

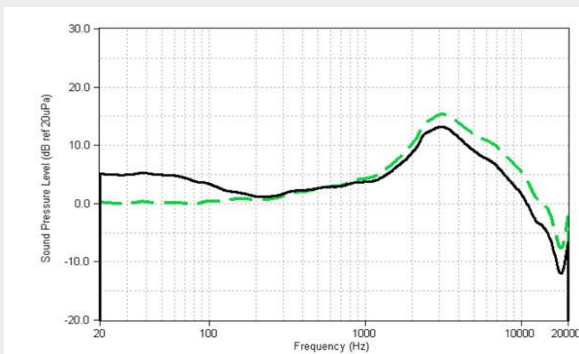
# The Pricing of Experience Goods: A Hedonic Analysis of Headphones

## Introduction

**Experience goods** refer to goods whose major quality can only be evaluated by consumers after purchasing. The **headphone market** is selected as the object of this study. This paper investigates the effects of observed and unobserved characteristics of headphones on the **price**.



### Sound quality



- Every headphone has its **frequency response curve**.
- The larger deviation from the **Harman target response curve** will lead to a worse sound quality.

## Data

	Mean	SD	Min	Max
Price (\$)	163.756	245.584	8.67	2888
Sound (dB)	9.578	3.061	4.45	26.03
Ear-fitting	.360	.481	0	1
Overall Noise Attenuation (dB)	-14.253	6.921	-32.83	-.66
Active Noise Canceling (dB)	.221	.415	0	1
Wireless	.543	.499	0	1
True Wireless	.104	.306	0	1
Game	.161	.368	0	1
Open-back	.155	.362	0	1
Overall Leakage (10 <sup>3</sup> dB)	38.301	11.296	16.4	70.69
Weight (lbs)	.406	.304	.02	1.4
Self-Noise (10 <sup>3</sup> dB)	12.860	10.010	0	25.71



## Methodology

$$\ln(\text{Price}_i) = \alpha + \beta_1 \text{Sound}_i + \sum_{k=1}^K \gamma_k z_{ik} + u_i \quad (1)$$

$$\ln(\text{Price}_i) = \alpha + \beta_1 \text{Sound}_i + \beta_2 \text{Sound}_i * \text{Earfitting}_i + \sum_{k=1}^K \gamma_k z_{ik} + u_i \quad (2)$$

$z_{ik}$  - different characteristics of a headphone besides sound quality, including variables ear-fitting, overall noise attenuation, active noise canceling, wireless, true wireless, game, open-back, overall leakage, weight, self-noise.



## Results

Dependent Variable: ln (Price)		
	Without Interaction (1)	With Interaction (2)
Sound	-.058***	-.084***
	-.014	-.019
Ear-fitting	.741***	0.189
	-.0197	-.0345
Sound*Ear-fitting		.052*
		-.0027
Overall Noise Attenuation	-.023**	-.023**
	-.01	-.01
Active Noise Canceling	.356***	.360***
	-.0129	-.0128
Wireless	0.043	0.017
	-.0149	-.0149
True Wireless	.628***	.680***
	-.015	-.0151
Game	-.578***	-.605***
	-.0132	-.0132
Open-back	.686***	.645***
	-.0181	-.0182
Overall Leakage	0.166	1.131
	-8.679	-8.653

Dependent Variable: ln (Price)		
	Without Interaction (1)	With Interaction (2)
Weight	2.787***	2.718***
	-0.303	-0.303
Self-Noise	.247	2.137
	-7.871	-7.896
Adj. R <sup>2</sup>	0.4273	0.4324



## Conclusion

- Unobserved characteristics, including **sound quality** and **overall noise attenuation**, have significant effects on the logarithm of the price.
- Observed characteristics, including **game**, **active noise canceling**, **weight**, and **open-back**, have significant effects on the logarithm of the price