



# DIGITAL MARKETING EFFECTIVENESS ANALYSIS

By Agnes He

  
FIVESTARS

# Data Overview

# Time Range

---

- The whole dataset covers time range from 2011-03-09 to 2018-06-12 across the columns, excluding outliers.
  - 2011-03-09 was the earliest record of a customer last visiting a business before the reward message being sent
  - 2018-06-12 was the latest record of a customer redeeming the reward at a business
- Rows in the message table were filtered on the 'issue\_datetime' column, i.e. time window between 2017-04-01 to 2017-06-30 will be evaluated for the effectiveness analysis

# Data Quality

---

- The data quality is fairly good, without too much need for pre-processing.
- Some data anomalies are discovered and removed from the dataset:
  - Column 'pre\_issue\_last\_visit\_datetime' contains a record from year 1970
  - Column 'claimed\_datetime' contains records from year 2056
- The relational table 'business\_group' is not inclusive of all business groups in the 'message' table. An outer join was used to capture the fuller picture.

# Evaluation Metrics

# Claim Rate

---

- Measure the number of rewards claimed by consumers as a percentage of the number of messages distributed. This is similar to CTR for online ads.
  - Pros: can measure attractiveness of promo mentioned in the text messages
  - Cons: can't measure future actions that are more indicative of revenue; consumers might be able to redeem without claiming the offer or visit the store after seeing the text.
- Total Claim Rate: 8.84%

# Redemption Rate

---

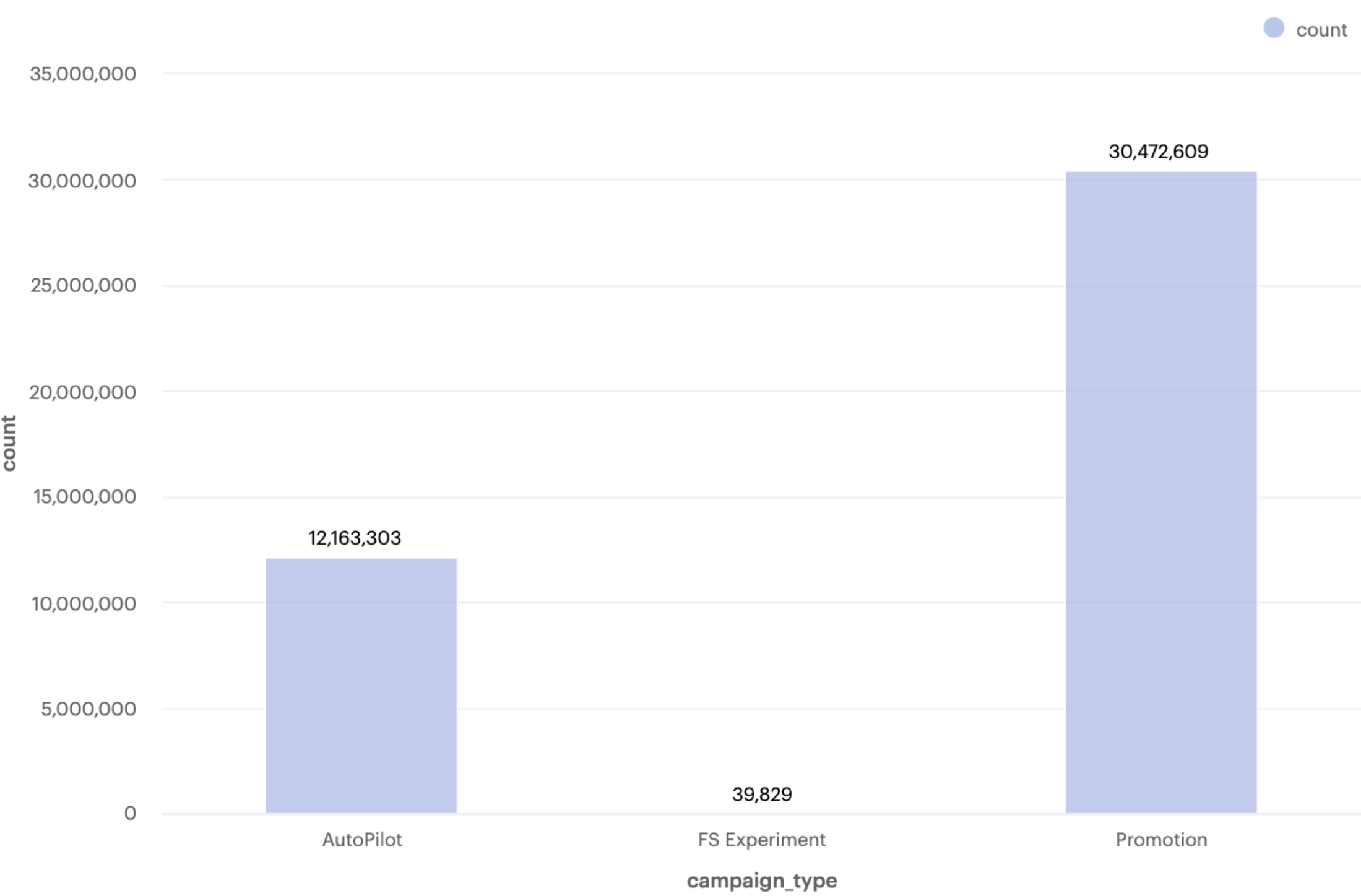
- Measure the number of promotions converted to purchases expressed as a percentage of the number of message distributed. This is similar to conversion rate of online ads.
  - Pros: measures the effectiveness of the campaign
  - Cons: serves as a lower bound of measuring effectiveness since there are consumers who returned to the business after receiving the message but didn't redeem the promotion.
- Total Redemption Rate: 2.88%

# Evaluation Features

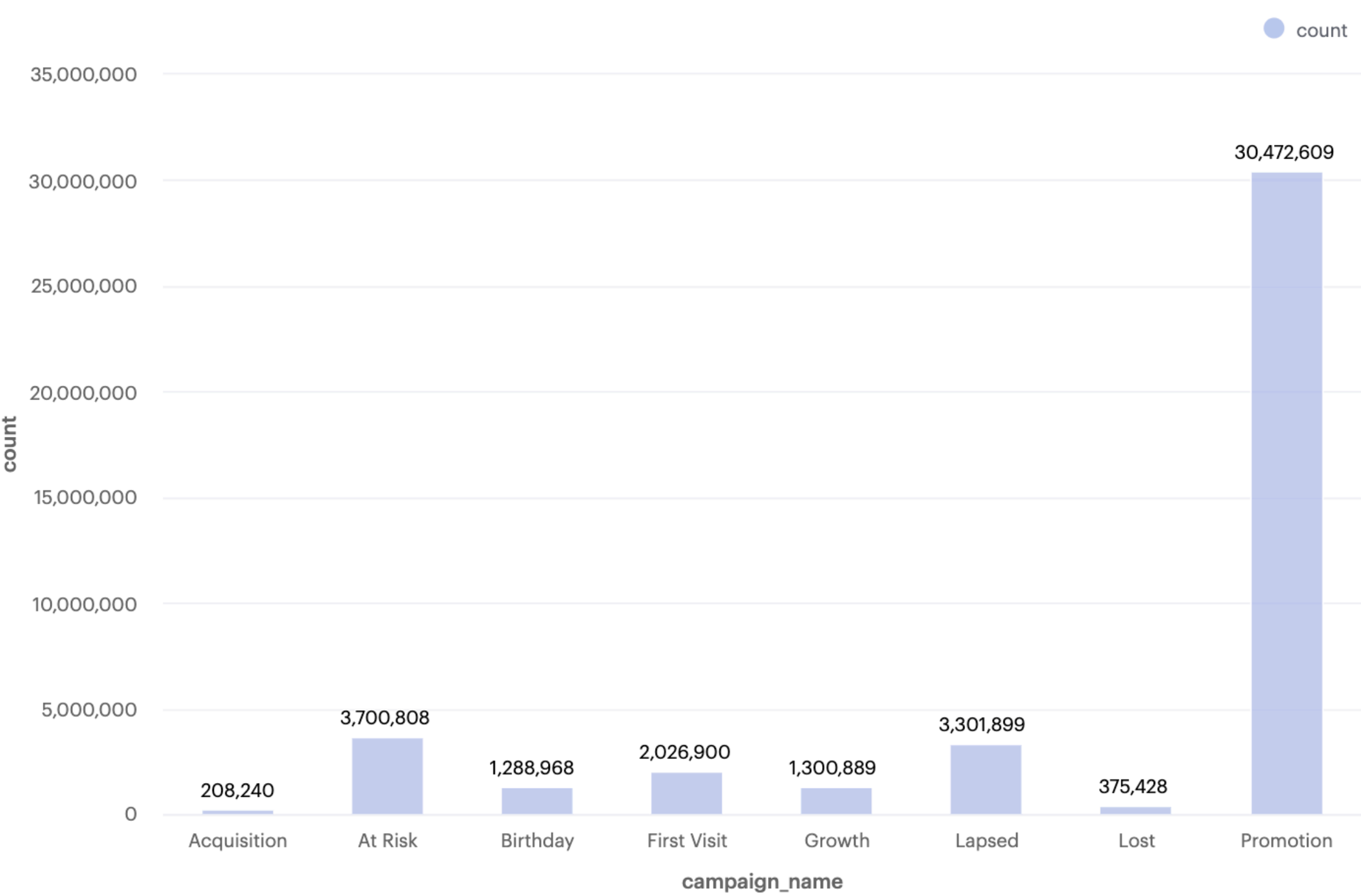


# Campaign Type/Name

Distributed Number By Campaign Type



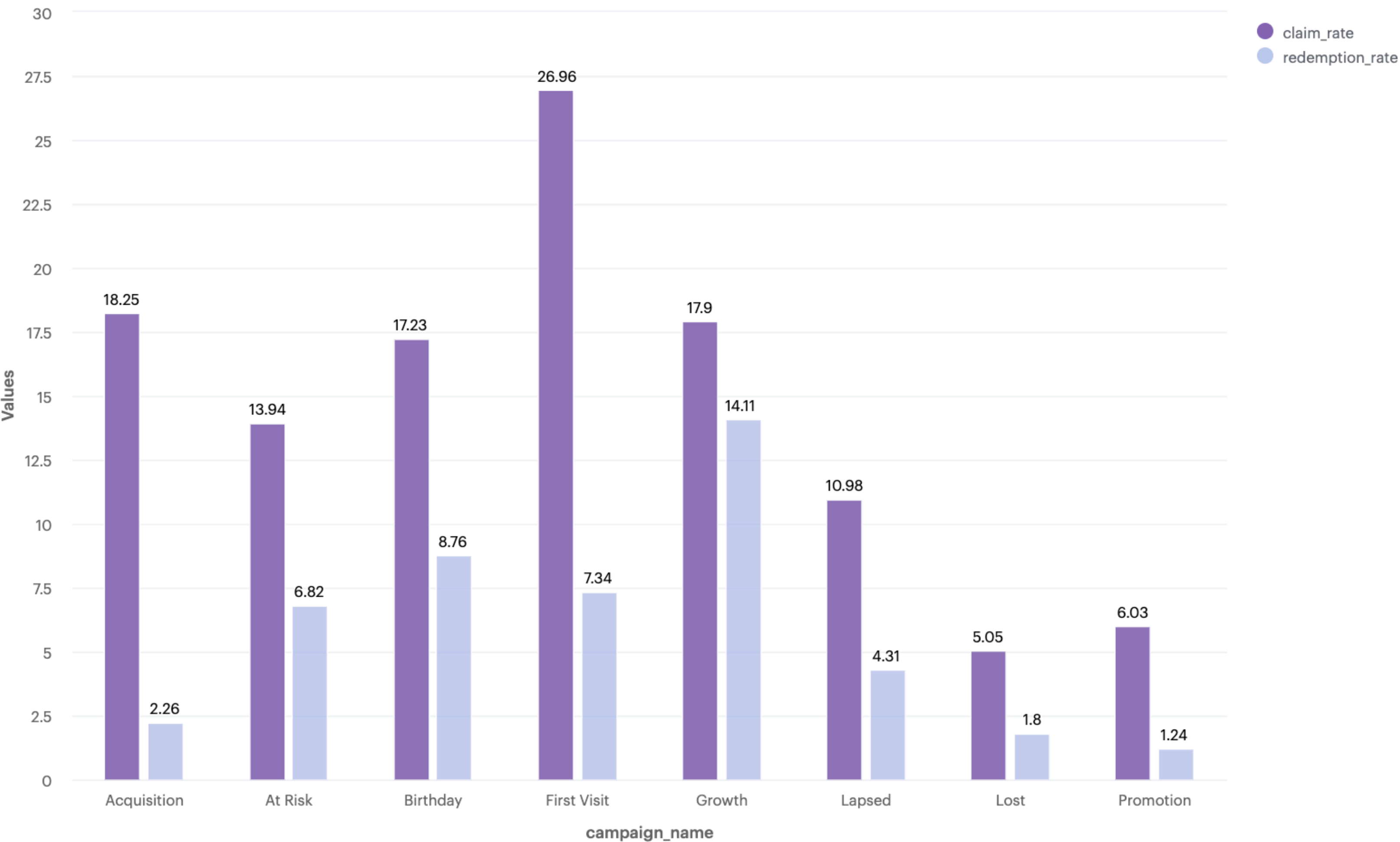
Distributed Number By Campaign Name



# Campaign Name

- First Visit User Cluster has the highest claim rate, but lower redemption rate.
- Growth group shows a very high next-visit rate, since the growth group are consumers are more likely to go to their favourite business even without a promotion. The claim rate is not the highest for this group, but the redemption rate is the highest.
- The second highest in redemption rate is birthday campaign. This will make the consumer feel more personal.
- Promotion shows a very low claim and redemption rate even though promotion has the highest distribution number, this needs further investigation.

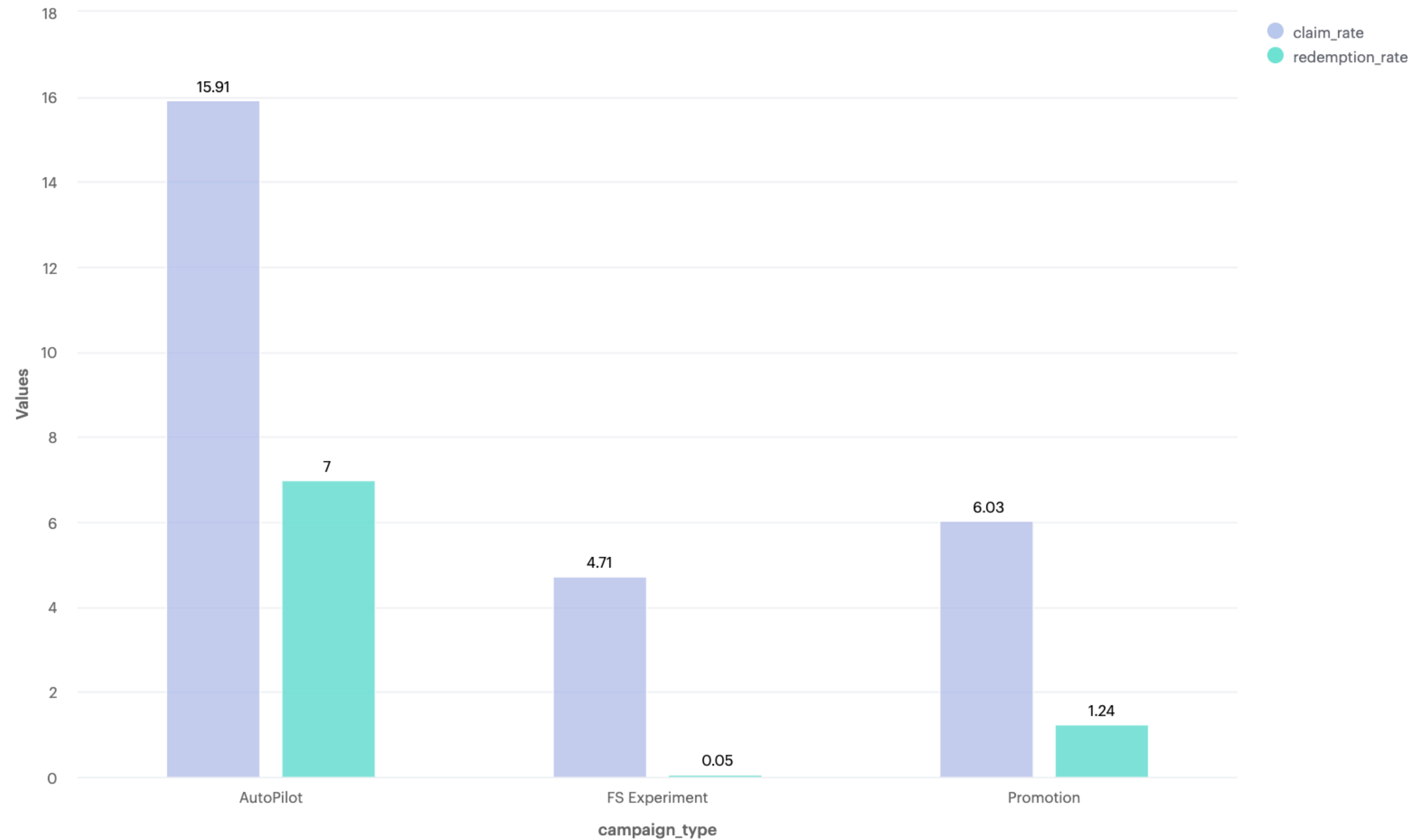
Effectiveness Rates vs Campaign Name



# Campaign Type

- AutoPilot has the highest effectiveness among all three campaign types.
- AutoPilot is designed to sent out to increase consumers loyalty and it's triggered by user action or inaction.

Effectiveness Rates VS Campaign Type



# Days from last visit to message sent

---

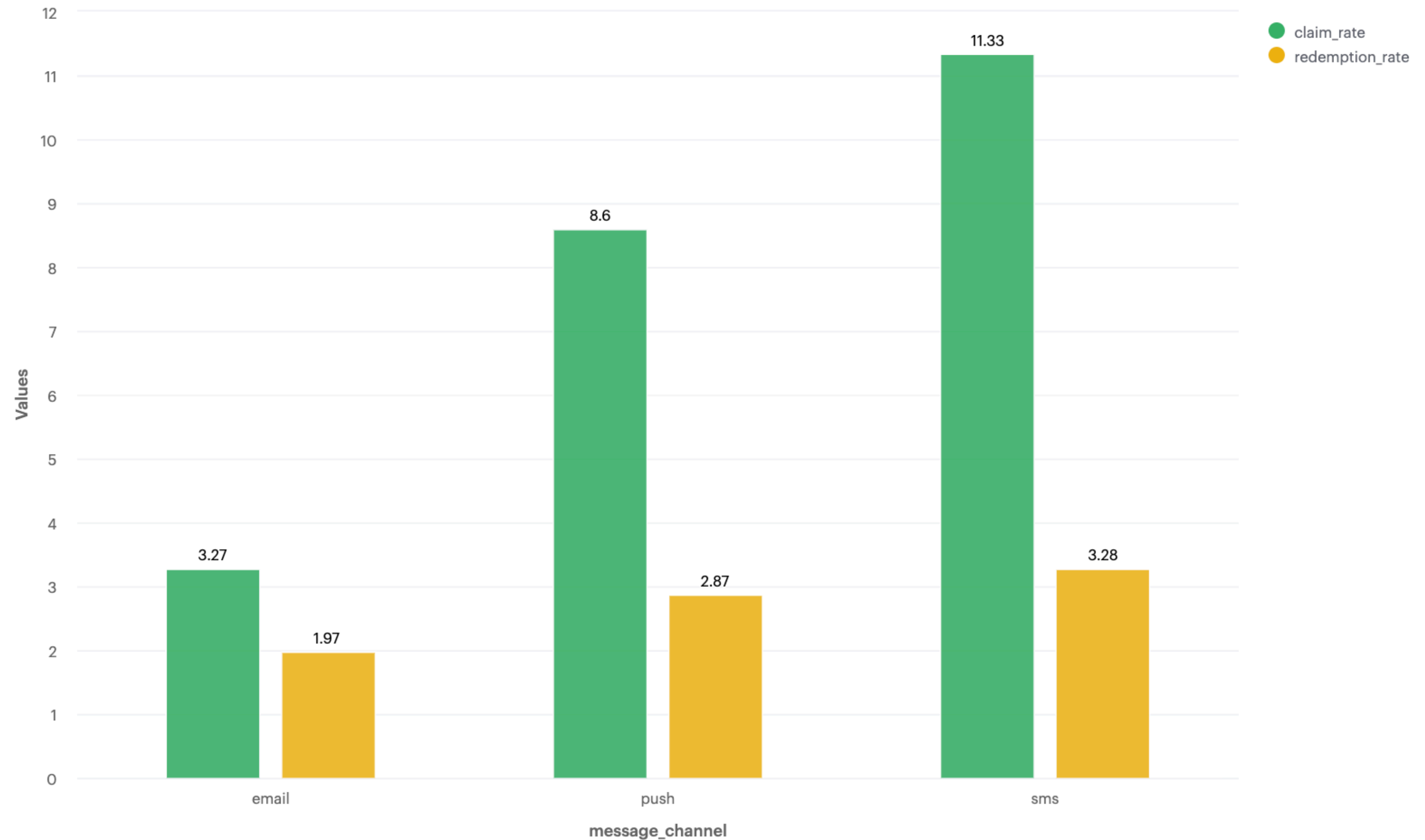
- In all the claimed promotions, average days from last visit to message sent is 64 days
- In all the redeemed promotions, average days from last visit to message sent is 148 days
- The average days for redeemed offer is lower then the days for claimed offer. This shows people will more likely redeem the offer if they receive the offer message sooner.
- Further investigation is needed for this feature

	For claimed	For Redemption
Min	0	0
Max	2253	2302
Mean	64	36

# Message Channel

- SMS appears to be a more effective message channel since it has the highest claim rate and the highest redemption rate.
- SMS is more convenient for consumers to claim the promotion and usually SMS will not be spammed by the mobile phone text message inbox.
- Email is the least effective way to distribute the promotion, one of the reasons may be caused by the anti-spam system most email services have. The promotion email will mostly be filed into the spam folder so the user can miss the email easily.

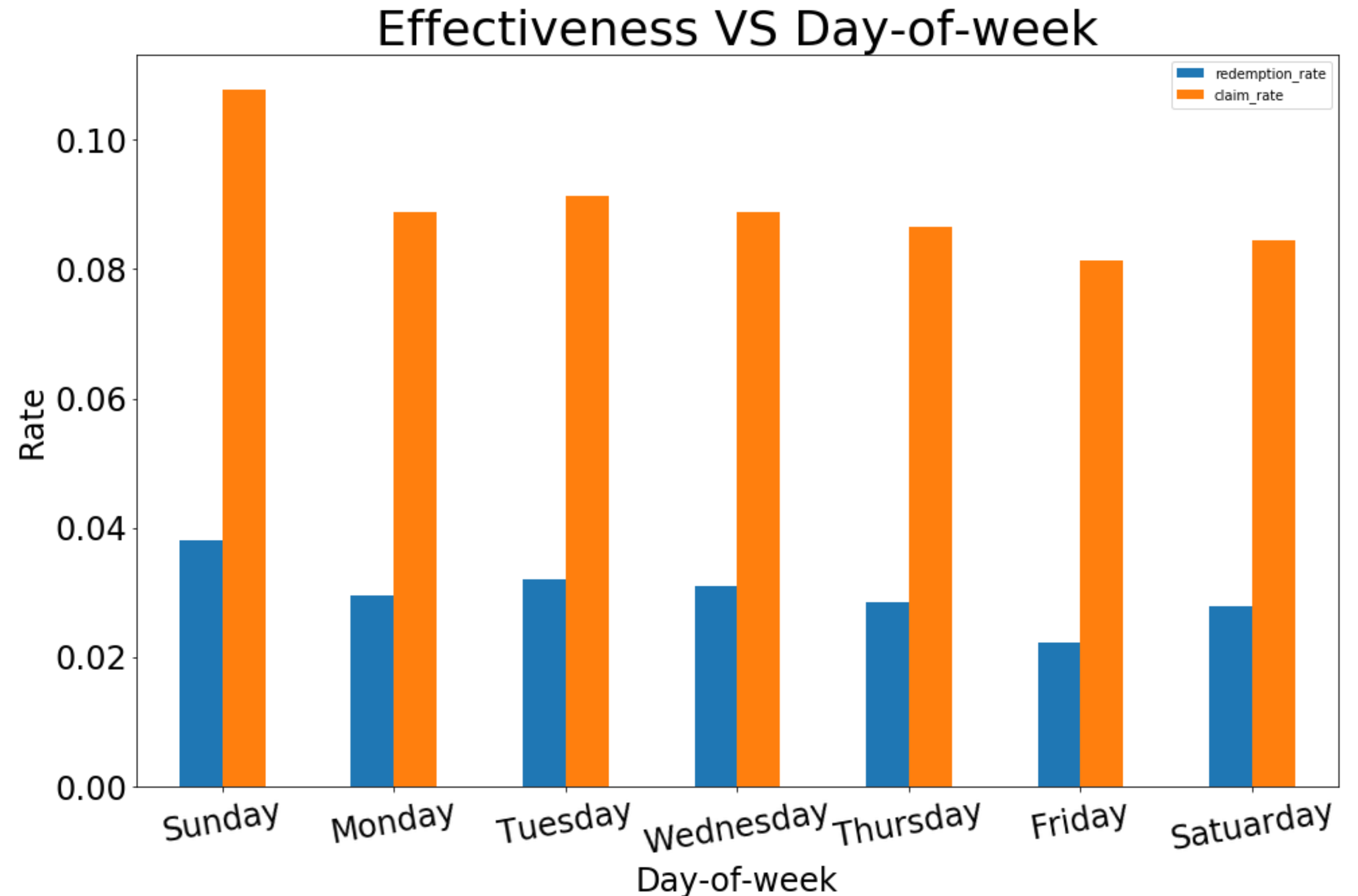
Effectiveness VS Message Channel



# Day-of-week

---

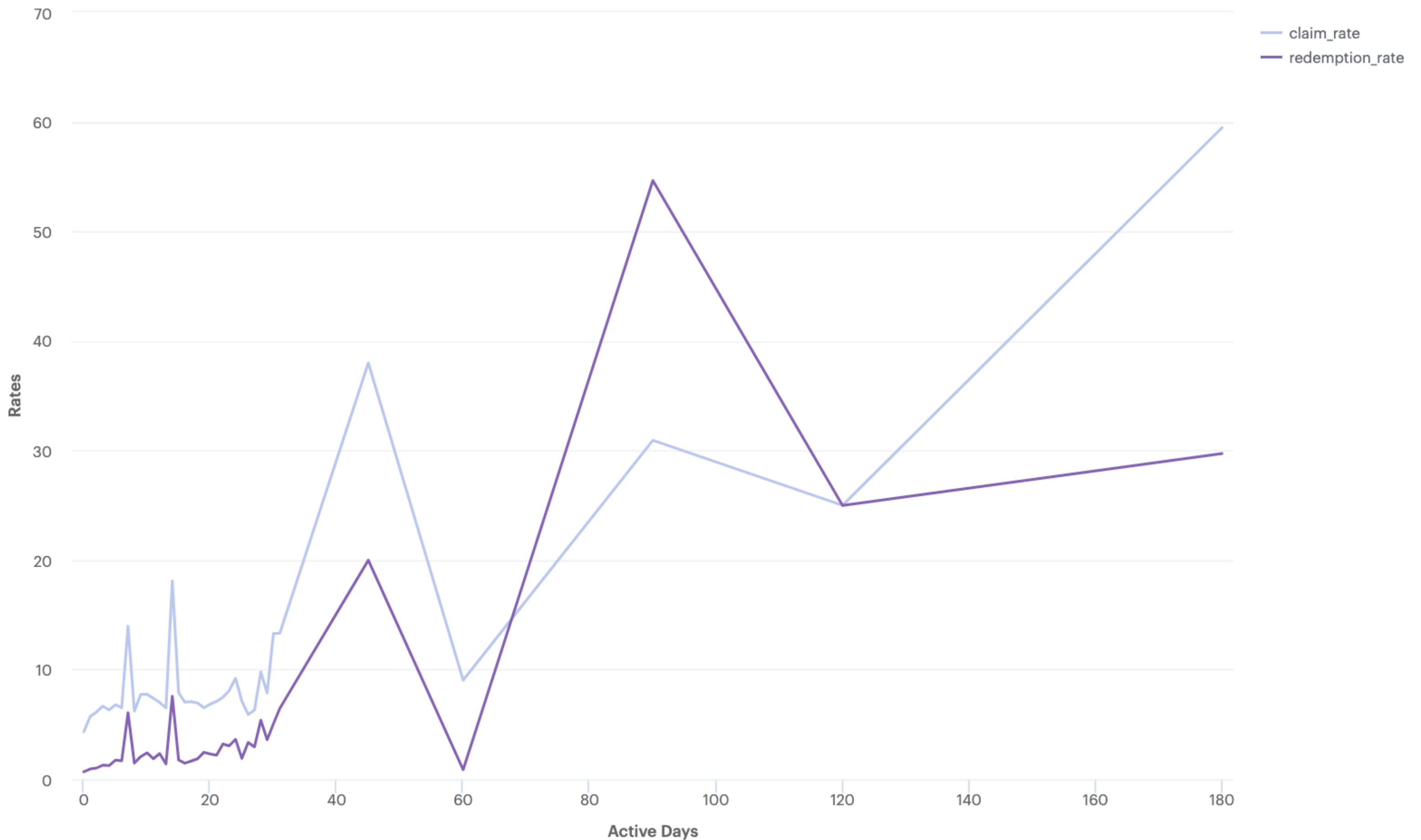
- The claim rate and redemption rate are the highest on Sundays, and appears to be the lowest on Fridays.
- People generally have more free time on Sundays.  
#SundayFunday. It's more effective to remind people to redeem at their favorite shop during their off days.



# Perk Active Days

- Apparently, there is an increasing tendency for effectiveness of the distributions with longer perk active days.
- The shorter the active days, people are less likely to find time to redeem the promotion. Scenarios like when consumer are out-of-town when they received the offer message and they couldn't go to redeem.
- However not every business like to have a very long active days. Looking at the graph, a 45 days period is more effective and feasible.

Effectiveness VS Active Days

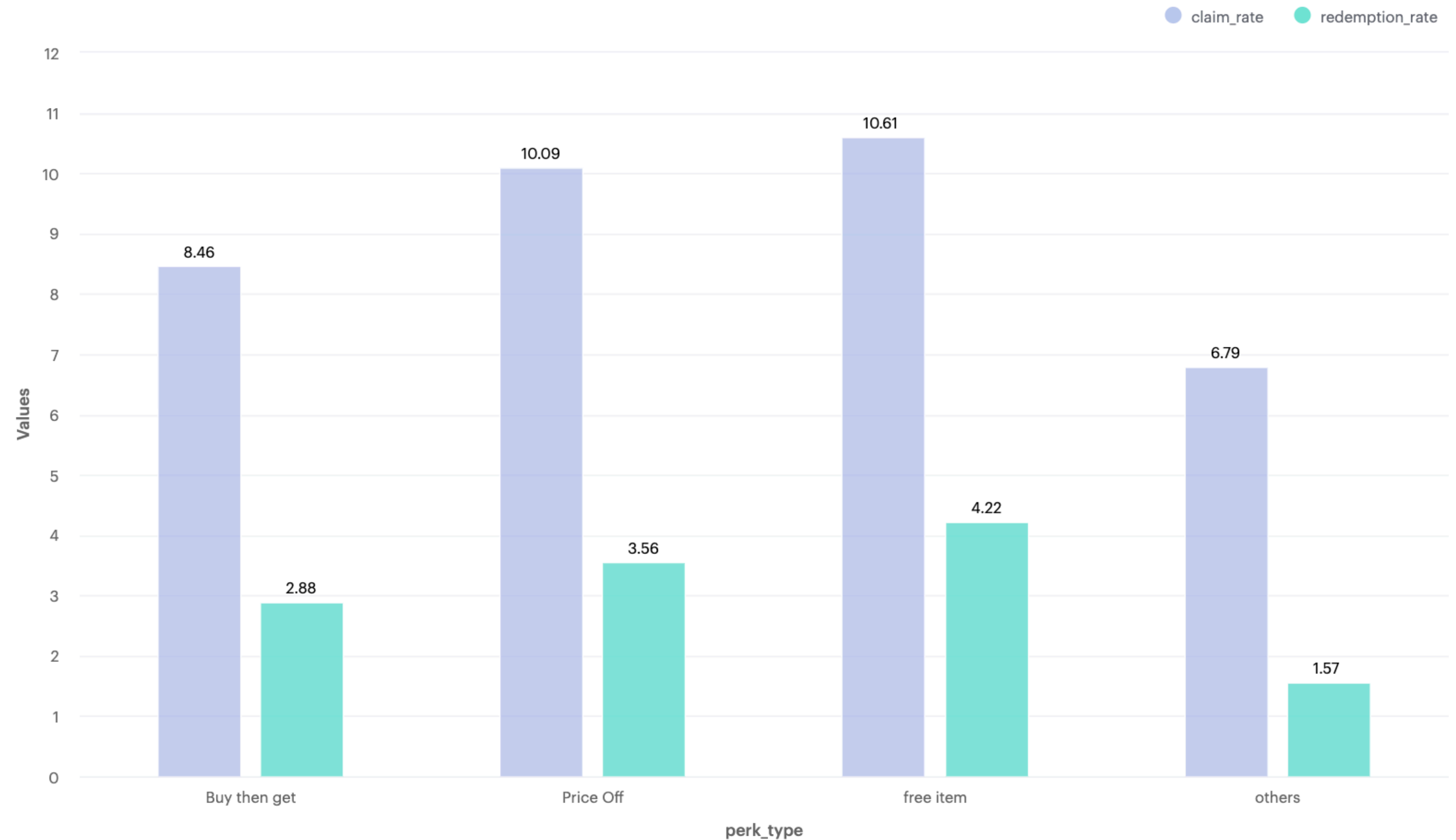




# Perk Type

- Message includes 'Free' item has highest claim rate and redemption rate since people enjoy free item more than other types of promotions.
- The 'Buy then get' type refer to perks like 'Buy 1 get 1 50% off' or 'Buy 1 get 1 free'. This type of perk has a lower claim rate and redemption rate.

Evaluation Rates VS Perk Type





Recommendation

- At a glance, the offer message sent out is most likely to be more effective to attract consumers if the key features are optimized.
- Key features:
  - Campaign type: AutoPilot is more effective than the general promotion campaign
  - Message channel: using sms can clearly increase the effectiveness
  - Perk type: giving out free gift is more attractive to consumers than other promotion
  - Promotion active days: extend the promotion active days to increase the effectiveness
  - Day-of-week: sending out the message on Sunday can increase the effectiveness
- Example:

An AutoPilot SMS message contains 'Free Gift', which expiring in 45 days, send out on a Sunday.