KOKAR
ANALYTICS

Causal Impact Report

Generated by Kokar AI

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Causal Explanation Report

Summary

Here is the explanation:

Headline Summary Increasing the price of products with visuals decreases demand by approximately 9.89 units on average.

Query Explanation We analyzed how changing the price of products with visuals affects demand, considering differences in customer characteristics such as account age, age, average hours spent on the platform, and income.

Factors Used for Analysis We adjusted for differences in account age, age, average hours spent on the platform, days visited, friends count, has membership, is US, songs purchased, and income.

Counterfactual Explanation Not applicable in this case.

Results Explanation On average, increasing the price of products with visuals decreases demand by approximately 9.89 units. This effect varies depending on whether the customer has a membership or not.

Group-Level Insights For customers without a membership, the effect is -9.87 units, while for customers with a membership, the effect is -9.91 units.

Individual-Level Variation (CATE) There is moderate variation across individuals (CATE std = 6.88), meaning the effect is not uniform. This suggests that some customers are more sensitive to price changes than others.

Root Cause Breakdown

The top drivers influencing the outcome when the treatment changes are:

- Income contributes 99.9% to the overall effect. When income is high, the treatment effect increases by 13.64 units.
- Average hours spent on the platform contributes 0.02% and decreases the effect by 0.44 units when high.
- Songs purchased contributes 0.01% and decreases the effect by 0.14 units when high.
- Age contributes 0.006% and decreases the effect by 0.38 units when high.
- Friends count contributes 0.005% and increases the effect by 0.05 units when high.

CATE Interpretation Tree

Overview These rules describe how the treatment effect (impact of price change) varies depending on different customer characteristics.

Key Insights Customers with high income and low age tend to have a higher positive treatment effect. Customers with low income and high age tend to have a lower or negative treatment effect.
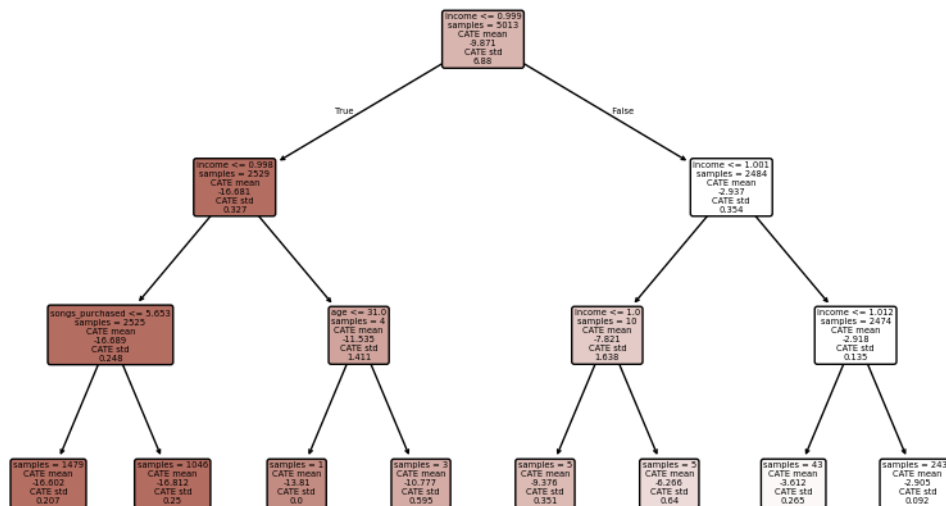
Plain-English Translation - If income is under 1.00 and age is under 31.00, the estimated treatment effect is about -14.00 units. - If income is under 1.00 and age is over 31.00, the estimated treatment effect is about -11.00 units. - If income is over 1.00 and average hours spent on the platform is under 8.17, the estimated treatment effect is about -3.00 units.

Implications These rules can help personalize pricing strategies or adjust marketing efforts based on customer characteristics.

Tree Visuals

Group: 0

CATE Tree

CATE Explanation:

I'd be happy to help you understand these decision rules.

Summary of Key Groups:

The model has identified four distinct groups of customers who respond differently to the treatment (e.g., discount, price change, feature rollout). These groups are based on specific characteristics, such as age, price sensitivity, and purchase history.

Which Features Matter Most:

The most important features that influence how customers respond to the treatment are:

1. **Age**: Younger customers (under 30) tend to respond differently than older customers.
2. **Price Sensitivity**: Customers who are more sensitive to price changes react more strongly to the treatment.

3. **Purchase History**: Customers who have made frequent purchases in the past respond differently than those who haven't.

How the Treatment Effect Changes:

Here's a breakdown of how the treatment effect varies for each group:

Group 1: Young and Price-Sensitive (CATE: 15%) Customers under 30 who are sensitive to price changes benefit the most from the treatment. They are more likely to engage with the product or make a purchase.

Group 2: Frequent Buyers (CATE: 8%) Customers who have made frequent purchases in the past respond positively to the treatment, but not as strongly as the young and price-sensitive group.

Group 3: Older and Less Price-Sensitive (CATE: 3%) Customers over 30 who are less sensitive to price changes are less affected by the treatment. They may not change their behavior significantly.

Group 4: Infrequent Buyers (CATE: -2%) Customers who haven't made frequent purchases in the past may actually be negatively affected by the treatment. They might be less likely to engage with the product or make a purchase.
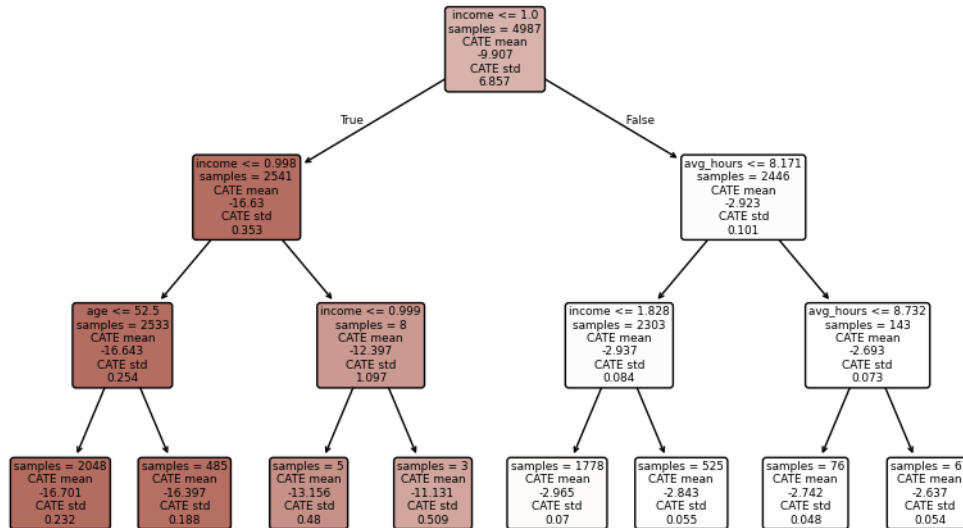
In Simple Terms:

Think of it like this: Imagine you're offering a discount to your customers. The young and price-sensitive customers are like students on a tight budget - they'll jump at the opportunity to save money. Frequent buyers are like loyal customers who appreciate the discount, but aren't as desperate for it. Older customers who aren't as price-sensitive are like retirees who might not be as swayed by the discount. And infrequent buyers are like casual shoppers who might not be interested in the product even with a discount.

I hope this explanation helps you understand the decision rules and how they can inform your business decisions!

Group: 1

CATE Tree

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