

# **Consumer Sensitivity to Pork Prices: A Comparison of 51 U.S. Retail Markets and 6 Pork Products**

Executive Summary of Project Report Prepared for the National Pork Board

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Glynn T. Tonsor and Jayson L. Lusk

## Executive Summary

This project's objective was to determine how sensitive consumer pork purchasing behavior is to price changes across U.S. retail markets and pork products. Knowledge of differential price sensitivity boosts economic understanding of pork market dynamics and provides an in-depth reference for use in an array of future assessments benefiting from refined consumer pork demand information. This project utilized weekly price and quantity purchase retail scanner data from 51 U.S. retail markets and 6 different pork products to estimate market- and product-specific own-price elasticity estimates. The elasticity estimates quantify how sensitive consumers in each market, and for each product, are to changes in prices. Beyond estimating a multitude of elasticities, additional analyses provide example applications.

The full report documents raw data utilized, procedures employed, and results. The report includes multiple tables and figures intended to be references for future refined assessments benefiting from the provided market- and product-specific information. A corresponding Appendix is also included providing supplementary details.

### *Main findings:*

- 1) Heterogeneity in retail demand is prevalent across markets and pork products.
- 2) There is a wide range in price-sensitivity spanning from inelastic to elastic demand within product categories and across markets. For example, the own-price elasticity of demand for pork loin ranges from a low of -2.704 to a high of -0.233 across the 51 markets.
- 3) Changes in prices of beef or chicken have small effects on pork purchases; pork purchases are primarily influenced by the price of pork.
- 4) Per capita pork consumption varies across retail markets in part due to diversity in household characteristics and composition. For example, markets with larger African American populations are stronger pork markets with this strength most pronounced for shoulder and loin products.

- 5) The results are used to show the heterogeneity in effects that arise from demographic shifts, a reduction in product availability (e.g., due to policy or COVID-like events), and price increases.

*Key Recommendations:*

- 1) Wide heterogeneity in retail demand is prevalent across markets and pork products suggesting approaches treating all markets or products as equal should be made with caution. Said approaches may be reasonable “on average” yet inherently mask notable variation. The range in price-sensitivity warrants refined assessments where feasible. Some markets are inelastic and others are elastic, pointing to notably different economic impacts of anything altering prices or available quantities.
- 2) Variation in consumer price sensitivity spanning from inelastic to elastic indicates consumer expenditures (and pork seller revenues) will move in the same direction of pork prices in some cases (where demand is inelastic) and move in opposite directions in other cases (where demand is elastic). This points to diverse consumer and producer welfare effects across product-markets for any events altering pork prices or availability.
- 3) Identifying cross-price effects from beef and chicken to be much lower than the impact of pork price on pork purchasing supports elevated focus on things driving pork’s competitiveness. Furthermore, across markets and products there is notable variation in substitute and complement relationships suggesting caution in broad-brush responses to adjustments in prices of other proteins.
- 4) Diversity in per capita consumption aligning with heterogeneity in income, education, age, race, and ethnicity points to opportunities to refine product development and marketing efforts to better align with anticipated shifts in U.S. demographics.
- 5) The report includes demonstrative examples on how shifts in demographics, external shocks reducing pork availability, and external shocks increasing retail prices impact pork markets. Given evolution in production costs, proposed policies, and other factors, similar application of refined demand insights are encouraged.
- 6) Learning and appreciation of markets can be enhanced by carefully designed graphics. This report contains a series of national maps presenting state-level approximations richly characterizing U.S. retail pork markets. We recommend these be periodically updated to retain currency and be leveraged in producer engagement and broader educational efforts.