ethnic Group

What is your education level? \*

- GCSE/ Foundation diploma/ entry level qualifications/ BTEC first diploma/ Traineeship/ NVQ 1/ Intermediate apprenticeship/ NVQ 2
- A levels/ International Baccalaureate/ T Levels/ BTEC diploma BTEC certificate/ Advanced apprenticeship/ NVQ 3
- Higher National Certificate (HNC)/ Higher apprenticeship/ NVQ 4
- Foundation degree (FdQ or FdSc)/ Higher National Diploma (HND)
- Bachelor degree (BA or BSc) /Degree apprenticeship/ NVQ 5,6,7
- Masters Degree (MA)
- Doctorate (PhD)/ NVQ 8

What is your income level? \*

- < £10,000
- £10,001 - £20,000
- £20,001 - £30,000
- £30,001 to £40,000
- £40,001 - £50,000
- > £50,000
- Prefer not to say

## TV Channels and Streaming Platforms

This description is not shown to participant: If participant chooses "no" for do you consume for BBC content, go to section 3: Social Media Behaviours, skip section 4 : BBC's experience and go to section5: Focus Group Discussions.

Do you pay for TV license fee? \*

Yes

No

I think the price of TV license fee of £159 per year is reasonable. \*

1: Strongly Disagree

2: Disagree

3: Somewhat Disagree

4: Neutral

5: Somewhat Agree

6: Agree

7: Strongly Agree

1      2      3      4      5      6      7

Strongly Disagree

                      

Strongly Agree

Do you consume BBC content? \*

- Yes
- No

Do you use any of the following TV channel or streaming platforms? \*

You may choose more than 1 option.

- ITV
- Sky
- Channel 4
- Netflix
- Disney +
- Amazon Prime
- HBO Max
- Hulu
- Others: \_\_\_\_\_

Which streaming platform do you use the most? \*

- BBC
- ITV
- Sky
- Channel 4
- Netflix
- Disney +
- Amazon Prime
- HBO Max
- Hulu
- Others: \_\_\_\_\_

What type of content do you consume the most? 1st choice for the most consumed, 5th choice for least consumed.

	News	Sports	Movies	Series	Documentary
1st choice	<input type="radio"/>				
2nd choice	<input type="radio"/>				
3rd choice	<input type="radio"/>				
4th choice	<input type="radio"/>				
5th choice	<input type="radio"/>				

What type of genre do you like the most? 1st choice for your most favourite. 5th choice for your least favourite.

	Horror	Drama	Comedy	Action	Fantasy
1st choice	<input type="radio"/>				
2nd choice	<input type="radio"/>				
3rd choice	<input type="radio"/>				
4th choice	<input type="radio"/>				
5th choice	<input type="radio"/>				

Can you share with us what attracts you to use the TV channel or streaming platforms most? \*

Your answer

## Social Media Behaviours

What is your preferred social media platforms? \*

You may choose more than 1 option.

Meta / Facebook

Instagram

Twitter

Tik Tok

Snapchat

Others:

---

How long do you spend using social media in a day? \*

< 1 hour per day

2 - 5 hours per day

6 - 8 hours per day

> 8 hours per day

What is your most consumed content on social media?

1st choice for most consumed and 5th choice for least consumed

	News	Sports	Movies	Series	Documentary
1st choice	<input type="radio"/>				
2nd choice	<input type="radio"/>				
3rd choice	<input type="radio"/>				
4th choice	<input type="radio"/>				
5th choice	<input type="radio"/>				

You tend to watch content on social media of length \*

- < 1 minute
- 2 - 10 minutes
- 11 - 30 minutes
- > 30 minutes

## BBC's Experience

How did you find out about BBC? \*

- Social Media (e.g. Instagram, TikTok, Youtube)
- Advertisement (e.g. Billboards, Television)
- Word of mouth (recommended by friends and family)
- Others : \_\_\_\_\_

How often do you consume BBC content? \*

- <3 hours per week
- 4 - 6 hours per week
- 7 - 10 hours per week
- > 10 hours per week

What device do you use to consume BBC content? \*

- Phone
- Ipad/ Tablet
- Laptop
- TV
- Radio
- Others

BBC's presenters and journalists are professional \*

- 1: Strongly Disagree
- 2: Disagree
- 3: Somewhat Disagree
- 4: Neutral
- 5: Somewhat Agree
- 6: Agree
- 7: Strongly Agree

1      2      3      4      5      6      7

Strongly Disagree

Strongly Agree

BBC is impartial in its coverage of political and social issues \*

"Impartiality" means not favouring one side over another.

1      2      3      4      5      6      7

Strongly Disagree

Strongly Agree

Assuming that you perceive BBC content quality is good, you are willing to pay a \* license fee to fund BBC's product and services

1      2      3      4      5      6      7

Strongly Disagree

Strongly Agree

BBC provides news and information that is relevant to your interests \*

1      2      3      4      5      6      7

Strongly Disagree

Strongly Agree

I am satisfied with the variety of movies and series covered by the BBC in its news \*

1    2    3    4    5    6    7

Strongly Disagree                            Strongly Agree

BBC Sound offers music tracks, podcasts and radio shows which are interesting. \*

1    2    3    4    5    6    7

Strongly Disagree                            Strongly Agree

Would you recommend BBC to others?

Yes

No

If you would recommend BBC to others, could you share with us why?

Your answer

## Focus Group Discussion

Are you willing to participate in focus group discussion to share your views on various TV Channels and streaming platforms?

Yes

No

If yes, what is your phone number for us to contact you for the discussion?

Your answer

---

If yes, what is email address for us to contact you for the discussion?

Your answer

---

### 6.4 Focus Group Discussions (FGD)

To gain insights into BBC, 120-min face-to-face FGD were conducted across 12 different regions. Each group consisted of roughly 10 participants between the ages of 18 and 75. The participants were selected to be within the same age range but with a mix of gender, ethnicity, income, and education level, to foster more in-depth conversations and encourage the emergence of unexpected ideas. The groups were composed of both BBC and non-BBC viewers, and the discussion questions were designed to address four research aims.

## 7. Data Collected

Variable	Data Level
<b>From Questionnaire</b>	
Age Group	Categorical Ordinal
Gender	Categorical Nominal
Ethnicity	Categorical Nominal
Region	Categorical Nominal
Income Level	Categorical Ordinal
Education Level	Categorical Ordinal
Rating of reasonability of license fee	Continuous
Rating of perception of impartiality	Continuous
<b>From TV License Payer Database</b>	
Age	Continuous
Gender	Categorical Nominal
Education Level	Categorical Ordinal

## 8. Data Analysis

### 8.1 Qualitative: FGD

1. RO1.2 : To understand the preferences for audiences of different ages (18 -75), gender, ethnicity, geographic location, income and education level on type of news, sports, movies or series, documentaries and music and podcasts.
  - a) What do you think of when you hear the term 'BBC'? Why?
    - Associative and Construction techniques: Show picture of BBC logo
  - b) What types of content do you consume? Why?
    - Construction techniques: Show pictures of BBC news, sports, popular movies, series, documentaries, music and podcasts.

2. RO2.2: To understand the audiences' perceptions of impartiality in BBC programmes

a) Since BBC is funded by license fee and not beholden to advertisers like commercial broadcasters are, BBC is ....

- Completion technique

potential answers:

a) impartial

b) impartiality may be compromised as it is susceptible to political influences

3. RO4.1: To comprehend the social media behavior of younger individuals (18 -24), including their preferred platforms, frequency of use, and the kind of content they interact with.

a) Which platform do you use to listen to news, watch movies, series or documentaries? Why?

- Construction techniques: Show pictures BBC iplayer, Channel, Netflix, TikTok, Twitter and Instagram.

b) How much time did you allocate to social media activities? What specific activities did you engage in while using social media?

d) I would like to see the BBC produce ... for social media.

- Completion technique

## **8.2 Quantitative**

### **8.2.1 Factor Analysis**

RO1.1: To understand how audiences value BBC and its product and services by identifying the underlying factors that influence perceptions of BBC and its product and services.

Extract the 2 underlying factors that clarify the correlations between variables, in order to present a concise summary of the six survey statement using 7-point likert scale, Strongly Disagree (1) to Strongly Agree (7) as below:

1. BBC's presenters and journalists are professional
2. BBC is impartial in its coverage of political and social issues
3. I would pay the price for high quality.
4. BBC provides news and information that is relevant to your interests.
5. I am satisfied with the variety of topics covered by the BBC in its news.
6. BBC Sound offers music tracks, podcasts and radio shows which are interesting.

2 underlying factors:

1. Price-quality tradeoff
2. Relevance of the BBC's programming to the audience's interest

---

### **Descriptive Statistics**

	Mean	Std. Deviation	Analysis N
BBC's presenters and journalists are professional			
BBC is impartial in its coverage of political and social issues			
If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.			
BBC provides news and information that is relevant to your interests			
I am satisfied with the variety of movies and series covered by the BBC in its news.			
BBC Sound offers music tracks, podcasts and radio shows which are interesting.			

Understand the average and variability of the data with descriptive statistics.

## Correlation Matrix

Correlation Matrix							
		BBC's presenters and journalists are professional	BBC is impartial in its coverage of political and social issues	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.	BBC provides news and information that is relevant to your interests	I am satisfied with the variety of topics covered by the BBC in its news	BBC Sound offers music tracks, podcasts and radio shows which are interesting.
Correlation	BBC's presenters and journalists are professional	1					
	BBC is impartial in its coverage of political and social issues		1				
	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support			1			

	the development of BBC's products and services.					
	BBC provides news and information that is relevant to your interests.				1	
	I am satisfied with the variety of movies and series covered by the BBC in its news.					1
	BBC Sound offers music tracks, podcasts and radio shows which are interesting.					1
Sig.(1-tailed )	BBC's presenters and journalists are professional					
	BBC is impartial in					

	its coverage of political and social issues						
	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.						
	BBC provides news and information that is relevant to your interests.						
	I am satisfied with the variety of movies and series covered by the BBC in its news.						
	BBC Sound offers music tracks, podcasts						

	and radio shows which are interesting.					
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The strength of a correlation is measured by its absolute value, with values closer to positive one indicating a stronger correlation. If statement 1 shows a strong correlation with statements 2 and 3, then there is a clear connection between them which reflects the price-quality tradeoffs. Similarly, if statement 4 exhibits a strong correlation with 5 and 6, their connection reflects the relevance of the BBC's programming to the audience's interest. Moreover, the correlation between statements 1 with 2 and 3 and correlation between 4 with 5 and 6 are highly significant, with p-value less than the significant level of 5%.

#### KMO and Barlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		
Bartlett's Test of Sphericity	Approx. Chi-Square	
	df	
	Sig.	

The KMO test measures sampling adequacy for factor analysis, with a value above 0.5 considered acceptable. Bartlett's test tests for correlations between variables, with a significant result ( $p < 0.05$ ) indicating that factor analysis can be performed.

### Communalities

	Initial	Extraction
BBC's presenters and journalists are professional	1	
BBC is impartial in its coverage of political and social issues	1	
If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.	1	
BBC provides news and information that is relevant to your interests.	1	
I am satisfied with the variety of movies and series covered by the BBC in its news.	1	
BBC Sound offers music tracks, podcasts and radio shows which are interesting.	1	

### Extraction Method: Principal Component Analysis

Each of the 6 original variables has a variance of 1 for extraction on a standardized basis. Communalities reflect the proportion of the variable's variance that is explained by the extracted factors. Higher communalities indicate that a larger proportion of the variable's variance is accounted for by the factors, and hence, more robust factor solution.

## Total Variance Explained

Initial Eigenvalue				Extraction Sums of Squared Loading			Rotation Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1									
2									
3									
4									
5									
6									

Extraction Method: Principal Component Analysis

The number of factors or components are determined by the presence of eigenvalues greater than 1 on a standardized basis, indicating that it explains more variation than one of the original variables. If the standardized variables have a variance of 1, the eigenvalue is greater than 1. Additionally, the extracted sum of squared loadings % of variance reveals that the first factor accounts for x% of the variance features and the second factor represents x%. Hence, using 2 components adequately represents all the characteristics or components highlighted by the 6 observed variables. This data reduction comes at the cost of losing x% of the original variation, which is the price we pay for the benefit of reducing the data.

## Plot of initial eigenvalue against component number

The value of initial eigenvalue is on the y-axis and component number on the x-axis. If point 2 is just before the dramatic drop starts, there are 2 numbers of factors.

### Rotated Component Matrix

	Component	
	1	2
BBC's presenters and journalists are professional		
BBC is impartial in its coverage of political and social issues		
If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.		
BBC provides news and information that is relevant to your interests.		
I am satisfied with the variety of movies and series covered by the BBC in its news.		
BBC Sound offers music tracks, podcasts and radio shows which are interesting.		

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization

The correlation coefficients in the component matrix provide information about the correlation between variables and factors 1 and 2. If statements 1, 2, and 3 show a strong correlation with factor 1, and statements 4, 5, and 6 show a strong correlation with factor 2, it is clear which variables are highly associated with each extracted factor.

### **Component Plot in Rotated Space**

Both the x and y-axis in the plot have a range of -1 to 1 as they represent correlation coefficients. Statement 1, 2, and 3 have x-coordinates that are far from 0 but have y-coordinates that are close to 0, indicating that they summarize factor 1. On the other hand, statement 4, 5, and 6 have x-coordinates near 0 but y-coordinates that are far from 0, indicating that they summarize factor 2.

### **Component Score Coefficient Matrix**

	Component	
	1	2
BBC's presenters and journalists are professional		
BBC is impartial in its coverage of political and social issues		
If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.		
BBC provides news and information that is relevant to your interests.		
I am satisfied with the variety of movies and series covered by the BBC in its news.		
BBC Sound offers music tracks, podcasts and radio shows which are interesting.		

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization.

Component Scores

$$Component\ 1 = W_{11}X_1 + W_{12}X_2 + W_{13}X_3$$

$$Component\ 2 = W_{21}X_1 + W_{22}X_2 + W_{23}X_3$$

Commonly normalize variables that represent each component.

## Reproduced correlations

	BBC's presenters and journalists are professional	BBC is impartial in its coverage of political and social issues	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.	BBC provides news and information that is relevant to your interests	I am satisfied with the variety of movies and series covered by the BBC in its news.	BBC Sound offers music tracks, podcasts and radio shows which are interesting.
Reproduced Correlation	BBC's presenters and journalists are professional					
	BBC is impartial in its coverage of political and social issues					
	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's products and services.					
	BBC provides news and					

	relevant to your interests.					
	I am satisfied with the variety of movies and series covered by the BBC in its news.					
	BBC Sound offers music tracks, podcasts and radio shows which are interesting.					
Residual	BBC's presenters and journalists are professional.					
	BBC is impartial in its coverage of political and social issues.					
	If you consider the quality of BBC content to be high, you would be inclined to pay a license fee to support the development of BBC's					

	products and services.					
	BBC provides news and information that is relevant to your interests.					
	I am satisfied with the variety of movies and series covered by the BBC in its news.					
	BBC Sound offers music tracks, podcasts and radio shows which are interesting.					

#### Extraction Method: Principal Component Analysis

- a. Reproduced communalities
- b. Residuals are computed between observed and reproduced correlations.

The objective is to have the values in the reproduced matrix which is based on extracted factors as close as possible to the original correlation matrix. This is achieved when the residual matrix, which is the difference between the original and the reproduced matrix, is close to zero. The count and proportion of non-redundant residuals can be determined by referring to residuals with an absolute value exceeding 0.05. A high level of similarity between the original and reproduced matrix suggests that the extracted factors account for a significant proportion of the variance in the original data.

Using factor analysis, 2 underlying factors are identified: price-quality trade-offs and relevance which help BBC to understand how its audience value BBC and its output.

### **8.2.2 1-Way ANOVA**

RO1.2: Investigate the relationship between rating for reasonableness of license fee with different income level

Independent Variable, X: Income Level

- < £10,000
- £10,000 - < £20,000
- £20,001 - < £30,000
- £30,001 - < £40,000
- £40,001 - < £50,000
- > £50,000

Dependent Variable, Y: Rating for reasonableness price of license fee

#### **Descriptive Statistics**

#### **Rating for reasonableness price of license fee**

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean			
					Lower Bound	Upper Bound	Minimum	Maximum
< £10,000								
£10,000 - £20,000								
£20,001 - £30,000								
£30,001 - £40,000								
£40,001 - £50,000								
> £50,000								

### Test of Homogeneity of Variance

		Levine Statistics	df1	df2	Sig.
Rating for reasonableness of price of license fee	Based on Mean				
	Based on Median				
	Based on Median and with adjust df				
	Based on trimmed mean				

$H_0$ : All variances are equal

$H_1$ : Not all variances are equal

If p-value < 0.05, reject  $H_0$  and conclude that the variance of rating for reasonableness of price of license fee are not equal.

### ANOVA

	Sum of Squares	df	Mean Square	F	Sig,
Between Groups					
Within Groups					
Total					

$H_0$ : All means are equal

$H_1$ : Not all means are equal

If p-value < 0.05, reject  $H_0$  and conclude that the mean of rating for reasonableness of price of license fee are not equal across different income levels.

## **Plot of means plot**

Sample means of rating for reasonableness of price of license fee on the y axis and income levels on the x axis. If higher income individuals have higher sample means of rating for reasonableness of price, it might suggest higher income people might tend to think that the license fee is reasonable.

### **8.2.3 2-Way ANOVA**

RO2.1: Investigate the relationship between rating for perception of impartiality with gender and education level.

Independent Variable, X1: Gender

- Male
- Female

Independent Variable,X2: Education Level

- E1 : GCSE/ Foundation diploma/ entry level qualifications/ BTEC first diploma/ Traineeship/ NVQ 1/ Intermediate apprenticeship/ NVQ 2
- E2 : A levels/ International Baccalaureate/ T Levels/ BTEC diploma BTEC certificate/ Advanced apprenticeship/ NVQ 3
- E3 : Higher National Certificate (HNC)/ Higher apprenticeship/ NVQ 4
- E4 : Foundation degree (FdQ or FdSc)/ Higher National Diploma (HND)
- E5 : Bachelor degree (BA or BSc) /Degree apprenticeship/ NVQ 5,6,7
- E6 : Masters Degree (MA)
- E7: Doctorate (PhD)/ NVQ 8

Dependent Variable, Y: Rating of perception of impartiality

## Descriptive Statistics

### Dependent Variable: Rating of perception of impartiality

Gender	Education Level	Mean	Std. Deviation	N
Male	E1			
	E2			
	E4			
	E5			
	E6			
	E7			
	E8			
	Total			
Female	E1			
	E2			
	E4			
	E5			
	E6			
	E7			
	E8			
	Total			
Total	E1			
	E2			
	E4			
	E5			
	E6			
	E7			
	E8			

From the Descriptive Statistic Table, is the difference between total mean of male and female statistically significant? (yellow) Is the difference between the total mean of each education level different? (green).

If the differences are all statistically significant, the main effects of gender and education level are statistically significant.

#### **Levine' test of the equality of error variances**

		Levene Statistic	df1	df2	Sig
Rating of perception of impartiality	Based on Mean				
	Based on Median				
	Based on Median and with adjusted df				
	Based on trimmed mean				

$H_0$  : error variance of dependent variable is equal across groups

$H_1$ : not all error variance of dependent variables is equal across groups.

Test the null hypothesis that the error variance of the dependent variable is equal across groups

Dependent variable: Rating of perception of impartiality

Design: Gender + Education Level + Gender\*Education Level

If p-value is more than 0.05, assumption of equal variance is satisfied. If you reject the null hypothesis, do not continue reading results from two-way ANOVA as they are invalid.

### Tests of Between-Subjects Effect

Dependent Variable: Rating of perception of impartiality

Source	Type I Sum of Squares	df	Mean Square	F	Sig
Model					
Gender					
Education Level					
Gender * Education Level					
Error					
Total					

R Squared = .979 (Adjusted R Squared = .974)

$$H_0 : \mu_{male} = \mu_{female}$$

$$H_1 : \mu_{male} \neq \mu_{female}$$

$$H_0 : \mu_{E1} = \mu_{E2} = \mu_{E3} = \mu_{E4} = \mu_{E5} = \mu_{E6} = \mu_{E7}$$

$$H_1 : \text{Not all mean of education levels are equal}$$

$$H_0 : \text{an interaction is absent}$$

$$H_1 : \text{an interaction is present}$$

If the  $R^2$  is large. Large percentage of the variations of rating of perception of impartiality is explained by the independent variables.

If the p-value <0.05 for gender, education level and interaction of gender and education level, the gender, education level and the interaction are statistically significant at 5% significance level have the ability to explain the variation of rating of perception of impartiality.

**Plot 3 graphs of Means of Rating of Perception of Impartiality against**

i) Gender

ii) Education Level

- Understand which gender and education level provide the highest and lowest rating of perception of impartiality

iii) Each combination of Gender and Education Level

- If the line of gender and education crosses, the interaction between education level and gender is significant.

#### **8.2.4 Conjoint Analysis**

RO3.1 : To understand how much consumers are willing to pay for BBC compared to other companies by identifying how consumers make trade-off between price and product attributes including brand

RO3.2 : Understand what kind of attributes maximize utility for potential improvement.

### Attributes and Levels of Streaming Services

Attribute	Level	
	Number	Description
<b>Brand</b> (Categorical Nominal)	1	BBC
	2	Netflix
	3	Disney +
<b>Type of Content</b> (Categorical Nominal)	1	News
	2	Movie or Series
	3	Documentary
<b>Genre</b> (Categorical Nominal)	1	Drama
	2	Comedy
	3	Action
<b>Availability</b> (Categorical Nominal)	1	Online access
	2	Offline access
	3	Smart TVs
<b>Price</b> (Categorical Ordinal)	1	Low (£ 4.99)
	2	Medium (£ 9.49)
	3	High (£ 13.25)

Based on gov.uk, the annual TV license fee is £ 159, hence the monthly license fee is £ 13.25, which is the highest among competitors. Netflix offers 3 different subscription plans, assuming standard plan is the most popular, it is £10.99 monthly whereas Disney + subscription is £ 7.99 monthly based on the Netflix and Disney + official website. The average of £10.99 and £ 7.99 is £ 9.49. The lowest priced plan is the Netflix subscription with advertisement plan, which is £ 4.99 monthly.

### Full-profile approach

Example of Streaming Service Profile	
<b>Brand</b>	BBC
<b>Type of Content</b>	Movie or Series
<b>Genre</b>	Drama
<b>Availability</b>	Online access
<b>Price</b>	High

Example of an index card for 1 of the  $3^5 = 243$  profiles.  $3^5 = 243$  profiles.

### Metric-form input data

Participants would provide preference ratings for each profile from 1(Worst) to 7(Best). The ratings on all profiles by a participant profile would then be analyzed and translated into Willingness To Pay (WTP). As there are 243 profiles for participants to complete, the work can be divided among homogeneous participants of the same cluster.

### Dummy variable regression

If an attribute has k levels , then it can be coded as k-1 dummy variables.

$$U = \hat{B}_0 + \hat{B}_1 X_1 + \hat{B}_2 X_2 + \hat{B}_3 X_3 + \hat{B}_4 X_4 + \hat{B}_5 X_5 + \hat{B}_6 X_6 + \hat{B}_7 X_7 + \hat{B}_8 X_8 + \\ \hat{B}_9 X_9 + \hat{B}_{10} X_{10}$$

Where:

$U$  = utility

$X_1, X_2$  = dummy variables for brand

$X_3, X_4$  = dummy variables for type of content

$X_5, X_6$  = dummy variables for genre

$X_7, X_8$  = dummy variables for availability

$X_9, X_{10}$  = dummy variables for price

### Streaming Services Data Code for Dummy Variable Regression

Preference ratings	Attributes									
	Brand		Type of Content		Genre		Availability		Price	
$Y$	$X_1$	$X_2$	$X_3$	$X_4$	$X_5$	$X_6$	$X_7$	$X_8$	$X_9$	$X_{10}$

$Y$  is the preference ratings for each profile from 1(Strongly Unpreferred) to 7(Strongly Preferred) which represents the utility,  $U$ .  $X_1$  and  $X_2$  can be both 0 but cannot be both 1, only one of them can be 1.

Run the dummy variable regression to estimate the parameters,  $\beta$

### Model Summary

Model	R	R Square	Adjusted R Squared	Std. Error of the Estimate
1				

- a. Predictors (Constant) : Brand2, TypeofContent2, Genre2, Availability2, Price2, Brand1, TypeofContent1, Genre1, Availability1, Price1.

If the  $R^2$  is large. Large percentage of the variations of utility preference values can be explained by the dummy variables

### Coefficients

Model		Unstandardized $\beta$	Coefficients Std. Error	Standardized Coefficient $\beta$	t	Sig.
1	(Constant)					
	Brand1					
	Brand2					
	TypeofContent1					
	TypeofContent2					
	Genre1					
	Genre2					
	Availability1					
	Availability2					
	Price1					
	Price2					

a. Dependent Variable : Preference Rating

### F-test

$$H_0 : \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = \beta_8 = \beta_9 = \beta_{10} = 0$$

$$H_1 : \text{Not all } \beta's \text{ are zero.}$$

If the p-value < 0.05, reject  $H_0$  and conclude that at 5% significance level not all  $\beta's$  are zero, implying some of the dummy variables have the ability to explain the variations in Y.

### Partial t-test

Variable	Hypotheses	Conclusion
$X_1$	$H_0 : \beta_1 = 0$ $H_1 : \beta_1 \neq 0$	If p-value of $X_1 < 0.05$ , reject $H_0$ at 5% significance level. $X_1$ contributes significantly in terms of predicting power to a model containing other dummy variables. If p-value of $X_1$ is large, the dummy variables are not significant, implying there are strong correlation between dummy variables, causing imprecise estimation of $\beta$ coefficients, resulting in increasing in standard error and lower t-value.

If the p-value  $< 0.05$ , reject  $H_0$ . Repeat the same procedure for  $X_2, \dots, X_{10}$  for individual t-tests.

### Relate the part-worths or utility to the coefficients

For the 1st attribute, brand,

$$\alpha_{11} - \alpha_{13} = \hat{\beta}_1$$

$$\alpha_{12} - \alpha_{13} = \hat{\beta}_2$$

$$\alpha_{11} + \alpha_{12} + \alpha_{13} = 0$$

Solving the equations using Excel Solvers, we get  $\alpha_{11}, \alpha_{12}, \alpha_{13}$

For the 2nd attribute, type of content,

$$\alpha_{21} - \alpha_{23} = \hat{\beta}_3$$

$$\alpha_{22} - \alpha_{23} = \hat{\beta}_4$$

$$\alpha_{21} + \alpha_{22} + \alpha_{23} = 0$$

Solving the equations using Excel Solvers, we get  $\alpha_{21}, \alpha_{22}, \alpha_{23}$

Repeat the same procedure for 3rd to 5th attributes. For interpretation of results, plot the part-worth functions.

#### Compute the relative importance of attribute

- Compute the range of part-worths

For the 1st attribute, brand,

If  $\alpha_{11} - \alpha_{13} > 0$ , then  $\alpha_{11}$  is better than  $\alpha_{13}$  to the consumers.

If  $\alpha_{12} - \alpha_{13} < 0$ , then  $\alpha_{13}$  is better than  $\alpha_{12}$  to the consumers.

. $\therefore$ , the best to worst arrangement of  $\alpha$  is  $\alpha_{11}, \alpha_{13}, \alpha_{12}$ .

To compute the range of part-worths, use the best  $\alpha$  - worst  $\alpha$  such that:

$$\alpha_{11} - \alpha_{12}$$

Repeat the procedure above for attribute 2 to 5.

- Compute the sum of range of part-worths

To compute the *sum of the range of part-worths*, sum the difference between best  $\alpha$  - worst  $\alpha$  for attribute 1 to 5.

- Compute the relative importance of attribute

To compute the relative importance of attribute 1, brand, at level 1

$$= \frac{\alpha_{11}}{\text{sum of the range of part-worths}}$$

Repeat the procedure above for level 2 and 3 of attribute 1. Then all levels for attribute 2 to 5.

### Results of conjoint analysis

Level				
Attribute	No.	Description	Part-Worths or Utility	Importance
Brand	1	BBC		
	2	Netflix		
	3	Disney +		
Type of Content	1	Series		
	2	Movie		
	3	Documentary		
Availability	1	Online access		
	2	Offline access		
	3	Smart TVs		
Genre	1	Drama		
	2	Comedy		
	3	Action		
Price	1	Low		
	2	Medium		
	3	High		

Looking at the highest part-worth utilities highlighted in green, Netflix, which offers series of drama genres via online access with low price, is deemed as most attractive compared to other combinations.

We can also look at the lowest part-worth utilities to identify the combination of a streaming service that is least attractive to the customers. By identifying what gives consumers the highest and lowest utility, it could serve a guideline for improvement of BBC's offerings.

### Extracted portion of results of conjoint analysis

#### (Willingness To Pay) WTP for attributes

Price	Importance
Low (£ 4.99)	0
Medium (£ 9.49)	-15.0
High (£ 13.25)	-20.0

Importance range for price = Highest importance of price - lowest importance of price

$$= 0 - (-20)$$

$$= 20$$

Price difference = £ 13.25 - £ 4.99

$$= \text{£ } 8.26$$

$\therefore$  1 unit of importance is worth  $20/\text{£ } 8.26 = \text{£ } 2.05/\text{unit}$

How much more is BBC (attribute 1 level 1) compared to Netflix (attribute 1 level 2)?

Brand	Importance
BBC	19.9
Netflix	20.0
Disney +	19.8

$$(19.9 - 20) * \text{£} 8.26 = - \text{£} 0.826$$

BBC is valued £0.826 less than Netflix.

## **9. Proposed Further Research**

### **9.1.1 Analysis of Content Engagement**

Examine available data sources, such as website traffic data, to gain insights into how audiences interact with the BBC's content. Monitor social media platforms to understand the opinions of younger generations about the BBC and its content, using social media monitoring tools to track references, hashtags, and conversations related to the BBC on these platforms. The research could uncover specific genres, content or interests that are more popular with different age groups.

### **9.1.2 Research on Hybrid Funding Model**

Reassess whether relying entirely on the license fee model is optimal. Consider partnering with the government to provide subsidies or exemptions from license fees for low-income families to ease their financial burden. To fund for the subsidies, consider the feasibility of establishing a subscription model for premium content.

### **9.1.3 Reimagine Content for Younger Audiences**

Reevaluate whether the younger generation prefers easily shareable, visually engaging, short-form content that can be shared on platforms such as TikTok and Instagram. BBC may produce new content exclusively for these platforms, highlighting its existing programming in a manner that appeals to this audience. Consider influencer marketing for BBC content, at the same time reassess if this marketing strategy impacts impartiality.

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