

Wine Retailer Case

Team 5 -

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Executive Summary:

- **Methodology:** Forming score via causal forest
- **Average Causal Effect:** emailing people “generally” affects purchase
- **Potential for Targeting email:** Sauvignon Blanc
- **Individual-level Conditional Causal Effect:** target group of 54,467 observations



Average Causal Effect:

`lm(formula = purch ~ group)`

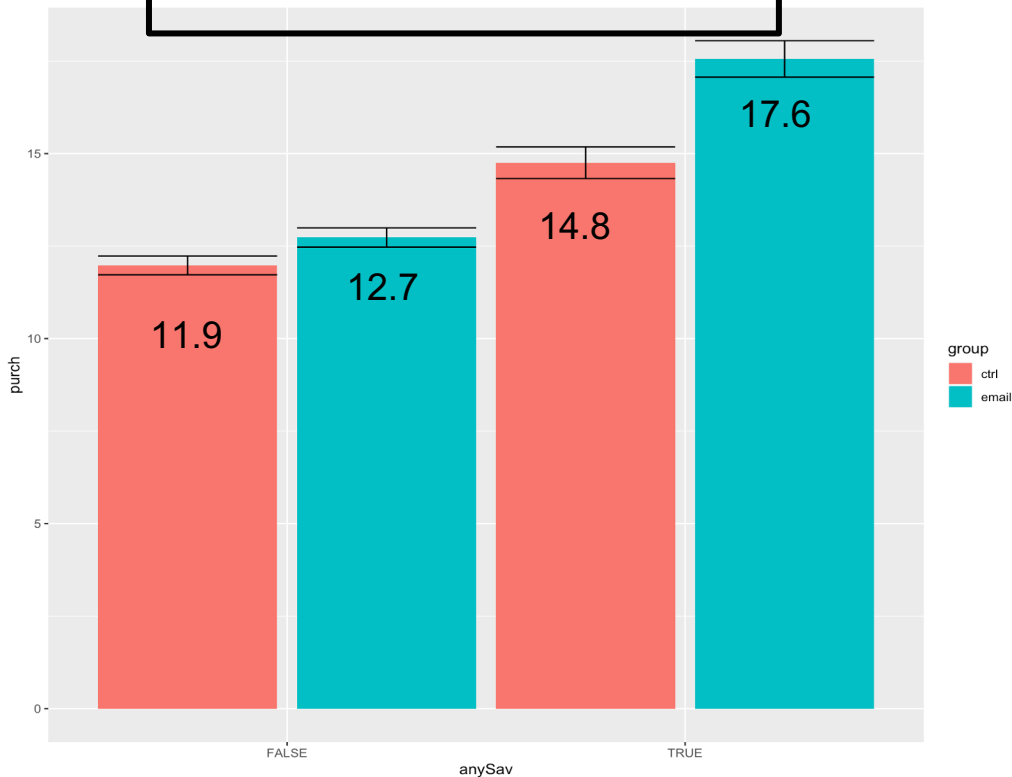
Coefficients:

	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	12.7727	0.2260	56.528	< 2e-16 ***
groupemail	1.3465	0.3195	4.214	2.52e-05 ***



Potential for Targeting email:

Purchases for people who have bought sav_blanc in the past.



Sauvignon Blanc
is our recommendation



	Estimate	Std.error	t value	Pr(> t)
(Intercept)	7.7172	0.3439	22.442	< 2e-16 ***
groupemail	0.4152	0.4876	0.852	0.39444
anyChardTRUE	10.4458	0.4907	21.288	< 2e-16 ***
anySavTRUE	2.8281	0.4961	5.701	1.20e-08 ***
anySyrahTRUE	0.7256	0.7024	1.033	0.30155
anyCabTRUE	3.7109	0.4964	7.475	7.78e-14 ***
groupemail:anyChardTRUE	0.5159	0.6931	0.744	0.45665
groupemail:anySavTRUE	2.0341	0.7012	2.901	0.00372 **
groupemail:anySyrahTRUE	-0.8991	0.9880	-0.910	0.36279
groupemail:anyCabTRUE	0.8875	0.7009	1.266	0.20545

Methodology

-key method for forming the score and targeting rules

Forming score via causal forest:

- multiple baseline variables ("last_purch", "visits", "chard", "sav_blanc", "syrah", "cab")
- No cut-offs requirement for continuous baseline variables



Identify heterogeneous email effects and scoring customers based on predicted effect uplift



Target via scoring:

30% margin rule

10 cents average cost

$$\text{uplift} * 0.3(\text{margin}) - 0.1(\text{cost}) > 0$$

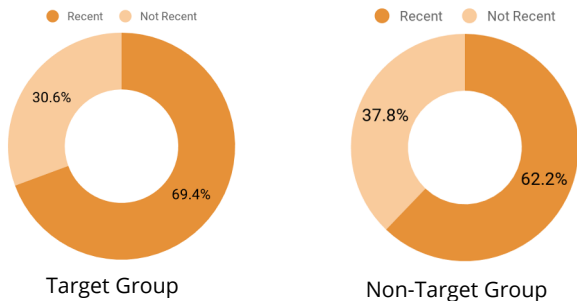


Individual -Level Conditional Causal Effect:

By using Causal Forest model, we get a target group of **54,467** observations, which accounts for **69.6%** of total observations.

Target vs Non-Target Profiles

1. Recent Purchase Situation



Target Group accounts for a higher percentage of customers who purchased wines within 60 days. Higher possibilities of purchasing recently are contributing more to incremental and consequently being targeted.

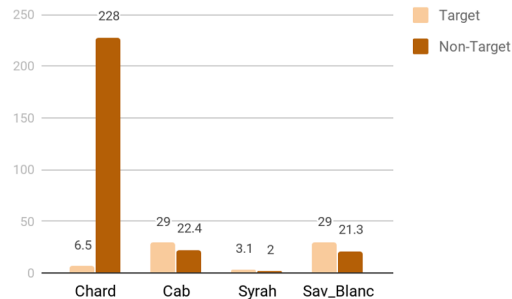
2. Past Purchase Information

	Median	Mean
Non-Target	\$200.06	\$274.08
Target	\$30.79	\$67.78

Target Group has a lower median and mean of the past purchase amount.

They have more space to purchase new items compared to non target groups who have already bought many commodities before.

3. Flavor Preference



Preferences towards other three flavor are similar but quite different in Chard. Non target group consumes far more Chard wine than target group.

