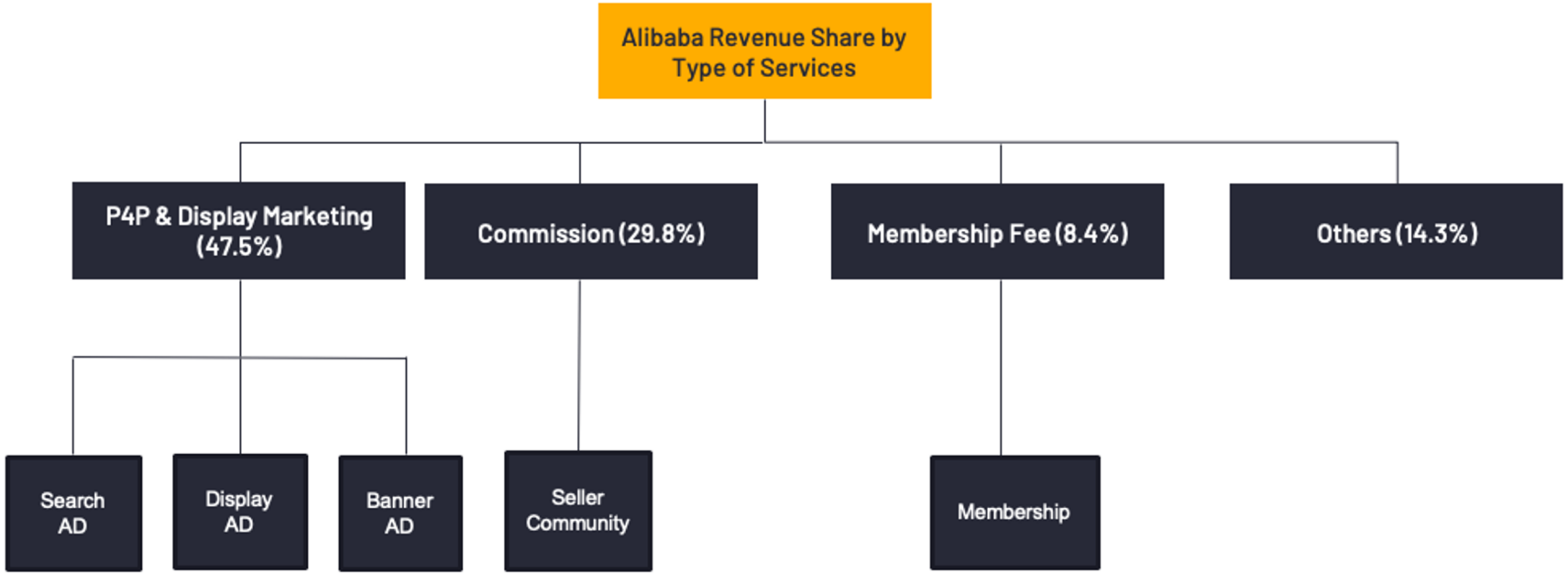
Project_2 Platform Data Analysis

Outline

- Taobao Business Model
- Data Analysis – Regression
- Evaluation and Recommendation
  - Advertisement
  - Sellers
  - Buyers

1. Business Model

Business Model of Alibaba



- **Online marketing services.**
- **Commission on transactions.**
- **Membership fees and value-added services.**

2. Data Analysis

Data Analysis - Regression

Scenario 1

Dependent Variables (Y): **Search AD**

Independent Variables (X): **Direct_Volume + Referral_Volume + Search_Volume + Is_weekend**

Scenario 2

Dependent Variables (Y): **Display AD**

Independent Variables (X): **Direct_Volume + Referral_Volume + Search_Volume + Is_weekend**

Scenario 3

Dependent Variables (Y): **Membership Fee**

Independent Variables (X): **Direct_Volume + Referral_Volume + Search_Volume + Is_weekend**

Data Analysis - Regression - Scenario 1

```
Call:
lm(formula = `Search AD` ~ `Referral Volumn` + `Search Volumn` +
    `Direct Volumn` + is_weekend, data = my_data)

Residuals:
    Min      1Q  Median      3Q     Max
-492337  -87071   29486   92868  449998

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)       7.872e+05  3.762e+04  20.926  < 2e-16 ***
`Referral Volumn` 1.053e-01  1.471e-02   7.160 4.72e-12 ***
`Search Volumn`   4.395e-02  2.749e-02   1.598    0.111
`Direct Volumn`   4.930e-02  3.242e-02   1.521    0.129
is_weekend       -3.546e+05  2.434e+04 -14.570  < 2e-16 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 153700 on 353 degrees of freedom
Multiple R-squared:  0.6372,    Adjusted R-squared:  0.6331
F-statistic:   155 on 4 and 353 DF,  p-value: < 2.2e-16
```

Data Analysis - Regression - Scenario 2

```
Call:
lm(formula = `Display AD` ~ `Referral Volumn` + `Search Volumn` +
    `Direct Volumn` + is_weekend, data = my_data)

Residuals:
    Min      1Q  Median      3Q     Max
-759291 -352967 -145165  248645 1818569

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)       3.065e+05  1.224e+05   2.504  0.01272 *
`Referral Volumn` 6.842e-02  4.785e-02   1.430  0.15358
`Search Volumn`   2.497e-01  8.944e-02   2.792  0.00553 **
`Direct Volumn`  -3.103e-02  1.055e-01  -0.294  0.76872
is_weekend        7.229e+04  7.917e+04   0.913  0.36184
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1

Residual standard error: 499900 on 353 degrees of freedom
Multiple R-squared:  0.03465,   Adjusted R-squared:  0.02371
F-statistic: 3.167 on 4 and 353 DF,  p-value: 0.0141
```

Data Analysis - Regression - Scenario 3

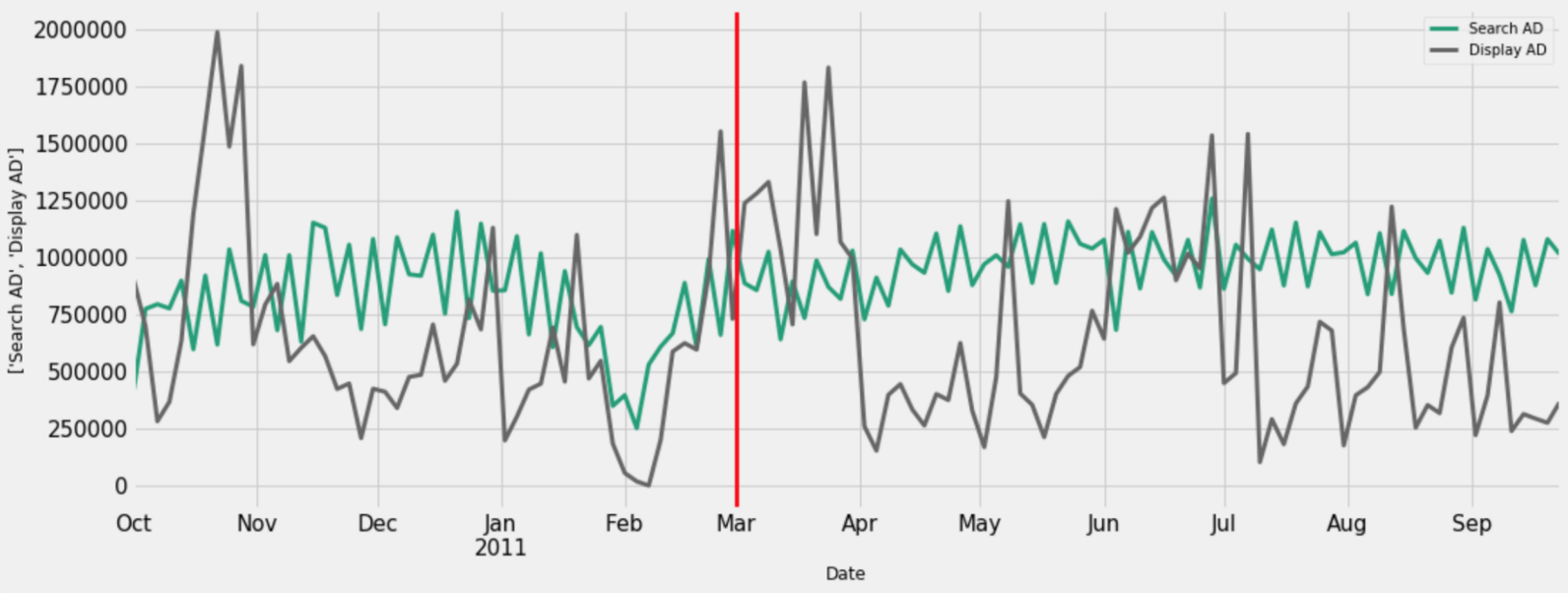
```
Call:
lm(formula = Membership_Fee ~ `Referral Volumn` + `Search Volumn` +
    `Direct Volumn` + is_weekend, data = my_data)

Residuals:
      Min        1Q    Median        3Q       Max
-32183222  -3136057   1835118   5023656  19977871

Coefficients:
                  Estimate Std. Error t value Pr(>|t|)
(Intercept)       3.007e+07  2.212e+06  13.595  < 2e-16 ***
`Referral Volumn`  7.566e+00  8.649e-01   8.748  < 2e-16 ***
`Search Volumn`    7.410e+00  1.617e+00   4.583 6.36e-06 ***
`Direct Volumn`   -1.040e+01  1.906e+00  -5.455 9.25e-08 ***
is_weekend        -9.187e+06  1.431e+06  -6.419 4.42e-10 ***
---
Signif. codes:  0 ‘***’ 0.001 ‘**’ 0.01 ‘*’ 0.05 ‘.’ 0.1 ‘ ’ 1
```

Insight From the Regression Analysis

Search AD	**+ Referral Volume**	**– Is_weekend**
Display AD	**+ Search Volume**	**–**
Membership Fee	**+ Referral Volume Search Volume**	**– Is_weekend Direct_Volumn**

3-1 . Evaluation & Recommendation - *Advertisement*

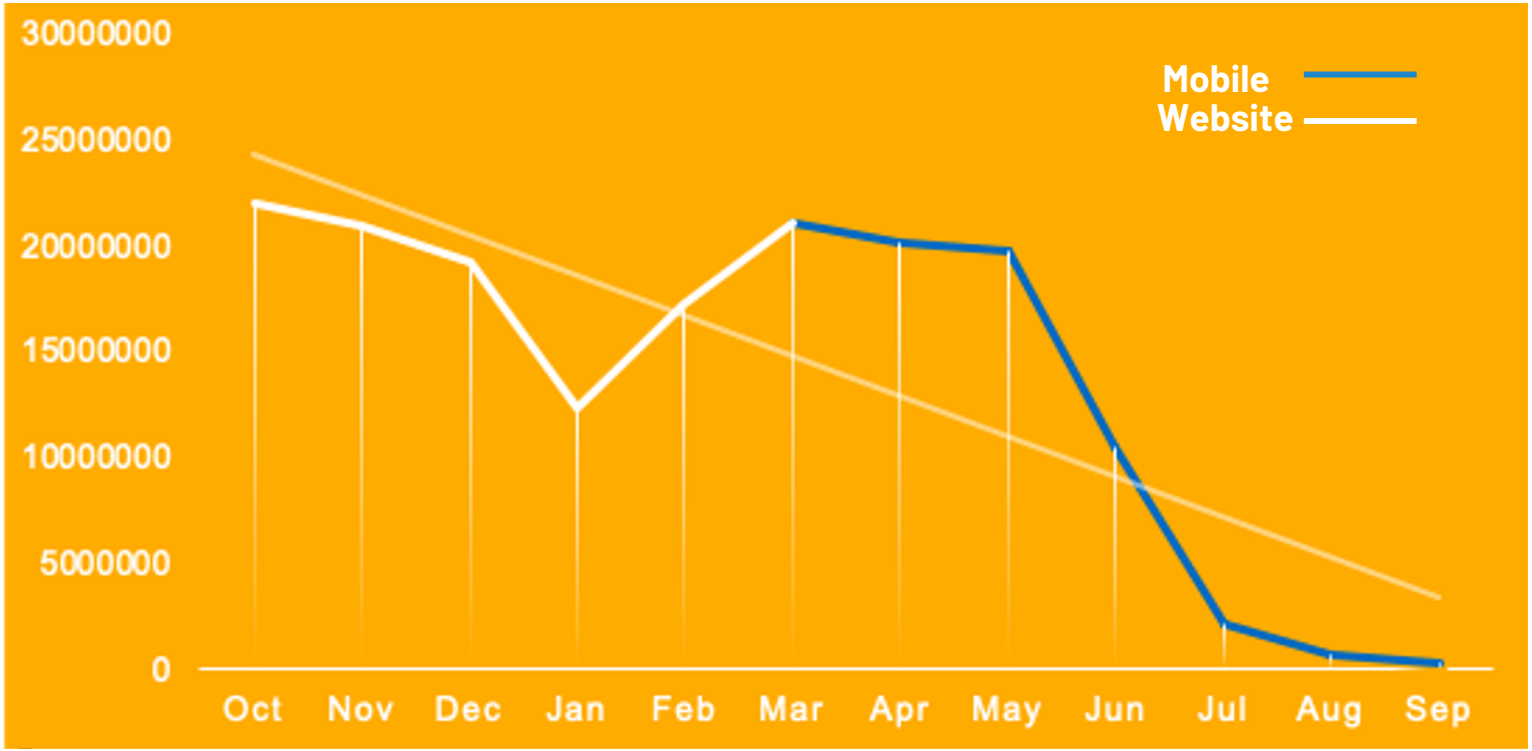
Healthy or not? - Advertisement



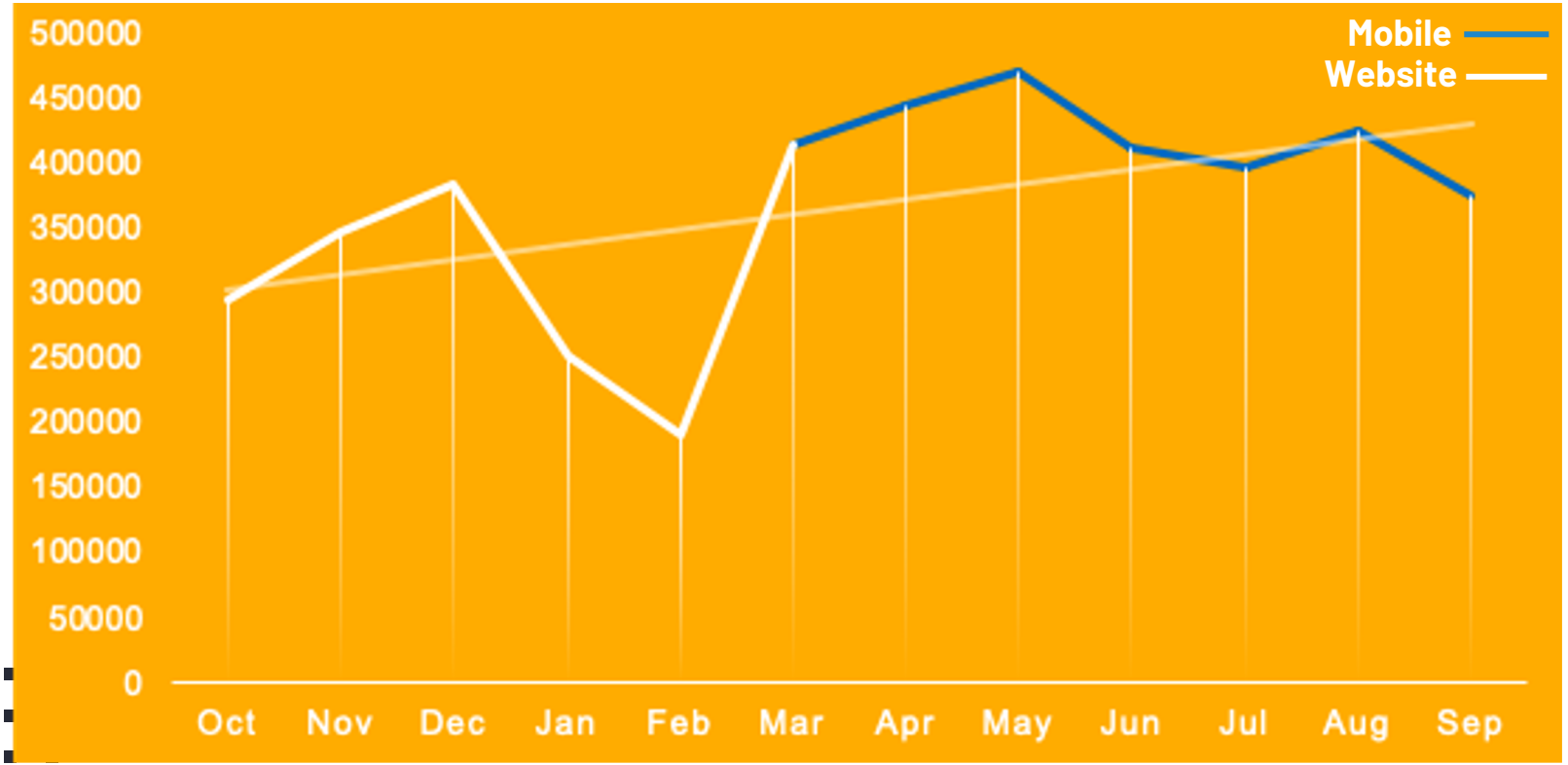
Search Ad > Display Ad

3-2. Evaluation & Recommendation - *Sellers*

Healthy or not? - Seller Community



Healthy or not? - Membership



How to engage more sellers?

Price

- Discount for new

Place

- Mobile Channel

Promotion

- Referral incentive
- KOL-tell stories

Product

- Advertising
- Analytics Tools
- Business support

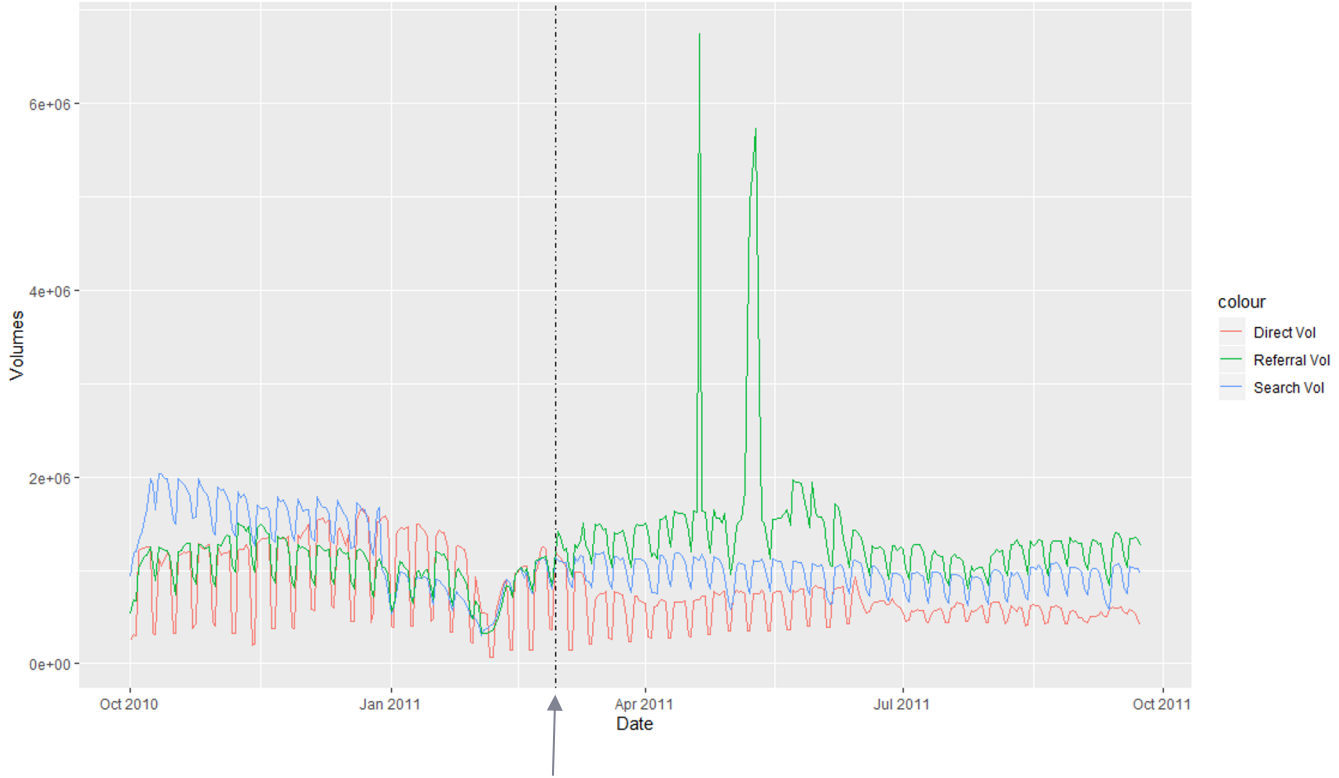
3-3. Evaluation & Recommendation - *Buyers*

Buyer Volumes

- Direct Volume:
  - Users enter the website directly
- Search Volume:
  - Users enter through search engines
- Referral Volume:
  - Users enter from third-party links

Buyer Volumes, Healthy or Not ?

- **Descriptive Data Analysis - Time Series**



Not Healthy! Recommendations

Web only:

Search > Direct ≈ Referral

With App:

Referral > Search > Direct

Ideal: Direct > Search > Referral

Recommendations:

- Increase App engagement and user retention.
- Rely less on referral volume.

Thanks!