

Elasticity-Driven Pricing Strategy

elasticity modeling to guide pricing opportunity

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A dwindling economy forces action

How can we...

- ensure profitability
- minimize losses
- improve efficiency
- combat demand risk
- maintain strong financials
- maintain competitive positioning

Implementing pricing strategy can improve profitability, combat demand risk, and soften the impact of economic downturn

Blanket price increases can accelerate demand erosion – not all products respond to demand the same way

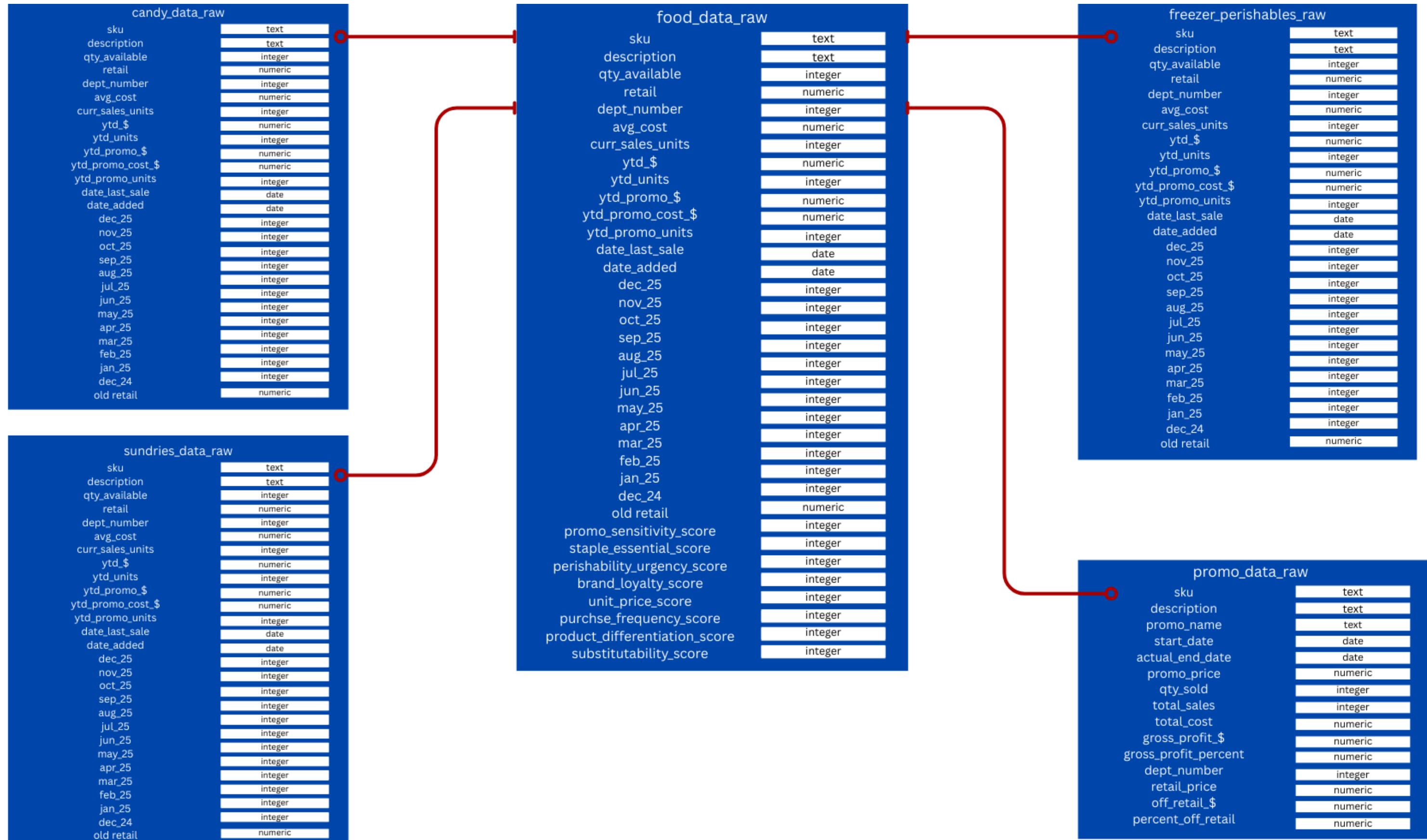
This ultimately means understanding product demand in relation to price or



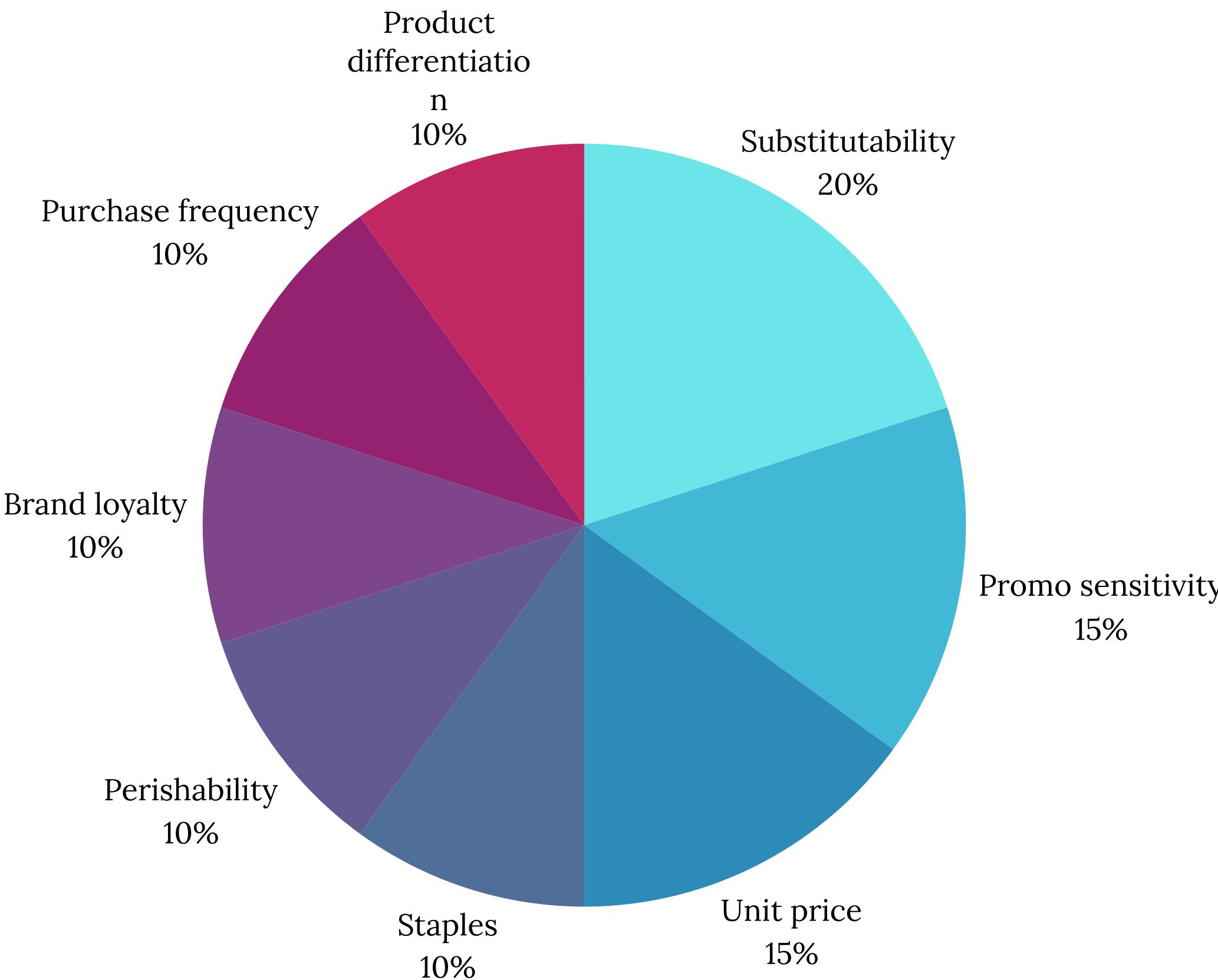
Product Elasticity

This offers both an offensive and defensive strategy, improving profitability while protecting margins and minimizing risk

The data consists of food, freezer, sundries, and candy products along with promo data

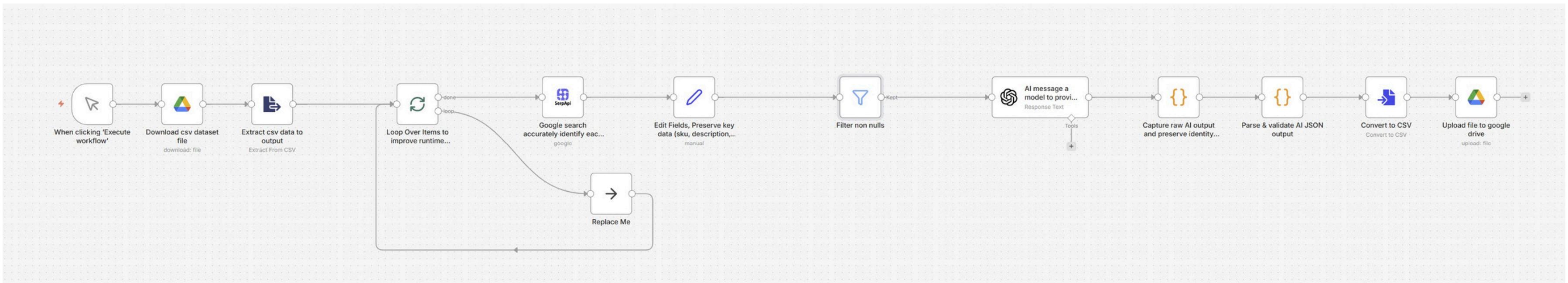


Elasticity was determined under 8 key categories



- Process done with AI Automation under N8n
- Product types and brand determined with the help of google search
- Scored with OpenAI's GPT 4.1 mini model
- scores between 1 - 5
 - 1 = Inelastic
 - 5 = Elastic
- Purchase frequency, unit price, and promo sensitivity scored under a 5 quartile binned system

How I built a system to not only trust our AI results, but verify its credibility



Prompt engineering creates guardrails and avoid hallucinations

CRITICAL IDENTITY RULE:

- The SKU description is the ground-truth identity of the product.
- Web shopping results (US) are supporting evidence only and may be noisy.
- NEVER let web results override a clearly grocery or retail-related SKU description.
- If evidence conflicts with the description, prefer the description.

SCORING DIRECTION (NO EXCEPTIONS):

- All category scores MUST be directionally consistent:
- Higher scores ALWAYS mean MORE price-elastic.
 - Lower scores ALWAYS mean MORE price-inelastic.

UNCERTAINTY HANDLING:

- If evidence is weak, conflicting, or unclear:
 - Use conservative scores near 3
 - Lower confidence (≤ 0.40)
 - Set `product_type` to "unknown" and `brand_guess` to null if appropriate
 - NEVER hallucinate a product identity.

OUTPUT REQUIREMENTS:

- Scores must be integers from 1–5.
- Confidence must be between 0.00 and 1.00.
- Return ONLY valid JSON matching the required schema.
- No markdown, no explanations, no extra text.

```
SKU description (ground truth):
{{ $json.description }}
```

```
US shopping results (supporting evidence, may be noisy):
{{ JSON.stringify($json.products) }}
```

Task:

- 1) Identify `product_type` based primarily on the SKU description.
- 2) Identify `brand_guess` ONLY if it clearly aligns with the description.
- 3) Score each elasticity category using the definitions provided.
- 4) If evidence conflicts with the description, prefer the description and mark unknowns.
- 5) Keep evidence arrays short (2–4 concise title/source strings per market).

Insights

Some statistics to consider first

3.58

avg elasticity

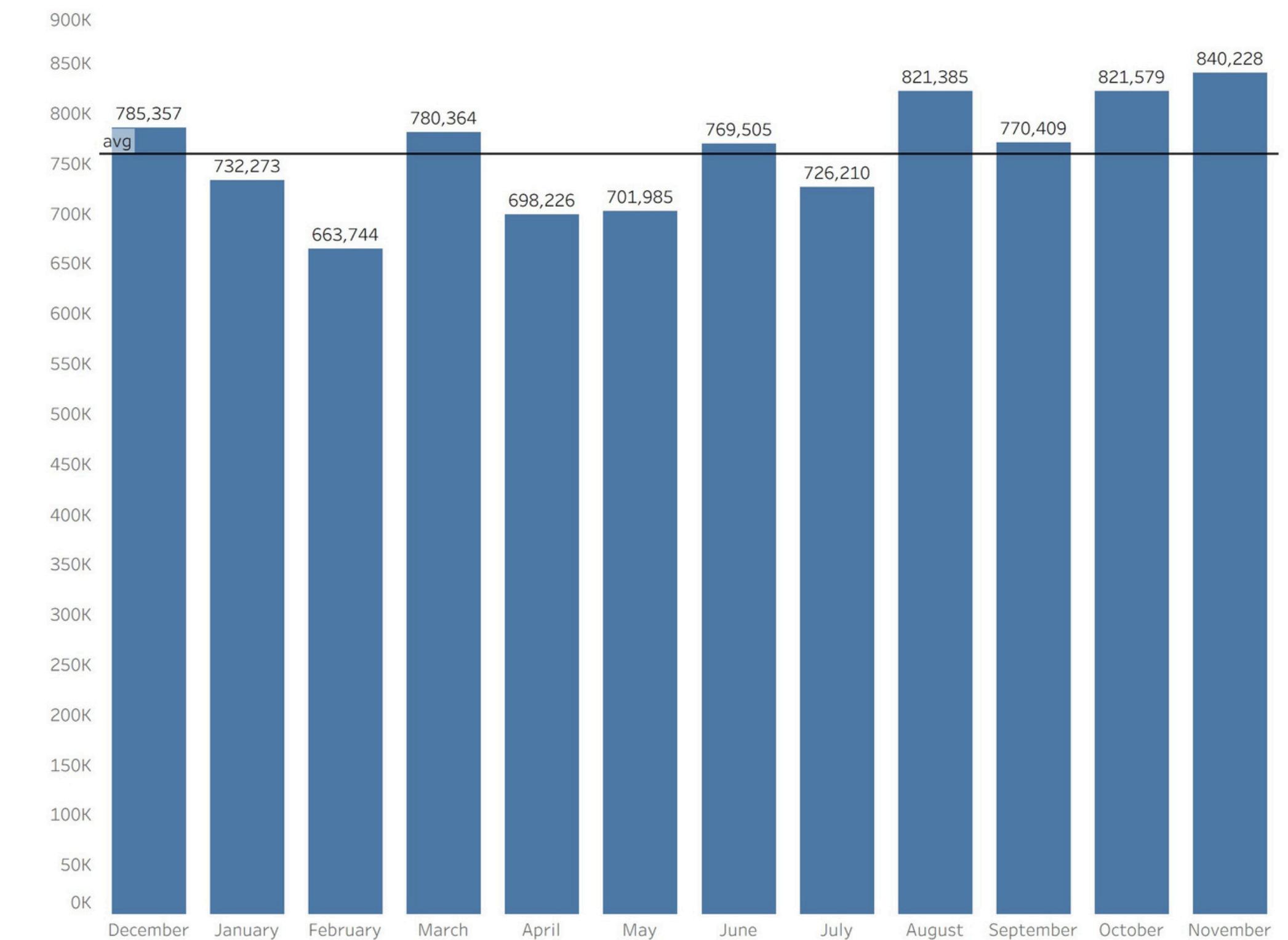
27.3%

avg margin

\$759,272

avg monthly revenue

Monthly revenue (dec24 - dec25)



Here are the top inelastic and elastic products, but there is a major flaw...

Top
inelastic
products

Sku	Description	Elasticity	Retail	Avg Cost	Margin	Inelastic Rnk	Total Units Sold ..	AI accuracy conf..
1021BP	ANCHOR 1%LOW FAT OR FULL MILK QT	1.70	\$2.15	\$1.80	16.3%	1	10,344	0.85
639956	HORIZON ORG W/DHA OMEGA (BP)	2.05	\$7.29	\$5.20	28.7%	2	1,636	0.85
15245	DEVONDALE FULL CREAM MILK 1L	2.10	\$2.20	\$1.64	25.5%	3	1,224	0.85
6265BP	W- FOREMOST MILK LOW-FAT 32OZ	2.10	\$2.69	\$2.04	24.2%	4	2,719	0.85
11922BP	W- FOREMOST MILK REGULAR 32OZ	2.20	\$2.69	\$2.05	23.8%	5	4,739	0.85
1364689BP	KS ORG WHOLE MILK 1.89L	2.25	\$7.29	\$5.25	28.0%	6	2,426	0.85
330330BP	OROWEAT ASSORTED BREADS	2.35	\$5.75	\$4.19	27.1%	7	414	0.90
920002	WHOLE WHEAT BREAD	2.40	\$3.85	\$3.10	19.5%	8	56	0.85
1462714BP	KS ORG A2 PROTEIN MILK 64OZ	2.45	\$6.99	\$5.10	27.0%	9	2,225	0.85
29461BP	KS ORGANIC LOWFAT MILK 1.89L	2.45	\$6.99	\$5.10	27.0%	10	198	0.85
407174BP	DOLE GOLD TROP PINEAPPLE	2.45	\$2.20	\$1.45	34.1%	11	878	0.85
65568	COTTAGE CHEESE 3LB	2.45	\$8.99	\$5.99	33.4%	12	1,117	0.85
144336	Pullman Bread	2.50	\$3.95	\$2.20	44.3%	13	45	0.85
689917	HAWAIIAN SWEET ROLLS 2/16CT	2.50	\$10.95	\$7.69	29.8%	14	788	0.85

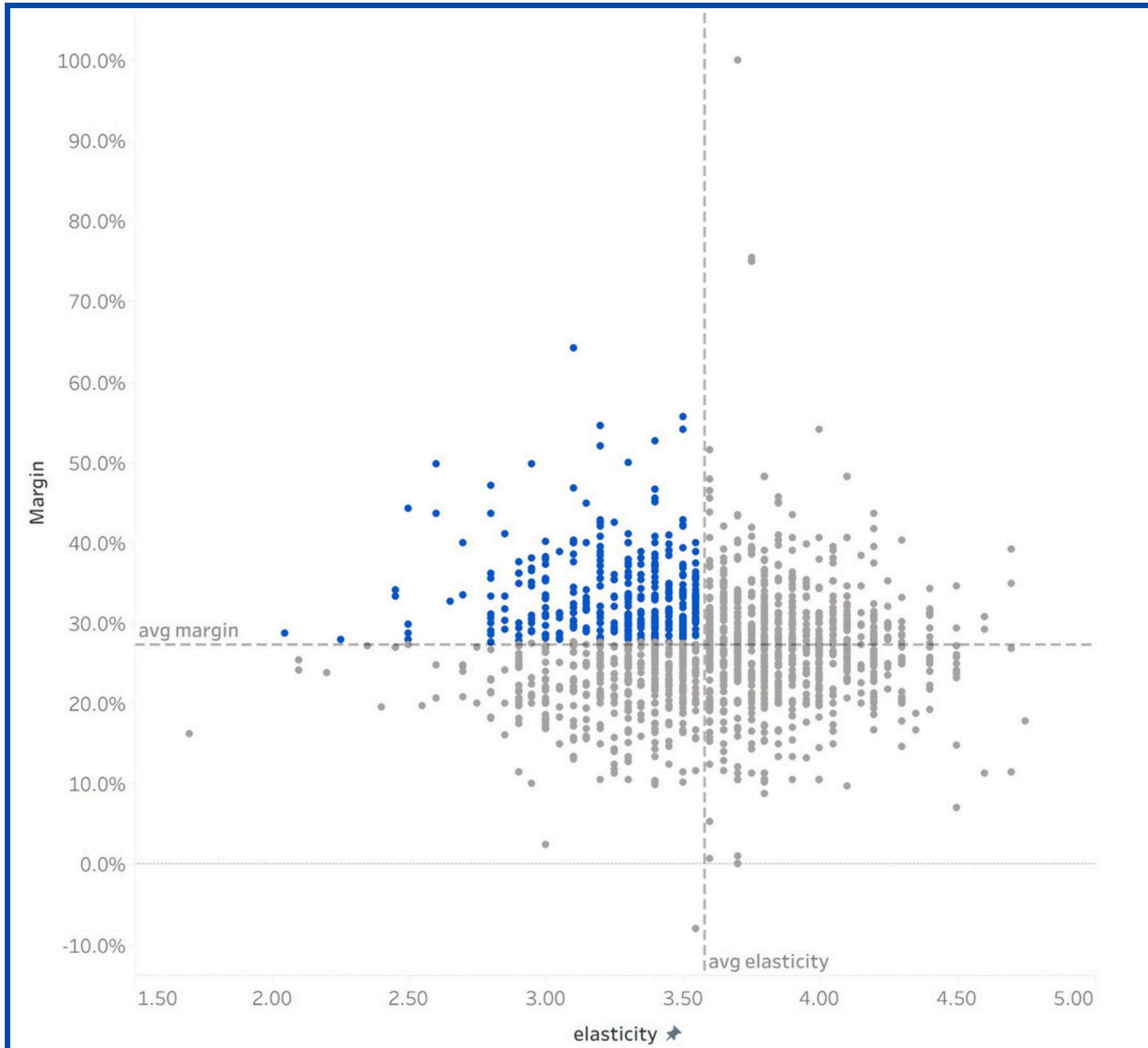
Top
elastic
products

Sku	Description	Elasticity =	Retail	Avg Cost	Margin	Elastic Rnk	Total Units Sold ..	AI accuracy conf..
89547	DE LUXE DIAMOND 10 5/8inch PLATE	4.75	\$22.99	\$18.90	17.8%	1	123.0	0.75
980333863	HEAVY DUTY PAPER PLATES 9inch 600..	4.70	\$39.50	\$28.87	26.9%	2	34.0	0.90
821981	20Z PORTION LIDS 2500CT CLEAR	4.70	\$48.95	\$31.84	35.0%	3	13.0	0.80
770507	B&C PORTION CUPS 20Z/2500CT	4.70	\$49.99	\$30.40	39.2%	4	28.0	0.85
589182	6inch PLASTIC CONT 500CT CLEAR	4.70	\$79.95	\$70.79	11.5%	5	6.0	0.85
990375567	MM HD PAPER FOOD TRAY 2LB 750CT	4.60	\$38.99	\$26.99	30.8%	6	5.0	0.85
753509	8inch CONT CLEAR 250CT PXT880	4.60	\$84.55	\$74.99	11.3%	7	4.0	0.85
361387	SUPREME PLATE 8 7/8inch 250CT	4.60	\$23.99	\$16.99	29.2%	8	30.0	0.85
990330522	READY PROTEIN BAR VRTY 20CT	4.50	\$27.99	\$20.80	25.7%	9	25.0	0.85
980436909	VERY BERRY TOPPING 6/3LB CASE	4.50	\$79.00	\$57.49	27.2%	10	3.0	0.75
971233	MM HEFTY 3COMP CARRYOUT 125CT	4.50	\$25.95	\$19.76	23.9%	11	13.0	0.85
9502125	FABRI-KAL PLASTIC CUP 200Z 500CT	4.50	\$79.75	\$67.96	14.8%	12	1.0	0.85
781170	DIET PEPSI 36/12OZ	4.50	\$32.95	\$24.99	24.2%	13	45.0	0.90
603849	HEFTY 3COMP CARRYOUT 9inch 50CT	4.50	\$26.95	\$20.23	24.9%	14	10.0	0.85

6 milk products being the top products to target is a clear issue as milk prices have been historically stagnant

Pairing key metrics (margin, avg cost, volume) with elasticity offers more robust insights

Elasticity x Margin



Top products (blue dots)

Sku	Description	Elasticity
15685	HL WHOLE MUSHROOM 425G	3.10
334709BP	CHOBANI GREEK YOGURT 6OZ	2.60
424226BP	CRYSTAL GEYSER WATER 1 GALLON	3.20
306561BP	PACE MEDIUM SALSA 38OZ	2.95
1569590BP	ORG SOY UNSWT BEVERAGE 32OZ	2.80
40609	S&B GOLDEN CURRY SAUCE MILD 230G	3.20
980228441	REYNOLDS SLOW COOKER LINERS 24PK	3.70
1877258	KETO CINNAMON TOAST CEREAL 24OZ	3.50
15670	SOFT FILLED BITES 6OZ	3.75
11445	ITSUKI-AN CURRY UDON 225G	3.40
15671	M&M PEANUT 5.3OZ	3.75
144336	Pullman Bread	2.50
15672	SKITTLES ORIGINAL 7.2OZ	3.75
40623	S&B GOLDEN CURRY SAUCE HOT 230G	3.30
170209	FS Pizza Dough Balls CASE 21/30Z	3.50
1164438BP	ORGANIC COCONUT MILK 1L	3.10

Inelastic & high margins

- strong demand, profit leverage

Elastic & high margins

- price sensitive, profit leverage from price decreases

Inelastic & low margins

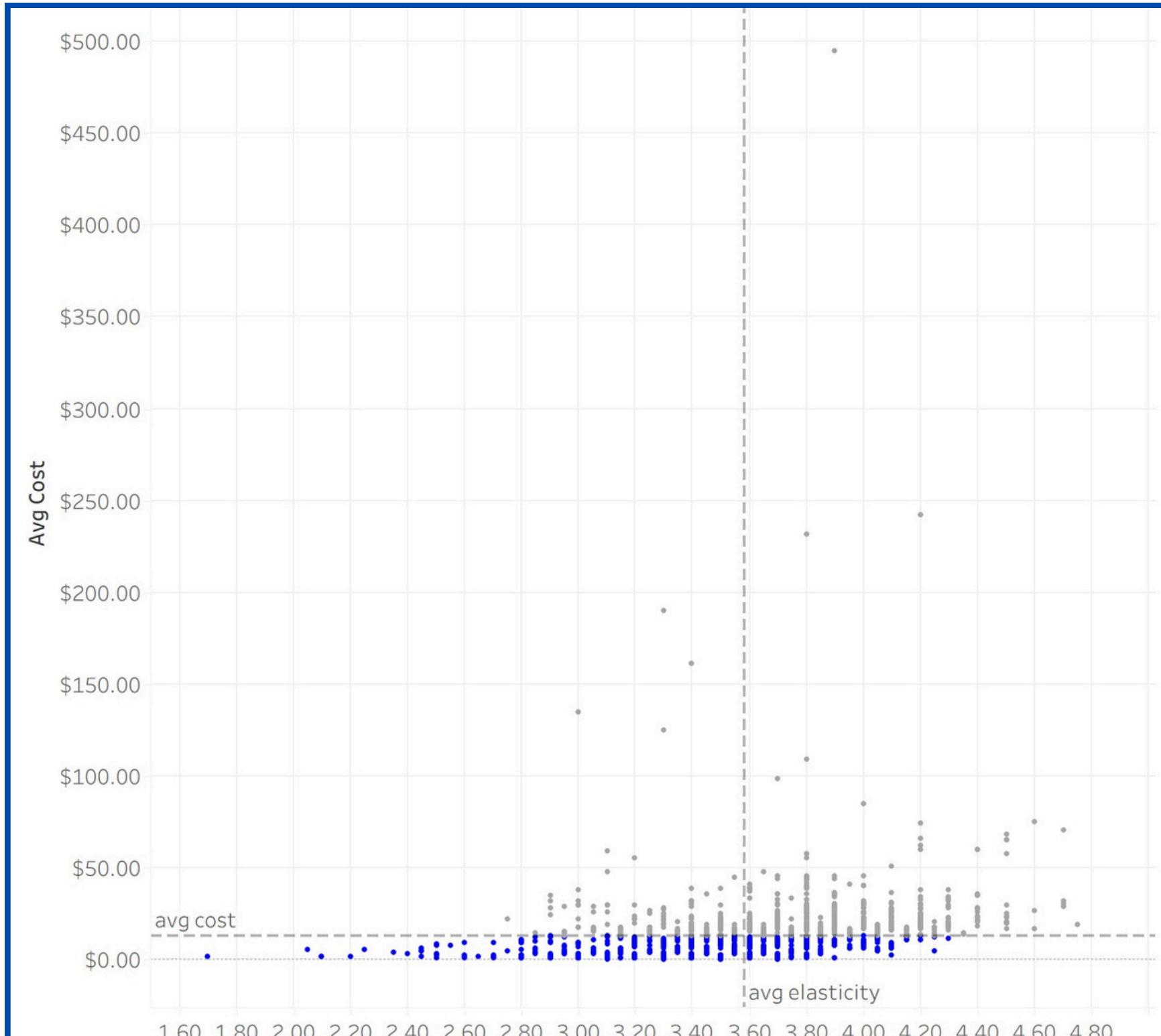
- may represent pricing limitations

Elastic & low margins

- may represent pricing limitations

Elasticity & Avg Cost

Elasticity x Avg cost



Top products (blue dots)

Sku	Description	Elasticity
859870BP	YOPLAIT ORIGINAL 6OZ	2.50
15685	HL WHOLE MUSHROOM 425G	3.10
779330BP	CANADA DRY GINGER ALE 1..	3.30
11586BP	PEPSI COLA 12OZ CAN	3.30
3981	ASSAM BROWN SUGAR TEA ..	3.00
2930BP	MANDARIN TEA 250ML	3.20
13545	Navy Biscuit (BP)	2.90
15380	HI-CHEW VARIETY CANDY 5..	3.00
990630	UCC OOLONG TEA 330ML	2.90
990631	UCC GREEN TEA 330ML	2.90
3980	ASSAM BLACK TEA 400ML	2.90
15655	7UP LEMON LIME CAN 12OZ.	3.50
980228441	REYNOLDS SLOW COOKER LI..	3.70

Inelastic & high avg cost

- strong demand, behavioral sensitivity and lower volume

Elastic & high avg cost

- price sensitive, more volatile and risky

Inelastic & low avg cost

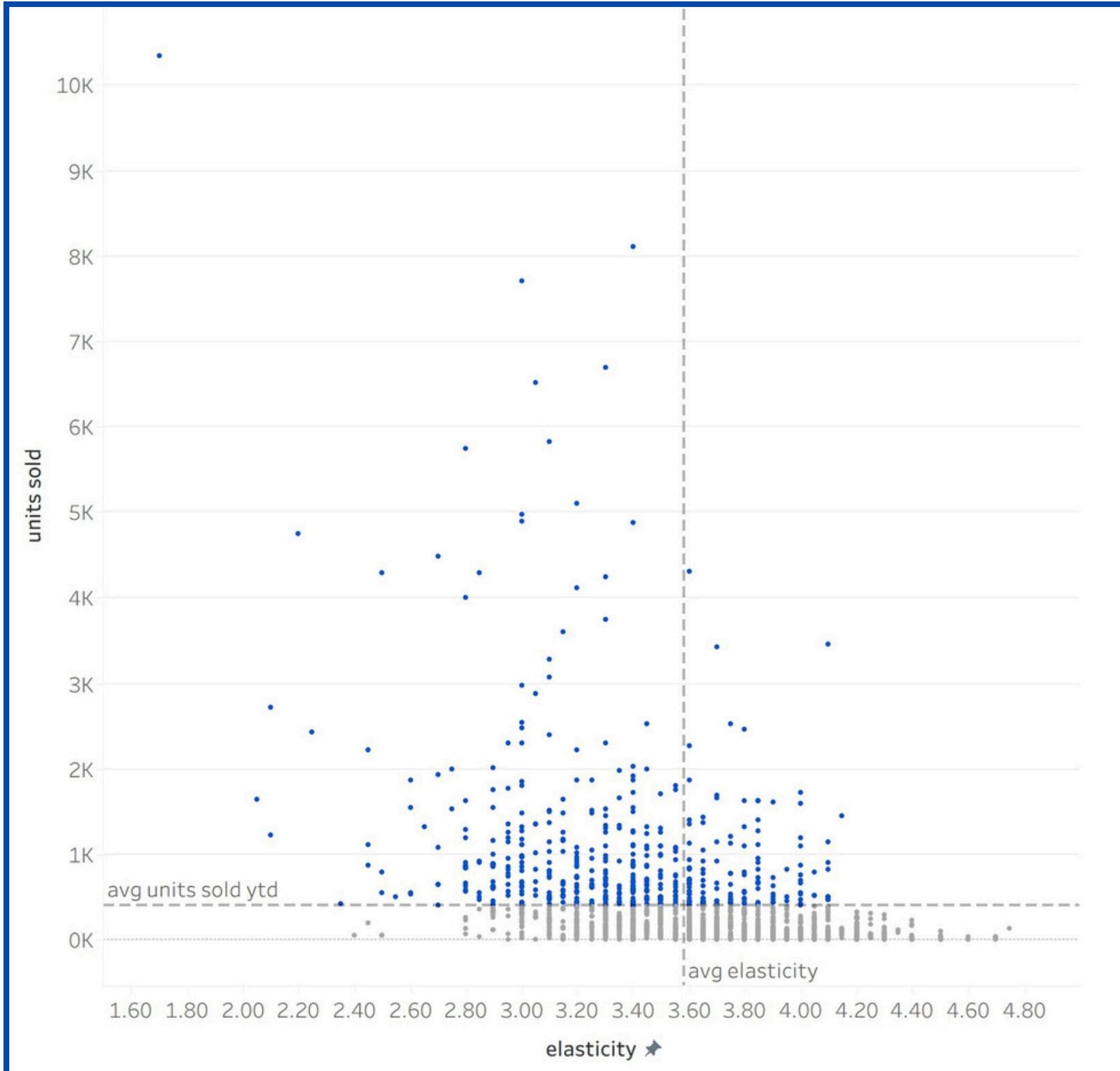
- strong demand, represent stable/habitual products, low risk & low upside

Elastic & low avg cost

- price sensitive, low dollar leverage, risky with low reward

Elasticity & Volume (total units sold)

Elasticity x total units sold



Top products (blue dots)

Sku	Description	elasticity_volume_rank
1021BP	ANCHOR 1%LOW FAT OR FULL MILK ..	1
11922BP	W- FOREMOST MILK REGULAR 32OZ	2
1242342BP	KS ALMOND UNSWT BEVERAGE 32..	3
4165934BP	KS ALKALINE WATER 1L	3
115530BP	SUNNY DELIGHT GALLON	4
859870BP	YOPLAIT ORIGINAL 6OZ	4
1002373BP	KS ORGA ALMOND VANILLA 32 FL OZ	5
8520	ACE DIAMOND TUNA 7OZ	6
236673BP	KRAFT MACARONI & CHEESE 7.25OZ	7
11586BP	PEPSI COLA 12OZ CAN	8
143583	Hormel Black Label Luncheon12z	8
1434784BP	CELSIUS SPARKLING/VIBE VRTY 12..	8
6265BP	W- FOREMOST MILK LOW-FAT 32OZ	9
72773BP	NUTRI GRAIN BARS 12CT	9
1272413BP	ORGANIC OAT BEVERAGE 32OZ	9
195043BP	Oronamin-C 120ml	10

Inelastic & high volume

- strong demand in theory and practice, high volume often associated with staples and traffic drivers

Elastic & high volume

- price sensitive, price changes scale immensely, risky with high reward

Inelastic & low volume

- strong demand but typically not impactful

Elastic & low volume

- price sensitive, less impactful, risky and not typically worth it

These lists offer guidance, here's how to prioritize what we know

1. Prioritize Low-Risk Price Optimization

- ✓ inelastic
- ✓ strong margins
- ✓ high volume

2. Leverage elasticity to defend competitive items

- ✓ promo pricing

3. Utilize these lists to enhance purchasing

- ✓ preserve impactful sellers
- ✓ create artificial elasticity/inelasticity

Key limitations and risks



These lists should be used as guidance and not complete direction. It is aimed to offer insights into pricing opportunities in a more efficient manner. Note that there are a number of different factors outside of economic theory that can affect elasticity. These lists make an effort to capture this through margins, costs, and volume.



- Elasticity measures are based on AI and research that may not accurately capture Saipan's consumers
- The final lists contain 1745 unique products while the original dataset contained 7000+ rows of products. These products were left out if they weren't sold in the past year or if they failed AI confidence tests
- Elasticity scores are primarily understood from a US market perspective and did not capture certain Asian products sold
- AI limitations: AI isn't 100% accurate. Still, multiple efforts were made to keep AI trustworthy

Questions?