

Shipping Cost Optimization Analysis: Baseline vs. Hypothesis Model Comparison

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INTERVIEW OBJECTIVE & QUESTION

Question 1:

Analyze the shipping costs for products and compare hypothesis shipping pricing to the baseline value.

Question 2:

How can we improve business profit based on the shipping of multiple items?



All calculations based on average cost of shipping 1000 miles to customers.

BASELINE MODEL

Each additional unit costs 70% of individual shipping cost

- Linear but discounted scaling
- Current standard approach

HYPOTHESIS MODEL

- Tiered discount structure:
 - 1 unit: 100% cost
 - 2 units: 80% cost
 - 3-4 units: 60% cost
 - 5-7 units: 50% cost
 - 8-9 units: 40% cost
 - 10+ units: 30% cost
- Aggressive volume incentives
- Rewards consolidation

ANALYTICAL APPROACH

ANALYSIS FRAMEWORK:

- ✓ Compared costs across order sizes
- ✓ Analyzed by region and category
- ✓ Identified tier-based opportunities
- ✓ Quantified total profit impact

The hypothesis model is strategically superior to baseline because
it creates progressive incentives like

KEY FINDINGS AT A GLANCE



This makes it a better business model,
even though the benefit
is NOT evenly distributed - it's
concentrated where we want it:
large, consolidated orders.

\$24 per order
Maximum Savings
(Tier C - 16+ units)

47% of Savings
from East Region

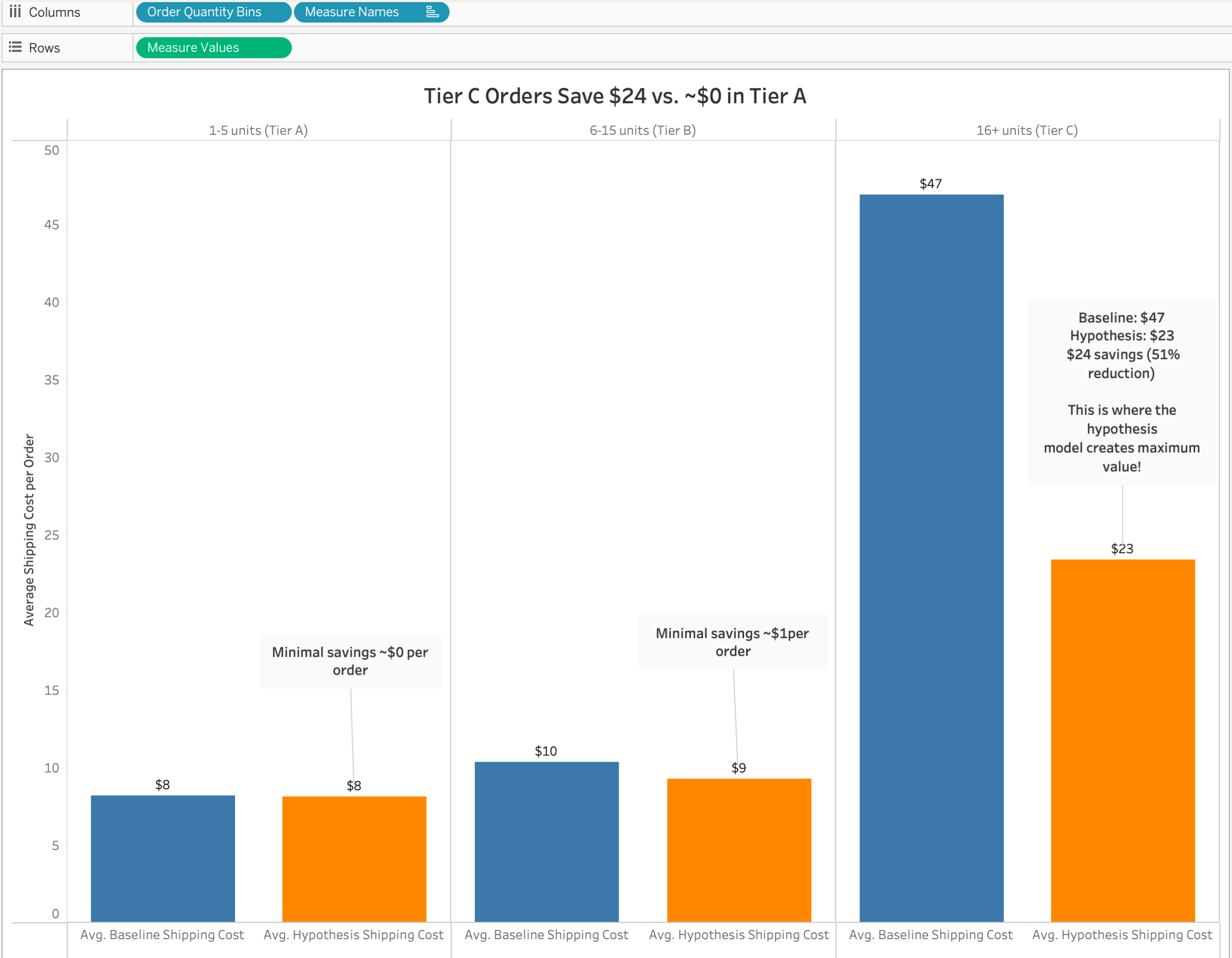
Doesn't penalize
small buyers

\$6,400 Total
Annual Profit
Improvement

73% of Savings
from Food &
Disposables

67% of Tier C value
from Hypothesis
improvement

Tier C Orders Save \$24 vs. ~\$0 in Tier A



Hypothesis model creates progressive savings

- Tier A (1-5 units): ~\$0 savings
- Tier B (6-15 units): ~\$1 savings
- Tier C (16+ units): \$24 savings (51% reduction)

Tier C large orders of 16 or more units shows dramatic savings. Baseline costs \$47, hypothesis drops to just \$23. That's \$24 in savings, a 51% reduction in shipping cost per order.

This progressive structure naturally incentivizes customers to consolidate purchases. Small orders aren't penalized, but large orders become dramatically more attractive.

Shipping Cost Efficiency by Order Quantity

Larger Orders Show Greater Savings Under Hypothesis Model

276 orders analyzed

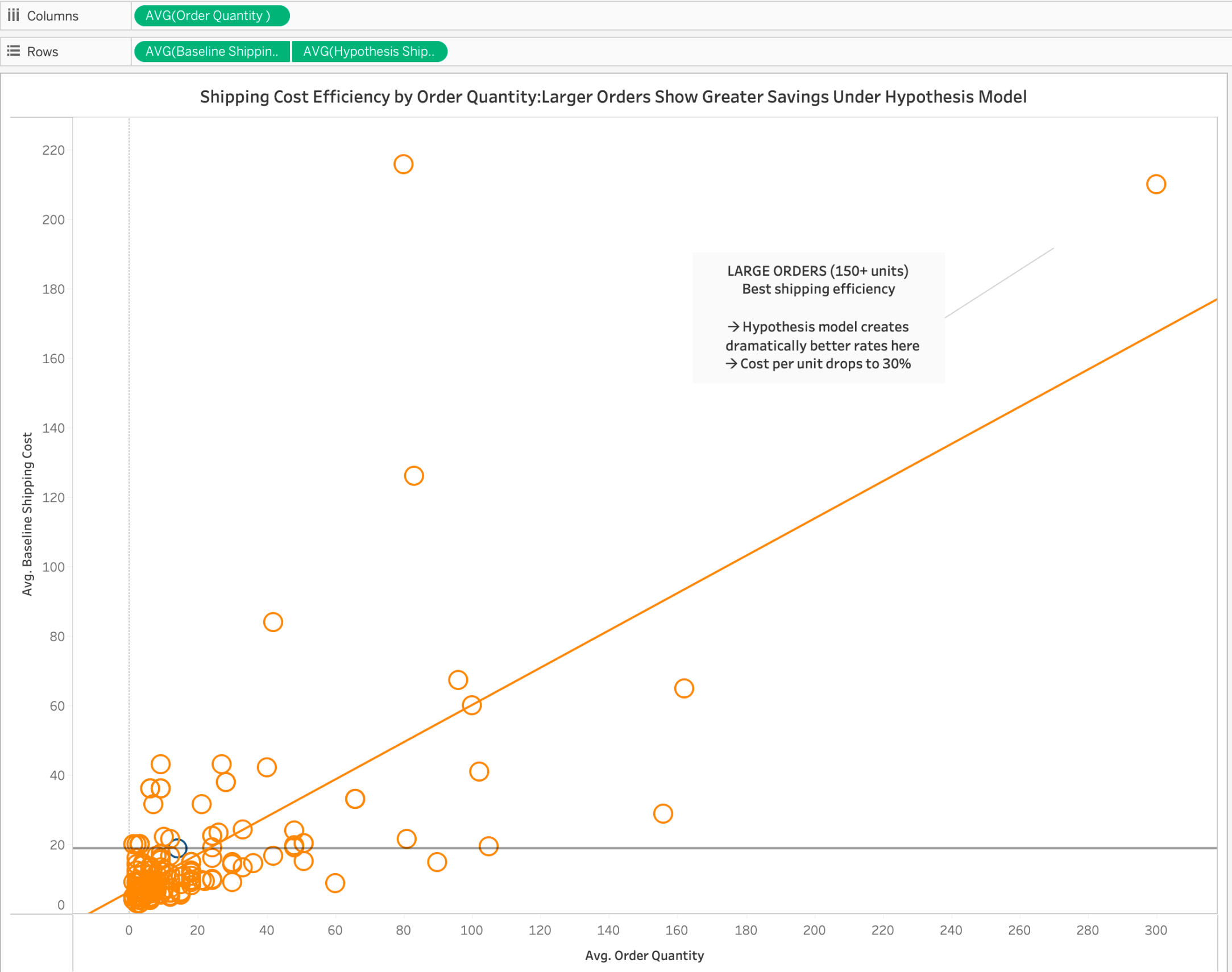
Clear efficiency trend with volume

Hypothesis model consistently outperforms baseline

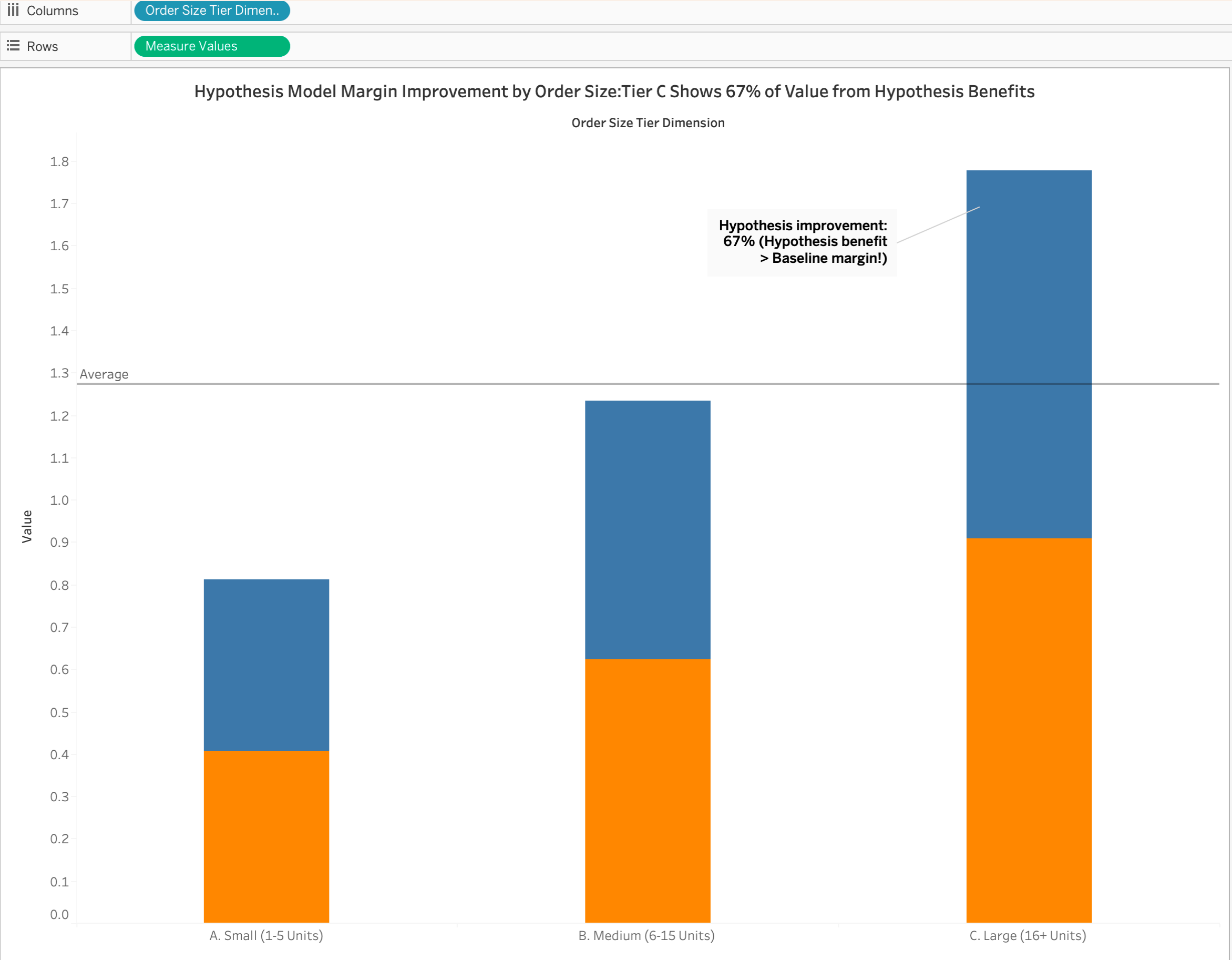
Notice the dense cluster at the bottom left most orders are small, between 0 and 50 units, costing \$0 to \$80 to ship. This represents our largest opportunity. If we can move even a portion of these customers toward larger orders, we unlock significant savings.

The outliers on the right, large orders of 150-200+ units, show the best efficiency under the hypothesis model.

These customers are already maximizing value.



Hypothesis Model Margin Improvement by Order Size: Tier C Shows 67% of Value from Hypothesis Benefits



Progressive benefit structure

- Tier A: 50% from hypothesis
- Tier B: 50% from hypothesis
- Tier C: 67% from hypothesis

Hypothesis > Baseline!

Look at Tier C:
Total margin reaches 1.8, with 67% two-thirds coming from hypothesis improvement. The orange section is actually larger than the blue section. This means the hypothesis model creates more value than the baseline model captures.

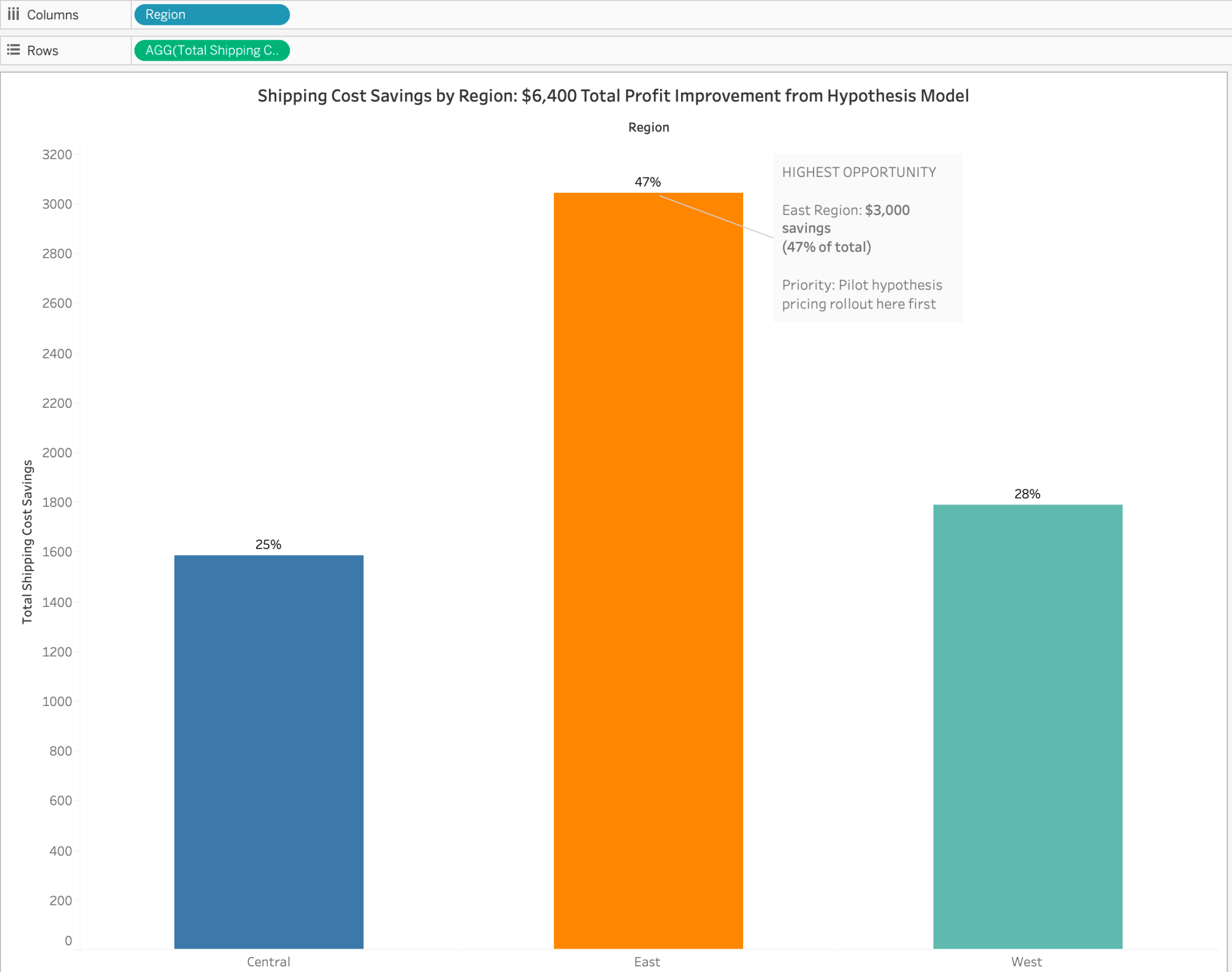
This is exponential, not linear. The benefit doesn't just increase with order size it accelerates. This creates a powerful psychological effect for customers: the more they buy, the disproportionately better the value becomes.

Shipping Cost Savings by Region

\$6,400 Total Profit Improvement from Hypothesis Model

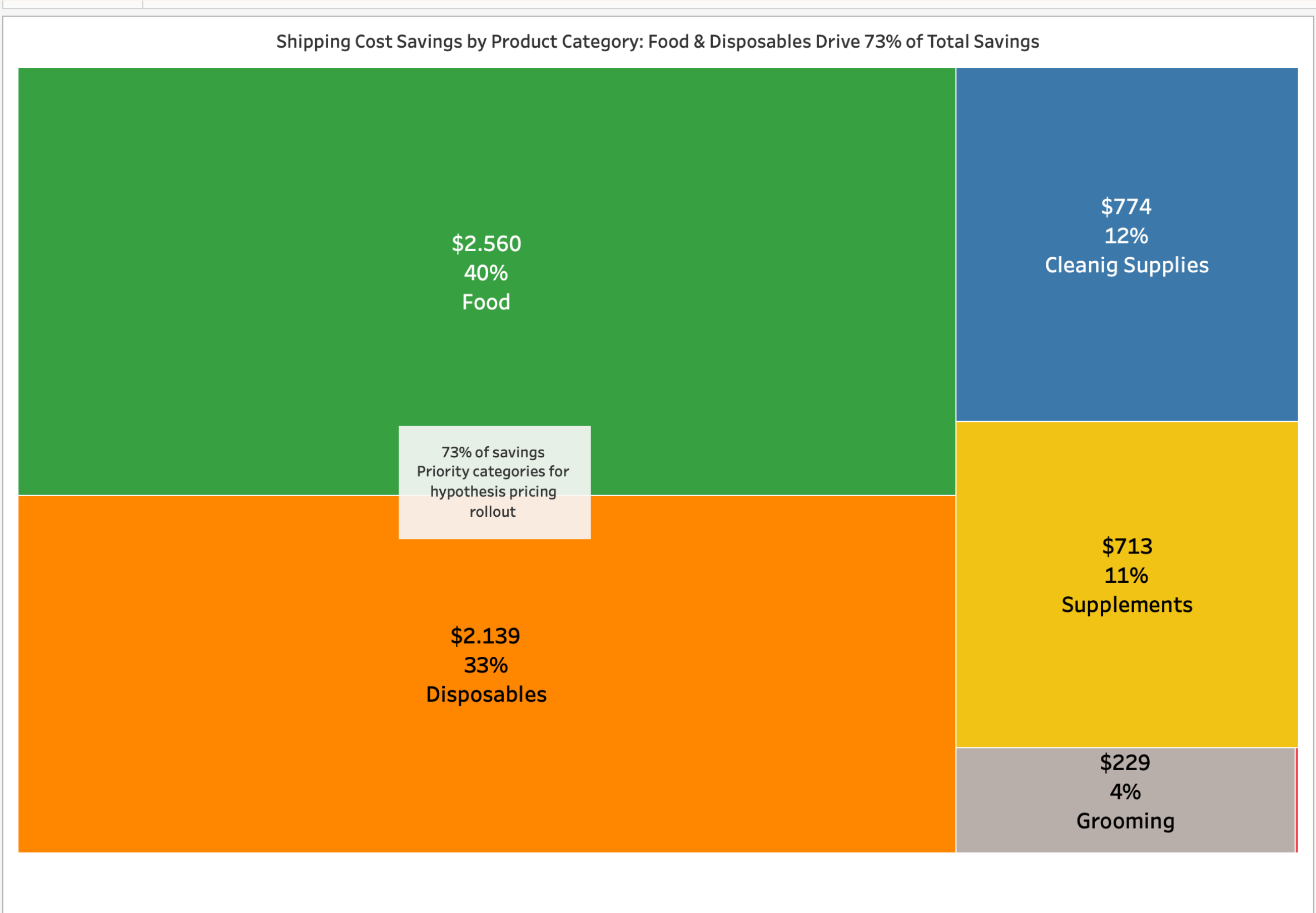
Phased Rollout Strategy
Phase 1: East Region (\$3,000 - 47%)
Phase 2: West Region (\$1,800 - 28%)
Phase 3: Central Region (\$1,600 - 25%)

Every region shows positive results this isn't a one-region phenomenon. The hypothesis model creates value universally.



Shipping Cost Efficiency by Order Quantity

Larger Orders Show Greater Savings Under Hypothesis Model



Priority Categories

- 1. Food: \$2,560 (40%)
→ **Bulk-buy promotions**
 - 2. Disposables: \$2,139 (33%)
→ **Subscribe & save**
 - 3. Cleaning Supplies: \$774 (12%)
→ **Reorder reminders**
- Combined: \$4,699 (73% of total)

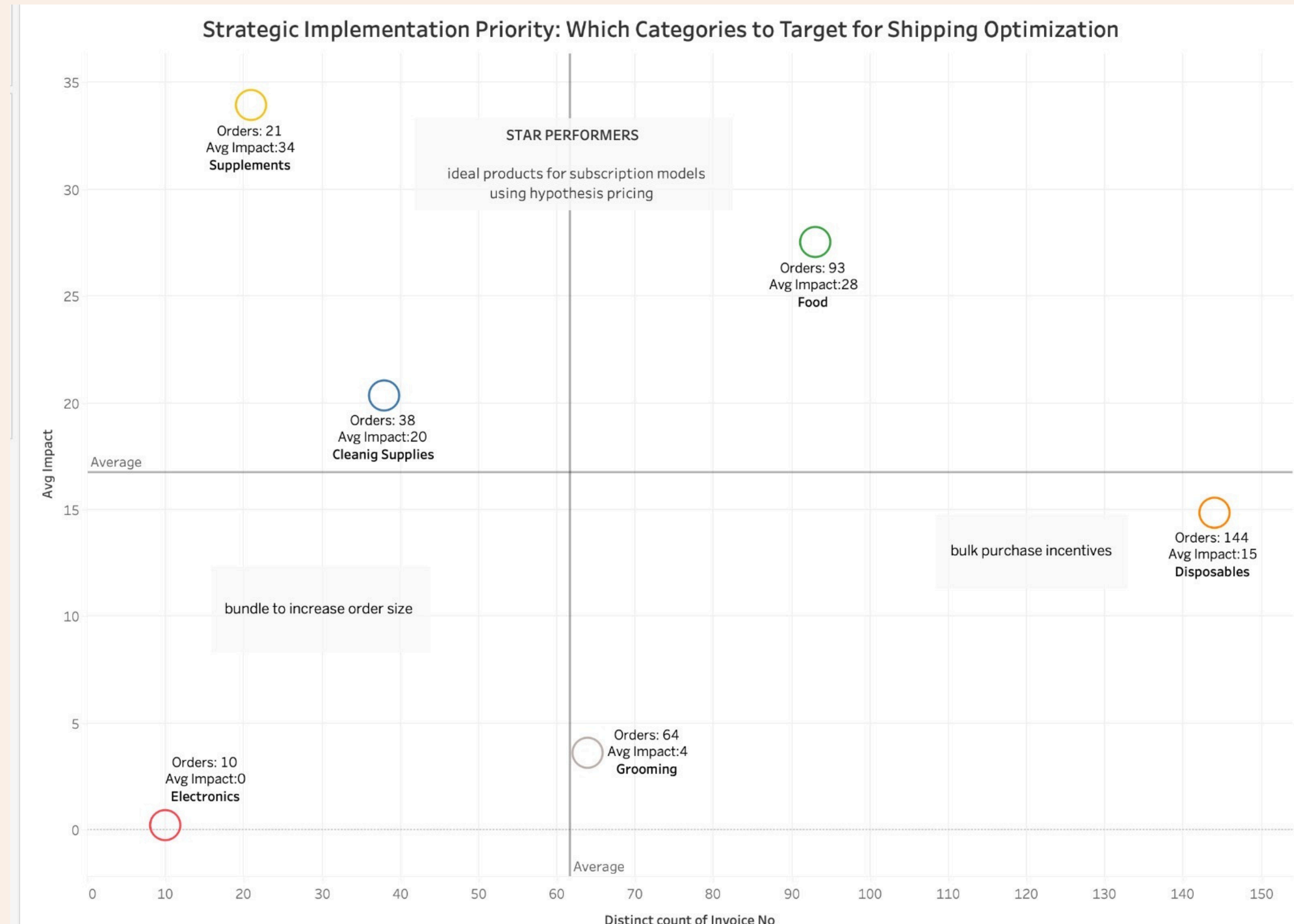
This identifies **WHERE** our opportunity lies. Together, Food and Disposables represent \$4,699, 73% of total opportunity. If we do nothing else, focusing on these two categories captures the lion's share of value.

Strategic Implementation Priority

Which Categories to Target for Shipping Optimization

However, just knowing where the money is isn't enough we need to understand HOW to capture it. This quadrant analysis segments categories by behavior patterns. It reveals that Food and Disposables, while both high-priority financially, need different implementation strategies. Food benefits from bulk-purchase incentives, while Disposable which already shows large order sizes needs frequency-building tactics like reorder reminders.

- ① Star Performers ready for immediate hypothesis pricing rollout
- ② Each quadrant requires different tactics not one-size-fits-all
- ③ Focus on upper-right and upper-left = 63% of total savings



STRATEGIC RECOMMENDATIONS

1. IMPLEMENT HYPOTHESIS PRICING MODEL

- **Roll out in phases:** East → West → Central
 - Expected profit improvement: \$6,400 annually
- Timeline: 6-month full implementation

3. TIER MIGRATION STRATEGIES

- Move Tier A → Tier B (1-5 units → 6-15 units)
Tactic: *"Add 3 items, save 20% on shipping"*
- Move Tier B → Tier C (6-15 units → 16+ units)
Tactic: *"Stock up for the month, unlock lowest rates"*

2- CATEGORY-SPECIFIC TACTICS

Priority 1: Food & Disposables (73% of savings)

- "Stock Up & Save" promotions
 - Meal planning bundles
- Subscribe & save programs

Priority 2: Supplements & Cleaning Supplies

- Subscription models
 - VIP loyalty tiers
- Auto-refill options

4. CUSTOMER EDUCATION

- Real-time savings calculator in cart
- Clear messaging: "Your savings: \$X"
 - Tier achievement notifications



EXPECTED BUSINESS IMPACT

IMMEDIATE TERM (0-6 months)

- ✓ \$6,400 direct profit improvement from shipping optimization
- ✓ 10-15% reduction in cart abandonment (lower shipping costs = higher conversion)
- ✓ Competitive positioning improvement ("Best shipping deals for bulk buyers")

MEDIUM TERM (6-12 months)

- ✓ Increased customer lifetime value (larger orders = fewer transactions = lower overhead)
- ✓ Improved inventory forecasting (predictable large orders)
- ✓ Operational savings from fewer small shipments (reduced pick/pack labor)

LONG TERM (12+ months)

- ✓ Behavioral shift: customers trained to consolidate
- ✓ Recurring revenue from subscriptions
- ✓ Market differentiation and customer loyalty
- ✓ Reduced overall shipping volume

RISK MITIGATION

- Phased rollout allows testing and adjustment
- Hypothesis model profitable at ALL tiers
- Can set maximum discount caps if needed



SUCCESS METRICS & KPIs

PRIMARY METRICS

Average Order Size
Target: +40% across all categories
Baseline: Current average

Shipping Cost per Order
Target: -30% under hypothesis
Baseline: Current average

Total Profit Improvement
Target: \$6,400 within 6 months
Baseline: \$0 additional

SECONDARY METRICS

- Tier C order percentage: Target 25% (up from ~10%)
 - Multi-category purchases: Target +30%
 - Customer reorder frequency: Target +20%
 - Cart abandonment rate: Target -15%

MONITORING FREQUENCY

- Weekly: Order size and tier distribution
- Monthly: Financial impact and ROI tracking
- Quarterly: Strategic review and adjustment



KEY TAKEAWAYS



- ✓ Hypothesis model generates \$6,400 profit improvement
- ✓ Progressive savings: \$0 (Tier A) → \$24 (Tier C)
- ✓ Food & Disposables = 73% of opportunity
- ✓ East region = 47% of savings → Pilot here first
 - ✓ Phased 6-month rollout recommended

KEY TAKEAWAYS



WHY HYPOTHESIS IS BETTER (Business Perspective):

1. Operational Efficiency

Baseline:

Customer orders 5 items today

Customer orders 5 items next week

Result: 2 transactions, 2 shipments, 2× overhead

Hypothesis:

Strong incentive: Customer orders 10 items at once

Result: 1 transaction, 1 shipment, lower overhead

Savings: Processing costs, packaging costs, handling costs

VISUAL COMPARISON TABLE:

Coffee (\$5 base cost) - Different Quantities

Quantity	Baseline Model	Hypothesis Model	Savings	Winner
1	\$5.00	\$5.00	\$0	TIE
2	\$8.50	\$8.00	\$0.50	Hypothesis
3	\$12.00	\$9.00	\$3.00	Hypothesis
5	\$19.00	\$12.50	\$6.50	Hypothesis
7	\$26.00	\$17.50	\$8.50	Hypothesis
10	\$36.50	\$15.00	\$21.50	HYPOTHESIS
15	\$54.00	\$22.50	\$31.50	HYPOTHESIS
20	\$71.50	\$30.00	\$41.50	HYPOTHESIS

Thank
You.

