Introduction
oooo

Data
oo

Research Question
oo

Results
ooooooooo

Categories
oooo

Further investigation
ooooooooooooo

Micro-entrepreneurship in second-hand clothing markets: the case of Tise

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Introduction

- Second-hand apparel has become increasingly popular in recent years.
- People have become more aware of the environmental and social benefits of shopping second-hand.
- Second-hand can also appeal to "Treasure hunting" behavior

Introduction
○●○○

Data
○○

Research Question
○○

Results
○○○○○○○○○

Categories
○○○○

Further investigation
○○○○○○○○○○○○

The platform

The company is based in **Norway**, and available in **Sweden, Denmark, and Finland**

- A blend of Instagram and Craigslist, targeting second-hand fashion, interiors, and furniture.
- Promoting sustainability through second-hand trade.

The platform is very similar to Vinted, the main European second hand marketplace for fashion.

Introduction
○○○●○

Data
○○

Research Question
○○

Results
○○○○○○○○○○

Categories
○○○○

Further investigation
○○○○○○○○○○○○○○

The platform

Introduction
○○○●

Data
○○

Research Question
○○

Results
○○○○○○○○○

Categories
○○○○

Further investigation
○○○○○○○○○○○○

The platform

- Monetize Through:
    - Fee on every item sold, **dynamically calculated** on:
        - Item Price
        - Delivery Method
    - Memberships (monthly/yearly payment)
    - Sponsoring
    - Promoting user products
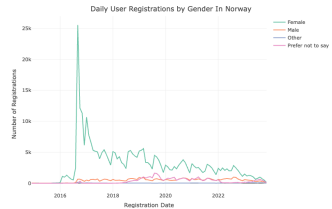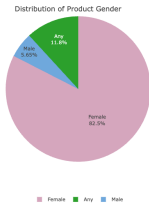- Offer Cash back and points

Introduction
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Data
●○

Research Question
○○

Results
000000000

Categories
0000

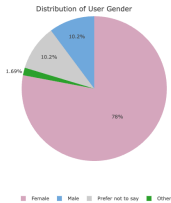Further investigation
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Data

- The information of every product posted between January 1st 2021 and December 31th 2023
- The info of every user that has ever posted or purchased an item.
- 4.5 Million Reviews

Selected Data

- Only females
- Focusing on clothes

Data Description

Introduction
0000

Data
00

Research Question
●0

Results
000000000

Categories
0000

Further investigation
00000000000

Research Question

We can see users in second-hands markets as micro-entrepreneurs that strategically behave to increase their prices and sales.
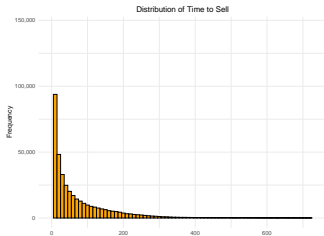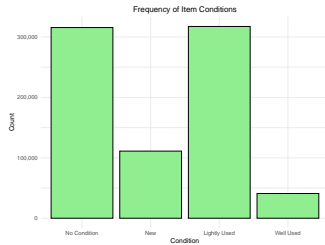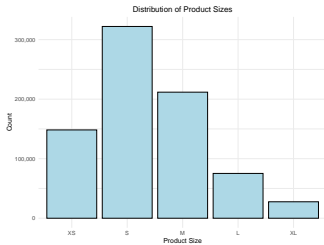**Main Research Question:**

How do users operate and succeed within second-hand markets?

Sub-questions:

- How do users price, and sell second-hand goods?
- What strategies do users implement in the marketplace?

Introduction
0000

Data
00

Research Question
0●

Results
000000000

Categories
0000

Further investigation
000000000000

Data Description

Introduction
0000

Data
00

Research Question
00

Results
●00000000
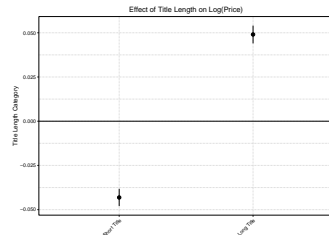
Categories
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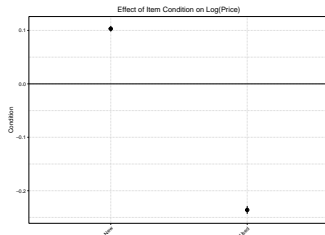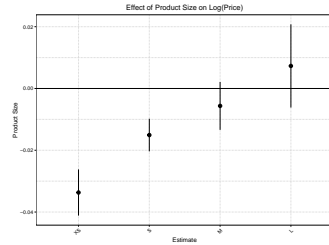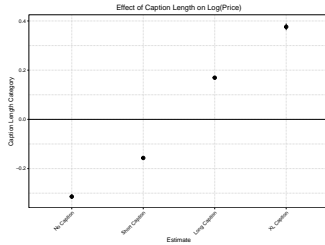Further investigation
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Main Results

Posting Behaviour

Users differentiate posting behaviour based on items characteristics.

- Products with longer description have higher prices
- Products with longer titles have higher prices
- Products with sizes with lower competition tend to have higher prices

Main Results: Prices

Introduction
0000

Data
00

Research Question
00

Results
000●000000

Categories
0000

Further investigation
000000000000

Main Results: Prices

| Dependent Variable: | | | | | log(price) | | | | |
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Variables									
Well Presented Cloth	0.570***	0.552***	0.470***	0.413***	0.413***	0.267***	0.268***	0.189***	0.424***
	(0.074)	(0.076)	(0.065)	(0.060)	(0.060)	(0.039)	(0.007)	(0.005)	(0.008)
Professional Model	0.600***	0.574***	0.491***	0.435***	0.434***	0.291***	0.292***	0.245***	0.446***
	(0.063)	(0.065)	(0.059)	(0.048)	(0.048)	(0.031)	(0.004)	(0.004)	(0.006)
Real Person	0.309***	0.305***	0.250***	0.190***	0.189***	0.178***	0.179***	0.169***	0.204***
	(0.049)	(0.049)	(0.045)	(0.038)	(0.038)	(0.030)	(0.004)	(0.004)	(0.005)
Condition	✓	✓	✓	✓	✓	✓	✓	✓	✓
Text Variables		✓	✓	✓	✓	✓	✓	✓	✓
Review Variables			✓	✓	✓	✓	✓	✓	✓
Experience				✓	✓	✓	✓	✓	✓
Person in Profile Picture					✓	✓	✓	✓	✓
Profile Picture Info									✓
Fixed-effects									
Category FE	Yes	Yes	Yes	Yes	Yes	Yes			
Date FE	Yes	Yes	Yes	Yes	Yes	Yes			
User FE							Yes	Yes	Yes
Category FE-Date FE							Yes	Yes	Yes
Brand FE								Yes	Yes
Fit statistics									
Observations	469,483	469,483	469,483	469,483	469,483	469,483	469,483	469,483	369,519
R²	0.22516	0.22992	0.27191	0.31226	0.31232	0.69739	0.71062	0.79508	0.35472
Within R²	0.07675	0.08243	0.13246	0.18053	0.18061	0.14322	0.14290	0.11627	0.19564

Signif. Codes: ***: 0.001, **: 0.05, *: 0.1

Introduction
oooo

Data
oo

Research Question
oo

Results
ooo●oooooo

Categories
oooo

Further investigation
oooooooooooo

Main Results

Sale Behaviour

- Products with longer description tend to have higher probability to sell
- Products with higher prices tend to have higher probability to sell
- Products with sizes with lower competition tend to have higher probability to sell
- The type of picture the user choose matters in sale probability.

Main Results: Sales

Introduction
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Data
00

Research Question
00

Results
000000●000

Categories
0000

Further investigation
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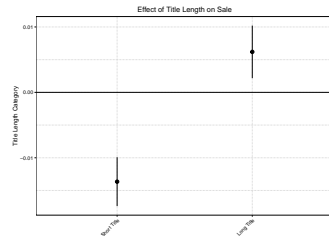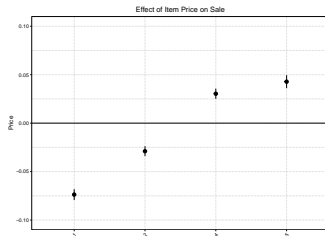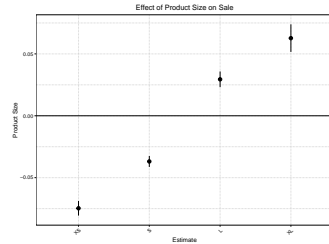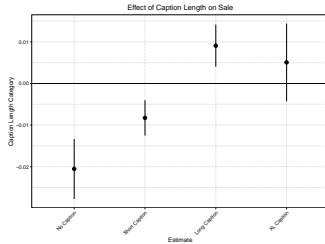
Main Results

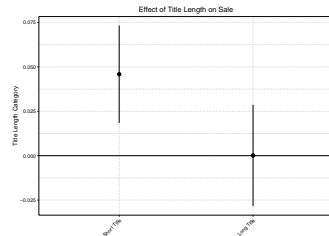| Dependent Variable:					sold					
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables										
Well Presented Cloth	0.131***	0.132***	0.112***	0.103***	0.082***	0.082***	0.063***	0.065***	0.048***	0.064***
	(0.015)	(0.015)	(0.014)	(0.014)	(0.013)	(0.013)	(0.008)	(0.004)	(0.004)	(0.004)
Professional Model	0.140***	0.142***	0.121***	0.112***	0.088***	0.087***	0.065***	0.067***	0.062***	0.067***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.021)	(0.021)	(0.015)	(0.003)	(0.003)	(0.003)
Real Person	0.039**	0.039**	0.026*	0.026	0.018	0.016	0.016	0.017***	0.018***	0.015***
	(0.014)	(0.014)	(0.014)	(0.015)	(0.014)	(0.014)	(0.013)	(0.003)	(0.003)	(0.003)
Condition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Text Variables		✓	✓	✓	✓	✓	✓	✓	✓	✓
Review Variables			✓	✓	✓	✓	✓	✓	✓	✓
Experience				✓	✓	✓	✓	✓	✓	✓
Price Quintile					✓	✓	✓	✓	✓	✓
Person in Profile Picture						✓	✓	✓	✓	✓
Profile Picture Info										✓
Fixed-effects										
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Date FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
User FE								Yes	Yes	Yes	Yes
Category FE-Date FE								Yes	Yes	Yes
Brand FE									Yes	
Fit statistics										
Observations	469,483	469,483	469,483	469,483	469,483	469,483	469,483	469,483	469,483	369,519
R²	0.05570	0.05574	0.06485	0.09922	0.10726	0.10757	0.43330	0.45387	0.47802	0.45260
Within R²	0.01311	0.01315	0.02267	0.05860	0.06699	0.06732	0.03113	0.03172	0.01891	0.03393

Signif. Codes: ***: 0.001, **: 0.05, *: 0.1
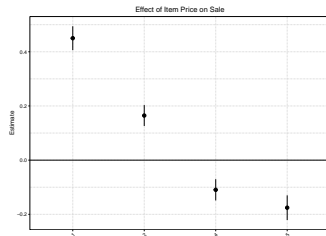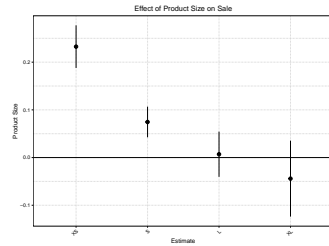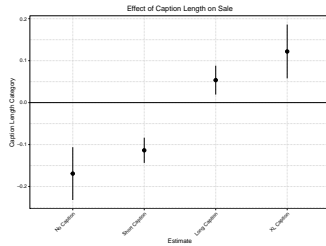
Main Results

Time to Sell

Professional like image seem to reduce the time to sell

- Products with longer description tend to lower time to sell
- Products with hiher prices tend to sell faster
- Products with sizes with lower competition tend to sell faster

Main Results: Time to Sell

Main Results

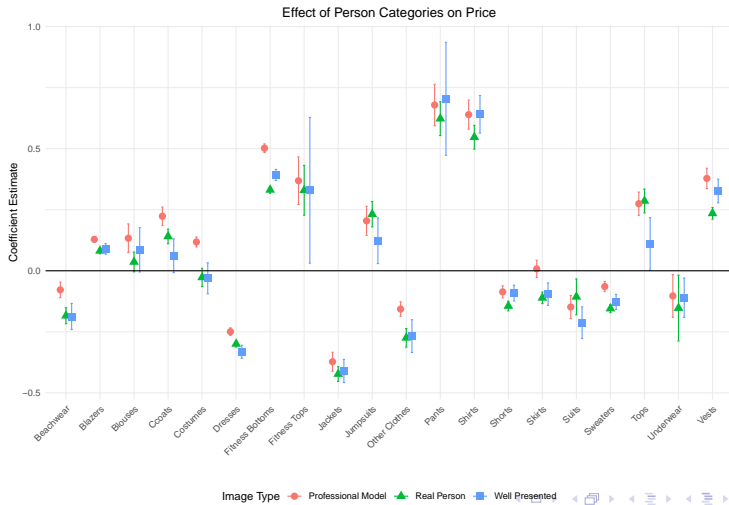| Dependent Variable:					log(TimeToSell)					
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables										
Well Presented Cloth	-0.141**	-0.149**	-0.144**	-0.207**	-0.095	-0.095	0.025	0.033	0.083**	0.031
	(0.060)	(0.059)	(0.061)	(0.067)	(0.059)	(0.059)	(0.045)	(0.026)	(0.026)	(0.023)
Professional Model	-0.118**	-0.128**	-0.123**	-0.172**	-0.048	-0.045	0.066	0.068***	0.092***	0.039**
	(0.053)	(0.051)	(0.054)	(0.070)	(0.056)	(0.056)	(0.045)	(0.019)	(0.020)	(0.017)
Real Person	-0.134***	-0.135***	-0.134***	-0.205***	-0.152***	-0.149***	-0.027	-0.032	-0.019	-0.101***
	(0.032)	(0.032)	(0.034)	(0.042)	(0.032)	(0.032)	(0.049)	(0.021)	(0.021)	(0.016)
Condition	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Text Variables		✓	✓	✓	✓	✓	✓	✓	✓	✓
Review Variables			✓	✓	✓	✓	✓	✓	✓	✓
Experience				✓	✓	✓	✓	✓	✓	✓
Price Quintile					✓	✓	✓	✓	✓	✓
Person in Profile Picture						✓	✓	✓	✓	✓
Profile Picture Info										✓
Fixed-effects										
Category FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Date FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
User FE							Yes	Yes	Yes	
Category FE-Date FE								Yes	Yes	Yes
Brand FE									Yes	Yes
Fit statistics										
Observations	212,517	212,517	212,517	212,517	212,517	212,517	212,517	212,517	212,517	170,125
R^2	0.42184	0.42193	0.42213	0.43408	0.44155	0.44164	0.68837	0.70732	0.72090	0.50203
Within R^2	0.00098	0.00113	0.00149	0.02213	0.03504	0.03520	0.11710	0.12642	0.12756	0.04106

Signif. Codes: ***: 0.001, **: 0.05, *: 0.1
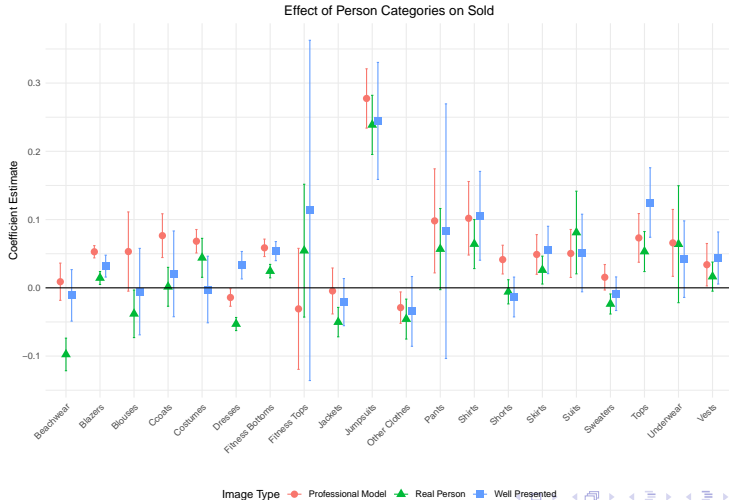
Diving into Categories

There is significant heterogeneity in the effects across different categories and types of pictures used.

- The impact on sales, time to sell, and prices differs based on the product category (e.g., dresses, jackets, fitness wear).
- The type of image used (e.g., professional model, real person, or well-presented) also plays a key role in these effects.
- Not all categories react the same way to image types. For instance, professional images may increase the probability of sale for certain categories but not others.
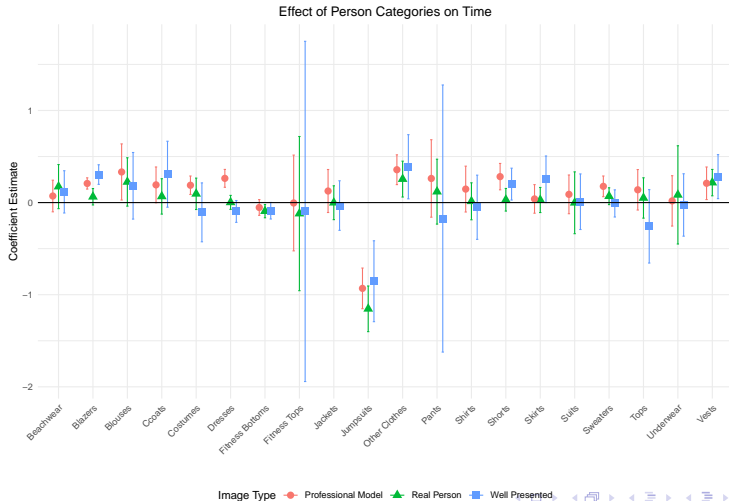
Introduction
○○○○

Data
○○

Research Question
○○

Results
○○○○○○○○○

Categories
○●○○

Further investigation
○○○○○○○○○○○○○

Diving in to categories

Effect of Person Categories on Price

Introduction
○○○○

Data
○○

Research Question
○○

Results
○○○○○○○○○

Categories
○○●○

Further investigation
○○○○○○○○○○○○○

Diving in to categories

Effect of Person Categories on Sold

Introduction
oooo

Data
oo

Research Question
oo

Results
ooooooooo

Categories
ooo●

Further investigation
ooooooooooooo

Diving in to categories

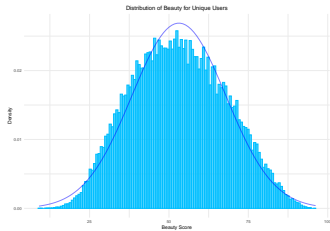Effect of Person Categories on Time

Does beauty matter?

Beauty was classified using CLIP, a large language model (LLM) created by OpenAI (creator of ChatGPT).

- Every profile picture was assigned a value between 0 and 100.
- The scores were then divided into quintiles, creating 5 categories: "Well Below Average", "Below Average", "Average", "Above Average", and "Well Above Average."
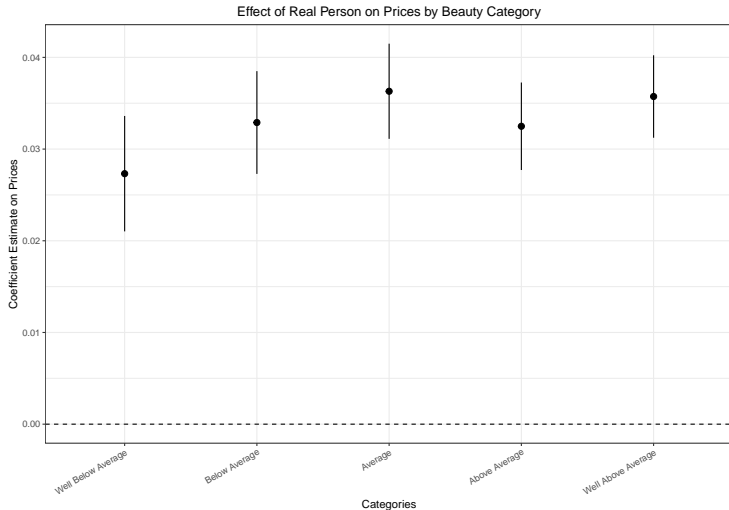
Beauty matters, but not in a straightforward way

While beauty, as measured by the model, may have some influence on sales, it's not the case that the most "beautiful" profiles (as classified) necessarily sell more or sell faster. There's notable heterogeneity, particularly with profiles that have no pictures, where sales patterns differ significantly.

Introduction
○○○○

Data
○○

Research Question
○○

Results
○○○○○○○○○

Categories
○○○○

Further investigation
○●○○○○○○○○○○○

Beauty Distribution

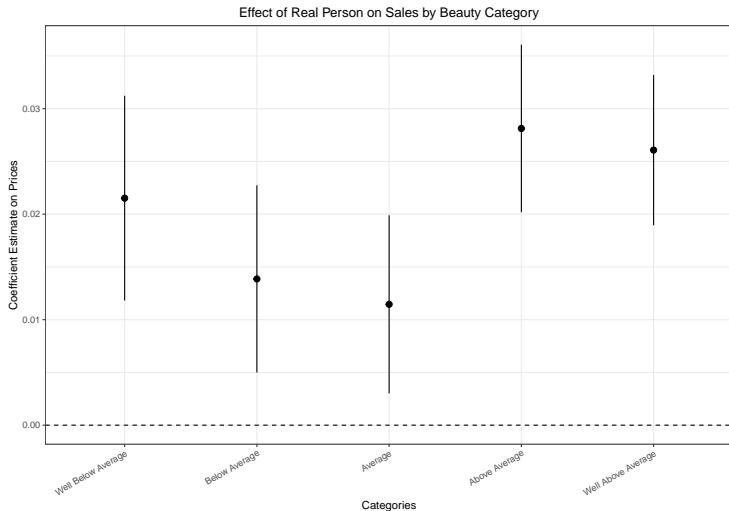

Distribution of beauty seem to be normally distributed for both unique users and generally among the users that post products
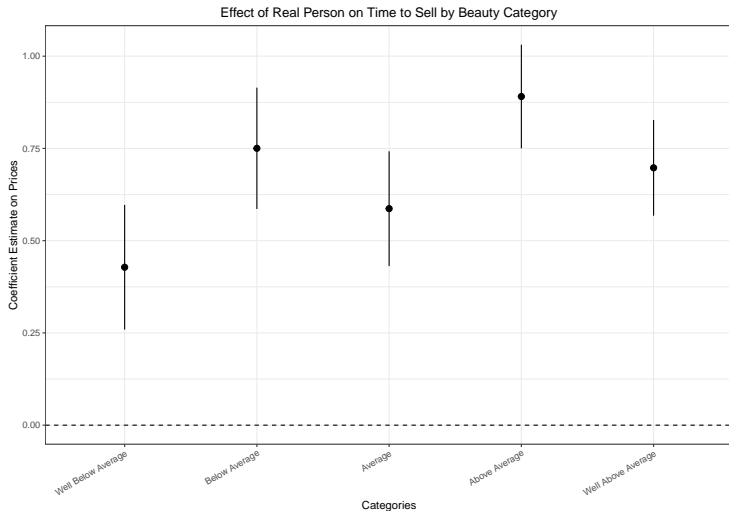
Beauty on prices

Effect of Real Person on Prices by Beauty Category

Introduction
0000

Data
00

Research Question
00

Results
000000000

Categories
0000

Further investigation
00000000000000

Beauty on sales

Effect of Real Person on Sales by Beauty Category

Beauty on Time To Sell

Effect of Real Person on Time to Sell by Beauty Category

Does experience matter?

Beauty was classified using CLIP, a large language model (LLM) created by OpenAI (creator of ChatGPT).

- Every profile picture was assigned a value between 0 and 100.
- The scores were then divided into quintiles, creating 5 categories: "Well Below Average", "Below Average", "Average", "Above Average", and "Well Above Average."
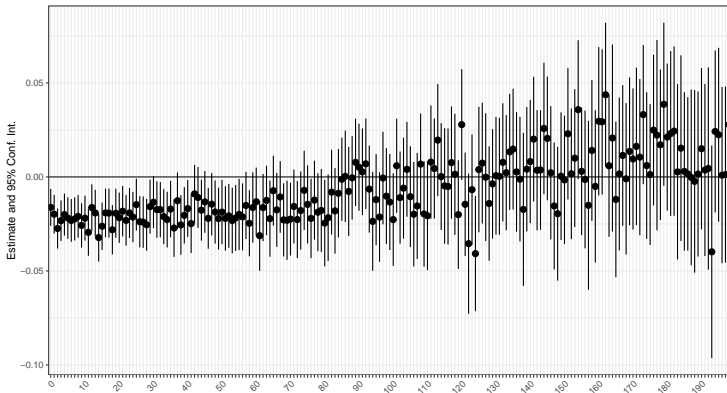
Beauty matters, but not in a straightforward way

While beauty, as measured by the model, may have some influence on sales, it's not the case that the most "beautiful" profiles (as classified) necessarily sell more or sell faster. There's notable heterogeneity, particularly with profiles that have no pictures, where sales patterns differ significantly.

Introduction
oooo

Data
oo

Research Question
oo

Results
ooooooooo

Categories
oooo

Further investigation
ooooooo●ooooo

Experience on prices

Effects on prices with experience (cumulative posts)

2021 onwards

Introduction
0000

Data
00

Research Question
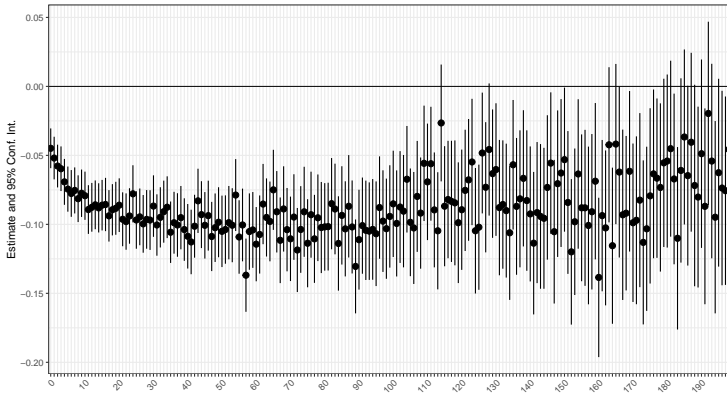00

Results
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Categories
0000

Further investigation
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Experience on sales

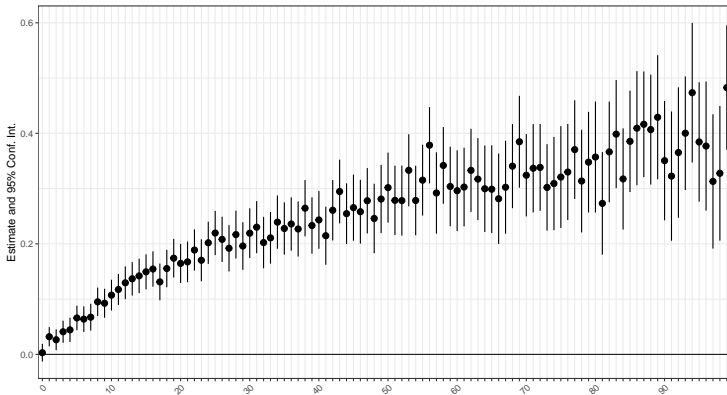Effects on sales with experience (cumulative posts)

2021 onwards

Experience on Prices
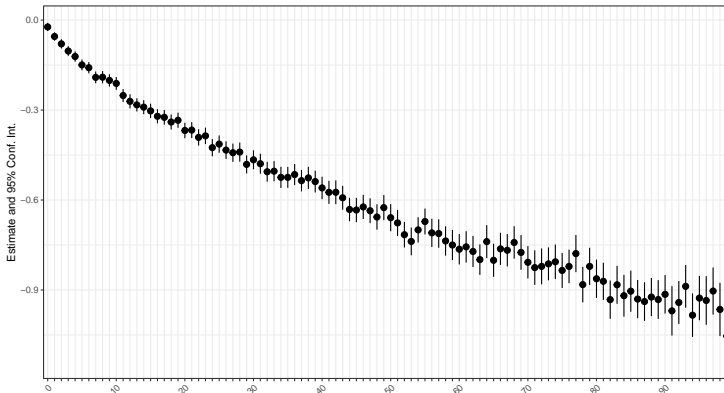

Effects on prices with experience (reviews at posting)
2021 onwards

Experience on Sales

Effects on sales with experience (reviews at purchase)

2021 onwards

Conclusion

Users in second-hand markets behave like entrepreneurs:

- **Rational Pricing:** They set prices strategically, reflecting market conditions and product features.
- **Effort in Selling:** Users invest effort in presenting items with optimal images, captions, and details to boost sales.
- **Learning Over Time:** Through experience, they refine strategies and improve outcomes, adapting to market dynamics.

Overall, they balance effort, strategy, and learning to succeed in a competitive environment.

Thank You

Thank you!

Questions?