

Proposition 12 Pork Retail Price Impacts on California Consumers

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Since July 1, 2023, California consumers may have noticed higher prices for pork at their local supermarkets. This is due to the impacts of California's new law, Proposition 12 (Prop 12), which was partially implemented on July 1, 2023, and fully implemented on January 1, 2024. This analysis of preliminary data indicates that pork prices of products in California that are impacted by this new policy rose, on average, 20% after July 1, 2023. This varies by product, with pork loins experiencing the largest impact with a 41% increase in price due to this policy. As expected, the products that are not covered by Prop 12 did not see a significant relative price change. While we do find significant impacts following the partial implementation and first month of full implementation, there is still uncertainty regarding the long-term impact on California's retail pork prices. Additionally, California's share of national fresh pork consumption has significantly declined, falling from its typical 10% to 8% as of January 2024.

Proposition 12, the farm animal law that California voters approved in 2018, is the source of regulations that raise the costs of production and distribution of pork in California. As the previous article describes, these regulations were implemented in stages, and for pork became fully enforced only beginning on January 1, 2024. But how much have prices actually been affected, and what does it mean for consumers, producers, and policy-makers? Though eased by a staggered rollout, allowing pre-July pork sales in

the supply chain to continue to be sold until January, early data suggests Californians' wallets are already feeling the pinch. Our analysis uses Circana retail scanner data to analyze the price impacts of Prop 12 on California pork prices.

California's new pork regulations present a complex set of requirements for hog farrowing operations and the pork supply chain. Prop 12 requires that, to be sold in California, uncooked cuts of pork—such as chops, bacon, uncooked hams, ribs, and roasts—must be from hogs that are the offspring of sows that are kept in pens that provide at least 24 square feet per sow of space and comply with a list of other related rules. Other pork products such as any cooked products, ground pork products including sausage, or any products in which pork is mixed with other ingredients (other than incidental ingredients such as spices) are not covered.

There is not yet data on the number of sows raised in ways compliant with California regulations. Based on California's consumption of pork produced in the unified North American market, which includes Canada and pork exports, about 8%–9% North American sows would need to meet Prop 12 standards. As explained in the prior article, the costs of compliance for sows, the certification costs, and added costs for assuring traceability through the supply change raise costs of the approximately 60% of pork that comprises covered products.

We now turn to examining evidence on California retail pork prices compared to the rest of the United States before full implementation and enforcement of California regulations. These data may provide information

on temporary market disruptions caused by compliance efforts as well as progress to market equilibria.

Early Price Impacts on California Pork Prices

While it was expected that Prop 12 would increase retail pork prices in California, the timing and magnitude of its effects are only now being observed by producers, marketers, consumers, and other stakeholders. As previously reported in *ARE Update*, Lee, Sexton, and Sumner used an economic model of the hog and pork supply chain to assess the likely impact on increased prices that would be incurred to convert housing and practices to be Prop 12 compliant. They projected that, when fully enforced and after short-term disruptions had settled, California consumers would see a 7.7% price increase in covered pork products and purchase 6.3% less of this pork, with a cost to California consumers of \$320 million annually.

This article reports on unique data that documents retail pork prices in California and the rest of the United States to assess comparative price patterns in the lead up to full enforcement of Prop 12 rules on January 1, 2024. We utilize a special sample of Circana retail scanner data to indicate impacts of Prop 12 on average sales prices and volume purchases of various fresh pork products in California and the rest of the United States.

The Circana Weekly Retail (formerly Information Resources Inc. [IRI]) data that we use are projected to be representative at the state level using Circana's proprietary weighting method. We calculate an average

weekly price as the sales value divided by volume for individual products in California and the rest of the United States. These data were available within just two weeks of the survey week. However, one limitation of these data is the aggregation of UPC-level items into broader categories such as “bacon” or “pork ribs.” Details like brand, quality, or premium attributes (e.g., organic) are lost in the aggregation. This means price comparisons across states and weeks may reflect differences in product mix and not only strict “apples-to-apples” specific product comparisons. Despite

this limitation, we believe the data are valuable for identifying retail price patterns for covered and non-covered pork products in California and the rest of the United States over recent weeks. Product mix compositions are likely to remain relatively stable during the two years of our analysis, which allows us to isolate and analyze price movements related to Prop 12.

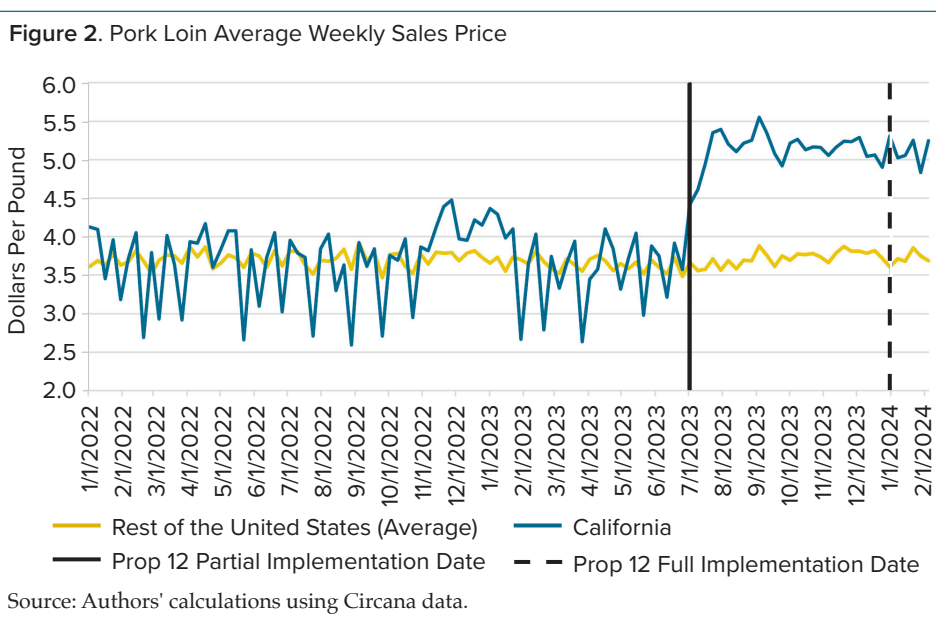
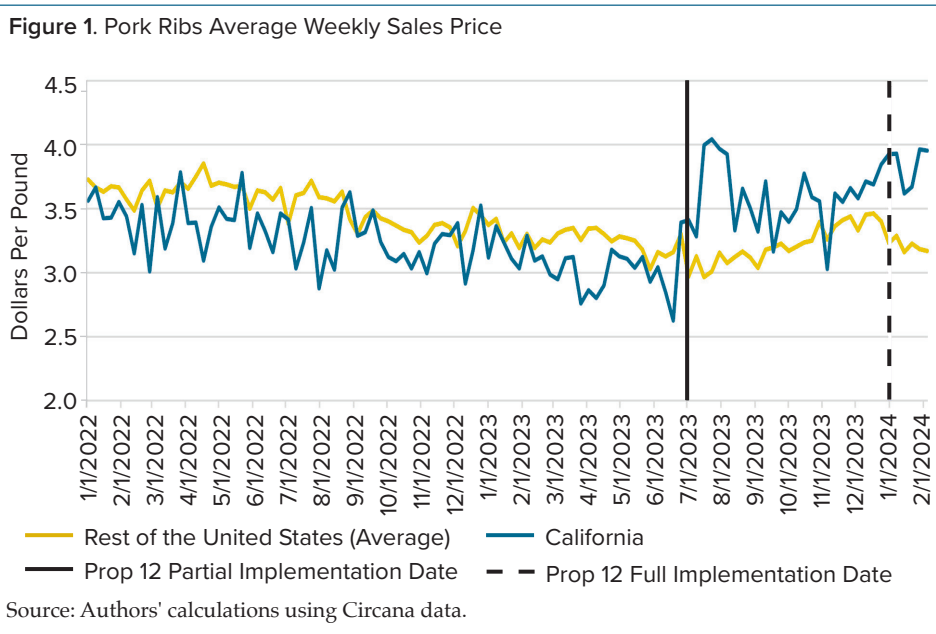
Price Patterns by Three Covered Product Categories

Figure 1 shows that for pork ribs (one of the retail products covered by Prop 12 regulations) the weekly

average retail price in the rest of the United States was usually slightly above the California weekly average above the California weekly average retail price during 2022 and the first half of 2023. The prices, in the sample of stores for which data were available were declining gradually during this period of moderating hog and pork prices generally. Around July 1, 2023, the national prices began rising gradually, but the California prices jumped remarkably from late June through early August. In late July, the California average was more than \$1.00 per pound above the national average. California prices remained about \$0.85 higher than the national average in early August, but then fell by \$0.60 in one week. For the weeks from mid-August through early December, the California average prices were about \$0.20 higher than the gradually increasing national average. For a week in September and one in November, the volatile California price average was again below the national average.

The patterns for pork loin prices displayed in Figure 2 are similar to those for pork ribs in that the weekly averages for California retailers were often below the rest of the United States until June 2023, when California prices rose markedly and remained elevated through February 2024. Two other points stand out in Figure 2. First, California prices were oddly volatile through June 2023, often jumping up and down by more than one dollar per pound (about 30%) from week to week. Second, the prices from August through February 2024 were relatively stable, but often more than 60% higher than in the rest of the United States.

The bacon price patterns in Figure 3 combine elements of the price patterns for ribs and loins, except that, even before July 2023, California bacon prices were generally above the average prices in the rest of the United States. There was also considerable movement in bacon prices in



the rest of the United States that was mimicked in California except at much higher average prices, especially after late June 2023.

When this study was written, a few weeks of data were available for 2024 (data period ends Feb 4, 2024), offering us an initial indication of impacts under full implementation. The price spread between California and the rest of the country appears to remain stable. California's pork loin prices remain significantly higher than the rest of the United States, exhibiting very stable spreads throughout January 2024. However, the price gaps for ribs and bacon appear to have slightly widened since full implementation, potentially indicating growing pressure from limited supply.

Initial Price Impacts Higher Than Expected

To further understand effects of the implementation of Prop 12 on retail prices during the early period before the requirement of complete implementation and enforcement, we examined average retail prices of fresh pork products in California and the rest of the United States before and after July 1, 2023. The average before-and-after prices in each location for several pork product categories are in Table 1. Note Table 1 reports state level, weekly price data from October 2019 through January 2024, so that it includes about 100 more weekly observations than are displayed in the figures. This allows more statistical precision in the estimation of differences between average prices.

The table shows the average price before and after July 1, 2023 for California and the rest of the United States. It also shows the differences in the averages, by subtracting the rest of the United States before-and-after difference from the California before-and-after difference. For example, for bacon, the California before-and-after

difference is \$1.28 and rest-of-U.S. difference is \$0.24 so the difference in these differences is \$1.04. California's price rose \$1.04 per pound more than for the rest of the United States. The same calculation is reported for the other pork categories. The final column of the table shows the percentage difference of California in before and after prices. The difference in differences shown in Table 1 are large in percentage terms and statistically

significant with a high degree of confidence for all categories other than the three that are non-covered products—ingredients, ground pork, and offal.

Bacon, ribs, and loin, the three most purchased products on a volume basis by California consumers, had \$1.04 per pound, \$0.54 per pound, and \$1.42 per pound higher prices, respectively. Although the regulations were not yet being enforced, these impacts may be attributed to Prop 12. The large

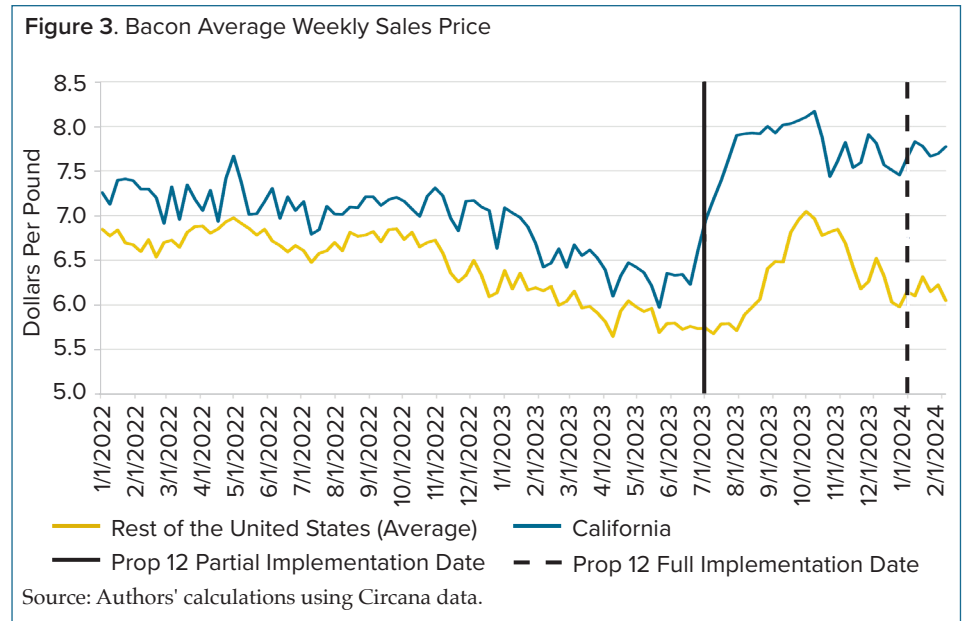


Table 1. Proposition 12 Impacts on Fresh Pork Prices (Average Sales Price)

	Rest of the U.S. (Average)		California		California-Rest of U.S. Comparison	
	Pre-July 1, 2023 (\$)	Post-July 1, 2023 (\$)	Pre-July 1, 2023 (\$)	Post-July 1, 2023 (\$)	Difference in Differences	California Difference in Price Change (%)
Bacon*	6.06	6.30	6.46	7.74	1.04	16%
Pork Ribs*	3.25	3.22	3.12	3.64	0.54	17%
Pork Loin*	3.50	3.72	3.49	5.12	1.42	41%
Pork Shoulder*	2.11	2.27	2.04	2.54	0.35	17%
Pork Ingredient Cuts	2.79	2.74	2.37	2.52	0.19	8%
Ground Pork	3.85	4.17	4.72	5.19	0.14	3%
Pork Offal**	2.51	2.60	2.29	2.27	-0.10	-5%
Pork Leg (Fresh Ham)*	2.56	2.62	1.87	2.29	0.37	20%
All Other Pork**	4.20	4.36	3.96	4.49	0.37	9%

Source: Author calculations using Circana retail sales data where the sample for before July 1, 2023 starts in October 2019 and the after sample ends on February 4, 2024.
 Note: *Prop 12 covered products; **includes covered and non-covered pork products.

percentage increases—16%, 17%, and 41%—are much larger than for the non-covered products. However, for covered products, the price hikes are steeper than projected long-run equilibrium outcomes for the average of covered products. Earlier estimates anticipated long-run equilibrium increases of around 7.7%, but our analysis reveals increases ranging from 9% to 41% and an average of 20% for covered products.

This price increase, along with supply chain uncertainties, also has impacted the volume of pork purchased by California consumers. Figure 4, based on Circana scanner data, shows that before Prop 12, California typically purchased around 10% of the U.S. fresh pork supply, with seasonal variations. However, following implementation of Prop 12, this share dipped significantly, falling to below 7% in July 2023, and remained below the normal share throughout the rest of 2023. January 2024 indicates an even greater decrease, although it is too soon to determine what to expect following the full implementation. It's important to note that these figures include both Prop 12-covered and uncovered products, which masks potential shifts towards cheaper, uncovered options due to price increases in covered products. While

we can analyze purchasing trends by cut, further research is needed to fully understand if consumers are buying less compliant pork overall.

California Pork Price Outlook Uncertain

Our analysis of preliminary data indicates that retail pork prices for Prop 12 covered products rose in California relative to those in the rest of the United States by large percentage amounts even before full enforcement of the regulations, which began on January 1, 2024. During the July 1, 2023 to February 4, 2024 period, pork products covered by Prop 12 were found to have increased by 9% to 41% relative to the price changes for the rest of the country for the first few months following partial implementation and beginning of enforcement. Data through the end of January 2024 show price premiums have held beyond the full implementation period. Consistent with expectations, pork products that are not covered by the Prop 12 regulations did not see significant relative price increases in California. Furthermore, California's share of national fresh pork consumption has declined, falling from its typical 10% to 8% as of January 2024. Looking ahead, uncertainty remains regarding the long-term impact on California's pork market.

Initial market disruptions and potential supply limitations for compliant pork warrant further monitoring and analysis.

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The analysis, findings, and conclusions expressed in this study should not be attributed to CIRCANA (formerly IRI).

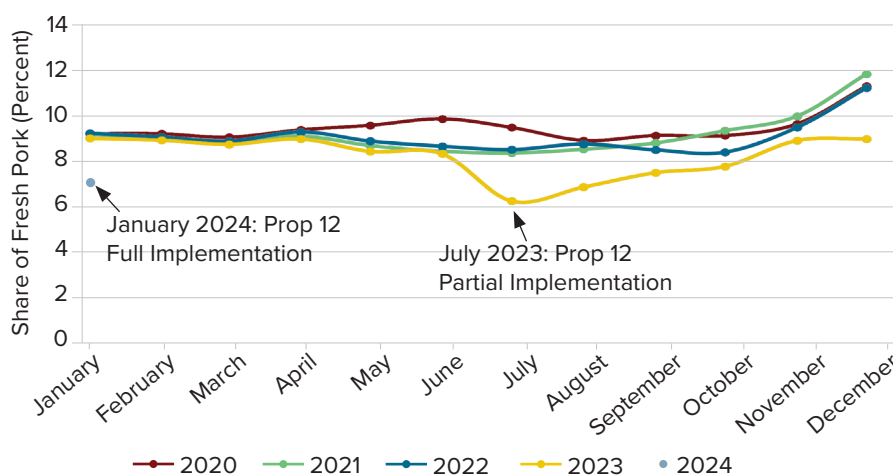
For additional information, the authors recommend:

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Figure 4. California Fresh Pork Purchased as a Share of Fresh Pork Purchased in the Entire United States



Source: Authors' calculations using Circana retail sales data.