Luxury Handbag Auction Analysis

Understanding Consumer Perception in Luxury Handbag Market

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Introduction

Objective: Understand consumer perception in luxury handbag auction market
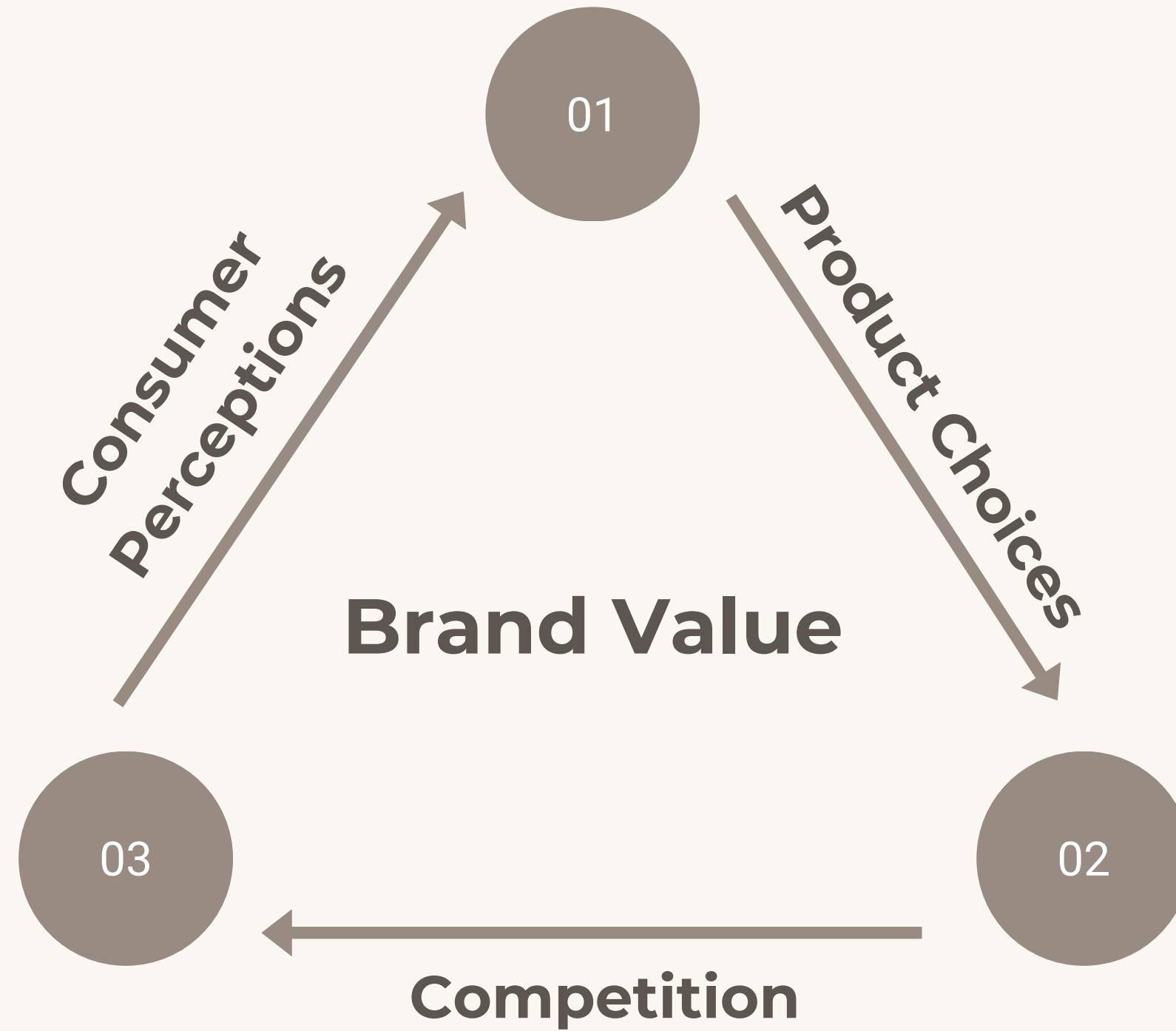
How:
- Brand preference in terms of bag characteristic
- Customer segmentation

Why:
Luxury handbag market is expected to grow at a CAGR of 5.6% and reach $89.9 billion until 2026

Introduction

01

Consumer Perceptions

Product Choices

Brand Value

03

02

Competition

Data Cleaning - Attribute Selection

New Variables	Description
Superior Quality	If the bag is produced with Crocodile, Alligator, Ostrich
Vintage	If the bag is produced before 2002
Unique	If the color of the bag is not Silver, Gold, Gris, Red, Rose. Oragne, Pink, Blue, Black, White

Data Cleaning - Brand Assign

New Variables	Description
Hermes	4
Chanel	3
Louis Vuitton	2
Others	1

Modeling: Multinomial Logistic Regression

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	1698.610	1303.274
SC	1713.211	1376.278
-2 Log L	1692.610	1273.274

Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	419.3362	12	<.0001
Score	182.6775	12	<.0001
Wald	176.4795	12	<.0001

Analysis of Maximum Likelihood Estimates						
Parameter	brandnum	DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	1	1	-3.3283	0.9045	13.5399	0.0002
Intercept	2	1	-1.1881	0.6873	2.9885	0.0839
Intercept	3	1	0.7082	0.4702	2.2683	0.1320
soldprice_USD	1	1	-0.00030	0.000065	21.6490	<.0001
soldprice_USD	2	1	-0.00023	0.000040	32.1807	<.0001
soldprice_USD	3	1	-0.00023	0.000021	113.3370	<.0001
SuperiorQuality	1	1	0.1173	0.0622	3.5574	0.0593
SuperiorQuality	2	1	-0.0252	0.0700	0.1295	0.7190
SuperiorQuality	3	1	-0.2116	0.0702	9.0820	0.0026
Unique	1	1	-0.1234	0.0607	4.1419	0.0418
Unique	2	1	-0.0371	0.0466	0.6329	0.4263
Unique	3	1	-0.0690	0.0287	5.7753	0.0163
Vintage	1	1	-1.4109	0.3761	14.0699	0.0002

Results - Customer Preference Ranking

Only focus on one attribute

Superior Quality

Hermes
Others
Louis Vuitton
Chanel

Unique

Hermes
Louis Vuitton
Chanel
Others

Vintage

Hermes
Others

Louis Vuitton and Chanel are not included because they have limited vintage bags
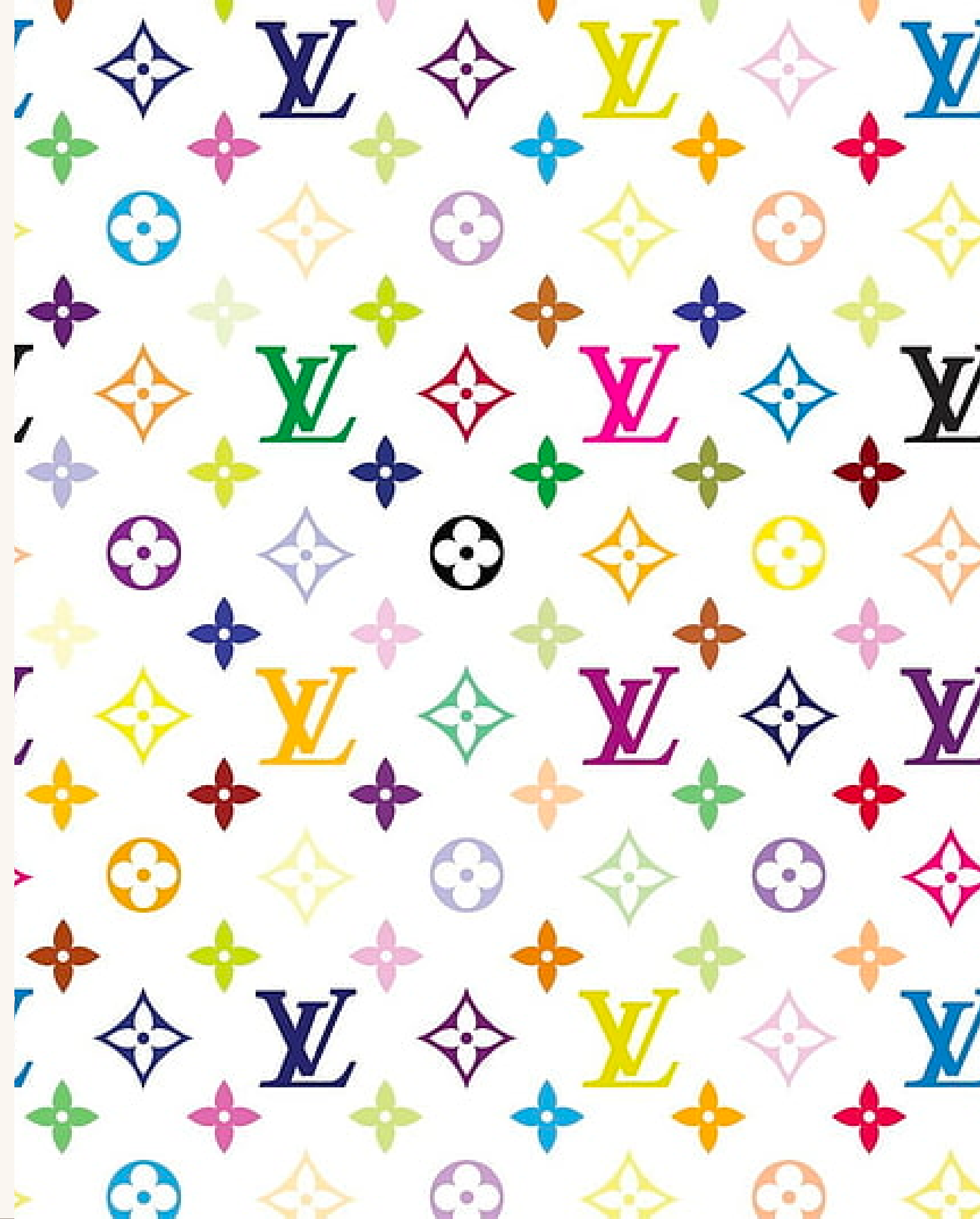
Results - Customer Preference Order

Only focus on one attribute

01

Customer has almost preference between Louis Vuitton and Hermes because Louis Vuitton monogram is timeless style

02

Customer has almost no preference between Louis Vuitton and Hermes because Louis Vuitton monogram is timeless style

Modeling: PCA

Number of principal components selected = 4

	Eigenvalue	Difference	Proportion	Cumulative
1	1.74708416	0.67685285	0.3494	0.3494
2	1.07023131	0.05868259	0.2140	0.5635
3	1.01154872	0.23393750	0.2023	0.7658
4	0.77761122	0.38408662	0.1555	0.9213
5	0.39352460		0.0787	1.0000
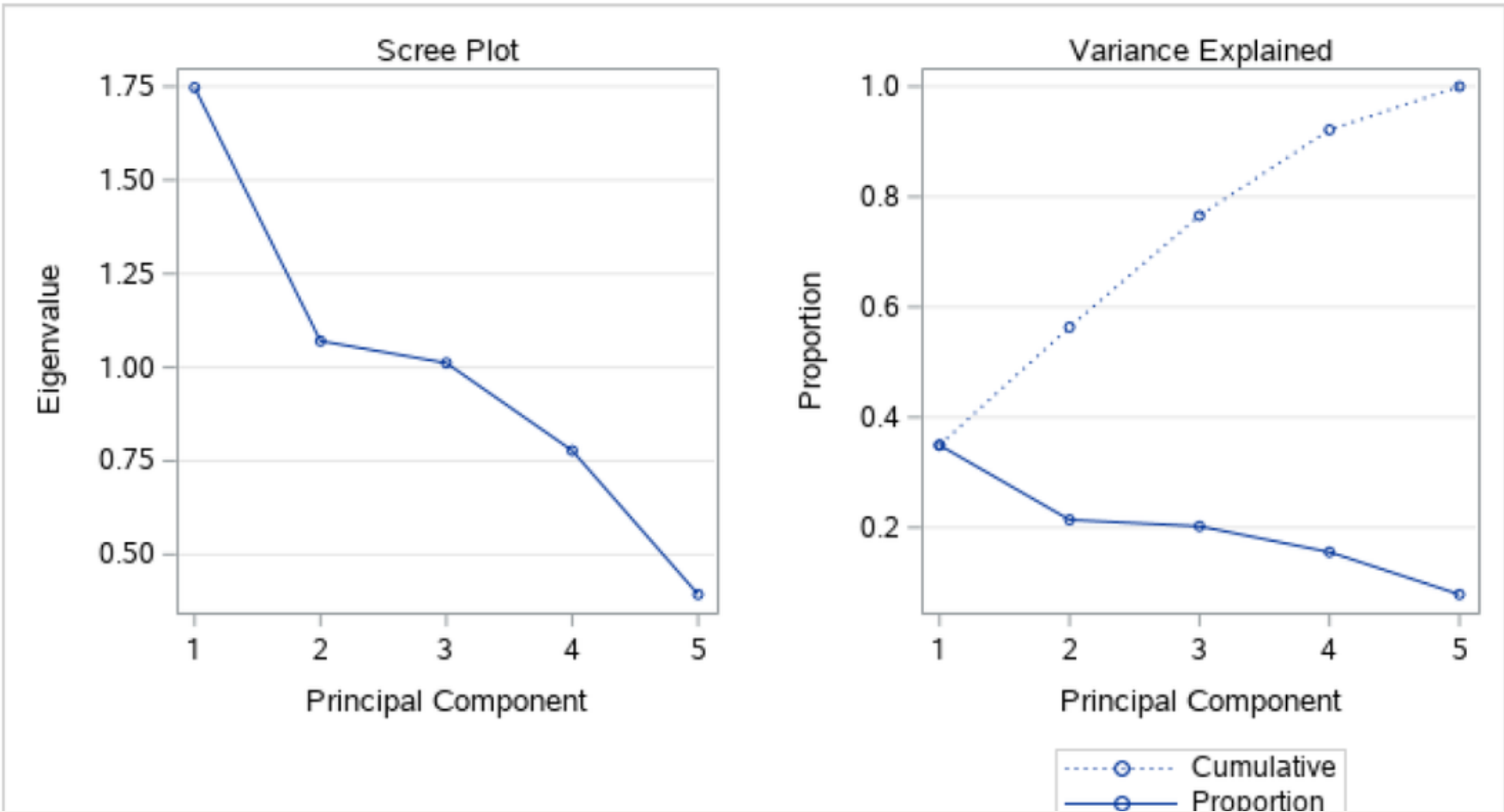
Modeling: PCA

Eigenvectors		Prin1	Prin2	Prin3	Prin4	Prin5
soldprice_USD	soldprice_USD	0.664675	-.051474	0.031727	-.125690	-.733998
SuperiorQuality	SuperiorQuality	0.422493	-.425596	-.341222	0.665941	0.283651
Prestige	Prestige	0.601876	0.167048	0.196909	-.436843	0.616632
Vintage	Vintage	0.131373	0.830536	0.131112	0.524606	-.023445
Unique	Unique	-.013929	-.313885	0.909174	0.273279	0.001902

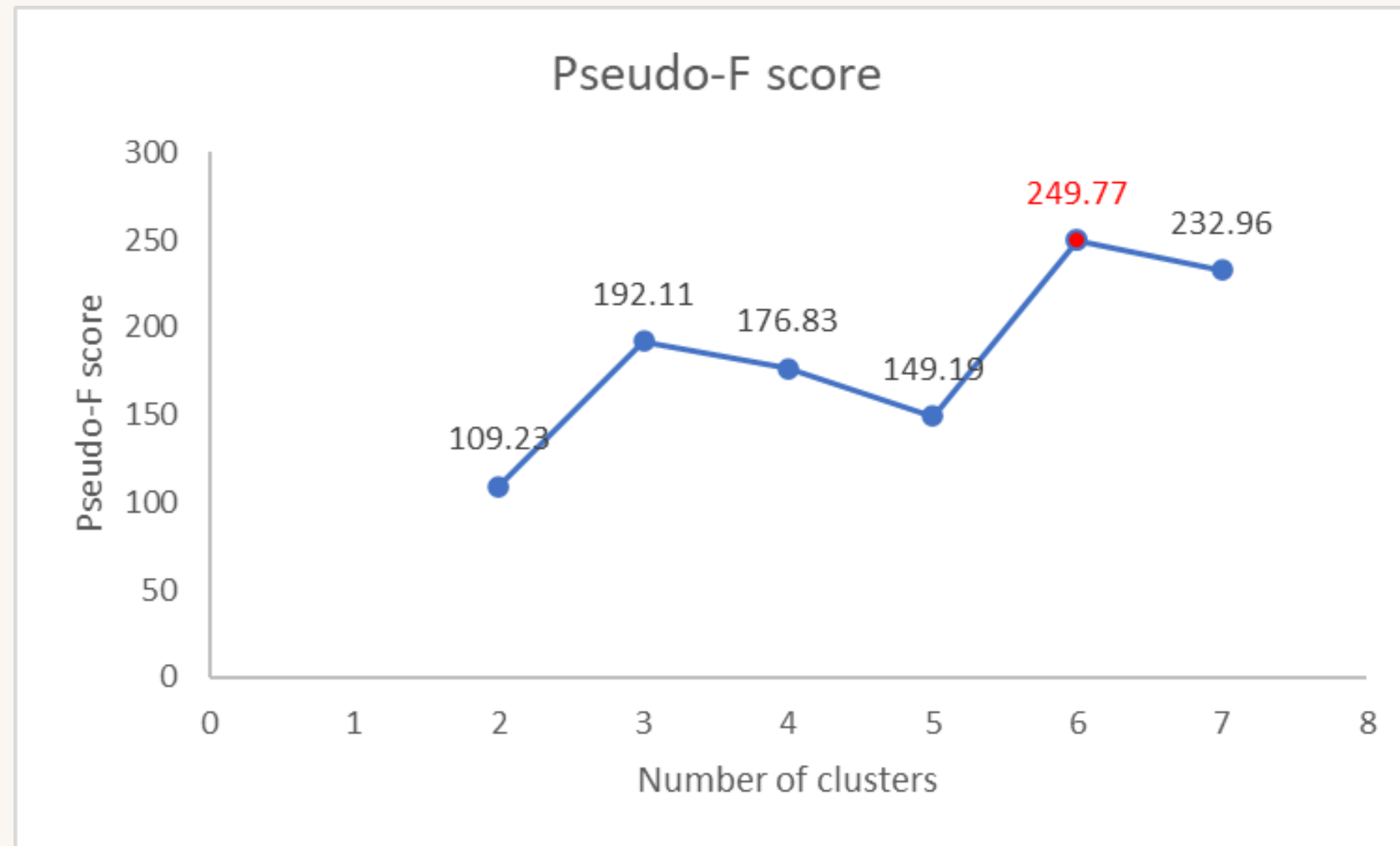## Latent features identified

PC1 – high on price
PC2 – high on variable "vintage"
defining timelessness of a bag
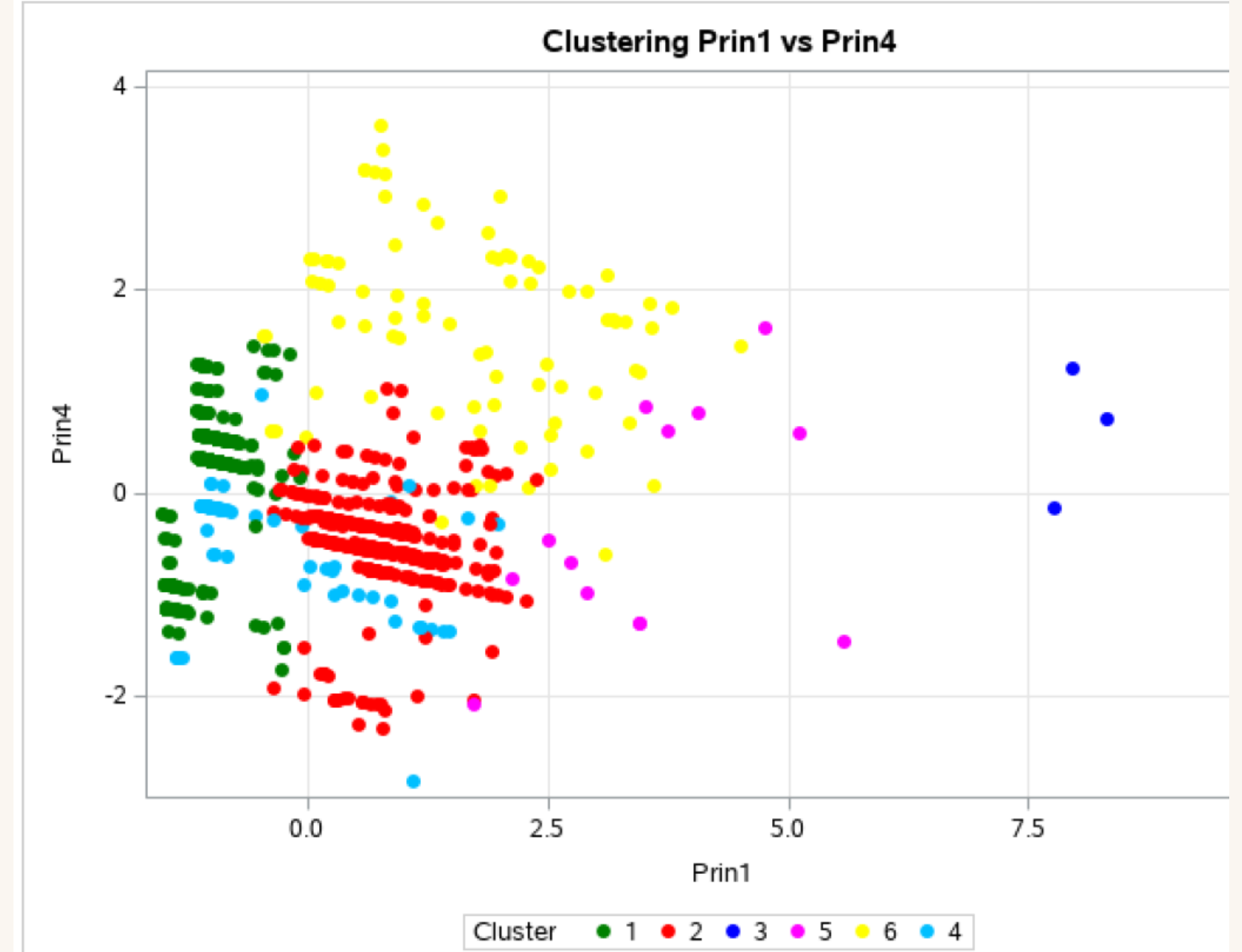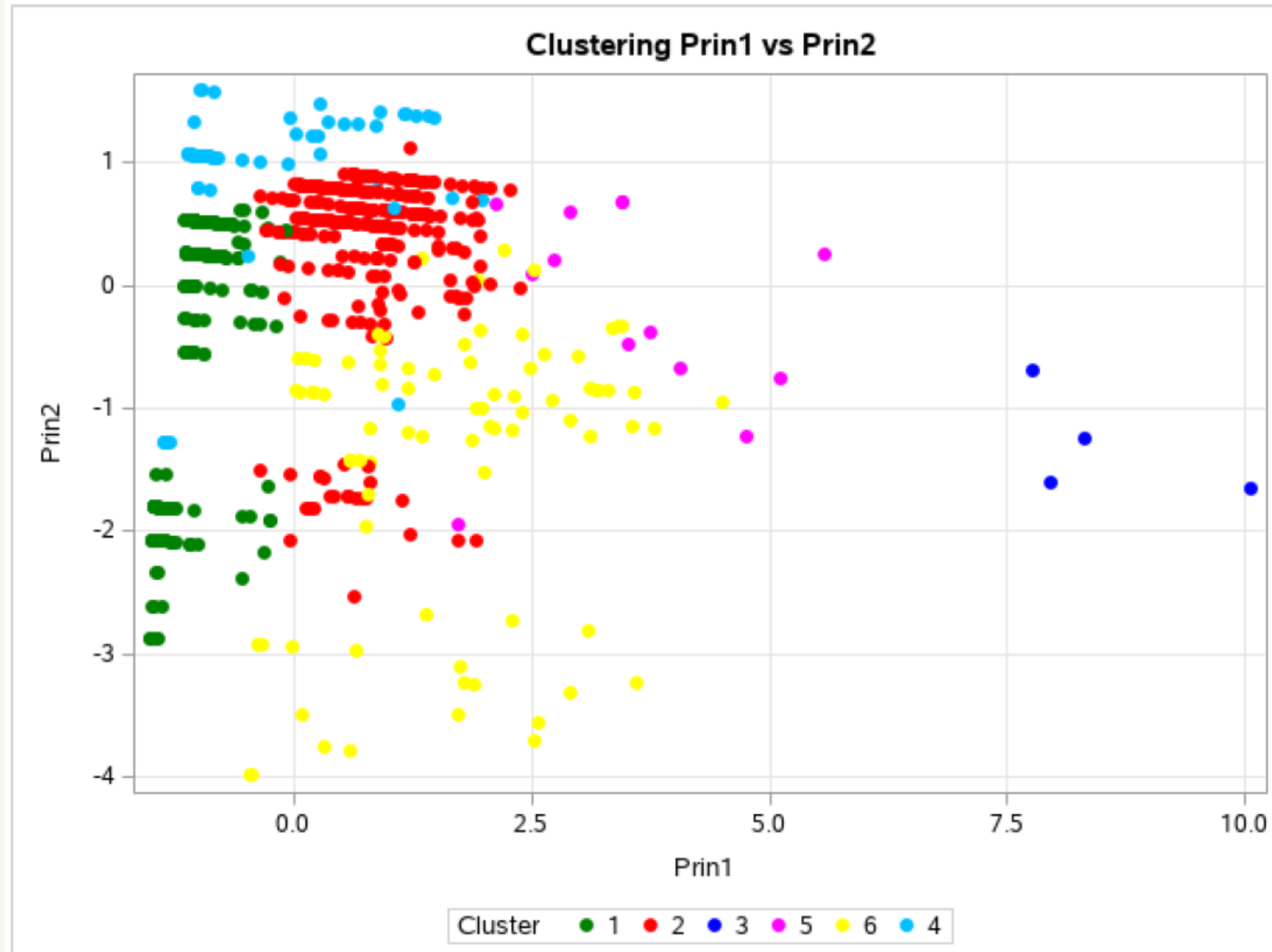PC3 – high on uniqueness
PC4 – high on prestige

Modeling: Clustering

Number of clusters = 6

Modeling: Clustering

Modeling: Clustering

Cluster	Description
1 - Green	Prioritize lower costs, prefer older bags, and err on the side of standard leathers
2 - Red	Price aware, prefer newer bags that are more standard leathers
3 - Dark Blue	Price inelastic buy both vintage and newer bags, buy colorful bags and prefer special leathers
4 - Sky blue	Prioritize lower costs, prefer newer bags, and generally have standard leathers
5 - Pink	Highly price inelastic, buy both vintage and new bags, are indifferent on coloration and leather material
6 - Yellow	Price aware, buy older bags, colorful and leather bags

Bargain seekers

Casual buyers

Collectors

Economical buyers

Influencers

Notables