Behind the Click: Understanding Gift Card Purchasing Dynamics on Amazon

Armor Cao, Becky Song, Liujun Chen
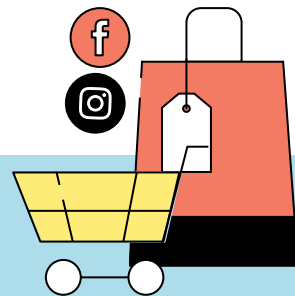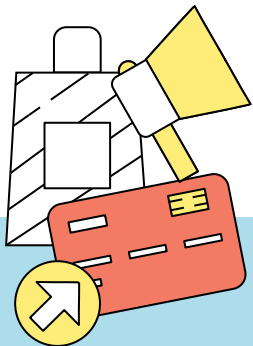
Table of contents

Introduction

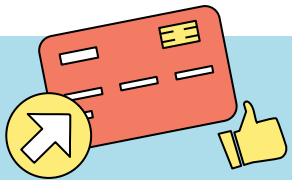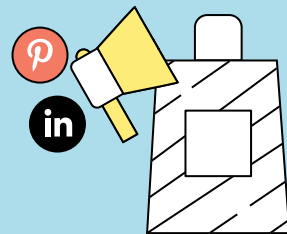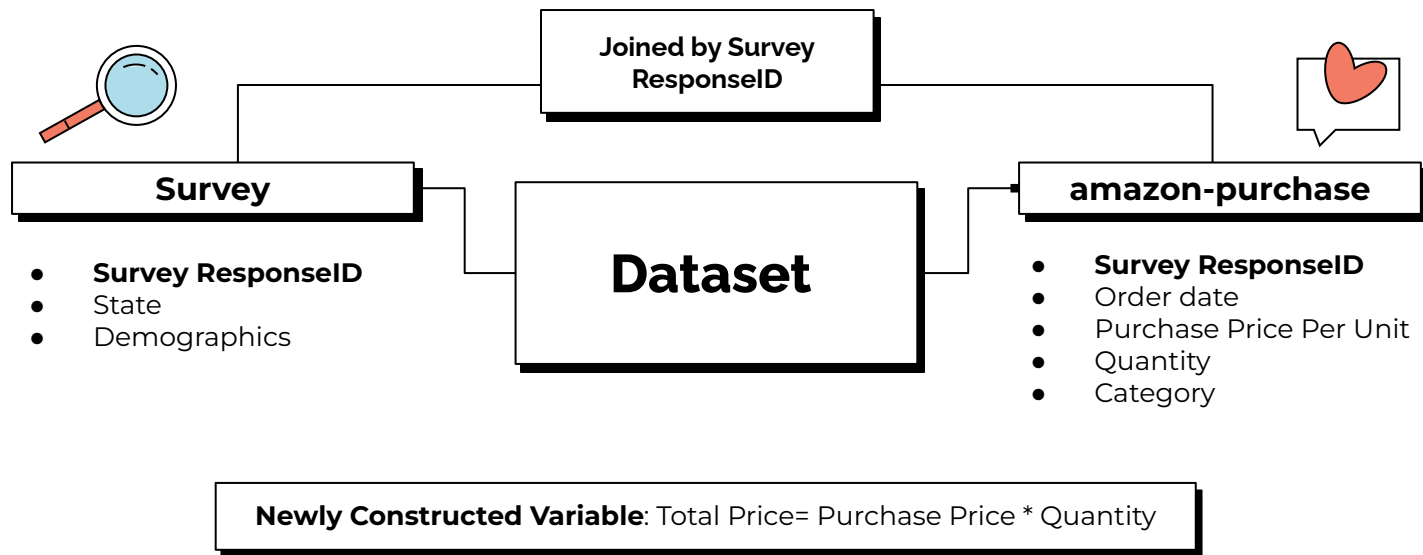Consumer purchasing behavior on e-commerce platforms using Amazon dataset, focus specifically on gift cards.

1. When do consumers **most frequently** purchase gift cards, and is there **a discernible time trend**?
2. What are the **regional patterns** associated with gift card purchases?
3. Do customers typically purchase gift cards **together with other product categories**, or **do they usually buy them on their own**?
4. **How often, how recently, and how much** do consumers spend when purchasing gift cards?

Data Structure

Joined by Survey ResponseID

Survey

- **Survey ResponseID**
- State
- Demographics

Dataset

amazon-purchase

- **Survey ResponseID**
- Order date
- Purchase Price Per Unit
- Quantity
- Category

Newly Constructed Variable: Total Price= Purchase Price * Quantity

Data Filtering

Addressing Extreme Outliers in Purchase Quantity

- **Problem**
  - The top 1% of purchase quantities were extreme outliers(e.g., 64 gift cards in one order), distorting the data distribution of gift card purchasing quantity.
- **Action**
  - Applied a 99th percentile threshold to remove these extreme transactions.
- **Result**
  - The resulting dataset is de-skewed, providing a more accurate representation of typical customer purchasing behavior for reliable analysis.
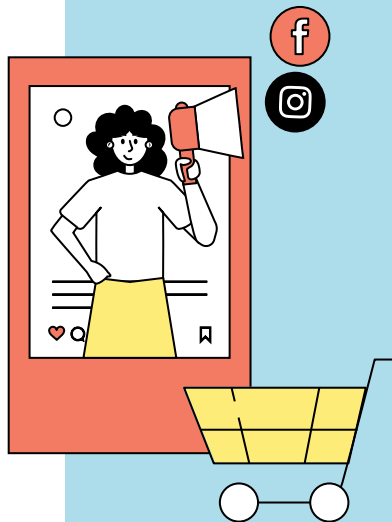
Gift Card Trends from 2018 to 2022
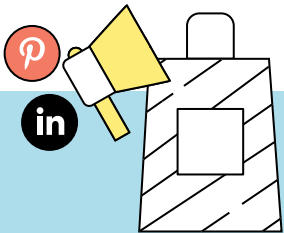Strong Q4 Spikes and a Post-COVID Structural Rise
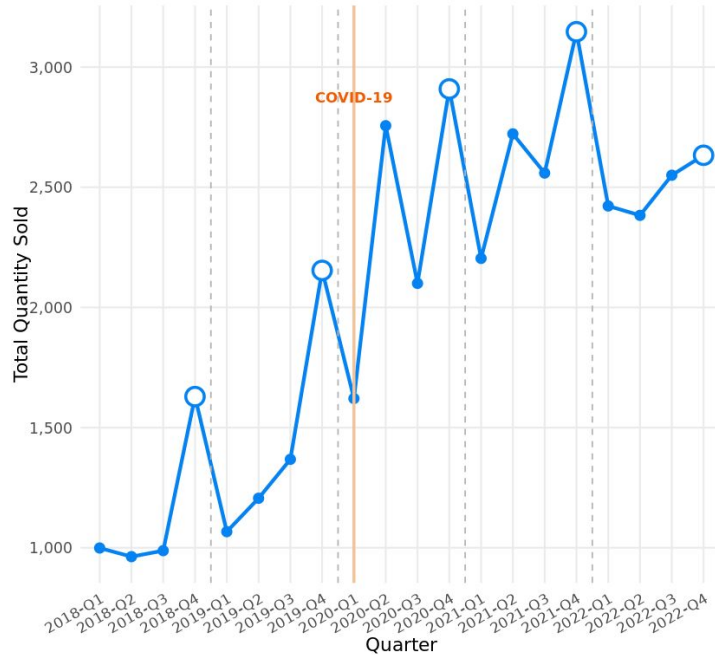
Time Series

Strong Seasonal Spikes

The data consistently shows major annual peaks in the **fourth quarter (Q4)**, indicating strong seasonality driven by holiday gift-giving.
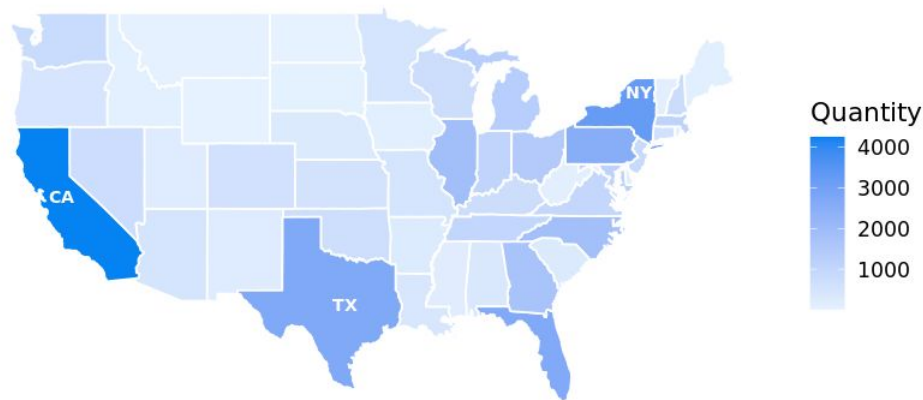
Post-COVID Structural Rise

Following the initial dip in **2020-Q1,** the baseline sales quantity appears to have **structurally shifted higher**.

Geographical Patterns

Gift Card Purchasing Patterns Across U.S. States
Higher volumes concentrate in large, urban, and high-income states

Quantity
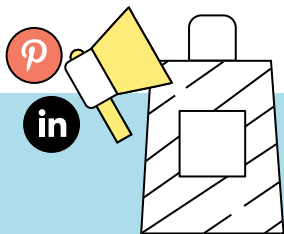- 4000
- 3000
- 2000
- 1000

Uneven Distribution

Sales volume is heavily concentrated in the largest and most urban U.S. states.

Top States

California (4,254), New York (3,253), and Texas (2,723) are the primary sales drivers, accounting for the highest quantities and visually dominating the map.

Combo Analysis

Whether customers tend to purchase gift cards alone or together with related products

Frequently bought together

Buy all 3: $60⁰⁰

Bundling

A strategy that companies sell two or more products as a package to increase convenience, perceived value, or total purchase size.

Amazon Example

On Amazon, there are "frequently bought together" banner that implies bundling strategy.

Combo Analysis

Customers are more likely to purchase gift card alone, and there is no shift in combo-purchase behavior over time.
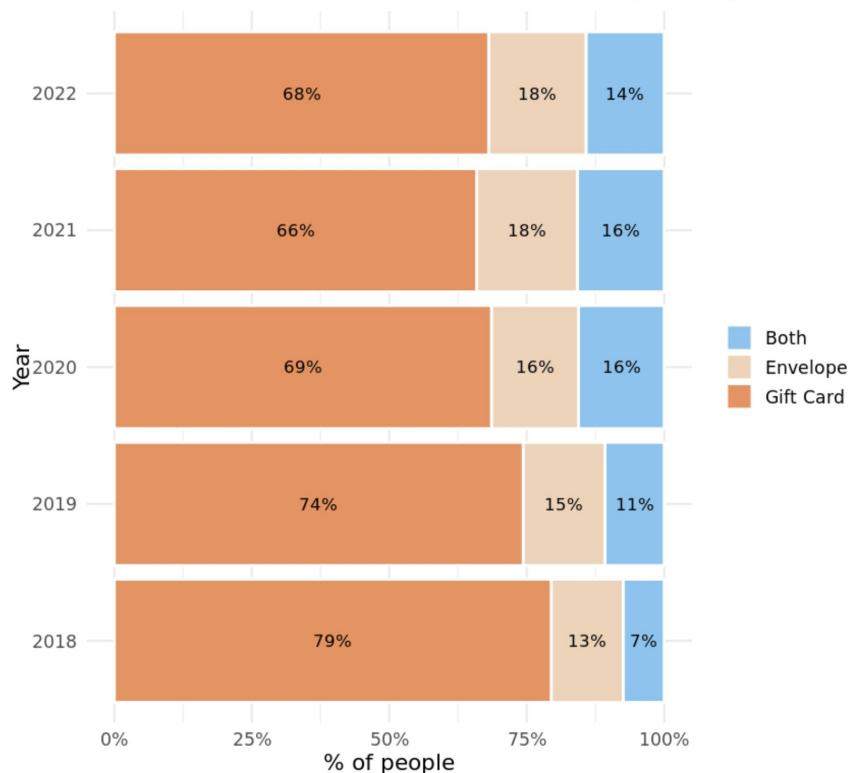
Category Explanation

Gift Card: Customers who only purchased a gift card during the year

Envelope: Customers who only purchased an envelope during the year

Both: Customers who purchased a gift card together with an envelope (bundle)

Gift Card Purchase Pattern
Most customers (~70%) buy gift cards without any envelope add-on

Legend: Both, Envelope, Gift Card

2022: 68% | 18% | 14%
2021: 66% | 18% | 16%
2020: 69% | 16% | 16%
2019: 74% | 15% | 11%
2018: 79% | 13% | 7%

Year (y-axis)
% of people (x-axis): 0%, 25%, 50%, 75%, 100%

RFM Model

Marketing Technique: measure how actively and consistently customers return to purchase products

| Recency | Frequency | Monetary |

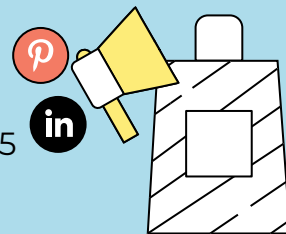How recent a customer's last purchase was

How often the customer make purchase

How much the customer spends within a given periods

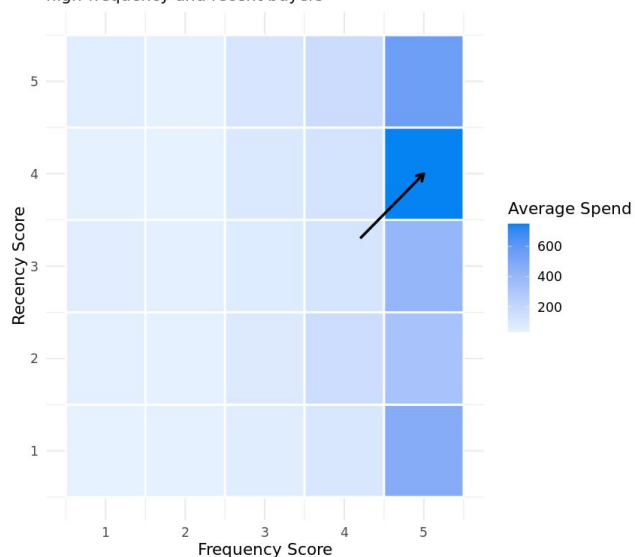## Convert each metric into score of 1-5 using quintiles

Example
- The top 20% frequent buyers receive a frequency score of 5
- Buyers that made the most recent 20% of purchase dates receive a recency score of 5

RFM Heatmap

Customer Segments based on RFM scores
Higher spending is concentrated among
high-frequency and recent buyers

F Score	1	2	3	4	5
Frequency	1.00	1.00	2.89	3.06	11.36

Frequency Score = 5 is much darker

Customers with a Frequency score of 5 make far
more purchases (average of 11), so their
spending is much higher than all other groups

Darkest cell at F=5, R=4

The darkest cell at Frequency = 5 and Recency =
4 highlights the highest-value segment:
customers who buy very frequently and
recently, generating the greatest total spending
in the dataset.
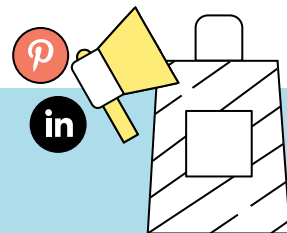
Conclusion

General Pattern

Seasonal Peak: Gift card sales surge every Q4, with a boost during 2019–2021. **State patterns:** Big, urban states (CA, NY, TX) drive most purchases.

Simple Choice

Most customers buy **gift cards only**, without envelopes or gift-wrap add-ons.

Gift Card Purchase on Amazon

Top spenders

Frequent and recent buyers account for the highest spending.

Strategy

Q4 campaigns, regional targeting, and personalized reminders for high-value customers.