Determining Consumer's Monitor preference

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OBJECTIVE

To understand the nuances of monitor purchase and the effects of attribute change on consumer sales using choice based conjoint analysis

POOLED CHOICE

INDIVIDUAL CHOICE

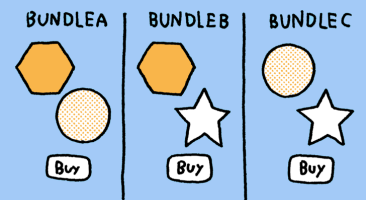**WILLINGNESS TO PAY**
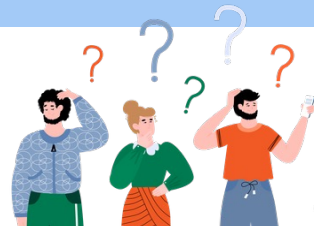
SIMULATED MARKET BEHAVIOR

CONJOINT ANALYSIS

- Understand the factors behind customer purchase decisions
- Quantitatively understand the worth of the various features of your product offering

Inputs:

- Customer's stated choice data for alternative offerings, each with specific attributes
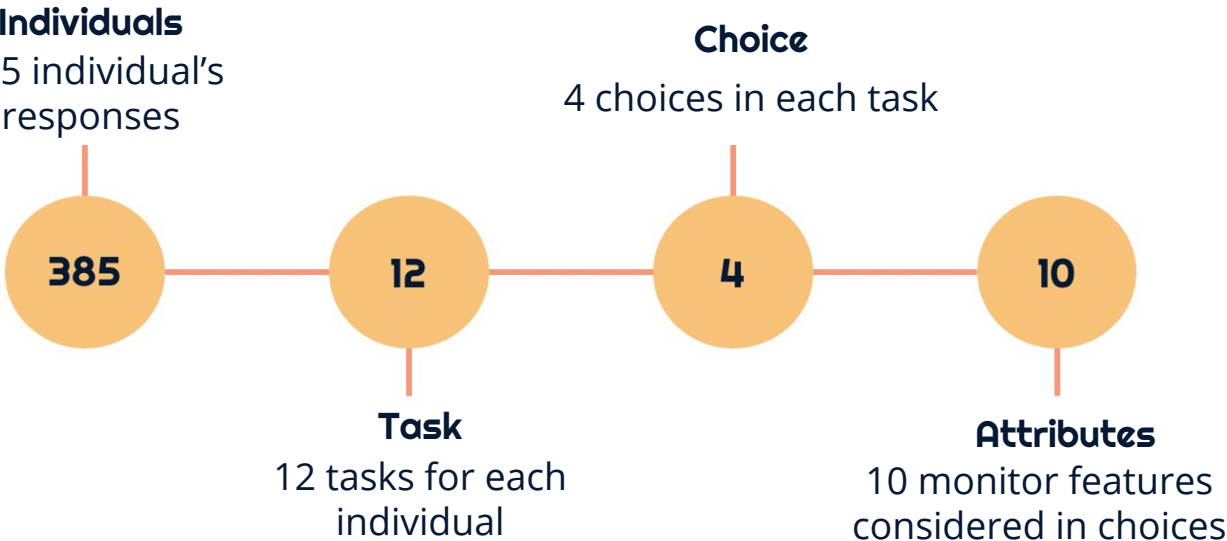
Response Time	5ms	3ms	3ms
Refresh Rates	240hz	165hz	165hz
Resolution	1080p	2160p	1080p
Color Spectrum	70%	100%	100%
Screen Type capacity	Curved	UltraWide	Curved Ultra Wide
Screen Size	30"	35"	24"
Adaptive Sync	G-Sync	Free-Sync	None
Wide Viewing Angle	No	No	Yes
HDR	Yes	No	No
Price	$850	$550	$850
	CHOOSE	CHOOSE	CHOOSE

Go back

✕ NONE OF THE ABOVE

BUNDLE A   BUNDLE B   BUNDLE C

BUY   BUY   BUY

DATA ANALYSIS

Individuals

385 individual's responses

385

Task

12 tasks for each individual

12

Choice

4 choices in each task

4

Attributes

10 monitor features considered in choices

10

We really appreciate the help

Data Source

|	
Screen Type	Widescreen
	Ultra-Wide
	Curved
	Curved Ultra-Wide
Screen Size	21"
	24"
	27"
	30"
	35"
Adaptive Sync	G-Sync
	Free-Sync
	None
Resolution	1080p (FHD)
	1440p (2k / QHD)
	2160p (4k / UHD)
Refresh Rates	75hz
	120hz
	144hz
	165hz
	240hz
Wide Viewing Angle	Yes
	No
Response Time	1ms
	3ms
	5ms
HDR	Yes
	No
% of Color Spectrum (Color Gamut)	70%
	85%
	100%
Price	$250
	$400
	$550
	$700
	$850

MODEL SELECTION and WHY ?

LOGIT MODEL

- **The purpose of logit analysis is to quantify the potential sales of that product and predict if a targeted group of customers will buy a new product or not**

- **It takes survey data on consumers purchase intentions and converts it into actual purchase probabilities**

- **Now that we are trying to check if the customer is willing to buy the product or not, we will be using Logit model for it**
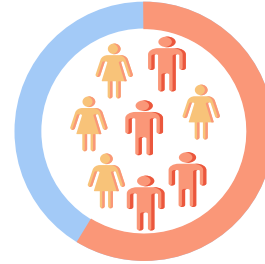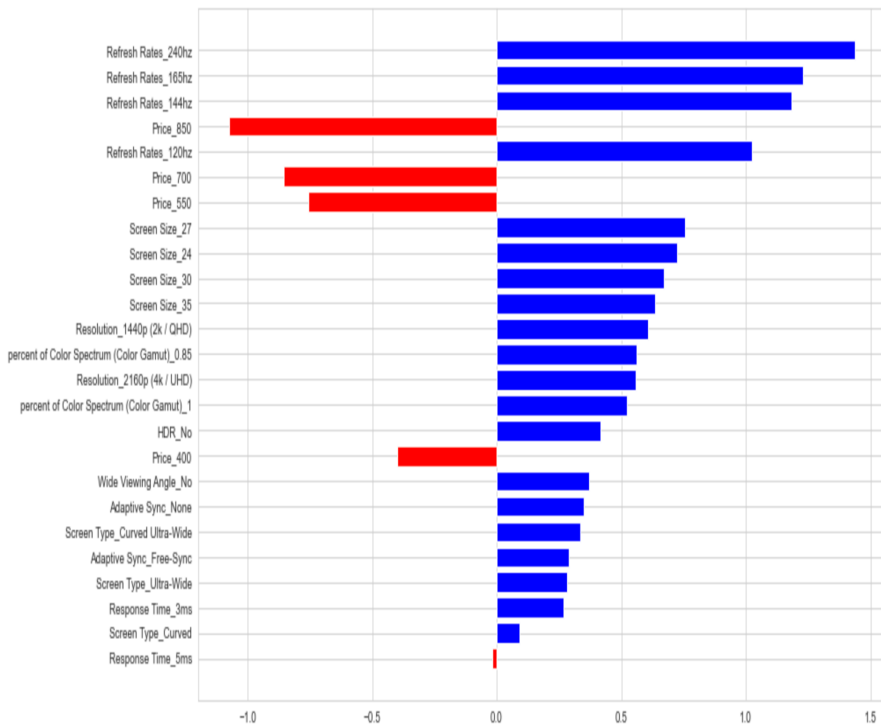
Aggregated Level
gives us more statistical reliability, but at the cost of treating all units the same
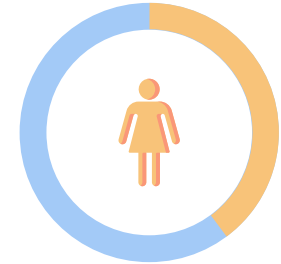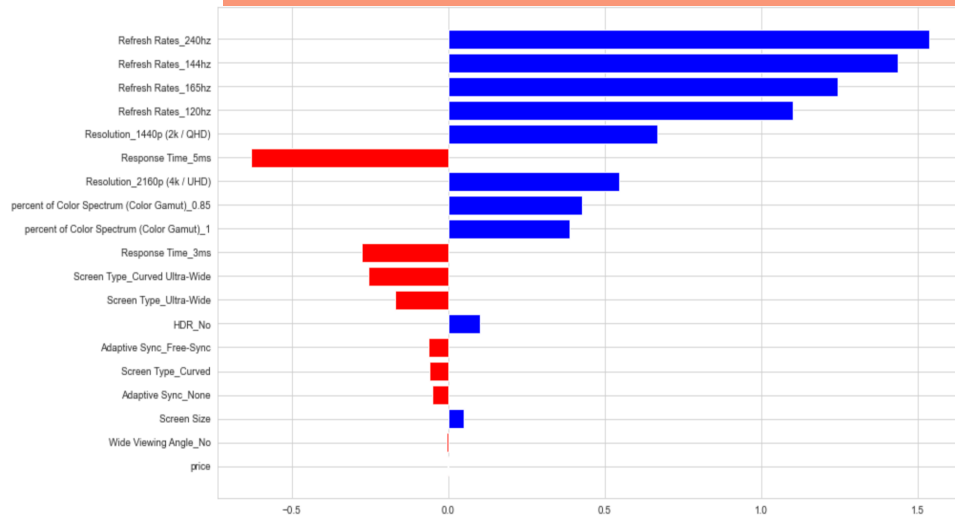
Individual analysis
tells us about the difference across the customers at an individual level
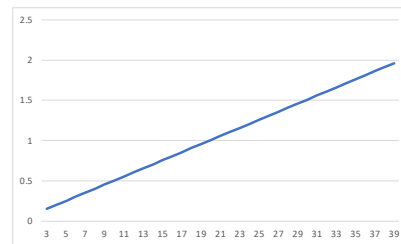
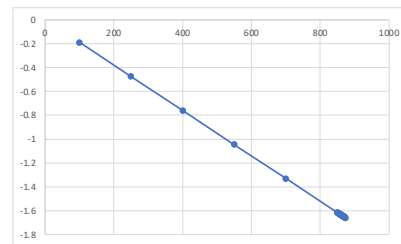# COMPARISON OF COEFFICIENTS – POOLED MODEL

Pooled Model- All Categorical

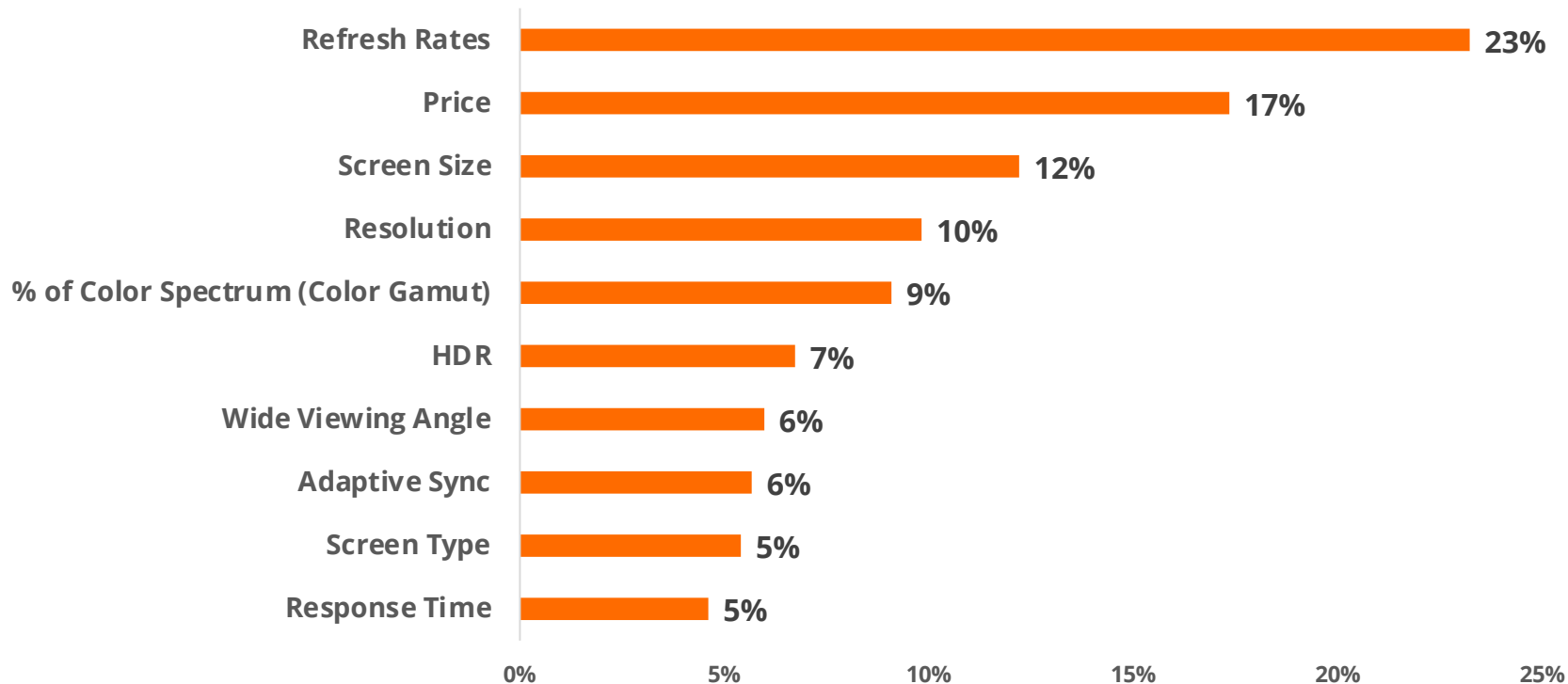Pooled Model - Price and Screen size Linear

Screen Size

Price

ATTRIBUTE IMPORTANCE

| Attribute	Importance
Refresh Rates	23%
Price	17%
Screen Size	12%
Resolution	10%
% of Color Spectrum (Color Gamut)	9%
HDR	7%
Wide Viewing Angle	6%
Adaptive Sync	6%
Screen Type	5%
Response Time	5%

Hierarchical Bayes

Bayesian hierarchical modelling is a statistical model written in multiple levels (hierarchical form) that estimates the parameters of the posterior distribution using the Bayesian method.

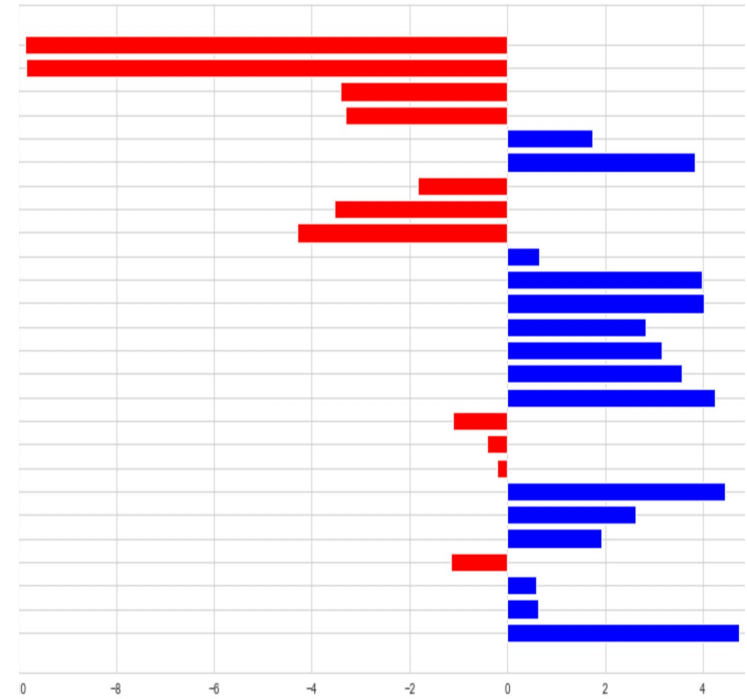We will use it to calculate individual level coefficients that are informed by the prior likelihood

COMPARISON OF COEFFICIENTS - HB MODEL

HB Model -Average
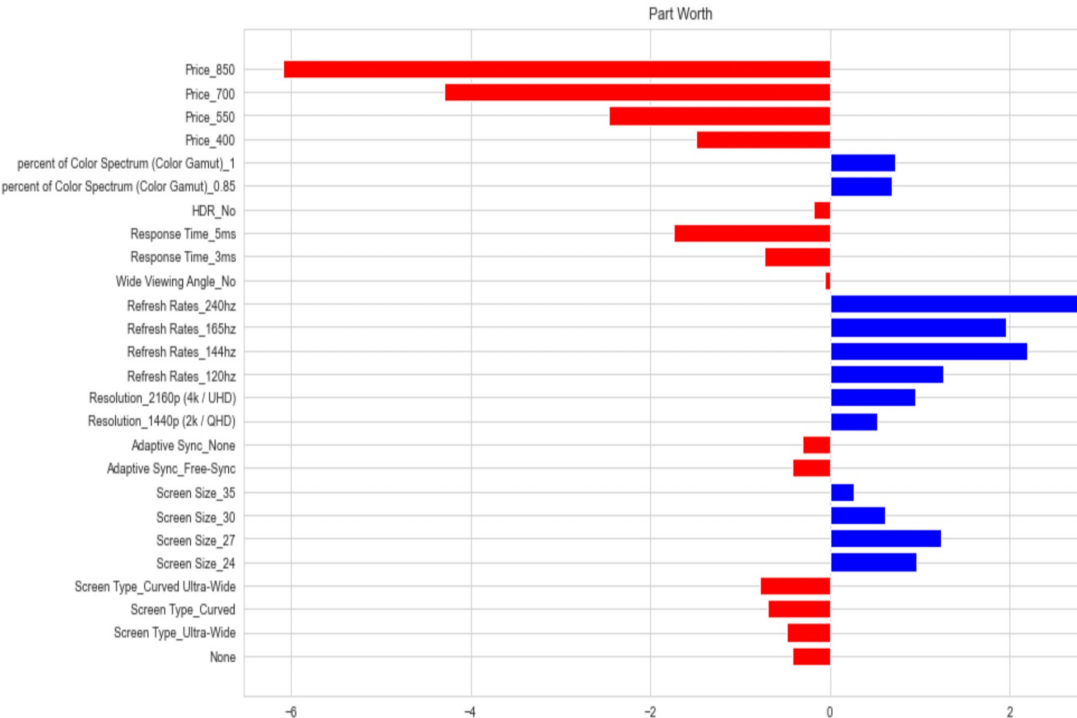
HB Model - Individual 11

WHICH MONITOR WOULD YOU BUY ?

Budget Plus

- Screen Size - 24'
- Resolution - 2160P (4K)
- 240Hz
- Wide Screen
- $250

Economic

- Screen Size - 27'
- Resolution - 1080P
- 120Hz
- Wide Screen
- $400

MARKET SIMULATION

4 Products

FEATURES	BUDGET	BUDGET PLUS	ECONOMIC	HIGH END
SCREEN SIZE	21"	24"	27"	35"
RESOLUTION	2160P (4K)	2160P (4K)	1080P	2160P (4K)
REFRESH RATES	240 HZ	240 HZ	120 HZ	240 HZ
COLOR SPECTRUM	1	0.70	0.70	1
SCREEN TYPE	WIDE SCREEN	WIDE SCREEN	WIDE SCREEN	CURVED ULTRA WIDE
PRICE	$250	$250	$400	$850

Pooled Model - Market share Analysis

Market Share

- High End: 23%
- Budget Plus: 40%
- Budget: 15%
- Economic: 22%
- None
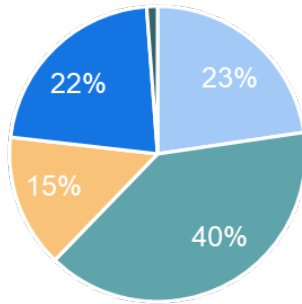
Legend: High End, Budget Plus, Budget, Economic, None

Share Preference – Screen Size

Screen sizes: 21", 24", 27", 30", 35"
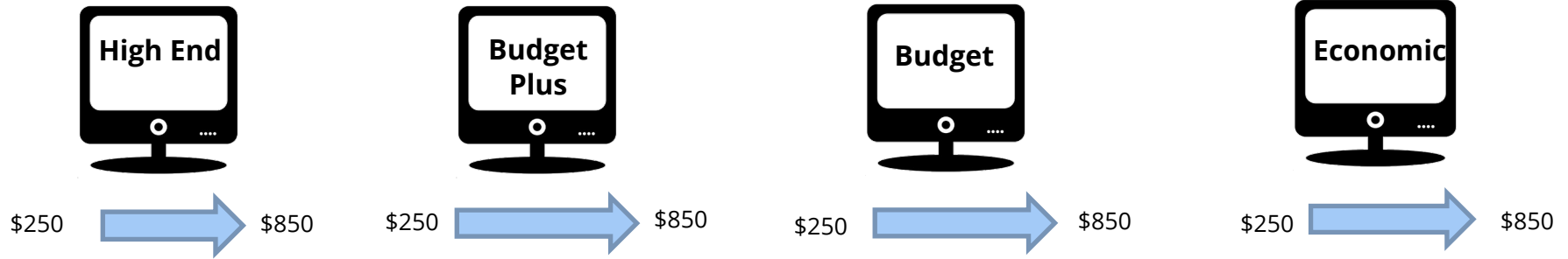
Legend: High End, Budget Plus, Budget, Economic, None
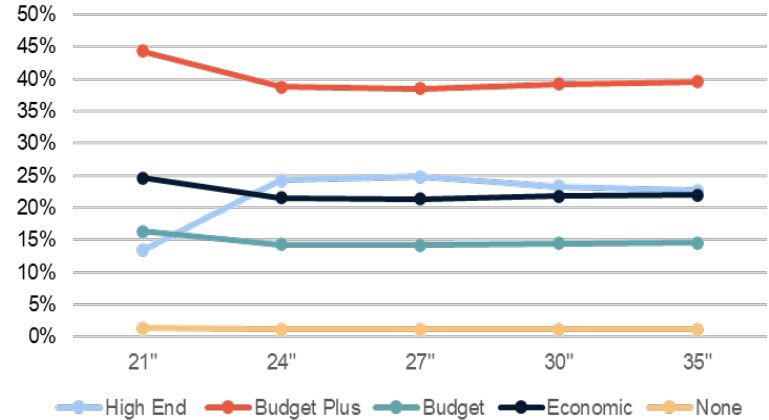
Budget Plus Product has the highest market share

High End Product and Economic product have a comparable market share

High End product gains a substantial higher market share if they increase screen size

Cross Price Elasticity - Pooled Model

High End

$250 → $850

Products	Elasticity
High End	-0.6255
Budget Plus	0.3282
Budget	0.3282
Economic	0.3282
None	0.3282

Budget Plus

$250 → $850

Products	Elasticity
High End	0.2742
Budget Plus	-0.6741
Budget	0.2742
Economic	0.2742
None	0.2742

Budget

$250 → $850

Products	Elasticity
High End	0.0925
Budget Plus	0.0925
Budget	-0.8268
Economic	0.0925
None	0.0925

Economic

$250 → $850

Products	Elasticity
High End	0.1976
Budget Plus	0.1976
Budget	0.1976
Economic	-0.7403
None	0.1976

Hierarchical Bayes - Market Share analysis

Market Share - Hierarchial Bayes
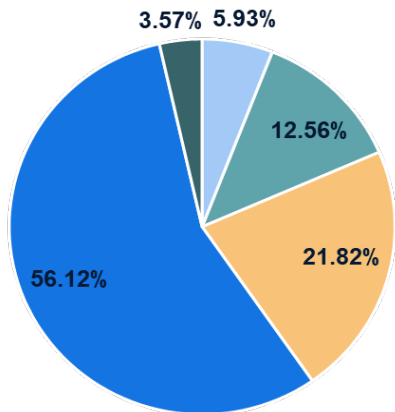
Share of Preference - Screen Size
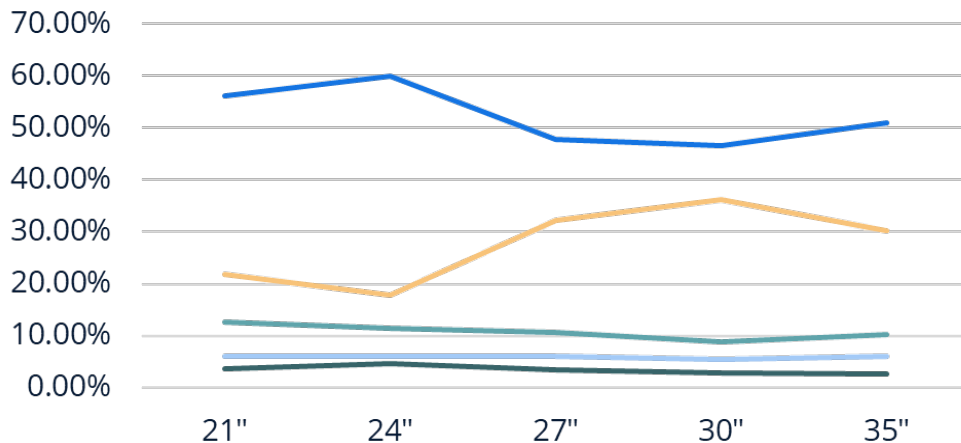
We observe that our Economic Product has the most market share and as we increase the screen size for the Budget project the market share for the same is consistently high.

We also observe that the market share for the Budget product goes up as the screen size for the same increases up to a certain level and then decreases.

Cross Price Elasticity - Hierarchical Model

High End

$250 → $850
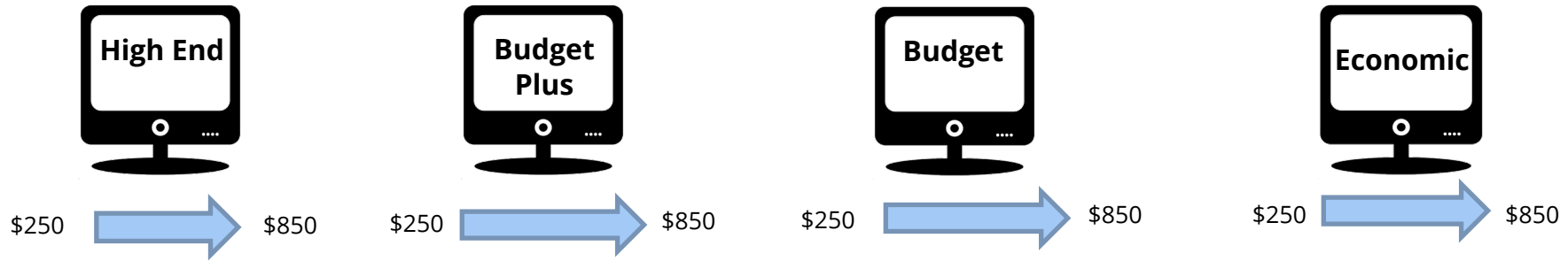
Products	Elasticity
High End	-0.93
Budget Plus	-0.49
Budget	-0.77
Economic	1.17
None	0.06

Budget Plus

$250 → $850

Products	Elasticity
High End	-0.05
Budget Plus	-0.76
Budget	0.17
Economic	0.07
None	0.06

Budget

$250 → $850

Products	Elasticity
High End	-0.14
Budget Plus	0.25
Budget	-0.46
Economic	0.10
None	0.10

Economic

$250 → $850

Products	Elasticity
High End	-0.15
Budget Plus	0.45
Budget	0.49
Economic	-0.72
None	0.53

WILLINGNESS TO PAY

Refresh rates relative to **75 Hz**

Screen Size relative to **21"**

Resolution relative to **1080p**
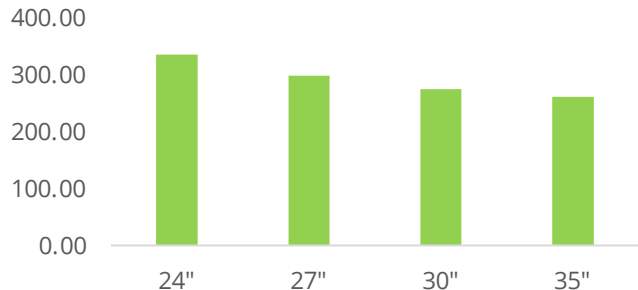
Color Spectrum relative to **70%**
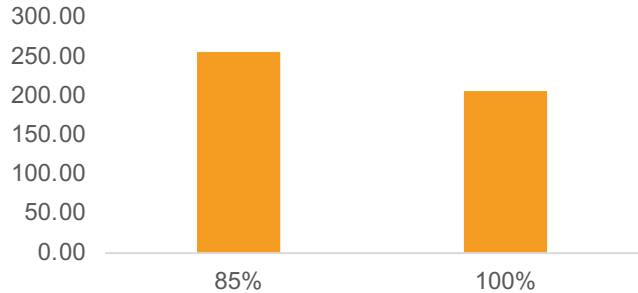
Conclusion

Refresh rates, Price and Screen Size
are the most important attributes

User preference for screen size increases up to
a certain limit and then decreases

The screen refresh rate is one of the major indicators of a
person's willingness to purchase a monitor

In the pooled model, we observe
that the products incorrectly appear to be
perfect substitutes of each other from the market share analysis.

THANKS!

Any Questions?