

Marketing Mix Modeling – Results Summary and Recommendations

This report summarises the findings from a marketing mix model built on a synthetic two-year dataset of weekly marketing spend and sales. The goal was to identify which marketing activities drive incremental sales and to provide actionable guidance on budget allocation.

Key findings

Spending patterns and sales levels

- **TV and social media dominate the budget.** Average weekly TV spend is about \$100 k (ranging from \$51 k to \$150 k), and social media averages \$67 k, with peaks above \$100 k. Radio and search are smaller channels, averaging \$50 k and \$30 k, respectively.
- **Sales vary widely.** Weekly sales average about \$254 k but range from \$170 k to \$391 k. Weeks with price promotions or holidays coincide with higher sales, indicating the importance of these levers.

Drivers of sales (model results)

- **TV and social media are the most effective channels.** After accounting for carry-over effects and diminishing returns, every \$1 spent on TV generates approximately **\$3.55** in incremental sales. Social media delivers a similar return at **\$3.03 per dollar**, making it a high-return channel.
- **Search and radio have lower impact.** Paid search returns roughly **\$2.30 per dollar**, while radio's effect is small and statistically insignificant in this synthetic model. These channels may require optimisation or reallocation.
- **Price is a powerful lever.** A one-unit increase in price (roughly \$1) reduces weekly sales by about **\$55 k**, underscoring how sensitive demand is to pricing. Maintaining competitive pricing is crucial.
- **Promotions and holidays boost sales.** Promotional activities add roughly **\$63 k** to weekly sales, and holiday periods contribute about **\$59 k**. These levers yield clear and significant lifts.
- **High ROI channels drive growth.** Based on our ROI calculations, TV and social media deliver the most incremental sales per dollar spent. Search and radio provide smaller returns, and the radio coefficient was not statistically significant, suggesting limited incremental impact in this synthetic example.

Scenario simulation

I simulated a 20 % increase in TV spend and a 20 % cut in social media spend for the most recent week. The model predicts that this reallocation would **reduce sales by \$17.5 k**, indicating that cutting a high-ROI channel like social media to fund TV may hurt overall performance. This highlights the importance of considering channel efficiency when shifting budgets.

Recommended actions

1. **Prioritise high-return channels.** Maintain or modestly increase budgets for TV and social media, as they deliver the greatest incremental sales per dollar. Focus creative efforts on these channels to maximise efficiency.
2. **Reassess underperforming channels.** Review radio and paid search campaigns to understand why returns are lower. Test alternative formats or targeting strategies, or consider reallocating some spend to higher-ROI channels.
3. **Leverage promotions and seasonal opportunities.** Plan regular promotions and capitalise on holiday periods, as these activities significantly lift sales. Align creative messaging and channel mix to amplify these effects.
4. **Avoid large cuts to high-performing channels.** Scenario analysis shows that reducing spend on effective channels can lead to sales declines. When shifting budgets, use the model to simulate impacts and avoid cannibalising high-ROI tactics.
5. **Monitor price sensitivity.** Because price increases have a strong negative effect, evaluate pricing strategies carefully. Consider value-add promotions or bundling rather than straightforward price hikes.
6. **Continue measuring and refining.** This analysis is based on a synthetic dataset; real-world data will yield more nuanced results. Collect granular, accurate data, refresh the model regularly (e.g., quarterly), and validate predictions with controlled tests or holdout periods.

By focusing on channels that deliver the strongest incremental returns, leveraging promotions and seasonal events, and using scenario planning to test budget shifts before implementing them, the marketing team can make more informed decisions and improve overall marketing effectiveness.
