

# PORK DEMAND AGGREGATE STRENGTH AND HETEROGENEITY ACROSS CITIES, PRODUCTS, AND HOUSEHOLDS

2024 NATIONAL PORK INDUSTRY CONFERENCE (NPIC)

WISCONSIN DELLS

JULY 8, 2024

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# Discussion Roadmap

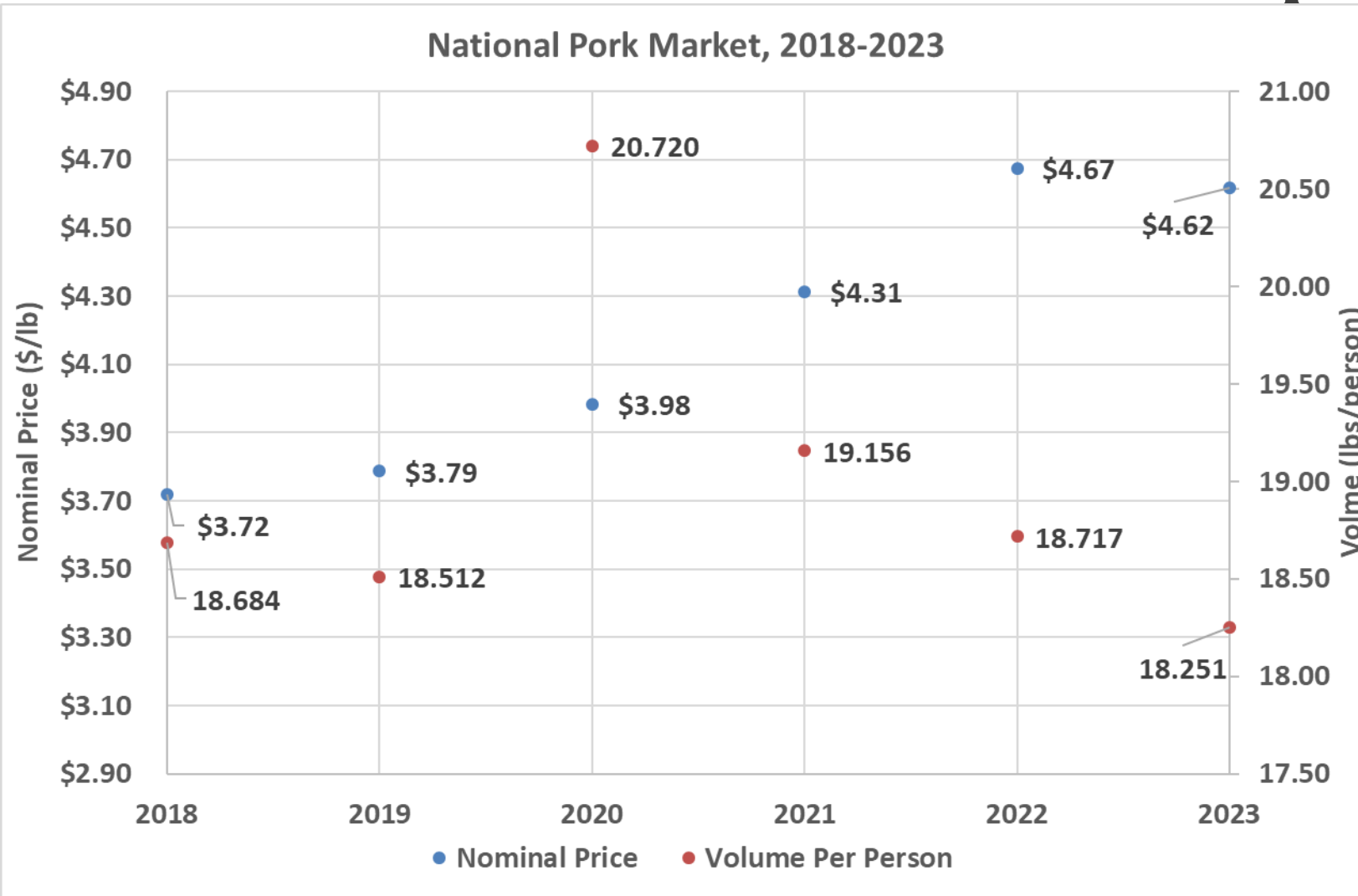
1. Broadly Highlight Recent Domestic Pork Demand Patterns
2. Share Recent Research Findings w/ Dr. Jayson Lusk
  - Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)
  - Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)
3. Recent Meat Demand Monitor (MDM) patterns
  - Financial Sentiment Impacts & Heterogeneity Examples

# Simple Prices & Quantity Lessons

Jan. 2018 – Dec. 2023 Circana Price & Quantity data

- ❑ 50 U.S. Retail markets (Chicago, Miami, etc.)
- ❑ 6 Pork categories (Loin, Ribs, Shoulder, Breakfast Sausage, Dinner Sausage, Bacon)
- ❑ 3 Meat aggregates (Pork, Beef, Chicken)

# First consider national pork market



✓ Nominal \$/lb vs  
Lbs/person

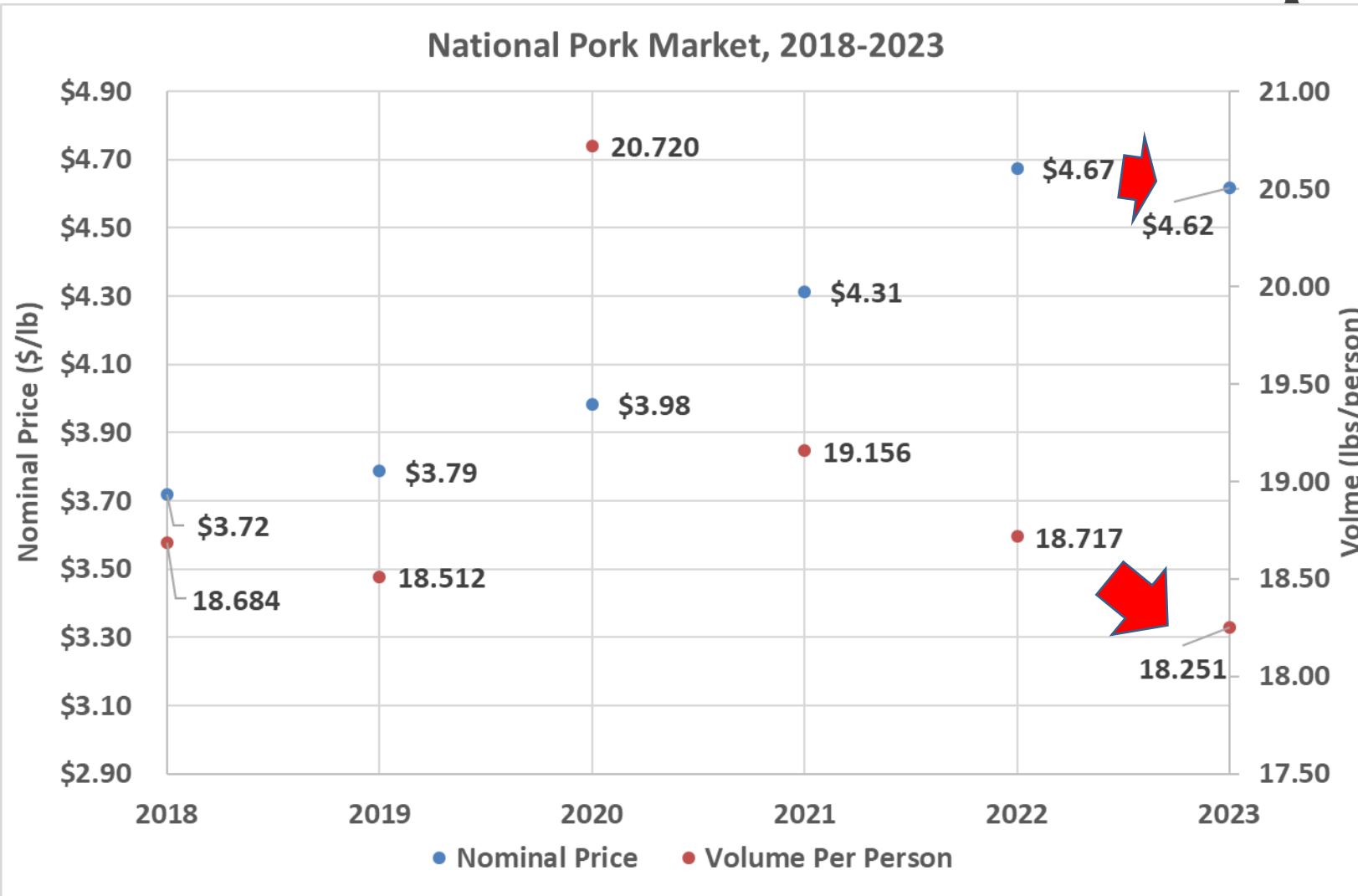
labeled, or sticker-prices  
consumers see

# First consider national pork market



- ✓ Nominal \$/lb vs Lbs/person
- ✓ Appears to be demand growth in 2020

# First consider national pork market



✓ Nominal \$/lb vs  
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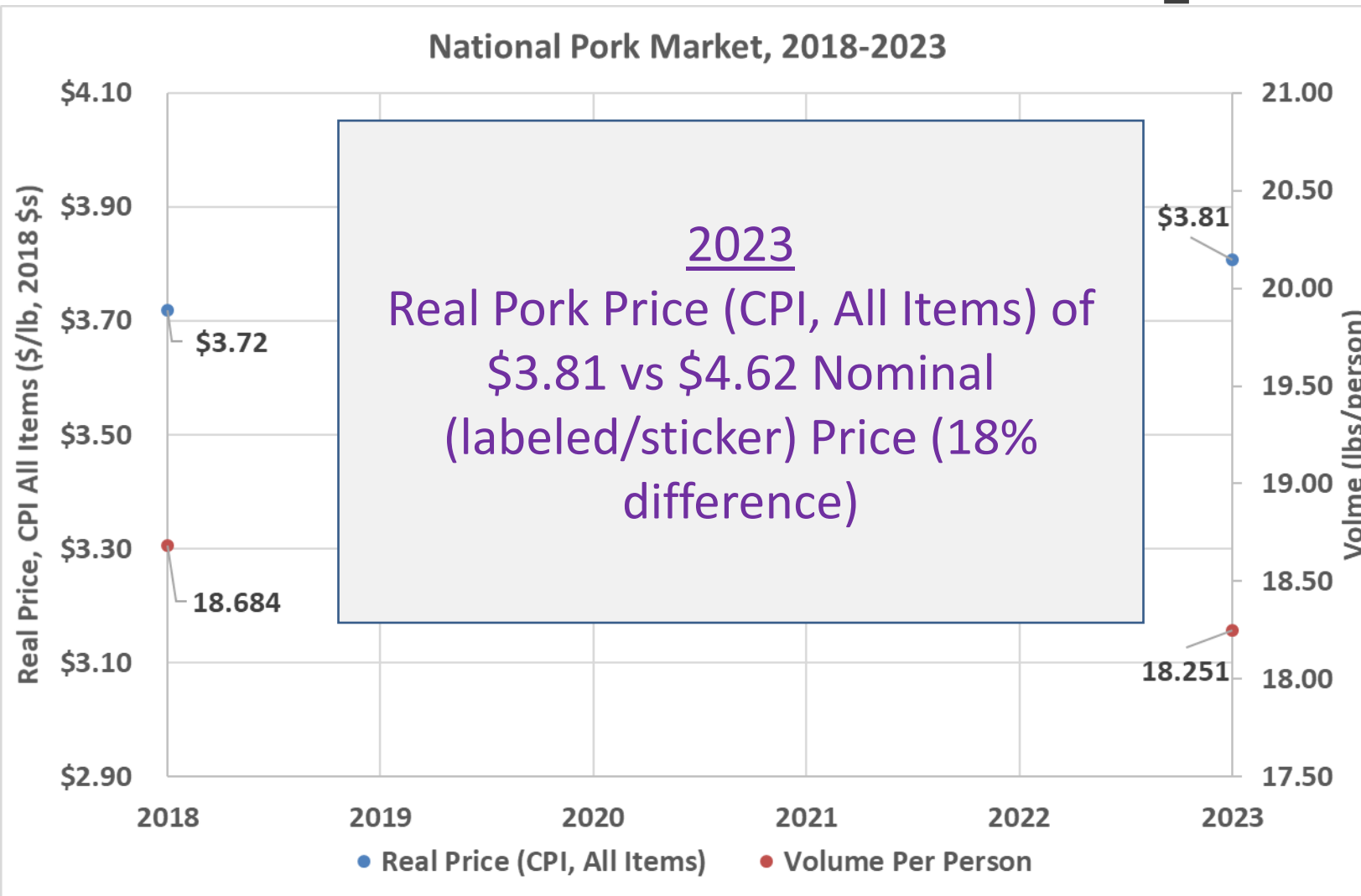
✓ Appears to be  
demand decline in  
2023

# Does inflation matter?

## How high was (is) inflation?

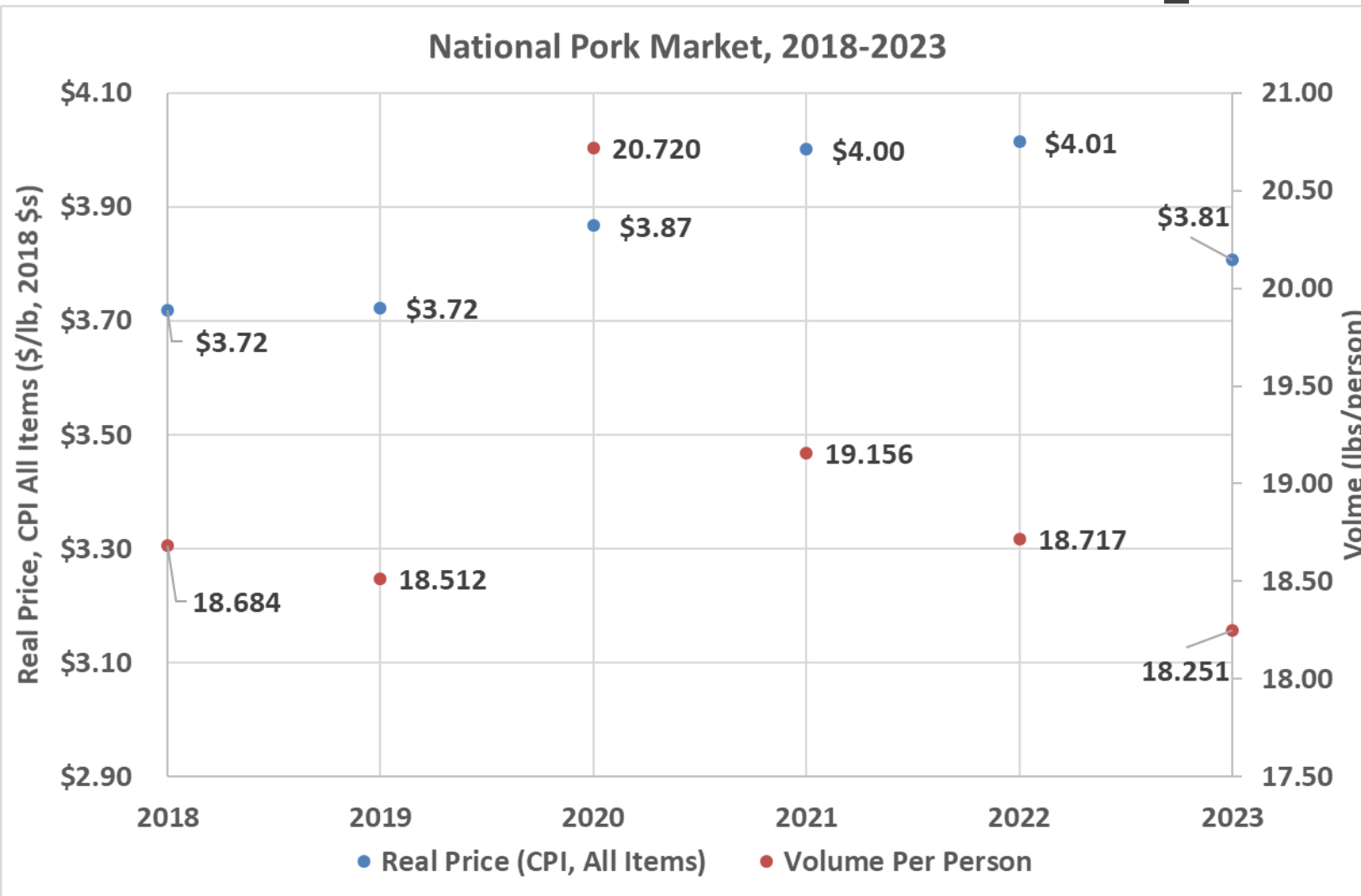
	CPI (All Items)	CPI (Food)
2018	% Change vs Prior Year	% Change vs Prior Year
2019	1.7%	1.9%
2020	1.2%	3.4%
2021	4.7%	3.9%
2022	8.0%	9.9%
2023	4.1%	5.8%

# Reconsider national pork market





# Reconsider national pork market

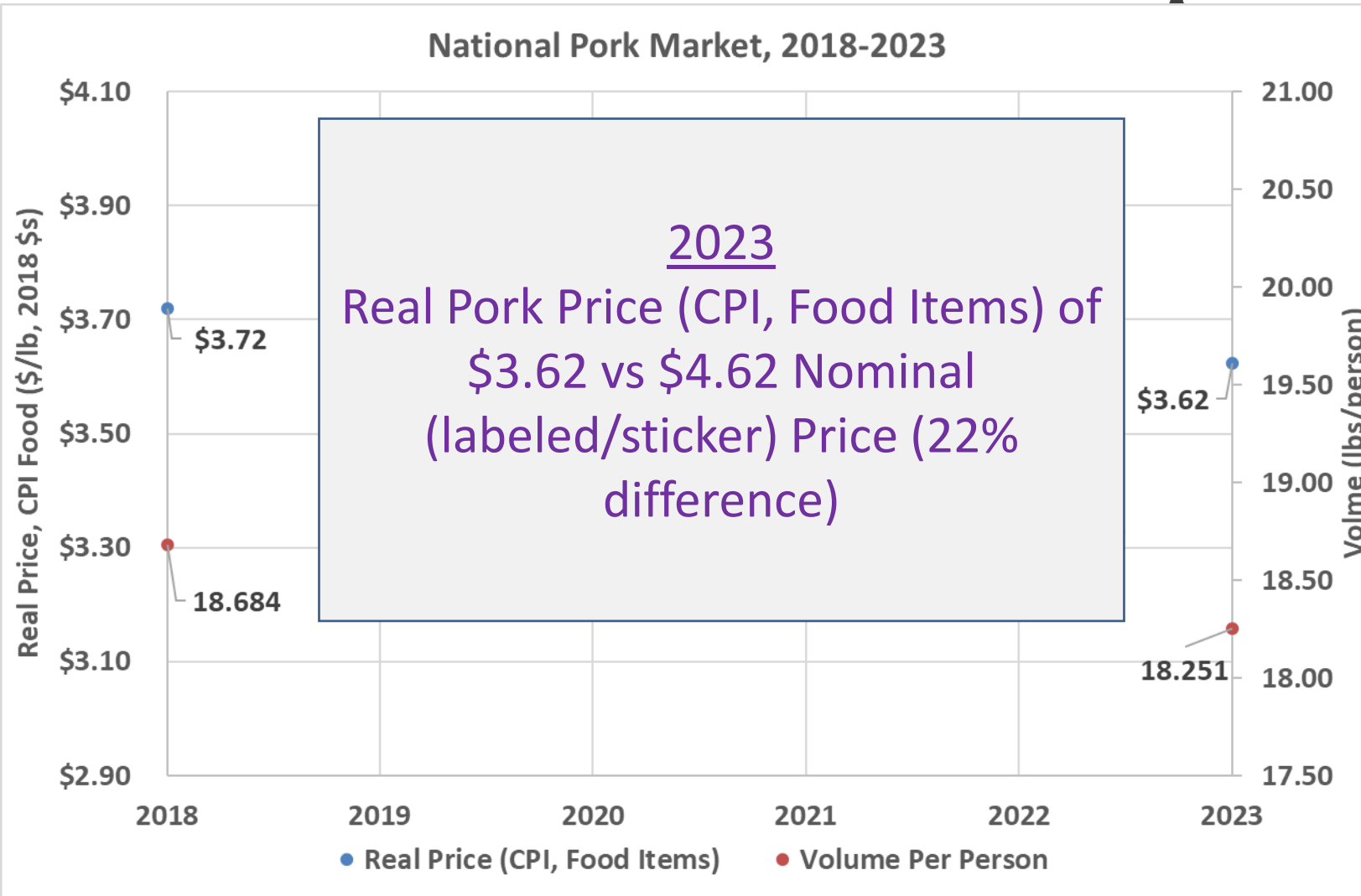


✓ REAL (CPI, All Items)  
\$/lb vs Lbs/person

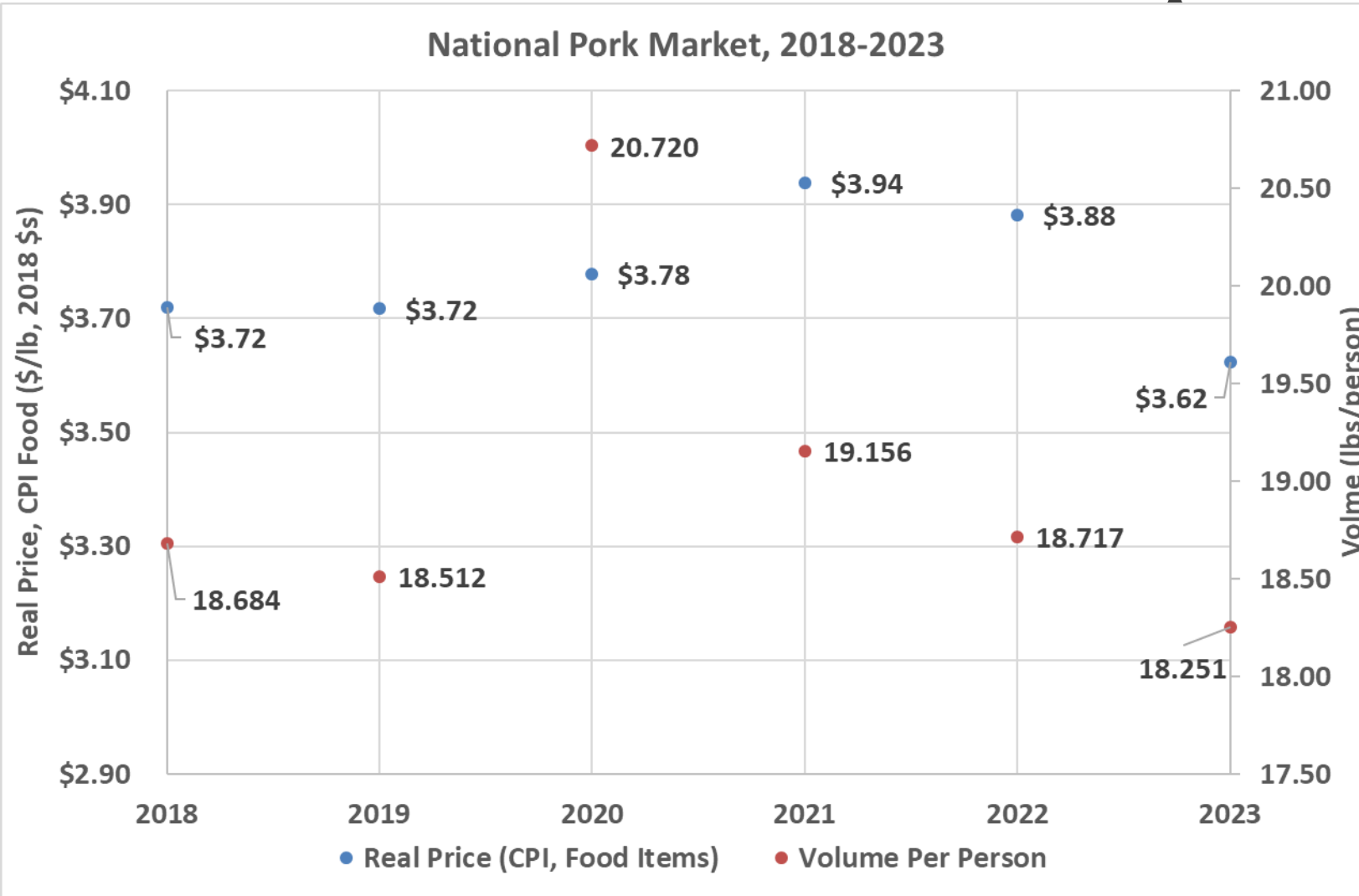
✓ “Clear demand  
growth” in 2020

✓ “Clear demand  
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# Reconsider national pork market



# Reconsider national pork market



✓ REAL (CPI, Food) \$/lb  
vs Lbs/person

✓ “Clear demand  
growth” in 2020

✓ “Clear demand  
decline” in 2022 &  
2023

✓ -- note real 2023 price  
was below 2018

# What about specific city-product markets (Using CPI, All Items deflator)?

Two Examples Similar to National Pork Scatterplots

## Atlanta

Obvious demand increases: 2020 (PORK)

Obvious demand declines: 2023 (PORK)

## Chicago

Obvious demand increases: 2020 (PORK)

Obvious demand declines: 2023 (PORK)

# What about specific city-product markets (Using CPI, All Items deflator)?

## ☐ Atlanta

### ☐ Obvious demand increases:

- ☐ 2019 (D. Sausage, Bacon),
- ☐ 2020 (Loin, Ribs, B&D Sausage, Bacon, PORK),
- ☐ 2021 (None),
- ☐ 2022 (Ground Pork),
- ☐ 2023 (Ground Pork)

### ☐ Obvious demand declines:

- ☐ 2019 & 2020 (None),
- ☐ 2021 (Loin, D. Sausage),
- ☐ 2022 (Bacon),
- ☐ 2023 (Loin, Ribs, D. Sausage, Bacon, PORK)

# What about specific city-product markets (Using CPI, All Items deflator)?

Lots of Variation Across City-Markets: **consider MIAMI**

## Obvious demand increases:

- 2019 (Bacon),
- 2020 (Loin, Ribs, Shoulder, Ground Pork, D.Sausage, Bacon, PORK),
- 2021 & 2022 (None),
- 2023 (Shoulder)

## Obvious demand declines:

- 2019 & 2020 (None),
- 2021 (Loin, Ground Pork),
- 2022 (Bacon),
- 2023 (Loin, B.Sausage)

# Deeper Use of Circana Data = Elevated Market Insights (w/ Dr. Jayson Lusk)

- *Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)*
- *Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)*

# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)

First consider PORK in aggregate

**Median: -2.16**

- for each 1% increase in retail PORK price, we expect a 2.2% decrease in purchase volume



# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)

First consider PORK in aggregate

Median: -2.16

- for each 1% increase in retail PORK price, we expect a 2.2% decrease in purchase volume

Minimum (most price sensitive): -3.04 (St. Louis, MO)

Mean/Average: -2.22

Maximum (least price sensitive): -1.71 (Pittsburgh, PA)

# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)

## Median Own-Price Elasticities, by Pork Product

- ❑ Bacon: -0.83 (so volume % change < price % change)
  
- ❑ Loin: -1.45 (so volume % change > price % change)
- ❑ Shoulder: -1.82
- ❑ Ribs: -1.83
- ❑ Dinner Sausage: -1.95
- ❑ Breakfast Sausage: -2.07

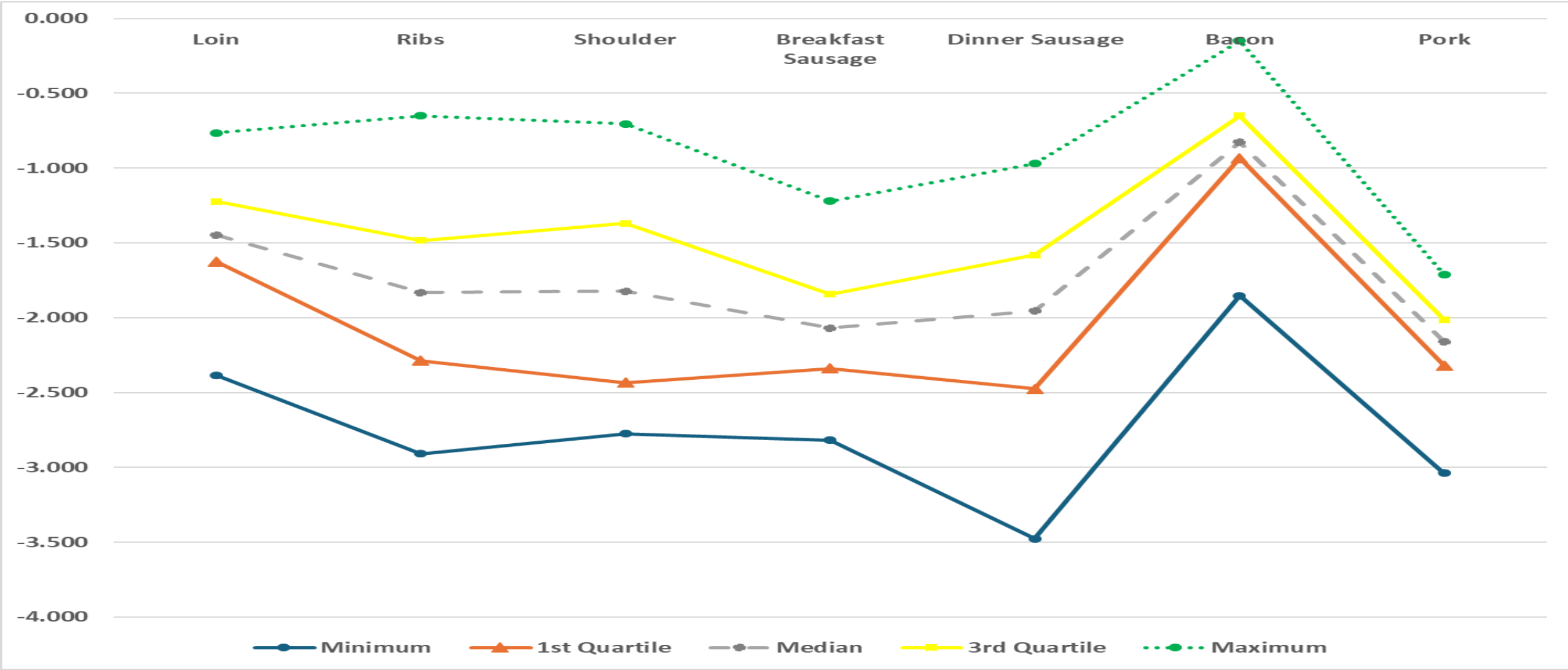
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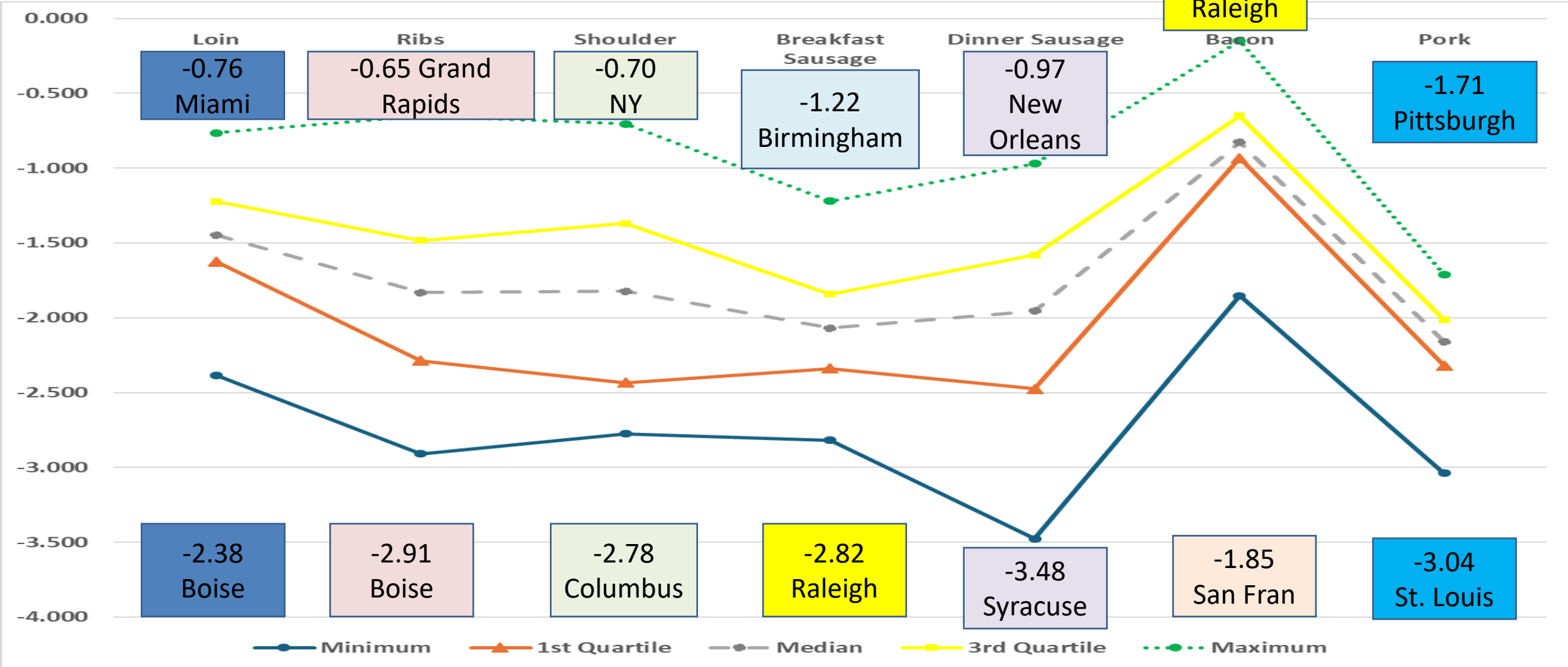
□ Bacon -0.83 / Loin -1.45 / Shoulder -1.82 / Ribs -1.83 / Dinner Sausage -1.95 / Breakfast Sausage -2.07

- Increasing bacon offer price leads to higher expected consumer bacon expenditures (& bacon seller revenues)
- Decreasing loin, shoulder, ribs, & b/d sausage offer prices leads to higher expected consumer expenditures

# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)



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# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)

- ❑ Median estimates suggest pork purchases are 4-6 times as sensitive to pork prices as beef or chicken
- ❑ Beef & Chicken retail prices have less impact than pork's own-price
- ✓ ***While cross-price effects matter, own-sector impacts remain more important***

# Consumer Sensitivity to Pork Prices: A 2018-2023 Comparison of 50 U.S. Retail Markets and 6 Pork Products? (March 2024)

- ❑ 2018 – 2023 was a VERY UNIQUE period
  - ❑ Likely evolution in pork demand WITHIN this period
  
- ❑ We repeated assessment for three periods:
  - ❑ 2018-19 (pre-pandemic)
  - ❑ 2020-21 (pandemic)
  - ❑ 2022-23 (~post-pandemic)

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- ❑ We repeated assessment for three periods:
  - ❑ 2018-19 (pre-pandemic)
  - ❑ 2020-21 (pandemic) / lower price-sensitivity identified
  - ❑ 2022-23 (~post-pandemic) / elevated price sensitivity identified



# Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)

*Can we enhance producer profitability by further targeting pork demand enhancement efforts given refined price sensitivity estimates?*

# Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)

**IF** 10% increase in consumer WTP for all pork products in one location, producer profits increase most if that occurs in NY, LA, Chicago, Phoenix, & Philadelphia markets

- Not surprising given size of market:
  - +\$8.3 million/yr if in Spokane vs
  - +\$184.2 million/yr if in New York

# Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)

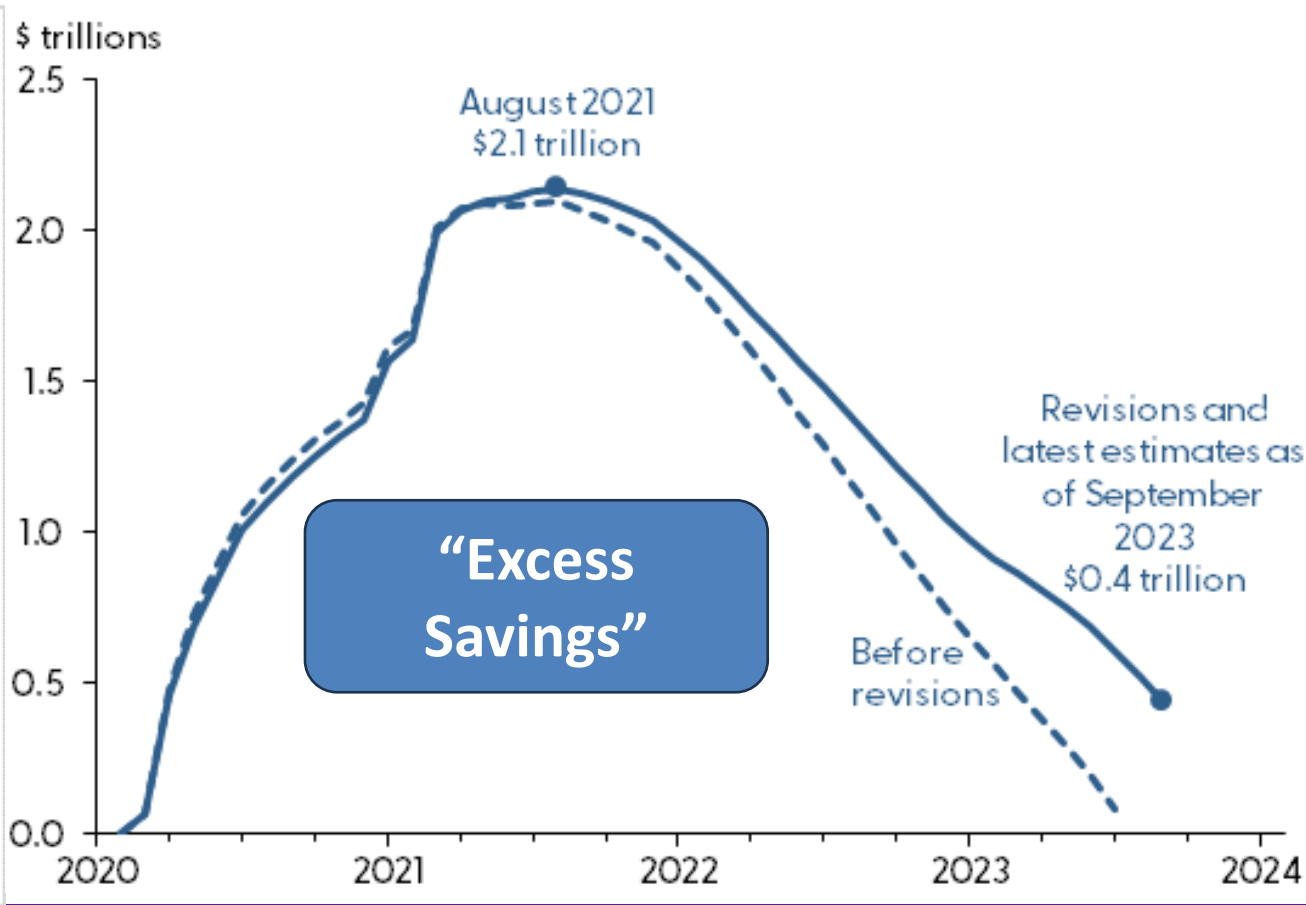
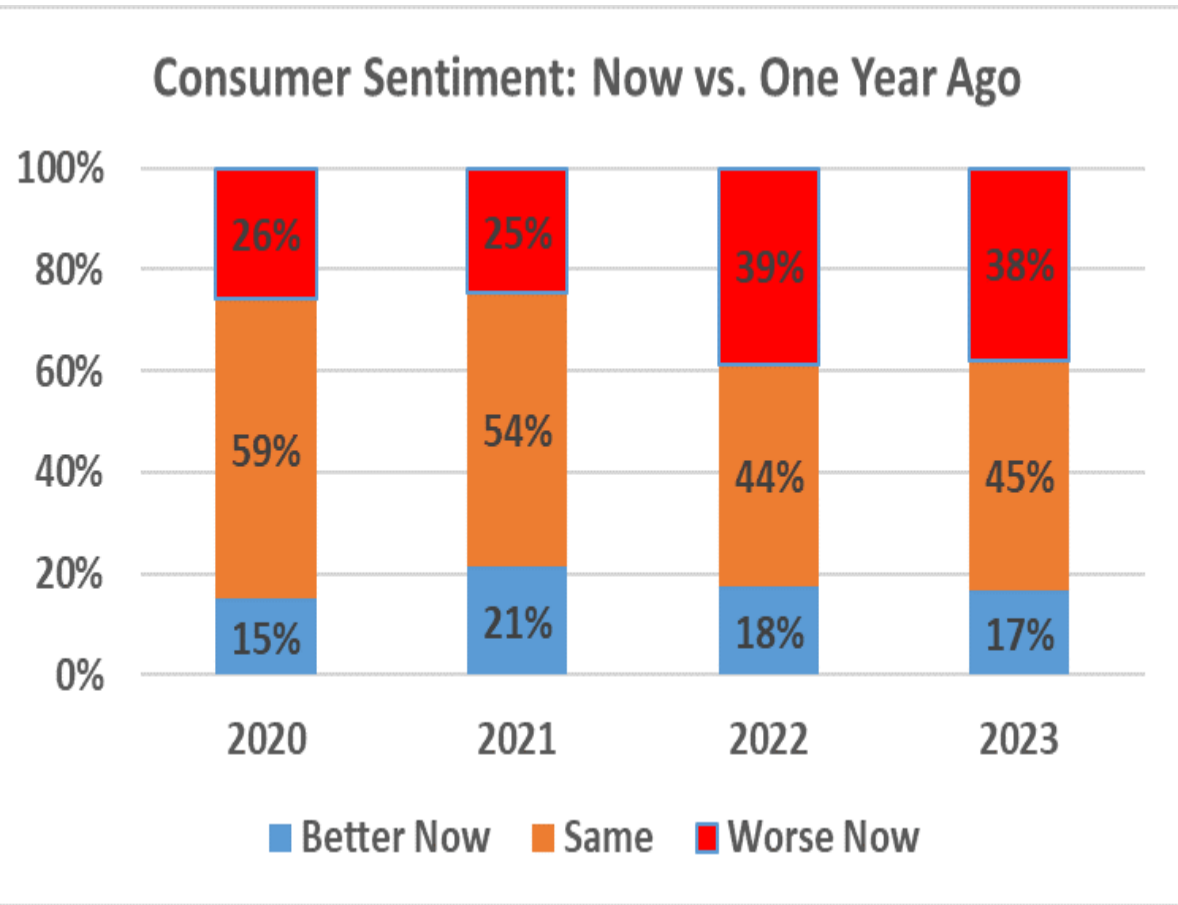
**IF** 10% increase in consumer WTP on a single pork product, producer profits increase most if that occurs in **bacon** followed by **loin**

- Reflects combination of own-price elasticities and starting point Prices & Quantities
- Note increasing WTP for Shoulder, but not other pork products, harms producers following shifts to comparatively cheaper items

# Modeling Impacts of Location- and Product-Targeted Demand Enhancement on Pork Producer Profitability (March 2024)

- ❑ Regional & demographic shifts, efficacy of promotional investments, & other factors need future, ongoing assessment
- ✓ Currently appears:
  - Bacon & loin warrant prioritization for demand enhancement
  - Phoenix & Chicago appear attractive given combination of market size & price sensitivity

# Meat Demand Monitor: Financial Sentiment Matters



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**KANSAS STATE**

Department of  
Agricultural Economics

Feb. 2024 Special Report

**MDM: Meat Demand Monitor**

The MDM tracks U.S. consumer preferences, views, and demand for meat with separate analysis for retail and food service channels. MDM is a monthly online survey with a sample of over 2,000 respondents reflecting the national population.

***U.S. Meat Demand Update & Role of Financial Sentiment: 2020-2023***

<https://www.agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data/us-meat-demand-update-and-role>

# Meat Demand Monitor: Financial Sentiment Matters

Percentage Change in Inflation-Adjusted Retail Willingness to Pay vs. Prior Year, by Year and Financial Sentiment Subset							
<i>Year</i>	<i>Diet Subset</i>		<i>Pork Chop</i>	<i>Bacon</i>		<i>Respondents</i>	<i>Share of Respondents</i>
2021	Better Now		36.05%	53.52%		3,148	21.60%
2021	Same		6.86%	13.08%		7,857	53.90%
2021	Worse Now		7.86%	18.22%		3,572	24.50%
2022	Better Now		33.48%	38.54%		3,075	17.68%
2022	Same		0.84%	0.08%		7,614	43.78%
2022	Worse Now		-8.06%	-11.82%		6,703	38.54%
2023	Better Now		-18.83%	-32.47%		2,815	17.17%
2023	Same		-8.35%	-10.48%		7,356	44.87%
2023	Worse Now		-8.51%	-6.30%		6,223	37.96%

# Meat Demand Monitor, NPB Segmentation Look (March-May 2024, n=9,317)

Segment Name	%	Freshness	Taste	Price	Safety	Convenience	Nutrition	Health	Origin/Traceability	Hormone/Antibiotic-Free	Animal Welfare	Environmental Impact	Appearance
Culinary Adventurers	19%	2	1	5	3	9	4	6	11	8	10	12	7
Mindful Choicemakers	12%	1	3	6	4	12	2	5	11	7	9	10	8
Culture Celebrators	7%	2	1	3	4	8	5	6	11	9	10	12	7
Tasty Value Seekers	19%	2	1	3	5	8	4	6	11	9	10	12	7
Confident Meat Eaters	21%	2	1	3	4	8	5	7	11	10	9	12	6
Simple Feeders	10%	2	1	3	4	8	6	7	11	10	9	12	5
Meat Minimizers	14%	1	2	4	5	7	3	6	12	9	10	11	8

Taste & Freshness Key  
for ALL Segments

Production Practices/Claims Lower  
Ranking for MOST Segments



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Segment Name	%	Freshness	Taste	Price	Safety	Convenience	Nutrition	Health	Origin/Traceability	Hormone/Antibiotic-Free	Animal Welfare	Environmental Impact	Appearance
Culinary Adventurers	19%	85	83	56	99	172	97	105	80	65	85	78	62
Mindful Choicemakers	12%	96	59	(19)	104	268	141	187	73	30	58	63	(589)
Culture Celebrators	7%	71	96	87	99	160	92	151	81	84	92	93	140
Tasty Value Seekers	19%	110	115	145	111	53	121	136	120	132	134	127	273
Confident Meat Eaters	21%	128	132	155	82	16	70	10	119	139	117	125	516
Simple Feeders	10%	106	127	149	124	2	55	34	118	143	116	122	571
Meat Minimizers	14%	79	72	88	93	87	120	129	92	81	77	75	(494)

**RELATIVE Importance (& hence trade-offs)  
varies WIDELY across Segments**

# Final Thoughts

- Inflation, earnings vs cost of living, & broader macroeconomic forces matter
- Population dynamics, generational shifts, etc. matter

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- Inflation, earnings vs cost of living, & broader macroeconomic forces matter
- Population dynamics, generational shifts, etc. matter
- Heterogeneity is real, wide, and persistent: simple averages mask “truth”
  - While we cannot individually influence these, we **CAN AND SHOULD:**

**Act strategically!**

**Targeted promotion, periodic evaluation & ongoing re-assessment have notable merit**

More information available at:



This presentation will be available in PDF format at:

<http://www.agmanager.info/about/contributors/individual/tonsor.asp>

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Professor

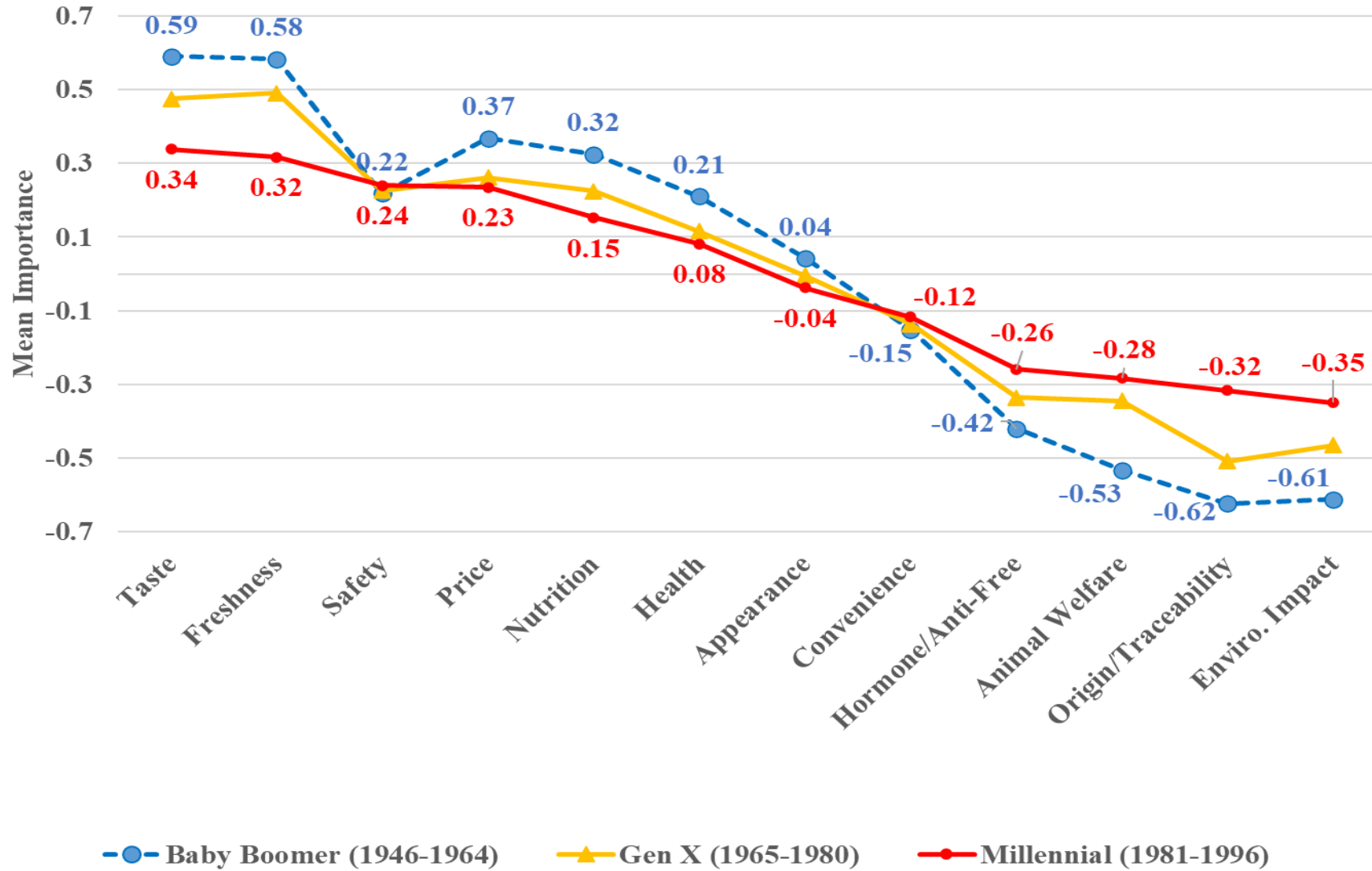
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Protein Values, by Generation (March 2024, Meat Demand Monitor)



### Self-Declared Diet, Feb. 2020 - Mar. 2024 (Source: MDM Project)

