

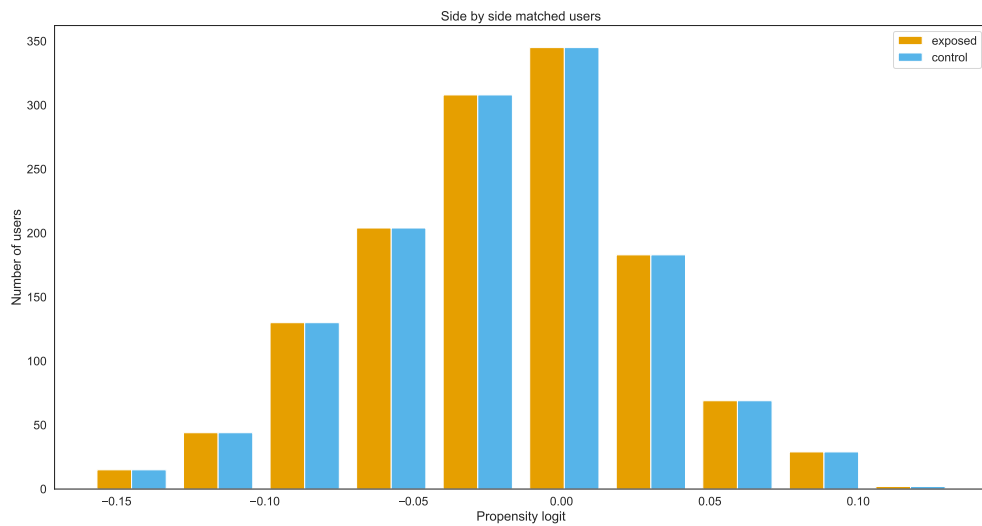
Week 2

Vergil/Zijun Li李子骏

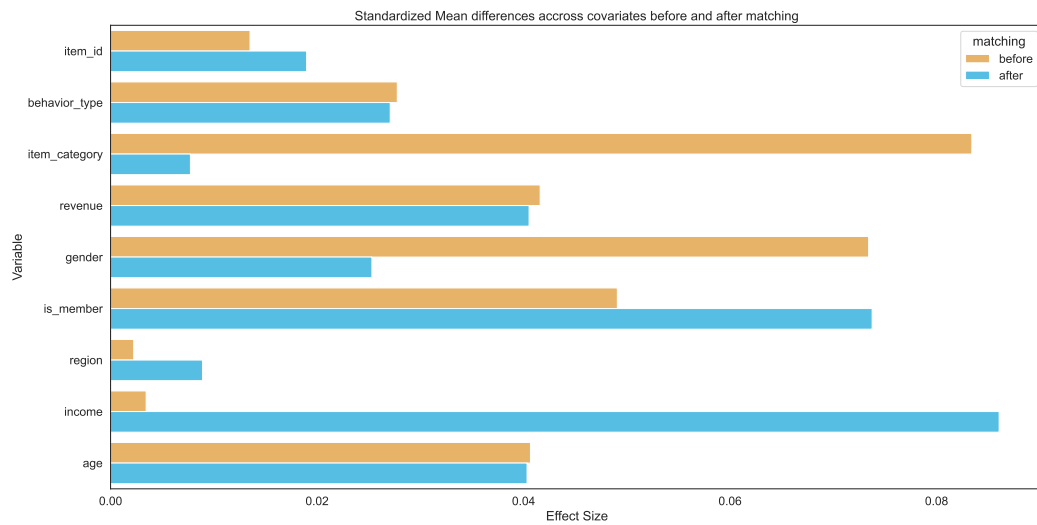
2023.4.10

目前为了评估广告效果，希望基于广告曝光数据进行分析（广告曝光用户数据集）：

1. 在全量数据及(data_all.csv)中找到与广告曝光用户相似的用户，并看用户在不同特征上的分布差异？



这个图表显示了处理组（广告曝光用户）和对照组（未曝光用户）在倾向性评分上的分布。从图上看，两组的用户倾向性评分平衡。匹配结果很好



这个图表显示了在匹配前后，处理组和对照组在各个特征上的标准化均值差异。

- 相同/类似: 行为, 购买金额, 年龄
- 不同: 物品类别, 性别, 会员, 地区, 收入

2. 广告曝光用户人均消费是否高于未被广告曝光且相似用户？在哪个行为类型（behavior_type）的专户上更高？

```

1 exposed_matched = psm.df_matched[psm.df_matched['exposed'] == 1]
2 non_exposed_matched = psm.df_matched[psm.df_matched['exposed'] == 0]
3
4 consumption_diff = exposed_matched.groupby('behavior_type')['revenue'].mean
5     () - non_exposed_matched.groupby('behavior_type')['revenue'].mean()
6 print(consumption_diff)
7
# 55.351813

```

标准差为55.35(基于全组), 明显高于

```

1 behavior_types = [1, 2, 3]
2
3 for b_type in behavior_types:
4     exposed_matched_filtered = exposed_matched[exposed_matched['
5         behavior_type'] == b_type]
6     non_exposed_matched_filtered = non_exposed_matched[non_exposed_matched[
7         'behavior_type'] == b_type]
8
9     exposed_purchase = exposed_matched[exposed_matched['behavior_type'] ==
10         4]
11     non_exposed_purchase = non_exposed_matched[non_exposed_matched['
12         behavior_type'] == 4]

```

```

10     exposed_conversion_rate = len(exposed_purchase) / len(
11         exposed_matched_filtered)
12     print(f"exposed_conversion_rate for behavior type {b_type}: {
13         exposed_conversion_rate}")
14     non_exposed_conversion_rate = len(non_exposed_purchase) / len(
15         non_exposed_matched_filtered)
16     print(f"non_exposed_conversion_rate for behavior type {b_type}: {
17         non_exposed_conversion_rate}")
18
19     conversion_rate_diff = exposed_conversion_rate -
20         non_exposed_conversion_rate
21     print(f"Conversion rate difference for behavior type {b_type}: {
22         conversion_rate_diff}")
23
24 # exposed_conversion_rate for behavior type 1: 0.01607717041800643
25 # non_exposed_conversion_rate for behavior type 1: 0.019077901430842606
26 # Conversion rate difference for behavior type 1: -0.003000731012836176
27 # exposed_conversion_rate for behavior type 2: 0.7407407407407407
28 # non_exposed_conversion_rate for behavior type 2: 1.1428571428571428
29 # Conversion rate difference for behavior type 2: -0.4021164021164021
30 # exposed_conversion_rate for behavior type 3: 0.5263157894736842
31 # non_exposed_conversion_rate for behavior type 3: 0.9230769230769231
32 # Conversion rate difference for behavior type 3: -0.39676113360323895

```

Conversion rate difference for behavior type 1: -0.003000731012836176

Conversion rate difference for behavior type 2: -0.4021164021164021

Conversion rate difference for behavior type 3: -0.39676113360323895

广告曝光用户的购买转化率都低于未被广告曝光的相似用户

可能对转化率产生了负面影响

相比较而言, 收藏的购买转化率差异最大, 其次是加购物车