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Health Issue Brief

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How Retailers Responded to Taxes on Sweetened Beverages: A Tale of Two Cities

To curb the intake of sweetened beverages and boost city revenue, two cities—Philadelphia, Pennsylvania, and Oakland, California—imposed excise taxes on the distribution of sweetened beverages in 2017. This issue brief discusses how beverage retailers implemented the taxes, including who provided the guidance they received on how to implement the taxes and how they changed beverage prices. It also discusses how retailers responded to the taxes, including how they changed other product prices, store inventory, and marketing strategies. Although there is a growing body of literature on the effects of sweetened beverage taxes on consumer behavior, few studies to date have explored beverage retailers' implementation of and responses to the tax. Examining the retailer experience can shed light on the actions of a key group that can influence whether consumers buy the taxed beverages or choose healthier substitutes—which in turn determines the efficacy of these kinds of taxes, as intended by policymakers.

About the taxes

- **Passing on the tax to consumers:** In both cities, the tax is an excise tax levied on distributors, not on retailers or consumers. To pay for the tax, distributors increased the prices they charged to retailers for the taxed beverages. Retailers pay the higher prices charged by distributors and then choose whether and how to adjust prices and the products sold in their stores. Fully passing on the tax to consumers means that 100 percent of the amount of the tax was passed to consumers via increased prices at retail stores.
- **Philadelphia:** The Philadelphia Beverage Tax, passed by the city council, was implemented on January 1, 2017. It imposed a tax of 1.5 cents per ounce on the distribution of all sugar or artificially sweetened beverages. Although the tax is levied on distributors—"any person who sells sweetened beverages to a dealer" (City of Philadelphia 2019)—retailers fully passed the tax to consumers (Cawley, Frisvold, Hill, and Jones 2018a).
- **Oakland:** The Sugar-Sweetened Beverage Product Tax was passed by ballot measure in November 2016 and implemented on July 1, 2017. The amount of the tax—applied only to sugar-sweetened beverages, not to diet beverages—is 1 cent per ounce. As in Philadelphia, retailers passed most of the tax on to consumers (Cawley, Frisvold, Hill, and Jones 2019).

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About the study

The Robert Wood Johnson Foundation engaged Mathematica, in partnership with David Frisvold (University of Iowa) and John Cawley (Cornell University), to examine whether and how taxes on sweetened beverages affect prices, product availability, and consumer purchases and consumption in Philadelphia and Oakland. The study included a qualitative analysis, based on interviews conducted with beverage retailers about the pricing, inventory, and marketing decisions they made in response to these taxes. This issue brief summarizes the perceptions, opinions, and actions of retailers related to (1) their implementation of the tax, based on the guidance they received from city government or other sources, and (2) their response to the tax, or the business decisions they made that were not included in the guidance, such as promoting or stocking additional untaxed (healthier) beverages in their stores. We also examined variation in retailers' perceptions, opinions, and actions by city; store type; and characteristics of the store's neighborhood (including proximity to the city border, poverty rate, and racial/ethnic makeup).

We used the qualitative data from our interviews with retailers about their perceptions, opinions, and actions related to the tax to provide context for earlier quantitative findings on the impact of the taxes on prices, product availability, and consumer purchases and consumption.[1] We refer to the quantitative findings as the "impact analyses" in this brief. We also used our qualitative data to deepen our understanding of retailers' implementation of and responses to sweetened beverage tax policies, which can influence consumer purchases and their consumption of healthy and unhealthy beverages.

Data collection at a glance

Qualitative data collection for this study consisted of semi-structured telephone interviews with store owners or managers from 33 beverage retailers:

- We spoke with 18 retailers in Philadelphia and 15 retailers in Oakland. Our sample consisted of large grocery stores (n = 10); small grocery stores, including independently owned corner stores (n = 10); convenience stores (n = 7); gas stations (n = 5); and pharmacies (n = 1).
- We conducted our interviews between December 2017 and September 2018.
- Interview topics included how retailers learned about the tax; whether and how they changed their prices, inventory, or marketing in response to the tax; their rationale for making changes; and their perceptions about how the tax affected beverage sales.

When describing qualitative findings we present the number of retailers who provided the relevant response (numerator) as well as the total number of retailers in the relevant group who provided any response (denominator). As is common when conducting interview (as opposed to survey) data collection, we did not ask all respondents all questions. In addition, in some cases—even if asked—respondents did not answer the question. For these reasons, the denominator varies among the findings. The section on research methods at the end of this brief provides further details on the study sample, data collection, and analysis methods.

This issue brief also refers to our previous quantitative impact analyses. We collected data for these analyses via in-store observations, in-person interviews with shoppers who were exiting stores, and a household survey. For details on the methods used for the impact analyses, see Cawley et al. 2018a; Cawley, Frisvold, Hill, and Jones 2019b; and Cawley et al. 2019.

Who provided guidance to retailers to help them implement the tax?

Retailers received guidance on how to implement the tax from multiple sources and in different forms.

All retailers received at least some guidance about how to implement the tax in their store. Retailers in both cities reported receiving—and in some cases seeking—information from the following sources:

- City government provided guidance to retailers in both cities (14 of 33), commonly in the form of a letter mailed directly to retailers. The City of Philadelphia also hosted a beverage tax website designed to support implementation. However, only three retailers reported accessing the website, which they used as a resource to supplement the city's guidance letter.
- Beverage distributors provided guidance to retailers in both cities (14 of 33), commonly in the form of invoices, formula sheets that detailed the tax and the new prices charged to retailers for affected beverages, and letters. Small grocery retailers were more likely than other store types to report receiving guidance from distributors (7 of 10).
- Corporate offices commonly provided detailed written guidance, automated price updates in point-of-sale systems, and support from corporate staff to retailers (6 of 33).

Beverage distributors played a larger role in providing guidance to retailers in Philadelphia than in Oakland. Of the 14 retailers who received guidance from beverage distributors, 12 were in Philadelphia and 2 were in Oakland. In Philadelphia, beverage distributors played an even larger role in providing guidance to retailers than the city government did—only 7 Philadelphia retailers reported receiving guidance from the city government.

Retailers' opinions varied about how adequate they found the guidance they received in helping them implement the tax. Their opinions varied by city, and the variation was related to the source of the guidance.

Oakland retailers reported receiving adequate guidance more frequently than retailers in Philadelphia did. Of the retailers who stated that the guidance they received was adequate, most were in Oakland (10 of 12). Conversely, most of the retailers who reported that their guidance was inadequate were in Philadelphia (7 of 9).

Summary of findings: Guidance to retailers

Retailers received guidance from different sources on how to implement the tax, though some retailers did not find the guidance to be adequate.

Philadelphia	Oakland
Some retailers (7 of 18) received guidance from the city government	Some retailers (7 of 15) received guidance from the city government
Many retailers (12 of 18) received guidance from beverage distributors	A few retailers (2 of 15) received guidance from beverage distributors
Few retailers reported that the guidance they received was adequate (2 of 9)	Most retailers reported that the guidance they received was adequate (10 of 12)

The source of the guidance played a role in retailers' opinions of its adequacy:

- Retailers' opinions of their city government's guidance varied by city. Oakland retailers said their city's guidance letter was adequate (5 of 6) much more frequently than Philadelphia retailers did (1 of 5).
- Retailers' opinions of the guidance from beverage distributors were mixed. Of the six retailers who commented on the adequacy of the guidance from beverage distributors, only one Philadelphia retailer (1 of 4) and one Oakland retailer (1 of 2) reported that the distributors' guidance was adequate.
- Retailers' opinions of corporate offices' guidance was favorable. The four Oakland retailers who commented on the adequacy of the guidance they received from their store's corporate offices found the guidance adequate.

The nine retailers who reported that the guidance they received was inadequate sought additional information by searching the Internet or contacting their city government. For example, two Philadelphia retailers said the guidance letter the city mailed to them was inadequate, so they accessed the city's beverage tax website. One Philadelphia retailer said that the city's website provided clarity regarding how to implement the tax. Retailers who sought additional information researched ways to implement the tax, the tax structure, the list of taxed and untaxed beverages, how to pay the tax, and how to report the taxes paid.

How did retailers change prices in response to the tax?

Retailers typically increased the price of taxed beverages by the exact amount of the tax charged by distributors.

Many retailers (24 of 33), including all large grocery and most convenience stores, reported passing on the full amount of the tax charged by distributors to customers in the form of higher prices on all taxed beverages. We found similar results in our impact analyses: the price of taxed beverages rose by 1 cent per ounce in Oakland, which was equal to the tax in that city, and by 1.86 cents per ounce in Philadelphia, which was slightly higher than the 1.5 cent per ounce tax there.[2]

Summary of findings: How retailers changed prices

Most retailers passed on the full amount of the tax charged by distributors to customers by charging higher prices on taxed beverages. Some retailers, however, made different decisions about how to change prices—depending upon the size or type of beverage, store pricing policies, or retailer concern about potential revenue loss due to the tax.

Philadelphia	Oakland
Many retailers (14 of 18) raised prices of taxed beverages by the amount of the tax	Many retailers (10 of 15) raised prices of taxed beverages by the amount of the tax
A few retailers (3 of 18) raised prices by *more* than the amount of the tax on all or some taxed beverages	A few retailers (2 of 15) raised prices by *more* than the amount of the tax on all or some taxed beverages
One retailer (1 of 18) raised prices by *less* than the amount of the tax on all or some taxed beverages	A few retailers (3 of 15) raised prices by *less* than the amount of the tax on all or some taxed beverages
One retailer (1 of 18) raised the prices of untaxed items	A few retailers (2 of 15) raised the prices of untaxed items

Retailers cited (1) competition, (2) customer affordability, and (3) a lack of decision making control as primary reasons for typically passing on the exact amount of the tax charged by distributors to consumers.

1. **Competition**. Some retailers (7 of 24) expressed concern about customers taking their business to competing stores if they increased their beverage prices by more than the tax. Philadelphia retailers cited competition more often than Oakland retailers as a reason for raising prices by an amount equal to the tax; five of seven were from Philadelphia. Three of the five retailers in Philadelphia and both of the retailers in Oakland who mentioned competition have stores close to the city border, which customers can easily travel across to buy beverages at a lower price.[3]
2. **Customer affordability.** Some retailers (7 of 24)—mostly in Philadelphia (5 of 7)—cited a concern that customers could not or would not pay prices reflecting increases higher than the amount of the tax. Two Philadelphia retailers said they owed it to their customers to price items fairly and avoid "nickel-and-diming people."
3. **Perceived lack of control.** Some retailers (8 of 24) said that the decision about how to change prices was out of their control and instead was up to their corporate office, distributors, or the city—that is, they believed that they must increase prices by the exact amount of the tax.

"We didn't raise prices by more than the tax because we're a much smaller company than our competitors, so we can't afford to take the kinds of risks they can."

—Oakland, large grocery retailer

"I can't raise prices of any drinks a lot because my customers will just go to the chain convenience stores in the area. I wanted to keep my drinks as cheap as possible because losing customers means I lose sales on other items as well."

—Philadelphia, small grocery retailer

"It would be unfair to raise prices even higher because it's already so expensive to live in California."

—Oakland, small grocery retailer

A few retailers increased prices by *more* than the amount of the tax on all or some taxed beverages.

A few Oakland retailers (2 of 15) raised the prices of *all* taxed beverages by more than the amount of the tax. Both retailers explained that after adding the amount of the tax to the retail beverage price, they rounded up the price in keeping with the store's pricing structure—which for one retailer was to have prices end in a zero, five, or nine. None of the Philadelphia retailers reported raising the prices of all taxed beverages by more than the amount of the tax.

A few Philadelphia retailers (3 of 18) increased the prices of *some* taxed beverages by more than the amount of the tax, depending upon the container size. These retailers did not provide a rationale for their decisions:

- Two Philadelphia retailers raised prices of some single-serving sweetened beverages by more than the amount of the tax. For example, one raised the price of 20-ounce sodas by 50 cents and the other raised them by 64 cents; however, the amount of tax on a 20-ounce soda is 30 cents.
- Another Philadelphia retailer did the same for some family-size (large volume) sweetened beverages. He raised the price of a 2-liter bottle of soda by $1.50, even though the tax on that size of beverage is $1.01.

A few retailers raised prices by *less* than the amount of the tax on all or some taxed beverages.

One Oakland gas station reported raising the prices of *all* taxed beverages by 10 percent, which resulted in price increases on all taxed beverages equal to less than the amount of the tax. They also raised the prices of all untaxed beverages by 10 percent. The retailer said that this was easier than raising the prices only on certain beverages and believed it would be less noticeable for customers because the prices of all beverages increased.

One Philadelphia and two Oakland retailers did not pass on the full amount of the tax to consumers for *some* single-serving sweetened beverages, including cans of sodas, sweetened teas, and fruit drinks. These retailers explained that they wanted to minimize the price change (and possible declines in consumer purchases) on this popular size. One of the Oakland retailers also expressed concern about contradicting prices that were pre-printed on some single-serving cans.

A few retailers raised prices of untaxed beverages and other items in response to the tax.

The gas station in Oakland was the only retailer to report raising prices of untaxed beverages. This finding was not completely consistent with the findings in our impact analyses, which provided some evidence that prices of untaxed beverages increased slightly in both cities after the taxes took effect.[4]

Only one retailer in Philadelphia and one in Oakland reported raising prices on untaxed items, such as candy and gum—which they explained as a strategy to offset the anticipated loss of revenue from sweetened beverages because of the tax. The Oakland retailer reported that raising prices on other products was a strategy to increase revenue from other sources because the store did not raise prices of all taxed beverages by the amount of the tax.

How else did retailers respond to the tax?

Most retailers (25 of 31) responded to the tax in at least one way not directly related to pricing, such as alerting customers to the tax or changing their beverage inventory, marketing strategies, or business operations. These loss-mitigating and revenue-generating strategies were more common among Philadelphia retailers (15 of 17) than Oakland retailers (10 of 14). This difference was perhaps the result of Philadelphia retailers' more negative expectations—which they shared during interviews—about the anticipated impact of the tax on consumer purchases. Philadelphia retailers generally expressed stronger concerns about the tax driving down beverage sales, likely related to the fact that the Philadelphia tax was higher than Oakland's and included diet beverages. The concerns of retailers in both cities were supported by the impact analyses, which showed some evidence of a decline in average purchases of taxed beverages per shopping trip and an increase in city residents shopping across the border in both cities.

Retailers updated how they displayed taxed beverage prices and posted signs about the tax in their stores to alert customers to the tax.

Most Philadelphia retailers (15 of 17) and many Oakland retailers (9 of 15) reported adding the amount of the tax to the retail prices displayed on product shelves. A few Philadelphia retailers in this group

> *"My customers trust that I'm charging them fair prices, so I wanted to be 100 percent transparent about why the [beverage] prices were suddenly a lot higher. So I listed the old price and the amount of the soda tax on the shelf tag. They could double-check our calculations and feel like we weren't ripping them off."*
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> —Philadelphia, large grocery retailer

Summary of findings: Other responses to the tax

Retailers also responded to the tax in ways not directly related to prices. These changes were not required; instead, they were actions retailers took to try to maintain profitability in response to anticipated or observed changes in customer behavior.

Philadelphia	Oakland
Most retailers (15 of 17) responded to the tax in at least one way unrelated to pricing	Many retailers (10 of 14) responded to the tax in at least one way unrelated to pricing
Some retailers (6 of 17) alerted customers to the new tax with signs or price tags	Some retailers (6 of 14) alerted customers to the new tax with signs or price tags
Some retailers (7 of 17) stocked fewer taxed beverages	Some retailers (6 of 14) stocked fewer taxed beverages
Some retailers (8 or 17) stocked more untaxed beverages	One retailer (1 of 14) stocked more untaxed beverages
Some retailers (5 of 17) changed the sizes of the taxed beverages they carried	No retailers (0 of 14) changed the sizes of the taxed beverages they carried
Some retailers (6 of 17) placed untaxed beverages in more visible locations	One retailer (1 of 14) placed untaxed beverages in more visible locations
A few retailers (2 of 17) adjusted external advertising	A few retailers (3 of 14) adjusted external advertising
A few retailers (2 of 17) promoted or carried additional nonbeverage items	One retailer (1 of 14) promoted or carried additional nonbeverage items
A few retailers (4 of 17) made changes to business operations	No retailers (0 of 14) made changes to business operations

(3 of 15) chose to display the pre-tax price, the amount of the tax, and the new total price on shelf price tags because they wanted the price increases—both the reason and the amount—to be transparent to customers.

Some retailers (10 of 31), including half of the large grocery stores, said that they posted signs in their stores to explain or alert their customers to the tax. This was slightly more common in Oakland (6 of 14) than Philadelphia (4 of 17). This was consistent with our findings from the impact analyses, which showed that about 36 percent of Oakland and 25 percent of Philadelphia retailers posted informational signs about the tax (note, these results were not included in Cawley et al. [2018a] or Cawley et al. [2019]).

Many retailers changed their beverage inventory in response to the tax by (1) stocking fewer taxed beverages, (2) stocking more untaxed beverages, or (3) changing the sizes of the taxed beverages that they stocked.

1. **Stocking fewer taxed beverages.** Consistent with the impact analyses, some retailers (13 of 31) in both cities reported that they decreased their inventory of taxed beverages because they either anticipated or observed changes in customer purchases. One retailer stopped carrying beverages with prices pre-printed on the container,

such as Arizona iced tea, because he expected that customers would be upset if he charged a price higher than the pre-printed price. Other retailers said that they decided to decrease their taxed beverage orders to distributors (9 of 13) and, in a few cases, also stop selling certain kinds of taxed beverages (3 of 9)—including sodas, juice drinks, and sweetened juice drink concentrates—after observing decreased sales of these products after implementation of the tax.

2. **Stocking more untaxed beverages.** Some retailers (9 of 31), nearly all of whom were in Philadelphia (8 of 9), reported stocking more untaxed beverages, such as water, 100 percent juice, seltzer, and unsweetened nondairy milk. One Philadelphia retailer stocked more untaxed beverages because they anticipated that customers would substitute these beverages for the higher cost, taxed beverages. Three other Philadelphia retailers did so because they observed customers buying more untaxed beverages. This reported behavior was consistent with the findings of the impact analyses, which showed that the availability of untaxed beverages in Philadelphia stores rose by 17.2 percent from before the tax. The opposite happened in Oakland. According to the impact analyses, the availability of untaxed beverages declined by 12.7 percent, which may explain why only one Oakland retailer mentioned carrying more untaxed beverages in response to the tax. Stocking more untaxed beverages was also more commonly reported by retailers in high-poverty neighborhoods (6 of 9), suggesting a possible side effect of the tax: improving public health by increasing access to healthy beverages in low-income areas, although the impact analyses did not reveal any statistically significant increases in purchases of untaxed beverages.

3. **Stocking different sizes of taxed beverages.** In response to observed changes in customer purchases and the actions of a large beverage distributor, a few Philadelphia retailers (5 of 17) changed the sizes of the taxed beverages they carried (all but one of these retailers also made other inventory changes). This change included stocking fewer multipacks of single-serving containers or family-size (large volume) containers, or stocking smaller family-size containers of taxed beverages, such as 1.25-liter bottles instead of 2-liter bottles. Retailers in high-poverty areas were more likely to report using this strategy (4 of 5). Three of five retailers who stocked different sizes of taxed beverages observed that customers were less likely to purchase the multipacks or family sizes, which retailers believed was due to the amount of the tax applied to those items (for example, the amount of tax on a 12-pack of canned soda would be $2.16 in Philadelphia). Two of five retailers noted that one of the largest beverage distributors in the city temporarily stopped selling 2-liter bottles of soda to retailers when the tax went into effect and encouraged them to stock smaller sizes of its beverages instead. According to one retailer, the distributor resumed sales of 2-liter bottles of soda to retailers after deeming that the demand in the city was sufficient, even with the tax in effect. No Oakland retailers reported stocking different sizes of beverages.

> ***"When the tax started, nobody was buying 12-packs of soda—nobody. After about two months of the tax, we were selling so few family sizes that we had to stop carrying the 2-liter bottles, and we concentrated on the 1.25-liter bottles instead."***
>
> **—Philadelphia, pharmacy retailer**

> *"We started stocking more untaxed beverages in small coolers near the register, and we put a sign on them saying 'non-Philly beverage tax,' so people would know nothing in there was taxed."*
>
> —Philadelphia, pharmacy retailer

Some retailers changed marketing strategies in response to the tax by (1) placing untaxed beverages in more visible locations on shelves or coolers, (2) changing external advertising, or (3) promoting or carrying additional nonbeverage items.

1. **Changing placement of untaxed beverages to increase visibility to customers.** A few retailers (7 of 31), mostly in Philadelphia (6 of 7), increased special placement of untaxed beverages, especially near the register or door or on shelf space previously devoted to sweetened beverages.
2. **Changing external advertising.** A few retailers in both cities (5 of 31), primarily from large grocery stores (4 of 5), described adjusting their external advertising, including weekly circulars, in response to the tax. Three of the five retailers described having to develop ads specific to their Philadelphia or Oakland locations that were different from the ads of their companies' other locations just outside of the cities. Their adjustments included promoting more untaxed beverages, different sizes of taxed beverages, or nonbeverage items:
   - A large grocery store in Oakland included more diet sodas and water in its weekly circular.
   - Another large grocery store in Oakland modified its ads to focus more on multi-buy deals for taxed beverages ("buy one, get one free") than on individual beverage prices.
   - A large grocery store in Philadelphia reported using the budget previously devoted to advertising family-size sweetened beverages to advertise nonbeverage products instead.
3. **Promoting or carrying additional nonbeverage items.** A few retailers in Philadelphia and Oakland (3 of 31) made changes in their stores to increase revenue from nonbeverage products. One retailer moved their candy display to the front of the store to encourage sales. Another used shelf space previously devoted to sodas to display cleaning products and school supplies. The third started carrying toiletries and seasonal clothing, with the hope of bringing more customers into the store.

> *"We changed the way we marketed beverages compared to our sister stores outside of the city. We used to always list the sale price of the beverages, but now we don't want to list the price...Our store's ads are completely different from the other stores in our company."*
>
> —Oakland, large grocery retailer

A few Philadelphia retailers changed business operations by extending operating hours or cutting staff positions.

A few Philadelphia retailers (4 of 17) described making changes to ease the impact of observed lower revenues, which they attributed to the beverage tax:

- A convenience store and small grocery retailer each stated that they extended operating hours to try to maximize sales. The small grocery retailer reported that they must now work 13-hour days in the store every day of the year and cannot afford to close even an hour earlier.
- A large grocery store and convenience store retailer described cutting staff hours or positions to reduce overhead costs. The large grocery retailer said that they had to cut 15 percent of their staff due to the tax, while the convenience store retailer described increasing their own hours to 80 hours per week and reducing the hours of paid employees.

Summary of findings: Perceptions of beverage sales

Retailers' perceptions of how the tax affected beverage sales varied, with most suggesting that sales of taxed beverages decreased.

Philadelphia	Oakland
Most retailers (15 of 17) reported declines in taxed beverage sales	Many retailers (10 of 14) reported declines in taxed beverage sales
Some retailers (7 of 17) reported increases in untaxed beverage sales	A few retailers (2 of 14) reported increases in untaxed beverage sales
A few retailers (2 of 17) perceived limited or no impact on beverage sales	Some retailers (4 of 14) perceived limited or no impact on beverage sales

How do retailers think the tax affected beverage sales?

Most retailers said that sales of taxed beverages declined after the tax.

Most retailers (25 of 31) said that sales of taxed beverages declined, though this perception was more prevalent among retailers in Philadelphia (15 of 17) than in Oakland (10 of 14). The impact analyses showed some evidence of reductions in taxed beverage purchases, although the reductions were not statistically significant.

Some retailers who perceived a decrease in taxed-beverage sales (10 of 25)—including those both close to and far from the city border—speculated that their customers cross the city border to shop at stores where the tax is not in effect. These claims of an increase in cross-border shopping were supported by our impact analyses. Households in both cities were more likely after the tax to report that they usually bought beverages outside the city, though the increase was smaller in Oakland than Philadelphia. Similarly, there was an increase in the purchase of taxed beverages per shopping trip outside Philadelphia.

Some retailers said that sales of untaxed beverages increased after the tax.

Some of the retailers who perceived a decrease in taxed-beverage sales (9 of 25) also said that sales of untaxed beverages increased. Retailers in Philadelphia made this claim more frequently than retailers in Oakland (7 of 9). Water was the most common example of an untaxed beverage with higher sales. The impact analyses did not show any meaningful increases in the average volume of untaxed beverages (including bottled water) purchased in either city.

A few retailers said that sales of beverages remained stable after the tax.

A few retailers (6 of 31) reported limited or no impacts on their beverage sales. Four of the six retailers were in Oakland.

Summary of findings

The interviews of store owners and managers yielded insights into the experiences that Philadelphia and Oakland beverage retailers had in implementing the taxes on sweetened beverages. Although all retailers received at least some guidance, some did not find the guidance to be adequate to support implementation and sought additional information to implement the tax (9 of 21). Despite the City of Philadelphia mailing guidance letters to retailers and providing a website to support implementation, more retailers there reported receiving guidance from beverage distributors (12 of 18) than from the city government (7 of 18).

In response to the tax, most retailers (29 of 33) reported passing on the full amount of the tax—or more—to their customers. However, a few retailers (4 of 33) increased the taxed beverage prices by less than the amount of the tax due to concerns about losing sales because of high prices. In response to the tax implementation or to changes in customer purchases after implementation, most retailers (25 of 31) took measures to try to offset anticipated revenue losses. Many (17 of 31) changed their beverage inventory. Some (12 of 31) modified their marketing strategies. Others (10 of 31) posted signs to alert their customers to the tax. A few (4 of 31) even changed business operations. Finally, most retailers (25 of 31) perceived a decline in taxed beverage sales after the implementation of the tax, with some (9 of 25) also perceiving increases in untaxed beverage sales. Only a few retailers (6 of 31) claimed to see no or limited impacts on taxed-beverage sales after the tax was implemented.

There were some key differences in how Philadelphia and Oakland retailers implemented the taxes on sweetened beverages. More Philadelphia retailers than Oakland retailers perceived decreases in taxed-beverage sales (15 of 17 in Philadelphia; 10 of 14 in Oakland). Although some of them (7 of 17 in Philadelphia; 2 of 14 in Oakland) also reported increases in sales of untaxed beverages, it was common for retailers in both cities to try to offset anticipated revenue losses from declines in taxed-beverage sales. However, Philadelphia retailers (13 of 17) used some additional strategies that Oakland retailers (2 of 14) rarely used, including the following:

- Stocking additional untaxed beverages
- Placing untaxed beverages in more visible locations in their stores
- Changing the sizes of the taxed beverage containers they carried
- Changing their business operations

In addition to not using as many strategies as Philadelphia retailers, some Oakland retailers (4 of 14) said that the tax had limited or no impact on beverage sales. This finding was consistent with the impact analyses, which found stronger evidence of cross-border shopping in Philadelphia. The increase in cross-border shopping was also consistent with more Philadelphia retailers feeling the need to offset losses.

Besides city-level differences, we also saw a few differences in how retailers implemented and responded to the tax by store type. Retailers at large grocery stores (10 of 10) and convenience stores (6 of 7) most consistently reported passing on the full amount of the tax to customers. However, large grocery stores and convenience stores were more likely to be part of corporate chains whose decision making about pricing was typically centralized, so the consistency in their responses could simply reflect this structure. In addition, large grocery stores were most likely to report changing external advertising in response to the tax (4 of 5). The majority of small grocery stores (7 of 10)—a greater proportion than any other store type—received implementation guidance from beverage distributors.

We did not uncover substantial differences in how retailers responded to the tax based on neighborhood characteristics. However, retailers located close to the city border frequently shared concerns about competition when discussing how and why they increased prices. Retailers in high-poverty areas also were much more likely to report carrying more untaxed beverages and smaller sizes of taxed beverages in response to the tax. We did not observe any differences based on the racial or ethnic composition of the retailers' neighborhoods.

Conclusion

Understanding how policies such as taxes on sweetened beverages are implemented can help policymakers devise more effective policies and better support the people who must carry them out. Most of the retailers (29 of 33) we interviewed passed on the full amount of the tax to consumers in the form of higher prices. However, a few retailers (4 of 33) responded differently and implemented the taxes in ways that likely worked against an intended effect of the policy—that is, to reduce people's intake of sweetened beverages. For example, three retailers did not pass on the full amount of the tax on single-serving sodas, juice drinks, and sweetened teas, which means that customers at those stores might not be discouraged from purchasing these items. Another retailer not only did not pass on the full amount of the tax on taxed beverages, but also raised prices of untaxed beverages—effectively neutralizing the potential impact of the tax on customers' behavior.

More explicit and accessible guidance from policymakers may reduce variation in how retailers implement the tax.

Some retailers (10 of 25) believed that their customers now cross the city border to shop at stores where the tax is not in effect. One large grocery retailer in Philadelphia reported that sales at their stores outside the city border were "really up a startling amount." Our impact analyses supported retailers' beliefs and observations. After the tax, households in both cities were more likely to report that they usually bought beverages outside the city. Cross-border shopping may diminish the potential impact of the tax on consumer behavior, as well as divert consumer shopping revenue to businesses outside of the city.

To reduce options for cross-border shopping, policymakers could consider enacting taxes that apply across broader geographic areas, such as state-level taxes.

Retailers also responded to the tax in ways not specified in the policies or guidance. Although these responses were typically motivated by a desire to maintain profits, they often supported the public health goals of the tax policies too. By carrying more untaxed beverages and giving them more prominent placement in their stores, retailers increased the availability of healthier beverages, which could have influenced customers to buy and drink more of them.

The actions that retailers took in response to the tax—other than how much of the tax they passed on to customers—are less frequently discussed as consequences of the policy, but they likely affect how well the tax works as a policy lever to reduce consumers' intake of sweetened beverages.

Just as implementation studies of public programs include the perspectives and experiences of staff implementing those programs, including retailers in the research on sweetened beverage taxes provides important insight into how the taxes are implemented and how implementation influences the achievement of desired outcomes. In other words, the ways in which retailers implement and respond to the taxes influence consumers' behavior—and ultimately affect the likelihood that the taxes achieve the desired outcome of decreasing consumption of sweetened beverages.

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The views expressed in this issue brief are those of the authors and do not necessarily reflect the views of the Robert Wood Johnson Foundation or Mathematica.

Endnotes

[1] For details on our quantitative analyses, see Cawley et al. (2018a, 2019, 2019b).

[2] The slightly higher price increase observed in Philadelphia in the impact analysis is likely due to the timing of data collection nearly one year after the tax took effect, which allowed time for factors other than the tax (such as inflation) to affect prices. In contrast, the interviewed retailers responded based on their initial reactions to the tax.

[3] See the section on research methods for our definition of "far from the city border."

[4] Possible reasons for this discrepancy include the following: (1) retailers may not have reported raising prices

of exempt beverages during interviews because they did not realize that the beverages were exempt or (2) retailers may not have mentioned these increases because they happened during the first year of implementation as part of usual inflation and were unrelated to the tax.

[5] We do not have definitive evidence regarding why there was a decline in the availability of untaxed beverages.

Research Methods

Retailer sample and recruitment

The sample of beverage retailers recruited for our qualitative analysis included all stores in Philadelphia and Oakland where we previously collected price and availability data (Cawley et al. 2018a and 2019). In deciding which retailers to interview, we focused less on stores with corporate structures that limited decision making by local owners or managers, such as large chain groceries and pharmacies where decisions are made at the national or regional level. We called beverage retailers by using publicly available telephone numbers to recruit respondents who knew how the tax was implemented at their stores—typically owners or managers.

Qualitative data collection and analysis

Our qualitative analysis drew primary information gathered from telephone interviews with beverage retailers. From December 2017 to September 2018, three research analysts conducted 15-minute semi-structured telephone interviews with 33 beverage retailers in Philadelphia, Pennsylvania, and Oakland, California (see table below). The analysts asked retailers (1) how and what they learned about the tax; (2) whether, how, and why they changed prices or other business practices in response to the tax; and (3) how the tax had affected their sales. We contacted 117 stores overall to complete 33 interviews, a 28 percent response rate.

During interviews with beverage retailers, research analysts typed notes as close to verbatim as possible into a structured Excel template organized by study question and topic. They then used audio recordings to clarify notes and verify quotations.

A research analyst and researcher used the constant-comparison method (Glaser and Strauss 1967) to compare retailers' responses for a given topic with one another and categorized them into themes. They reconciled any differences in interpretation through discussion and consensus (Barbour 2001). The unit of analysis was the individual respondent; if a topic was mentioned multiple times by one respondent, it was counted once. The team also looked for patterns or variation in themes by city; store type; and neighborhood characteristics (for example, poverty rate, distance to the city border, and distribution of population by race and ethnicity). A research analyst developed summaries for each topic. The summaries included substantiating data and estimates of the frequency of comments by topic and theme. A research team member reviewed each summary. The team discussed the themes with the project director to clarify, confirm, and compare them to findings from other analyses in the study.

Quantitative data collection and analysis (the impact analyses): This issue brief also refers to data collected via store observations, in-person interviews as customers exited stores, and household surveys:

- **Observation data** on the price and availability of a wide range of beverages sold in retail stores in Philadelphia (baseline n = 66, follow-up n = 64) and Oakland (baseline n = 70, follow-up n = 61) before and after the sweetened beverage tax began in each city
- **In-person interviews** with consumers as they exited retail stores in Philadelphia (baseline n = 600, follow-up n = 763) and Oakland (baseline n = 785, follow-up n = 786) to determine the volume of taxed and untaxed beverages purchased before and after the tax began in each city
- **Household surveys** with adults who had completed an exit interview and had a child living in their household in Philadelphia (n = 241) and Oakland (n = 197) to measure beverage consumption before and nearly one year after the tax began

Full details of our data collection and analysis methods for the impact analyses are available in Cawley et al. 2018a, 2019, and 2019b.

This study was approved by the Health Media Lab Institutional Review Board.

Characteristics of retailers participating in interviews

Characteristic	n	%
City, state		
Oakland, California	15	45
Philadelphia, Pennsylvania	18	55
Store type[a]		
Convenience store	7	21
Gas station	5	15
Large grocery store	10	30
Pharmacy	1	3
Small grocery store	10	30
Neighborhood characteristics[b]		
Far from city border (> 3.2 miles from Philadelphia border; > 2 miles from Oakland border)	16	48
High % in poverty (> 23.3% in Philadelphia; > 16.4% in Oakland)	19	58
High % African American (> 37.6% in Philadelphia; > 19.6% in Oakland)	14	42
High % Latino/Hispanic (> 13.9% in Philadelphia; > 20.5% in Oakland)	16	48
High % white (> 34.9% in Philadelphia; > 60.3% in Oakland)	8	24

[a]We defined store types using codes from the North American Industry Classification System. For details, see Cawley et al. 2018a, 2019, and 2019b.
[b]Given the geographic and demographic differences between Philadelphia and Oakland, we established different cutoff points for each variable in each city. We used either the median value for the qualitative store sample only or the median value for the sample used for all quantitative analyses (a larger sample) as the cutoff points.

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