

# How Consumer Demand for Orange Beverage Changed: Price Elasticities by Product Type

**Dr. LISA HOUSE**

**Prepared with Dr. Sungeun Yoon**

**University of Florida, Food and Resource Economics Department**

**September 24, 2025 ICBC**





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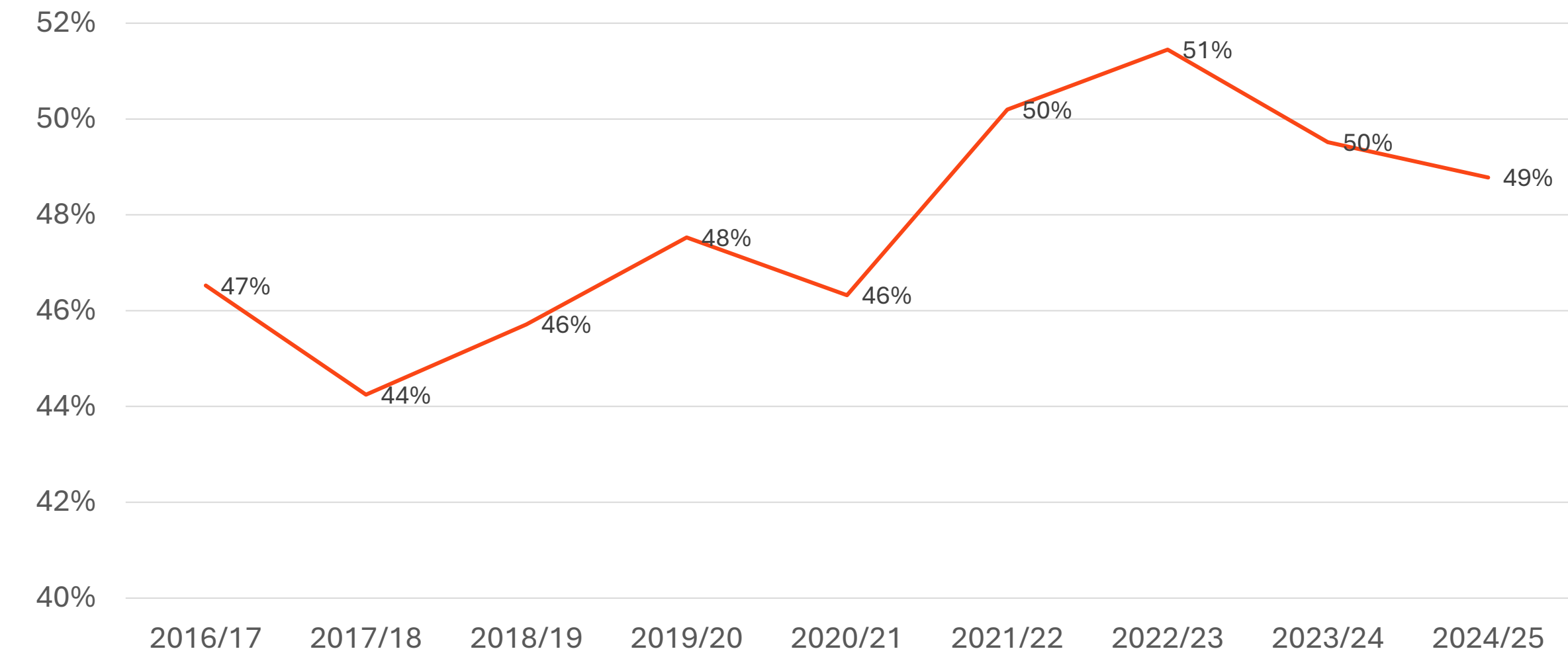
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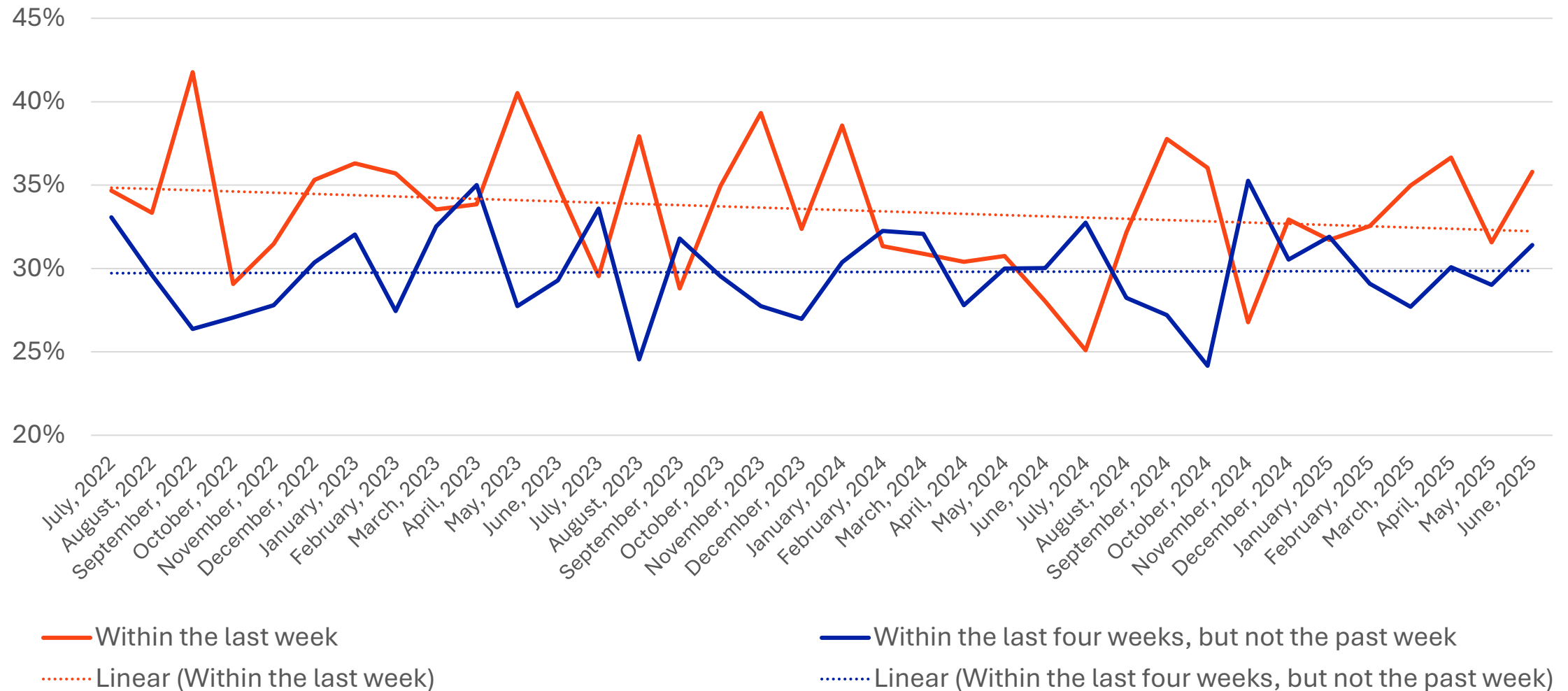
# Data

- **FDOC OJ Tracker Data**
  - Started in July 2016, approximately 500 responses per month
- **For study on orange beverage changes**
  - **FDOC Nielsen Orange Beverage Product-level sales data**
    - Sales ending on 6/27/22 – 7/22/2025 (2022/23, 2023/24, 2024/25 seasons)
    - Aggregated into weekly sales for four product types (100% OJ, OJ Juice Blends, OJ Drink, OJ Blend Drinks)
  - **FDOC OJ Tracker Data**
    - July – August 2025

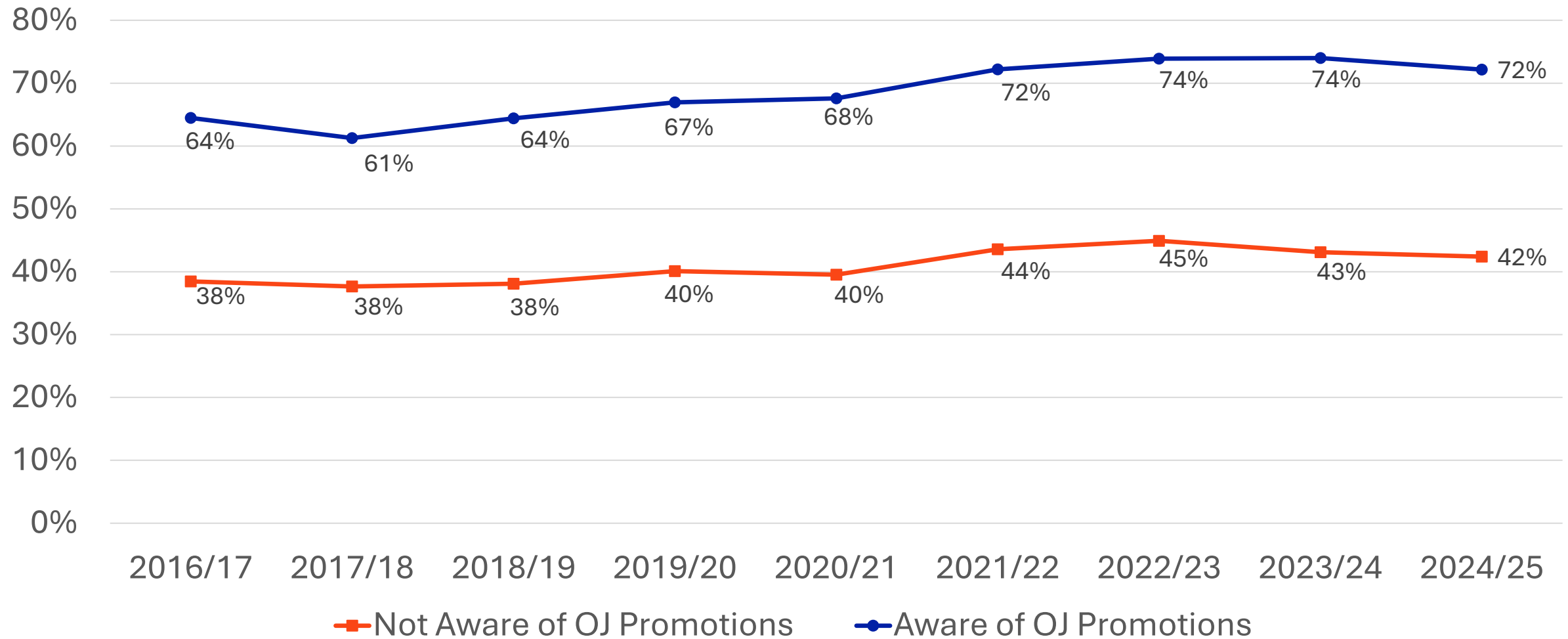
# Share of Active OJ Consumers



# OJ Purchase Frequency

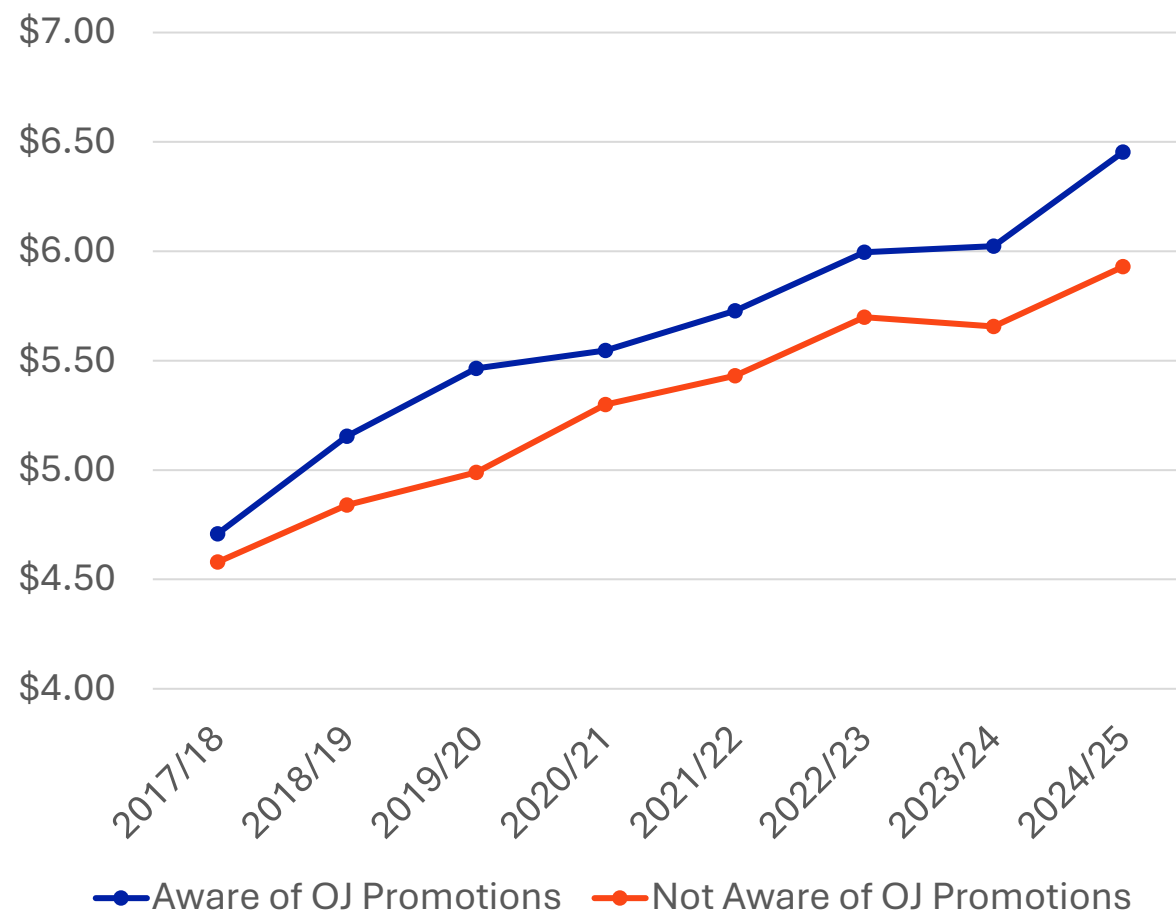


# Promotion-aware consumers are more likely to be active OJ consumers

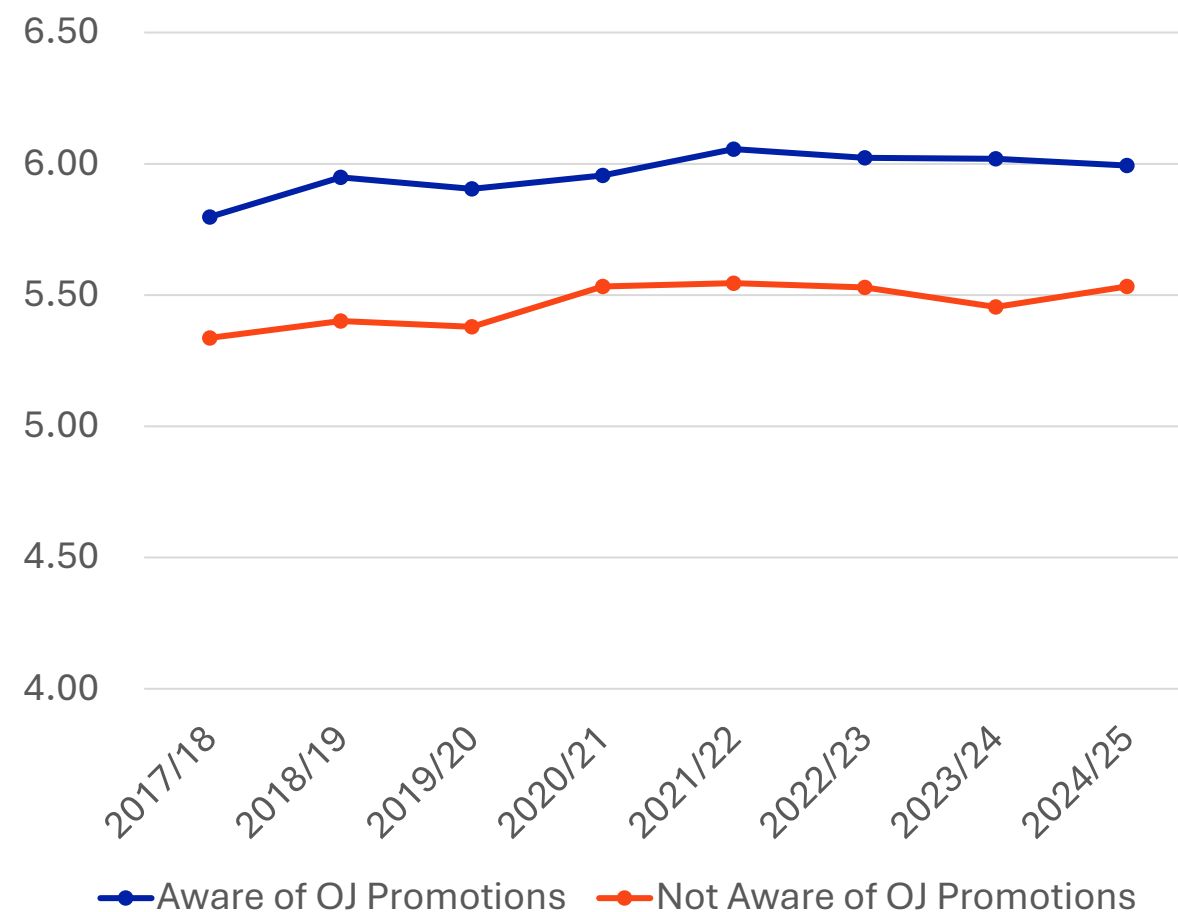


# OJ Promotion Awareness and OJ Price and Health Benefits

## Maximum WTP



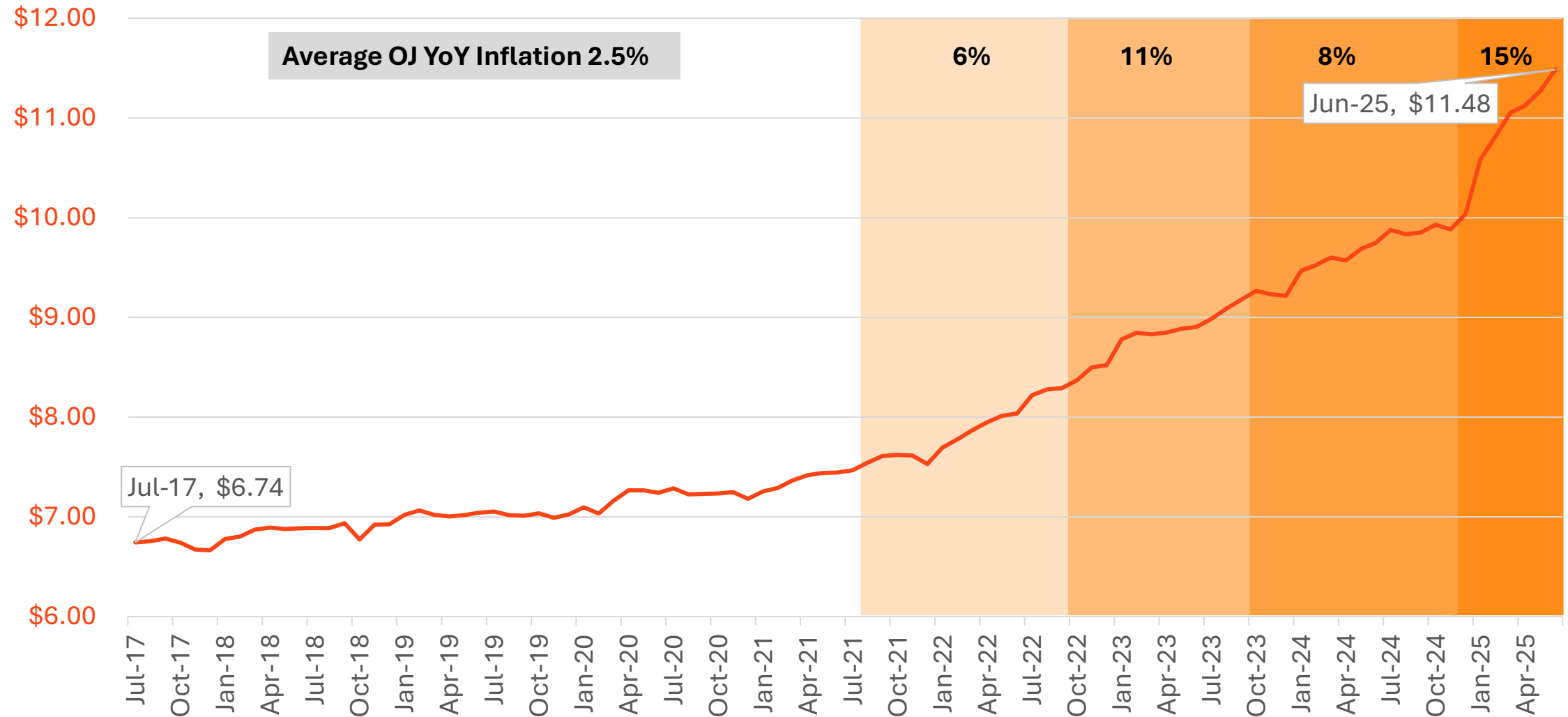
## OJ Health Perception





# Rising Orange Juice Price

Price Per Gallon



# Changes in Response to Rising OJ Price

- Reduction in Container Sizes (e.g., 52 oz → 46 oz.)
- Higher Unit Prices
- Increased Imports
- Process Type Changes (from NFC to NFC-Recon blends)
- **Expansion of juice and drinks with lower OJ content ← Focus of our study**

# Study Objectives

- Profile consumer segments across orange juice (OJ) beverage categories
- Track sales trends in orange juice and drink categories using FDOC Nielsen retail data, focusing on both volume and price movements.
- Assess consumer responsiveness to pricing by estimating demand elasticities across OJ beverage types
  - Examine how OJ price changes influence both OJ sales and sales of other beverages



# Orange Beverage Types

<div>Juice Composition</div> <div>100% Juice</div>	Orange Juice Only	Orange Juice with Other Juices
	Yes	No
Yes	100% OJ	OJ Blends (100% Juice)
No	OJ Drinks	OJ Blend Drinks

# 100% Orange Juice

- 100% orange juice only
- Include zero added sugars

CONTAINS 100% JUICE

Nutrition Facts	
Serving size	8 fl. oz (240 mL)
Amount per serving	
<b>Calories</b>	<b>110</b>
% Daily Value*	
Total Fat 0g	0%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Dietary Fiber 0g	0%
Total Sugars 21g	
Includes 0g Added Sugars	0%
<b>Protein 2g</b>	
Vitamin D 0mcg	0%
Calcium 27mg	2%
Iron 0mg	0%
Potassium 496mg	10%
Vitamin A 25mcg	2%
Vitamin C 124mg	140%
*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	
Calories per gram: Fat 9 • Carbohydrates 4 • Protein 4	

INGREDIENTS: ORANGE JUICE.

100% JUICE

Nutrition Facts	
About 6 servings per container	
Serving size	8 fl oz (240 mL)
Amount per serving	
<b>Calories</b>	<b>110</b>
% Daily Value	
Total Fat 0g	0%
Sodium 0mg	0%
Total Carbohydrate 26g	9%
Total Sugars 22g	
Includes 0g Added Sugars	0%
<b>Protein 2g</b>	
Vit. D 0mcg 0% • Calcium 20mg 2%	
Potas. 450mg 10% • Vit. C 72mg 80%	
Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, and iron.	

Ingredients: 100% Orange juice.

# Orange Juice Blend

- 100% juice
- Include zero added sugars
- Orange juice combined with fruit or vegetable juice

CONTAINS 100% JUICE	
Nutrition Facts	
Serving size	8 fl. oz (240 mL)
Amount per serving	
Calories	120
% Daily Value*	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 0mg	0%
Total Carbohydrate 28g	10%
Dietary Fiber 1g	4%
Total Sugars 22g	
Includes 0g Added Sugars	0%
Protein 2g	
Vitamin D 0mcg	0%
Calcium 30mg	2%
Iron 0.5mg	2%
Potassium 488mg	10%
Vitamin C 120mg	130%
*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	
Calories per gram:	
Fat 9 • Carbohydrates 4 • Protein 4	

INGREDIENTS: ORANGE JUICE, MANGO PURÉE.

## Nutrition Facts

About 7 servings per container

Serving Size 8 fl oz (240 mL)  
Amount per serving

Calories 110

% Daily Value*	
Total Fat 0g	0%
Sodium 0mg	0%
Total Carbohydrate 27g	10%
Total Sugars 24g	-
Includes Added Sugars 0g	0%
Protein 2g	-
Calcium 20mg	2%
Potassium 440mg	10%
Vitamin C	90%
Thiamin	8%
Vitamin B3	2%
Vitamin B6	4%
Folate	10%
Magnesium	6%

## Ingredients

ORANGE AND PINEAPPLE JUICES, NATURAL FLAVORS.

\* Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, added sugars, vitamin D and iron.



# OJ Drinks

- Less than 100% orange juice
- With or without added sugars
- Could include little orange juice
- Lite OJ
- Orangeade

## Nutrition Facts

About 6 servings per container  
**Serving size 8 fl oz (240 mL)**

Amount per serving  
**Calories 50**

### Nutrition Facts for 16 fl oz:

Nutrients	Amount	% Daily Value
Calories	190	
Total Fat	0g	0%
Sodium	10mg	0%
Total Carbohydrates	46g	17%
Total Sugars	46g	
Includes Added Sugars	39g	79%
Protein	0g	

Filtered water, sugar, orange juice concentrate, natural flavors, citric acid, acacia gum, beta carotene (for color)

Contains 10% juice  
Gluten free

# OJ Blend Drinks

- Less than 100% juice
- With or without added sugars
- Could have a low level of juice

NUTRITION	INGREDIENTS	
PER 8 FL OZ SERVING (240 ML)		
CONTAINS 5% JUICE		
	PER SERVING	%DV
CALORIES	60	
TOTAL FAT	0G	0%
SODIUM	170MG	7%
TOTAL CARBOHYDRATES	16G	6%
TOTAL SUGARS	14G	
ADDED SUGARS	13G	25%
PROTEIN	0G	
VITAMIN C		100%
THIAMIN		15%

NUTRITION	INGR
CONTAINS: WATER, HIGH FRUCTOSE CORN S OR LESS OF: CONCENTRATED ORANGE JUICE, CONCENTRATED TANGERINE JUICE, CONCENTRATED MANGO PUREE, CONCENTRATED LIME JUICE, CONCENTRATED GRAPEFRUIT JUICE, ASCORBIC ACID (VITAMIN C), THIAMIN HYDROCHLORIDE (VITAMIN B1), NATURAL AN FLAVORS, MODIFIED CORNSTARCH, CANOLA CELLULOSE GUM, SUCRALOSE, SODIUM HEXAMETAPHOSPHATE, POTASSIUM SORBATE FLAVOR, YELLOW #5, YELLOW #6, CALCIUM D TO PROTECT COLOR.	
Not a significant source of saturated fat, trans fat, dietary fiber, vitamin D, calcium, iron, and potassium.	
*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

## 80% JUICE

Nutrition Facts	
About 6 servings per container Serving size 8 fl oz (240 mL)	
Amount per serving	100
% Daily Value	
Total Fat 0g	0%
Sodium 10mg	0%
Total Carbohydrate 23g	8%
Total Sugars 19g	
Includes 0g Added Sugars	0%
Protein 1g	
Vit. D 2mcg 10%	• Calcium 160mg 10%
Iron 0.3mg 2%	• Potas. 300mg 6%
Vit. C 90mg 100%	• Vit. E 2mg 10%
Not a significant source of saturated fat, trans fat, cholesterol, and dietary fiber.	

**Ingredients:** Not from concentrate orange juice, apple juice from concentrate (water, apple juice concentrate), pear juice from concentrate (water, pear juice concentrate), water, calcium lactate, natural flavors, ascorbic acid (vitamin C), vitamin E acetate, and vitamin D3.

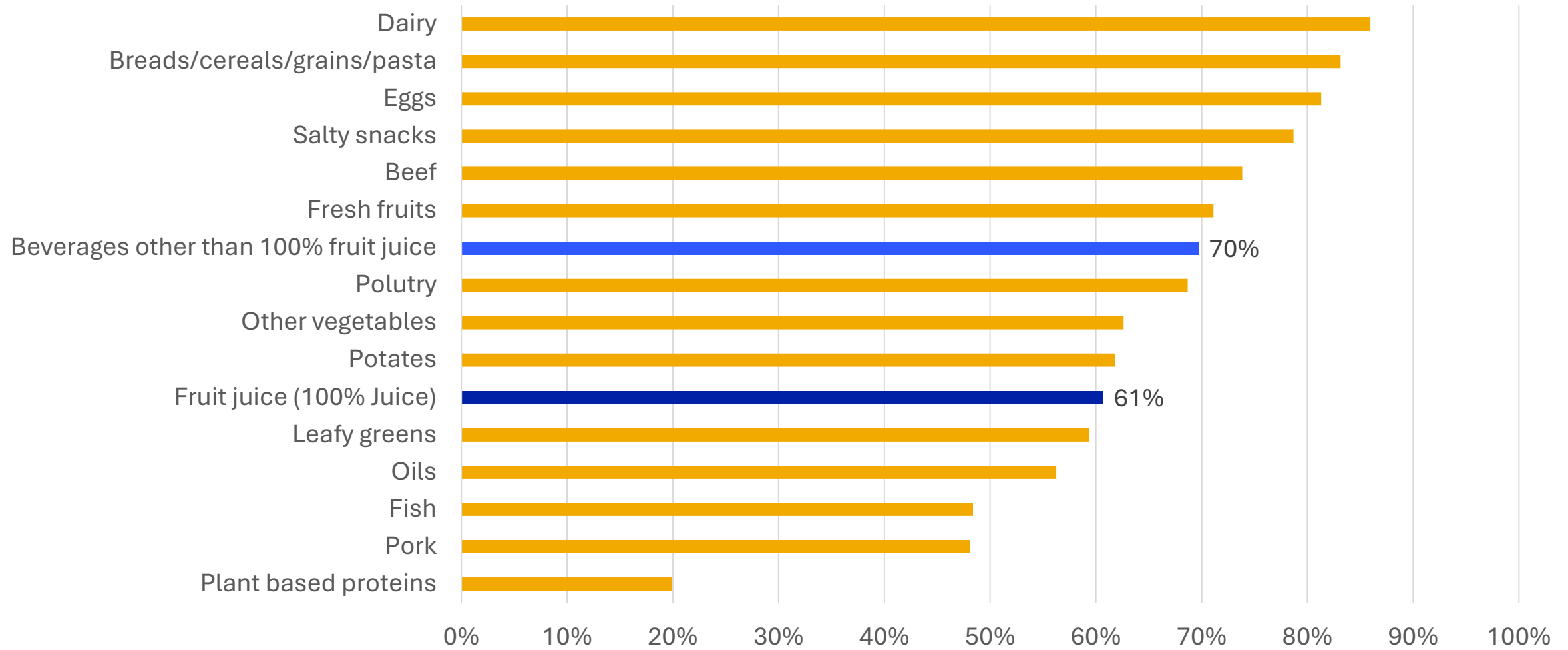
Nutrition Facts	
About 6 servings per container Serving Size 8 fl oz (240 mL)	
Amount Per Serving	100
% Daily Value*	
Total Fat 0g	0%
Sodium 20mg	1%
Total Carbohydrate 23g	9%
Total Sugars 23g	
Includes 19g Added Sugars	39%
Protein 0g	
Vitamin D 0mcg	0%
Calcium 0mg	0%
Potassium 30mg	0%
Vitamin C 5mg	6%
Not a significant source of saturated fat, trans fat, cholesterol, dietary fiber, and iron.	
*The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.	

FILTERED WATER, SUGAR, MANGO PUREE CONCENTRATE, PINEAPPLE JUICE CONCENTRATE, APPLE JUICE CONCENTRATE, ORANGE JUICE CONCENTRATE, CITRIC ACID, PASSIONFRUIT JUICE CONCENTRATE, NATURAL FLAVORS, LIME JUICE CONCENTRATE AND ASCORBIC ACID (VITAMIN C).

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Last updated on October 03, 2022.

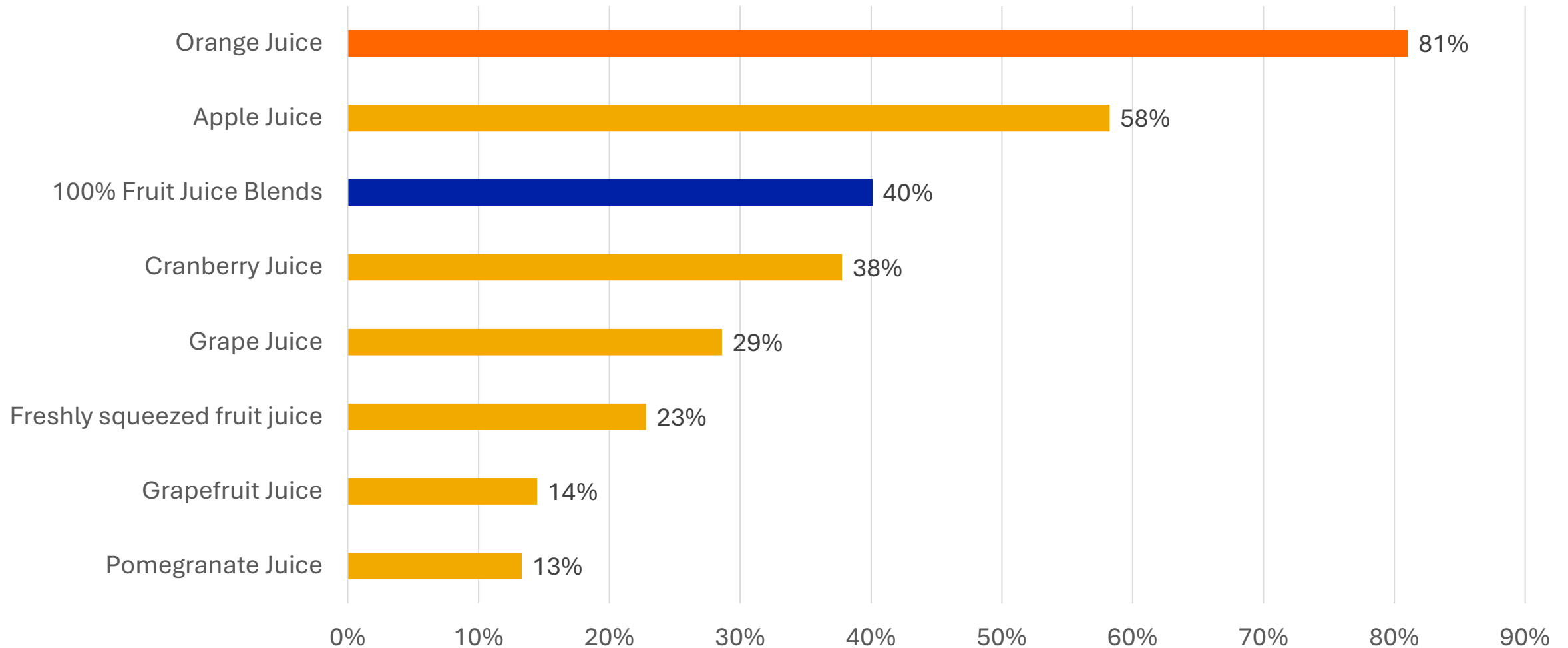
# Beverage Consumers



Q. Which of the following have you, personally purchased in the past 30 days?

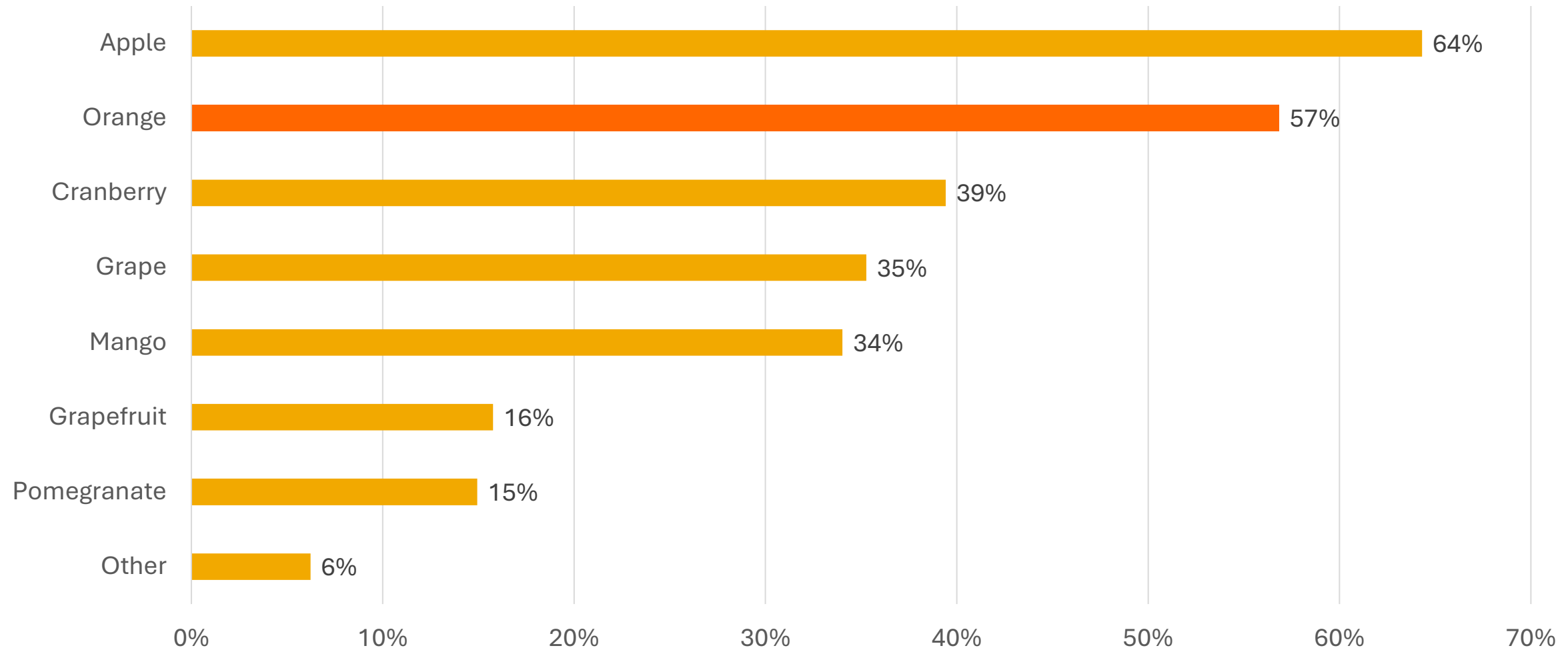


# Fruit Juice Consumers



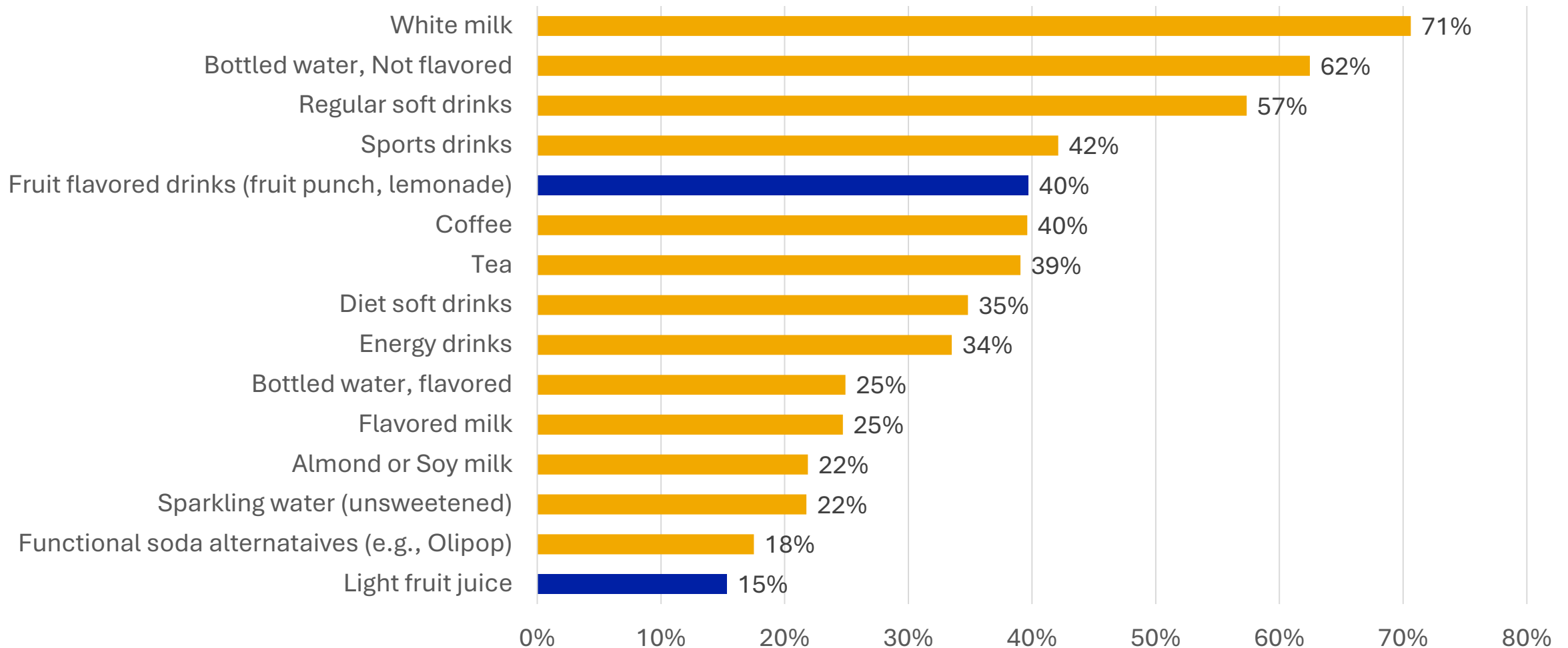
Q. Thing about the last 30 days, please indicate if you bought any of the following 100% fruit juices.

# Blend Fruit Juice Consumers



Q. What was the main fruit ingredient in each 100% fruit juice blend you purchased?

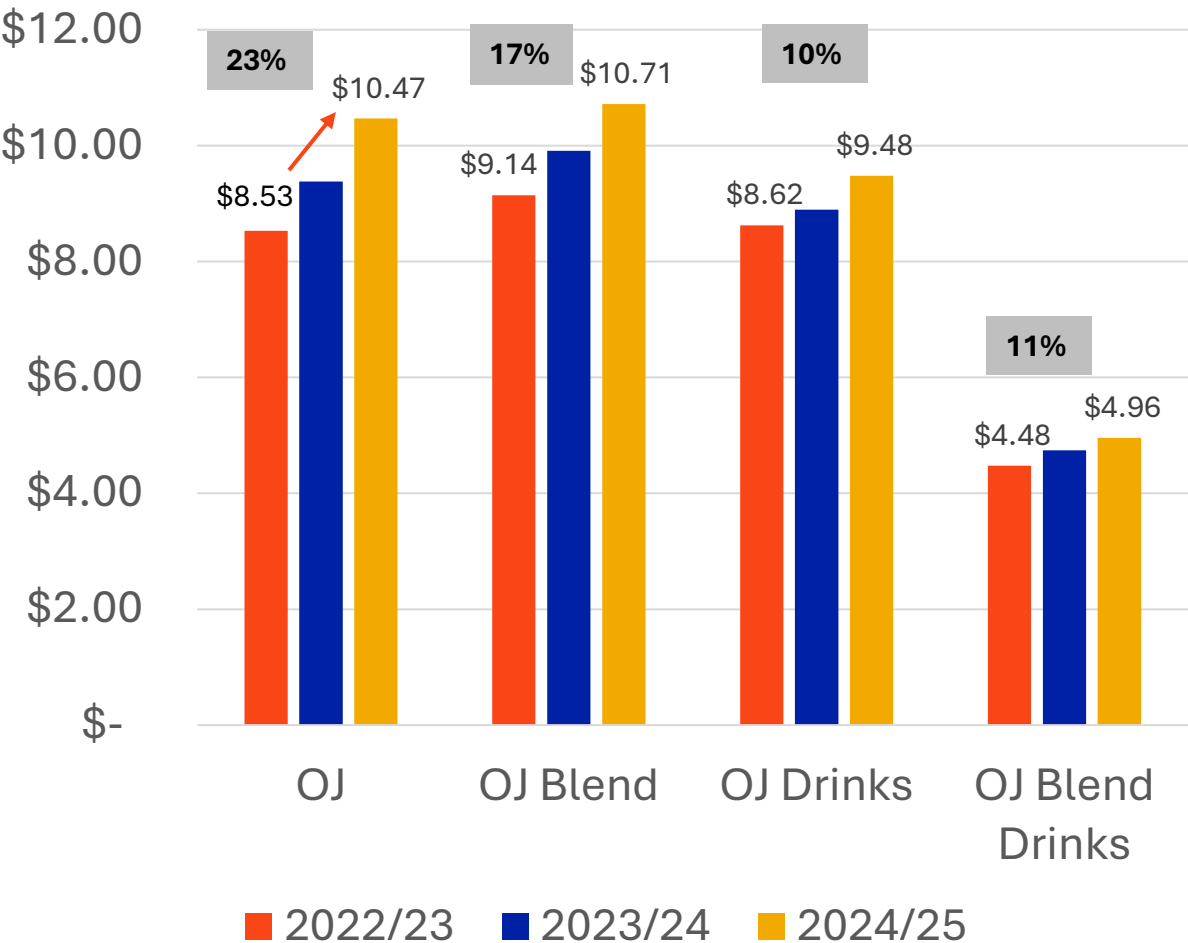
# Dairy and Drinks Consumers



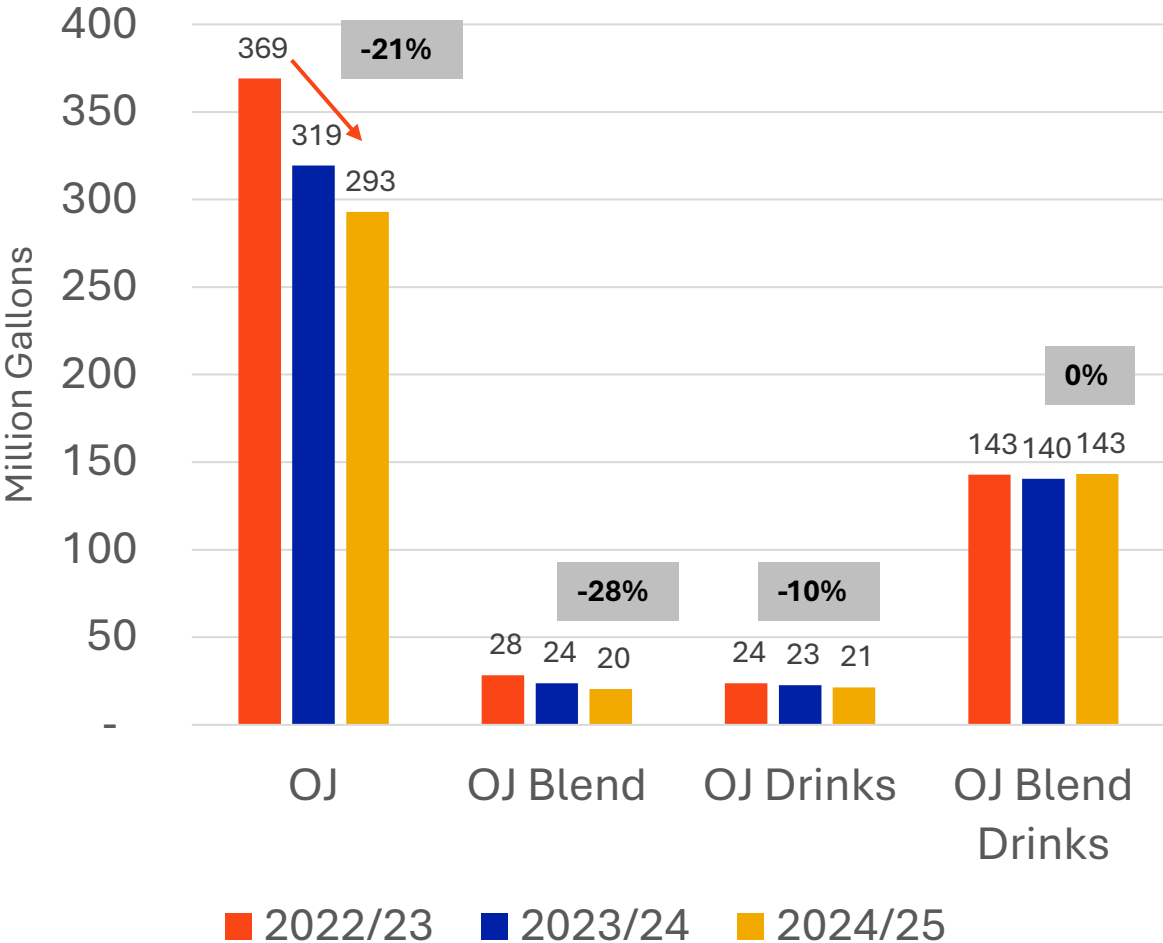
Q. Thinking about the last 30 days, please indicate if you bought any of the following beverages.

# Changes in Prices and Sales Volume

Average Price Per Gallon

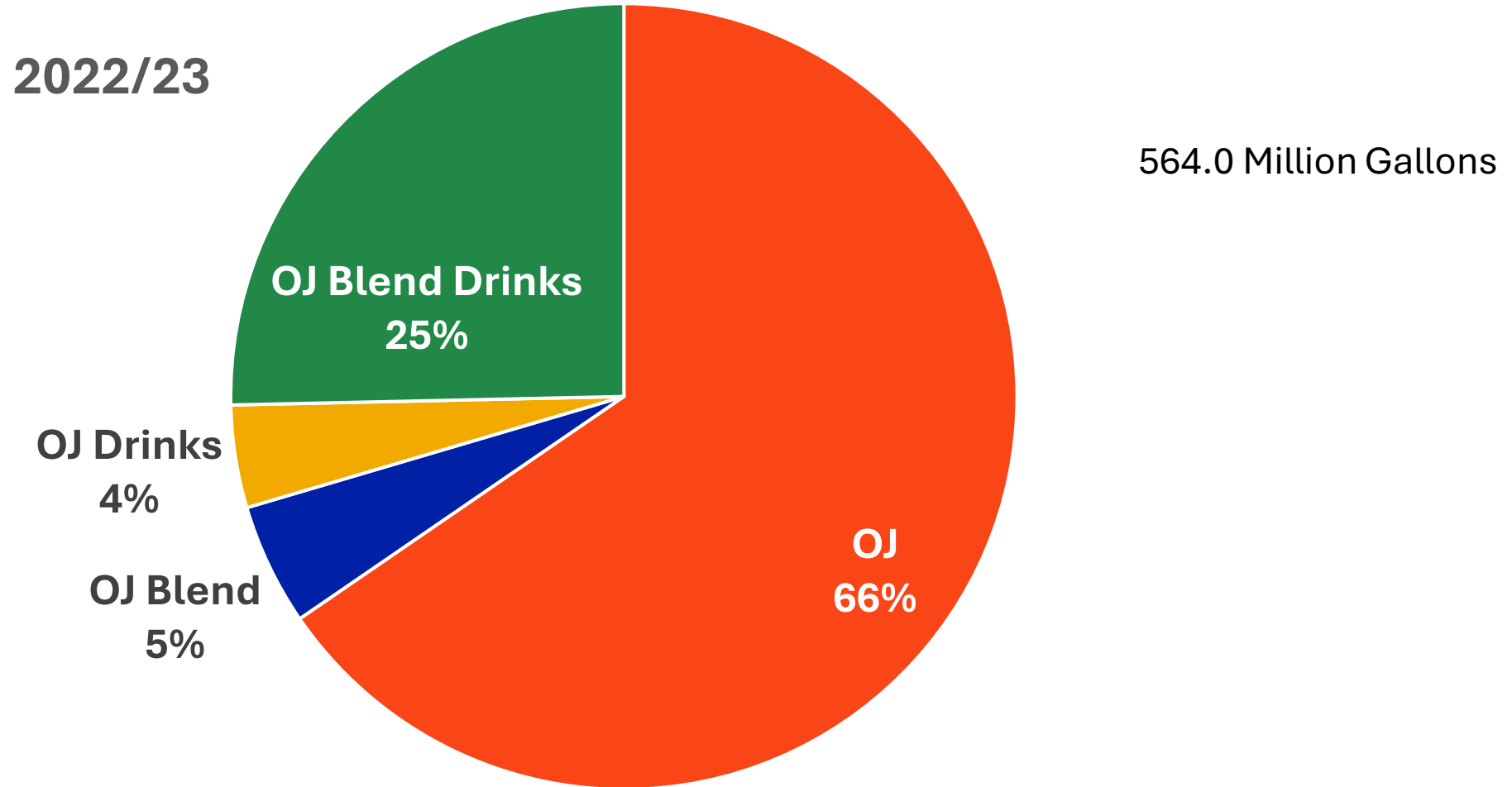


Volume Sales



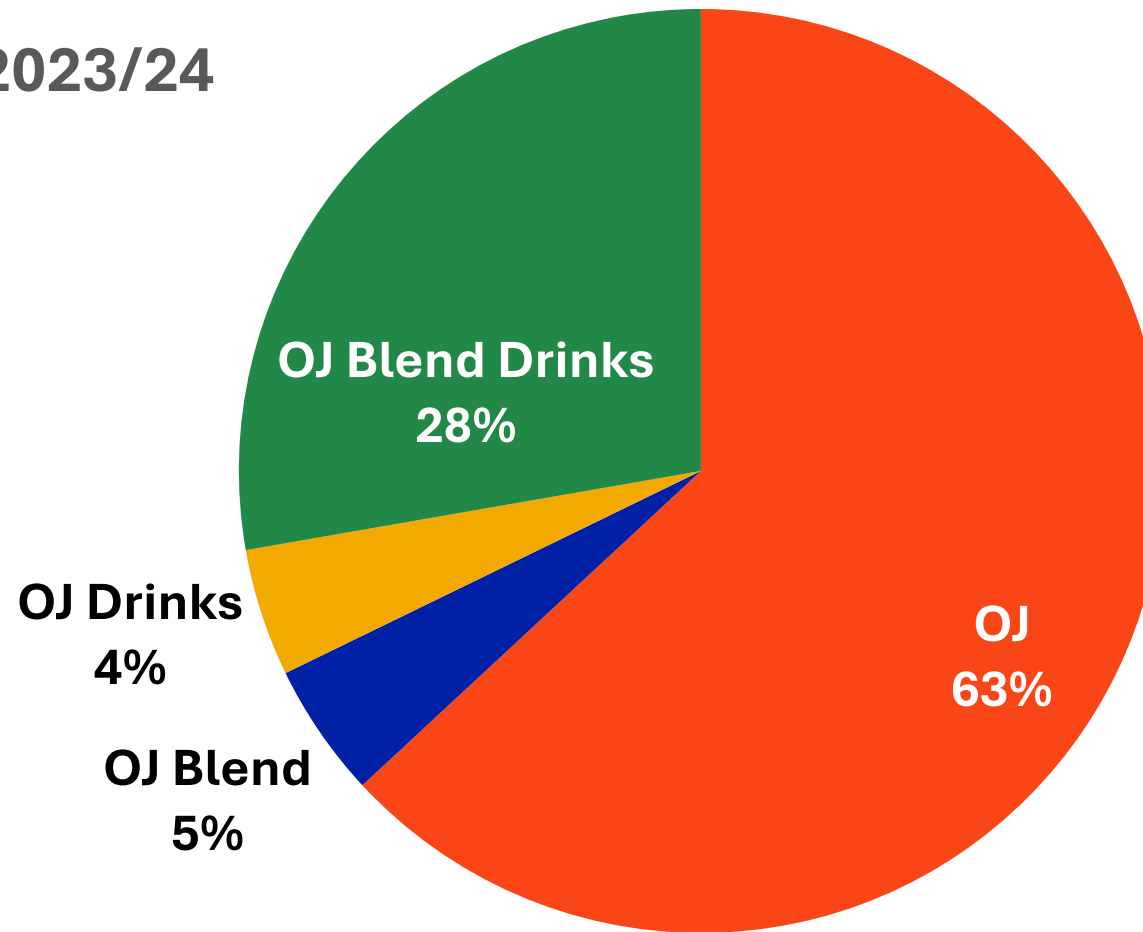


# Changes in Volume Sales Market Share



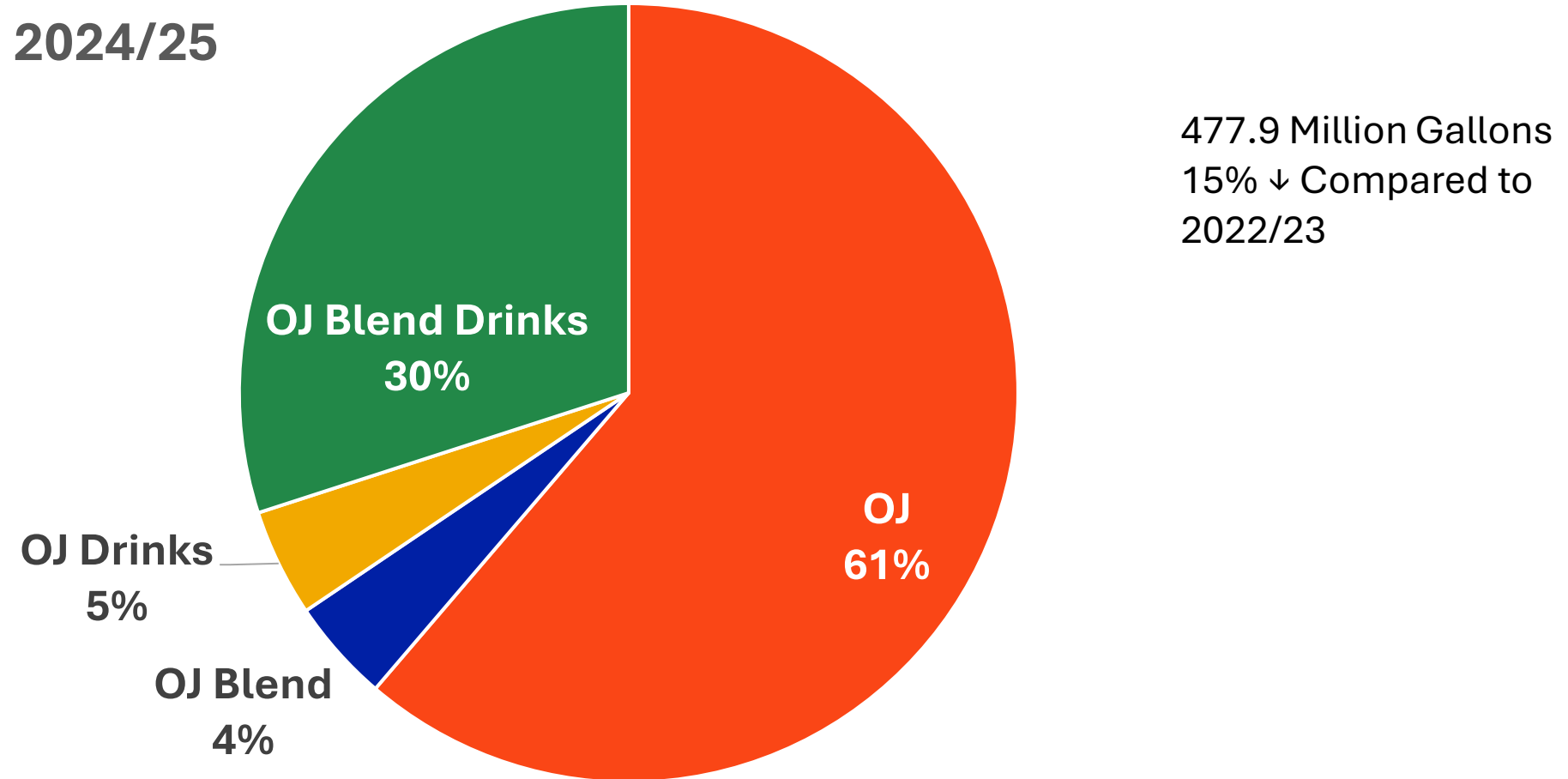
# Changes in Volume Sales Market Share

2023/24

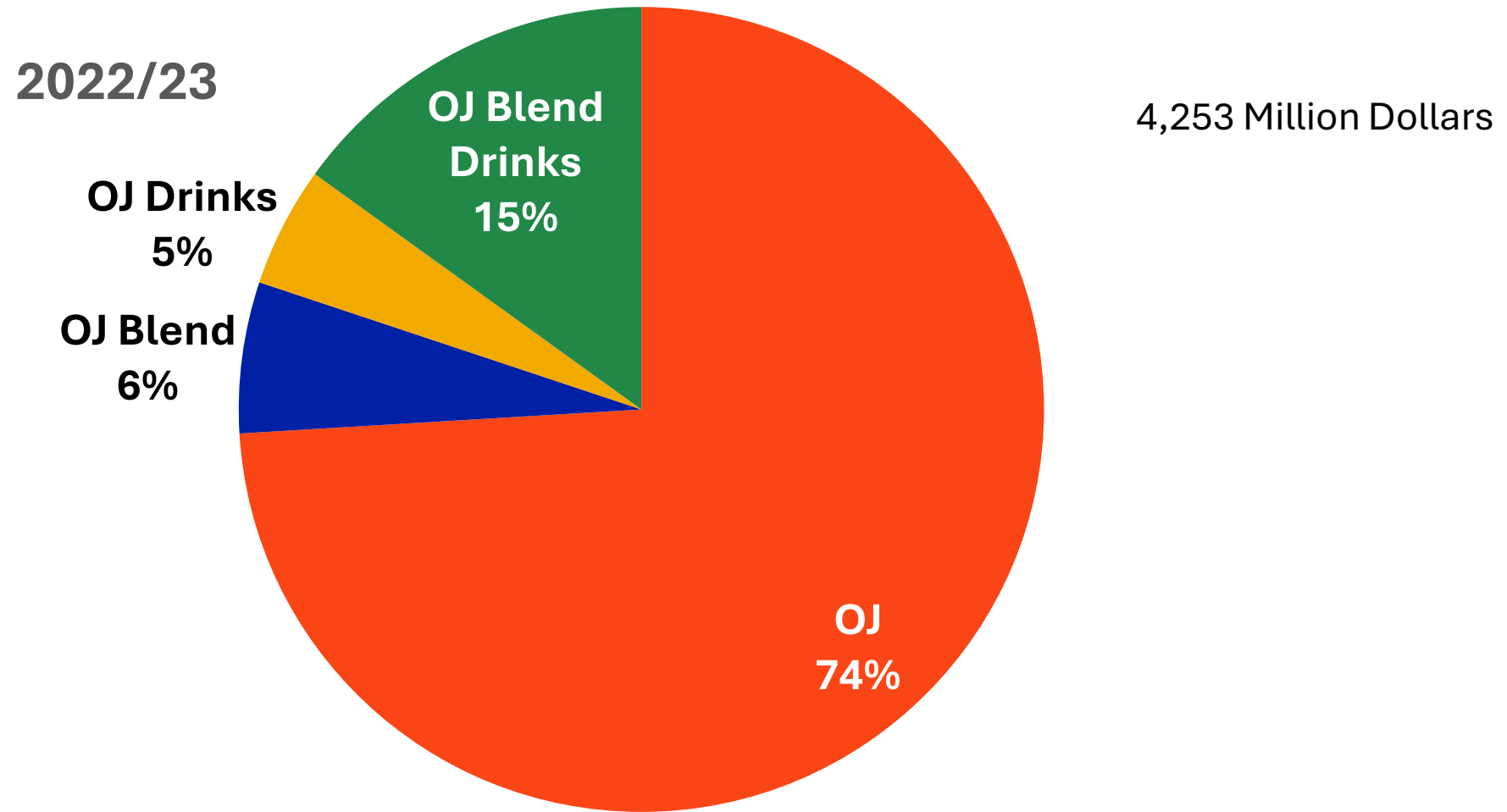


506.3 Million Gallons  
10% ↓ Compared to  
2022/23

# Changes in Volume Sales Market Share

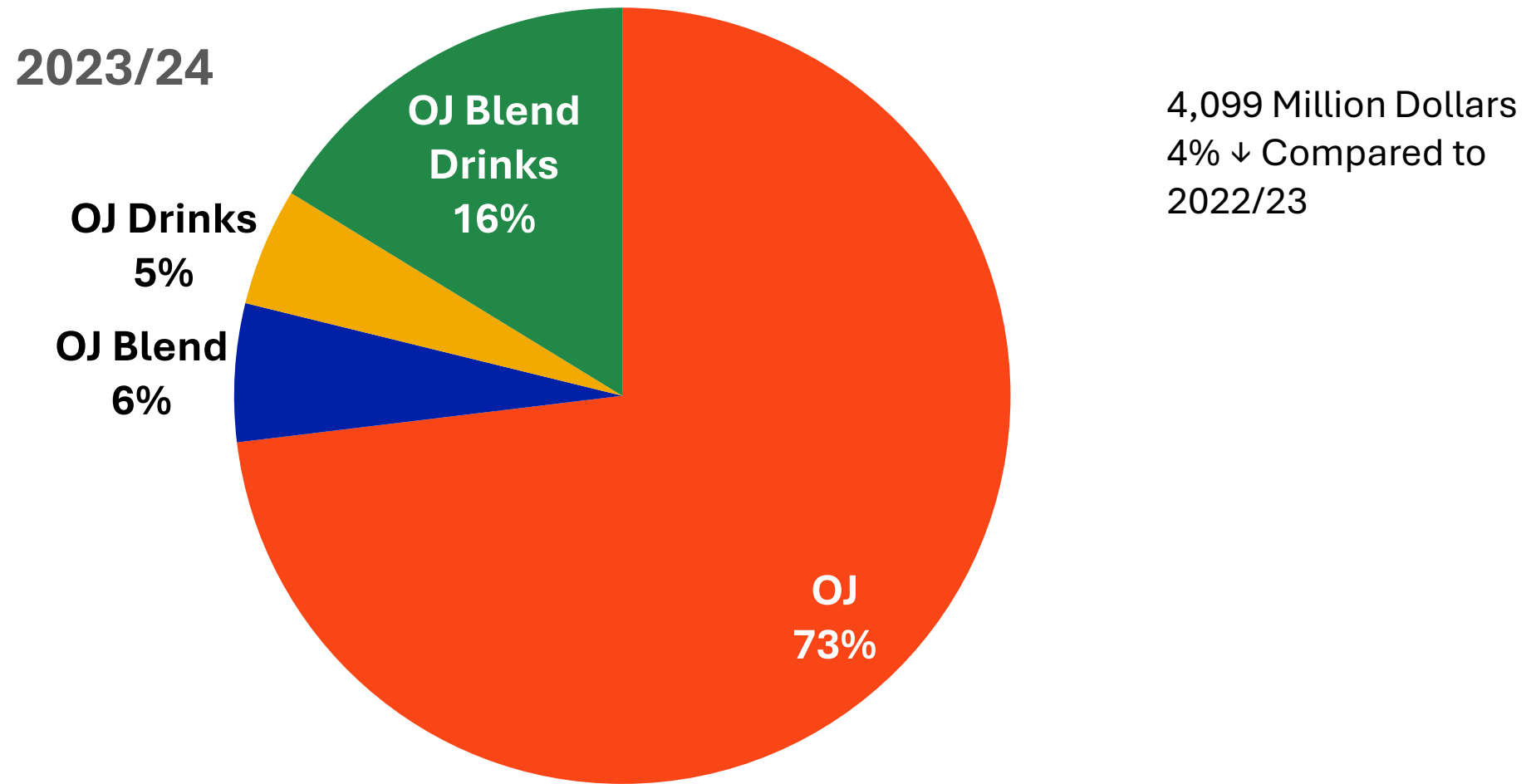


# Changes in Dollar Sales Market Share

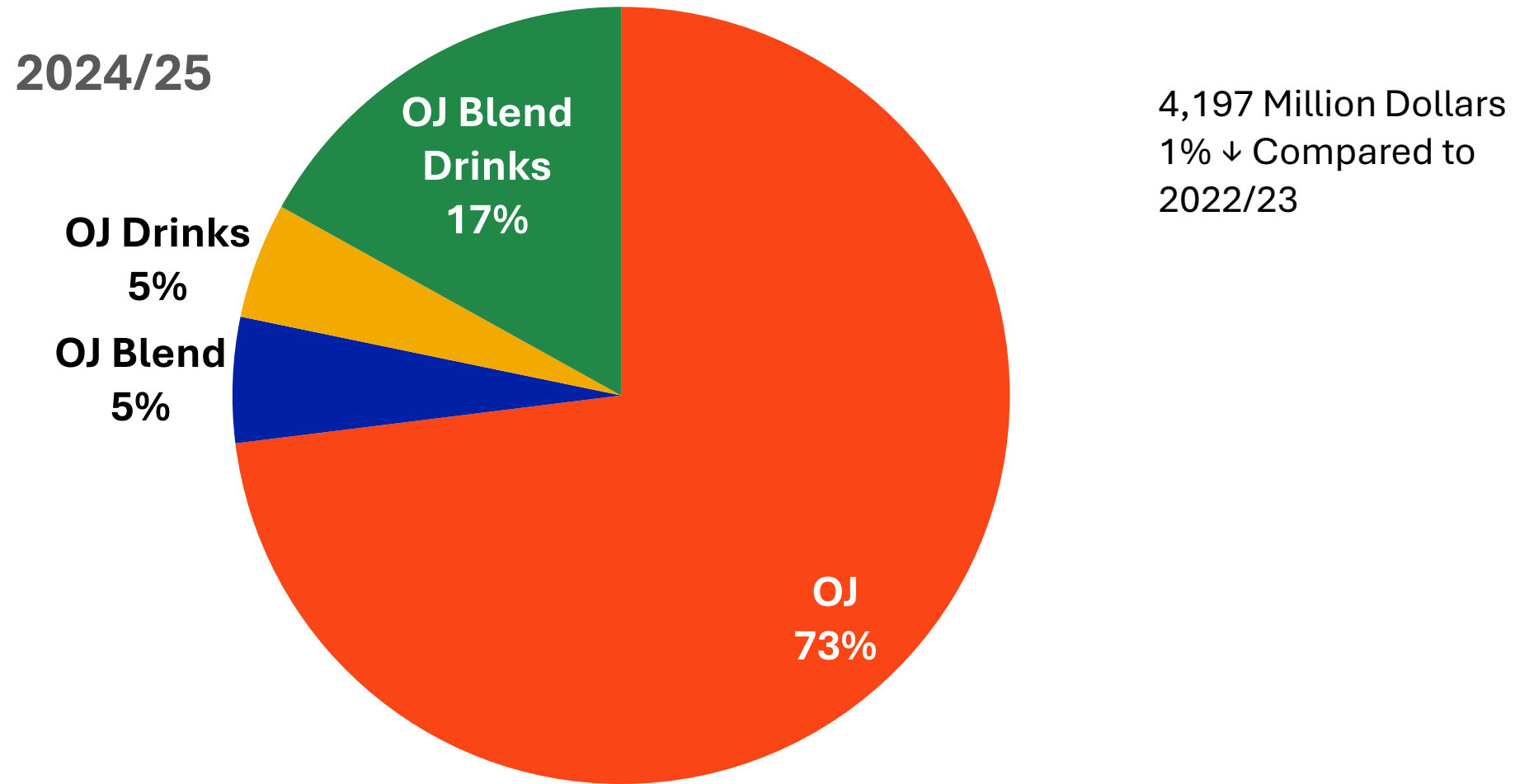




# Changes in Dollar Sales Market Share



# Changes in Dollar Sales Market Share



# Elasticity of Demand

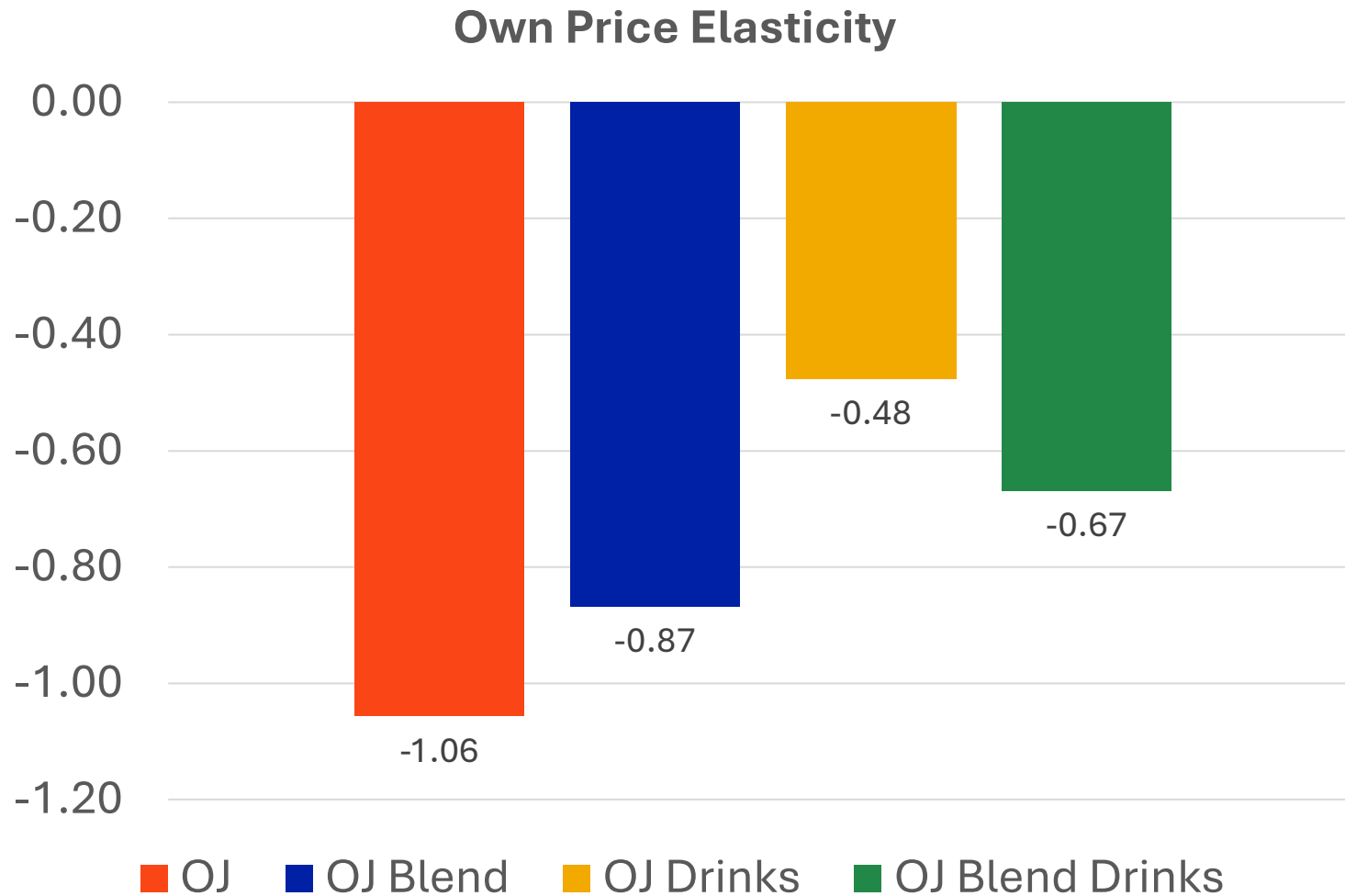
- **Own Price Elasticity of Demand**

- How the demand for a product responds to changes in its own price
- *Own Price Elasticity of Demand* = 
$$\frac{\% \text{ Change in Quantity Demanded of Good A}}{\% \text{ Change in Price of Good A}}$$

- **Cross Price Elasticity of Demand**

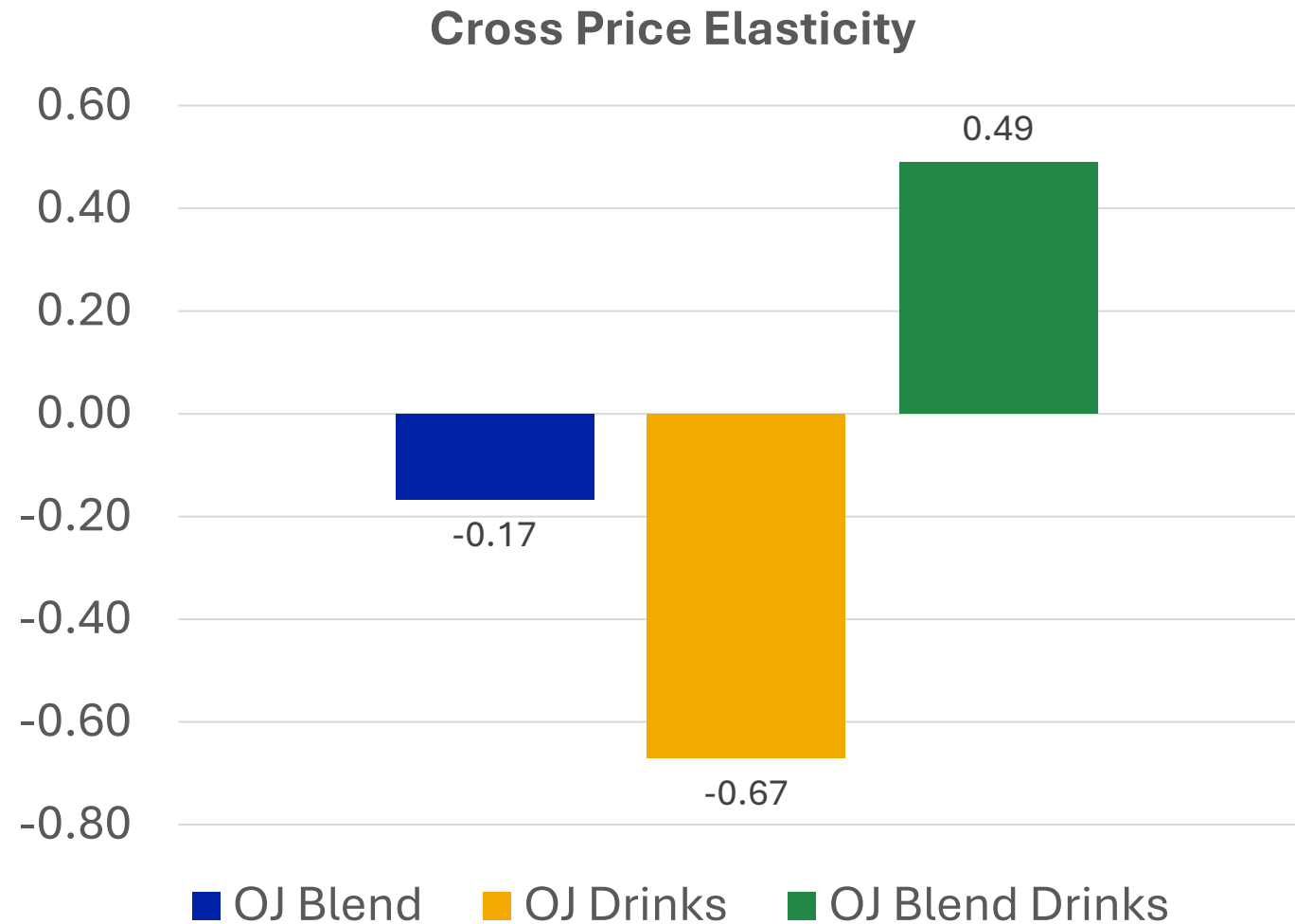
- How the demand for one good responds to changes in the price of another
- *Cross Price Elasticity of Demand* = 
$$\frac{\% \text{ Change in Quantity Demanded of Good A}}{\% \text{ Change in Price of Good B}}$$

# Own-Price Elasticity



- OJ elasticity is fairly steady as a mature product.
- OJ blend drinks are becoming more elastic (more price responsive)

# Cross-Price Elasticity



- OJ Blend drinks are a substitute, while OJ blends and drinks are complements
- But – only a small percent of the market share

## Key Takeaways

- Consumers are buying OJ less frequently in part due to higher prices.
- The decline in the OJ beverage category is driven mainly by reduced OJ consumption ( $\approx 1\%$   $\uparrow$  OJ price  $\rightarrow 1\%$   $\downarrow$  OJ consumption)
- More consumers are switching to OJ Blend Drinks.
  - The presence of cheaper alternatives accelerates the decline in 100% OJ sales.
  - But they also help sustain the overall category size by keeping some consumers in the category.



## Key Takeaways

- Survey responses suggest consumers are generally aware of the kinds of beverages they purchase, however, further research is needed to examine how well they distinguish between “juice” and “drinks”.
- Consumer education on healthy beverage choices, along with promotions emphasizing the health benefits of 100% orange juice, can help lower price barriers and encourage continued OJ consumption.