

Hillstrom's Marketing Experiments Trial: Analysis
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May 6, 2023

Thank you for participating in this trial of "Hillstrom's Marketing Experiments"! I anticipate this project will be offered at a cost of \$19,900 beginning next week, and I anticipate demand to be high for this project given the challenges some companies are having this year. Having an idea what your marketing budget "could" look like (either more spend or less spend) gives you a competitive advantage over companies developing a single version of a budget without the ability to observe downstream impacts of today's decisions.

I anticipate this trial will take about three weeks to complete – it should be faster in production, but I will be balancing a minimum of three trials and (at this time) up to seven trials in May and early June. Yeah, that's a lot of interest!

Data requirements for this project are modestly different than in a normal project. My standard five-year data requirement remains ... a .csv file with one row per item purchased, with (at minimum) the following columns.

- Household_ID or Customer_ID.
- Order_Date (20230506).
- Item_Number Purchased.
- Merchandise_Category Purchased From (Mens Tops, Womens Bottoms etc).
- Quantity_Purchased (1, 2, ...)
- Amount_Spent (\$49.99).
- Marketing_Channel item was attributed to (Paid Search). You may include multiple columns here if you attributed orders to multiple channels.
- Gross_Margin dollars (\$34.99) ... or Cost of Goods Sold ... your choice, just tell me what the field represents.

Catalog brands are encouraged (but not required) to send an additional file as follows:

- Household_ID.
- Catalog_Title.
- In_Home_Date (20230315).
- Variable Cost to Mail (\$0.65).

Additional budget information is required.

- A spreadsheet illustrating monthly marketing spend for the past twelve months by marketing channel.
- Key p&l percentages for the past year (or see below for an alternative):
 - Net Sales Percentage (Rate that Demand converts to Net Sales ... i.e. 80%).
 - Gross Margin Percentage (should be ok to send above, but if you cannot append at an item level, send me the percentage here ... i.e. 55%).
 - Net Pick/Pack/Ship Expense (i.e. 10% of Net Sales).
 - Third-Party Commissions (i.e. what you pay to Amazon) should be listed in the monthly ad cost portion of the spreadsheet.

Once I have this information, I will run your data through several thousand lines of computer code. The code creates what was called in the 1980s a “name flow” model, or in the 1990s a “customer file forecast”. However, the code has a key difference from older models, in that changes in marketing spend result in changes in the number of customers who purchase ... at a segment level. If you decide to change monthly marketing spend within paid search from \$100,000 in May to \$200,000, my computer code assigns incremental orders (which occur at a decreasing rate of return) to each segment ... yeah, to each segment! This allows us to obtain a realistic simulation of how your business is likely to evolve and change.

Even better, once we see how the customer file changes at the end of the next year, new segment counts are loaded for year two. We again experiment with different levels of marketing spend, and we get to see what year two looks like. The process is repeated each year, showing you how your business evolves and changes for each of the next five years.

Here is a simple example, looking at overall ad cost. In this experiment, we add \$1.6 million to the marketing budget next year. Tell me what the p&l suggests?

Marketing Budget Experiment: Five Year Investment Simulation Outcome

	<u>Year 0</u>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Demand	\$22,493,814	\$25,057,224	\$24,206,538	\$23,843,610	\$23,407,778	\$22,957,320
Net Sales	\$19,794,556	\$22,300,929	\$21,543,819	\$21,220,813	\$20,832,922	\$20,432,015
Net Sales %	88.0%	89.0%	89.0%	89.0%	89.0%	89.0%
Gross Margin	\$11,282,897	\$12,934,539	\$12,495,415	\$12,308,071	\$12,083,095	\$11,850,569
Gross Margin %	57.0%	58.0%	58.0%	58.0%	58.0%	58.0%
Less Ad Cost	\$4,552,748	\$6,184,339	\$4,799,382	\$4,769,554	\$4,750,856	\$4,745,689
Ad to Sales Ratio	23.0%	27.7%	22.3%	22.5%	22.8%	23.2%
Less Pick/Pack/Ship Expense	\$1,979,456	\$2,230,093	\$2,154,382	\$2,122,081	\$2,083,292	\$2,043,201
PPS Expense % of Net Sales	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Variable Operating Profit	\$4,750,694	\$4,520,107	\$5,541,651	\$5,416,436	\$5,248,947	\$5,061,678
VOP % of Net Sales	24.0%	20.3%	25.7%	25.5%	25.2%	24.8%

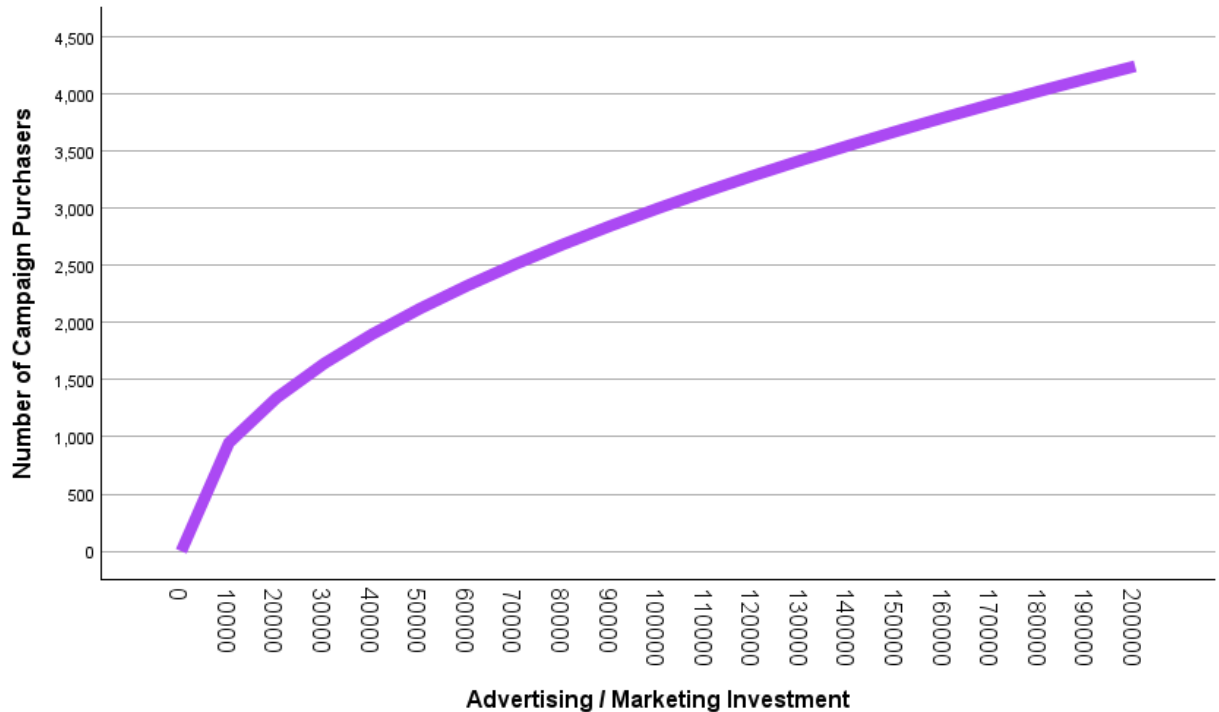
Look at the Variable Operating Profit row ... profit is more than \$200,000 less next year. Not many of us like that kind of outcome, so it is common in budgeting processes to not spend the money.

However, look at profit in years 2/3/4/5. Profit is a million dollars better in year two, and remains high thereafter.

In other words, spending more money is a GOOD decision, if you care about long-term results!! Your business is more healthy by spending more today, causing less profit today but considerably more profit in the future.

That’s what my computer code seeks to accomplish. I will be able to compare the p&l above to a “base case” where marketing spend remains unchanged.

The secret to the computer code is what I call a “Law of Diminishing Returns”. The relationship looks something like this:



The relationship is different for each company, but in general the relationship looks like the purple line depicted above. As you spend more, you get more customers to purchase, but you generate fewer and fewer incremental customers with each additional marketing dollar spent. Eventually, marketing spend is unprofitable in the short-term but is profitable in the long-term. Keep spending and both short-term profit and long-term profit are poor. This project seeks to find the general area where marketing spend yields good short-term and long-term results.

You will have to test your way into the outcomes recommended by the algorithm. This is an Experiment / Simulation ... reality is likely to be different. Think about it this way ... your Local Meteorologist uses Simulations to determine that there might be a high chance of precipitation tomorrow, but that doesn't mean you should cancel your picnic. Based on your knowledge of weather and the volatility of forecasts, you make your own decision. Similarly, in this situation, we will Experiment with different investment levels, and the simulation will yield possible outcomes. From here, your job is to test increased/decreases spend and see if the outcome matches the simulation. If the outcome is reasonably close, you can trust the simulation more.

What Do You Receive?

You will receive a "Class Of" report by merchandise category. I perform this analysis so that I can see if I need to adjust your merchandise productivity in the future. In other words, if I see a merchandising problem, I likely need to account for that fact with reduced productivity next year (and likely lower profit next year).

You will receive the results of a logistic regression model (annual response) and ordinary least squares regression model (annual spend if the customer purchases) for new-to-file customers

from 13-24 months ago. This analysis will tell us who is likely to purchase and how much more valuable various new customers are based on marketing source and merchandising category.

You will receive a project writeup that explains what the p&l and Marketing Budget Experiment(s) tell us about how best to spend money in the future. Depending upon the outcome of the trial, I may provide you with the spreadsheet so that you can run your own scenarios – let's see how this process works before I provide you with the spreadsheet, ok?

Again, I anticipate this process taking three weeks to complete due to the anticipated high number of trials I will perform at a discounted rate.

Project Cost

You will pay \$12,000 for this trial ... considerably less than the \$19,900 I will charge when I roll out the actual product. Payment is due within 15 days of delivery of the project writeup.

Data may be sent to me the week of May 7-13 (with five years of data through April 30, 2023). Project work will begin May 15.

Alternatively, data may be sent to me the week of June 4-10, with project work beginning upon data receipt (with five years of data through May 31, 2023).

Marketing Channels

My code allows for ten advertising channels. Some of the channels are pre-set based on my client base and their marketing preferences. In general, this is what the channel structure will look like:

- Channel 0 = All Organic Demand (demand not tied to marketing activities).
- Channel 1 = Email Marketing.
- Channel 2 = Print targeted to Housefile Customers (non-catalog clients get to use this for other channels).
- Channel 3 = Print targeted to Acquisition Prospects (non-catalog clients likely leave this channel blank).

Channels 4/5/6/7/8/9 are left for your largest marketing channels. For some clients, this will be SMS, Paid Search, Paid Social, Amazon, Affiliates, and one other channel. Other clients might have television/radio etc. What is important here is that small channels (i.e. channels that bring in less than 5% to 10% of annual sales) should be rolled together into one "OTHER" channel. The math used in this algorithm becomes unstable when extrapolating results against small channels.

Your job is to communicate to me the marketing channels that go into Channels 4 / 5 / 6 / 7 / 8, with all "OTHER" being placed into Channel 9.