NCSL AGRICULTURE & ENERGY SUPPLY TASK FORCES

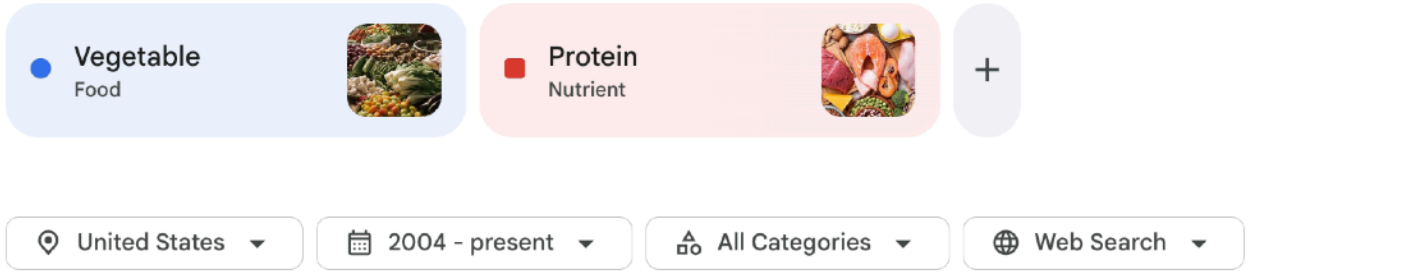
Beyond the Barn:

Food Distribution and Consumer Access

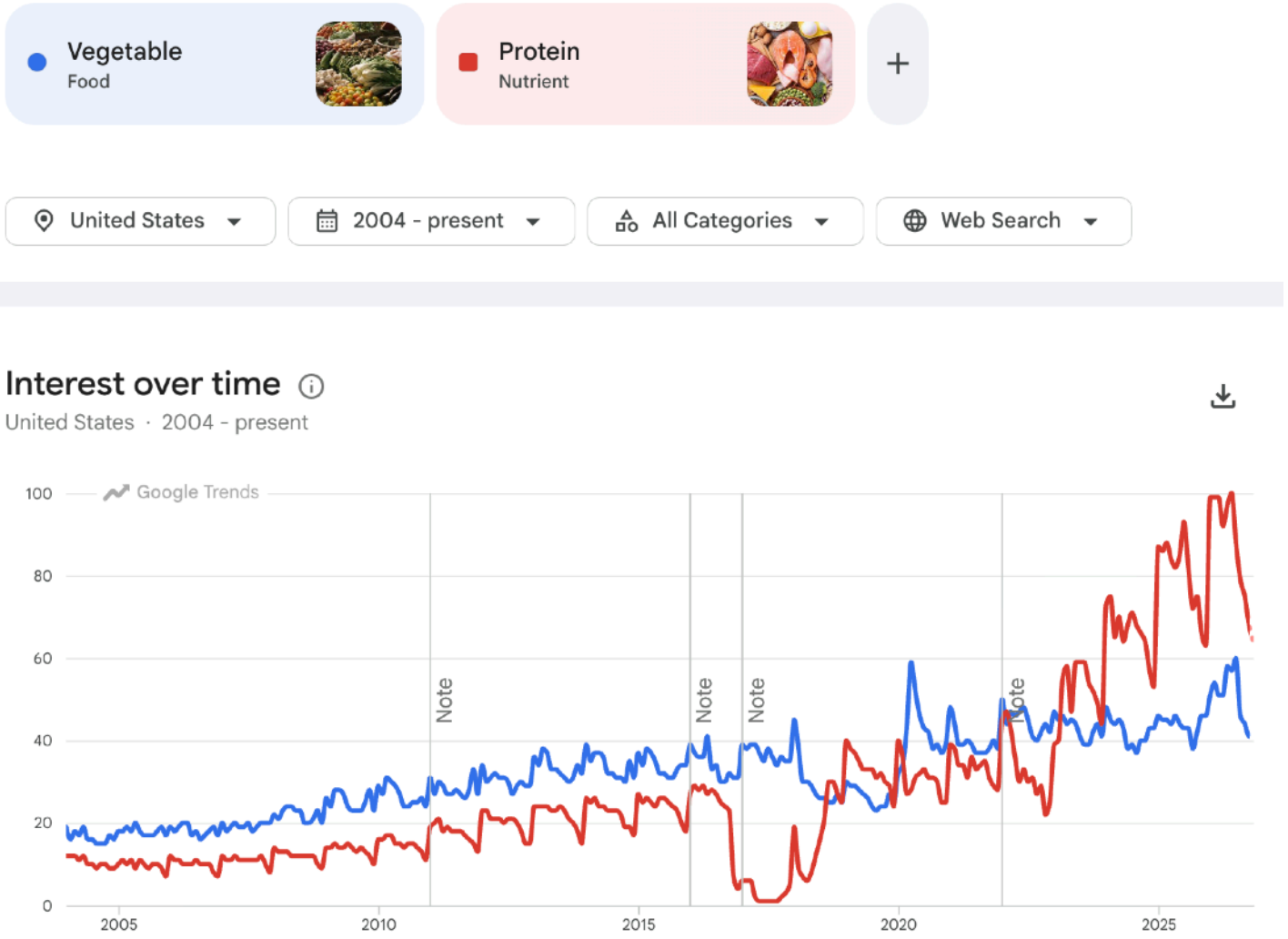
Sandy Sum

Agricultural & Resource Economics, UC Davis

Consumers want healthier food



Consumers want healthier food



- **Organic** produce sales grew **2x** as fast as the overall food market in 2024
- **57%** followed a **diet** in 2025, up from 36% in 2018

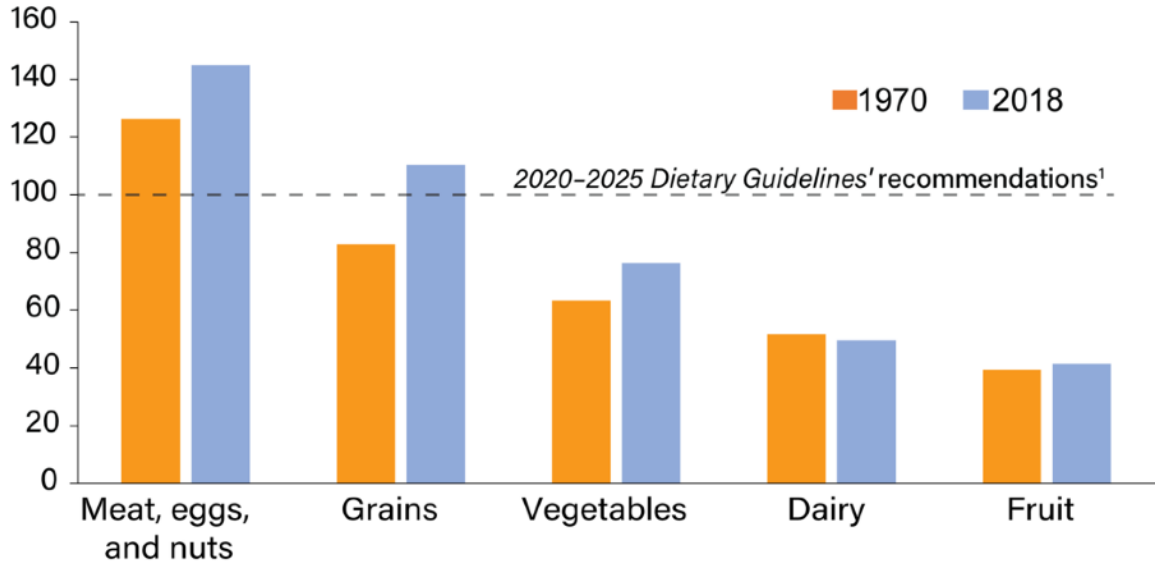
IFIC Food & Health Survey, 2025

Organic Trade Association, 2025

Consumers want healthier food, but there is a gap due to access, price, and convenience

Estimated average U.S. consumption compared to recommendations, 1970 and 2018

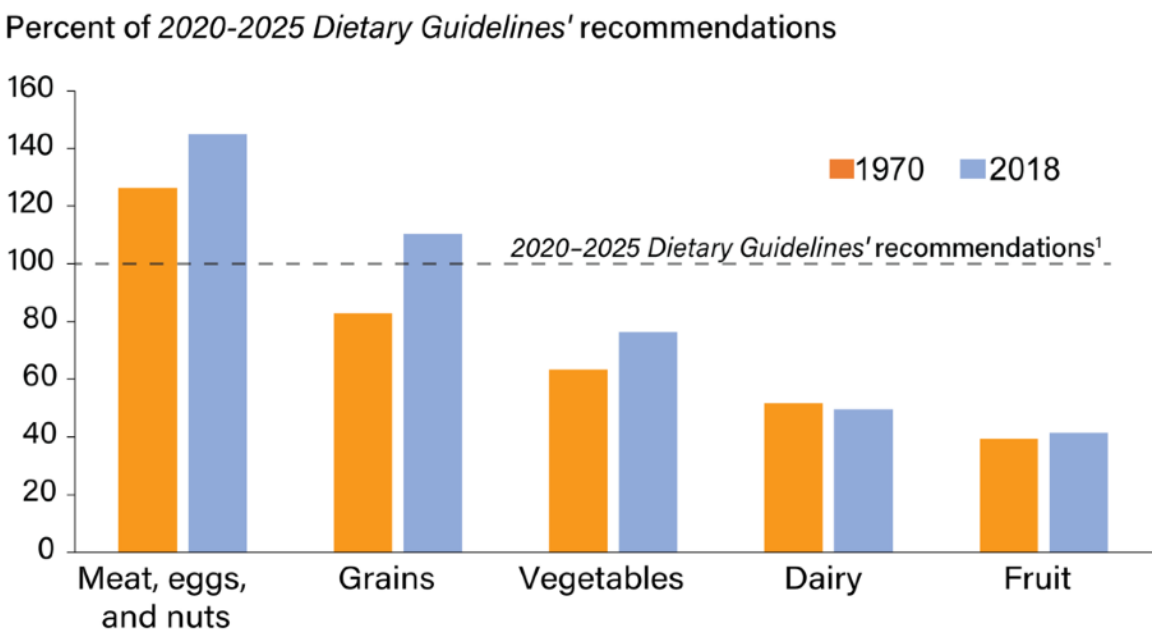
Percent of *2020-2025 Dietary Guidelines'* recommendations



[1]Based on a 2,000 calorie-per-day diet.
Notes: Loss-adjusted food availability data are proxies for consumption. Rice availability data were discontinued in 2010 and thus are not included in the grains group.
Source: USDA, Economic Research Service, Loss-Adjusted Food Availability Data and *2020–2025 Dietary Guidelines*.

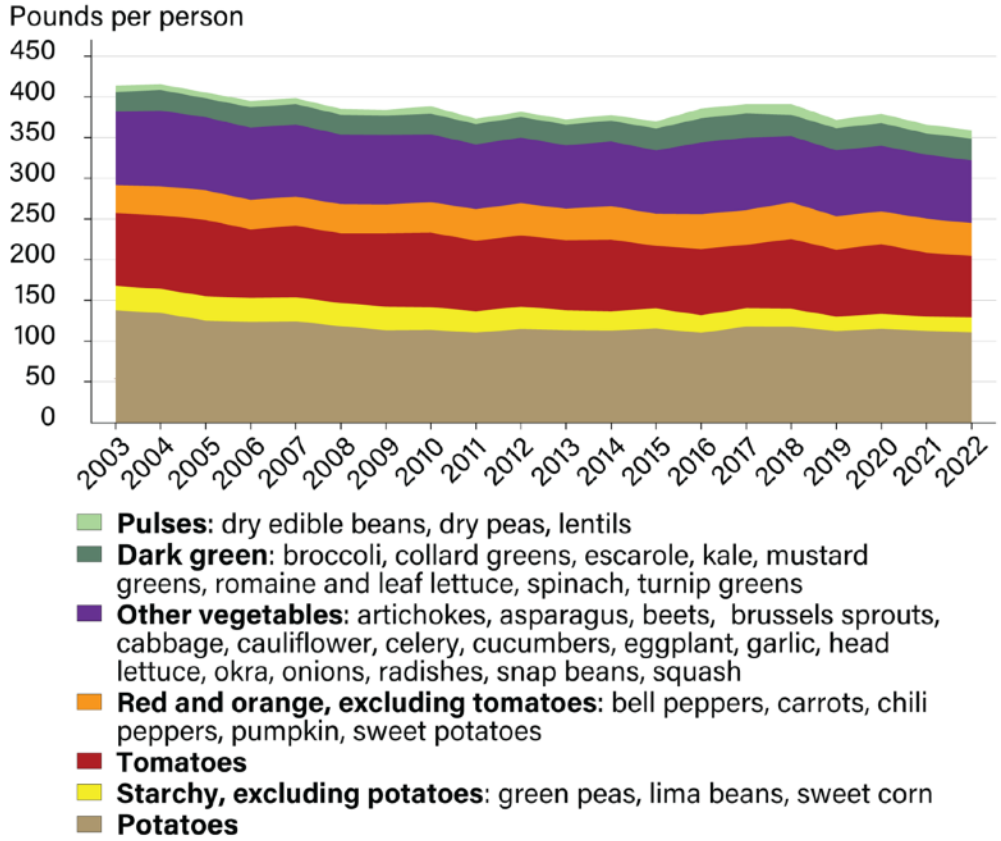
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Source: USDA, Economic Research Service, Loss-Adjusted Food Availability Data and *2020–2025 Dietary Guidelines*.

Annual vegetable availability in the United States, 2003–22



Source: USDA, Economic Research Service, Food Availability Data.

Consumers want healthier food, but there is a gap due to access, price, and convenience.

State policies can shape these factors and narrow this gap.

TODAY'S ROADMAP

Start simple, then look at two real policies

01 **How a food market works**
Two sides, one price, and a long chain in between

02 **The menu of state and local levers**
Sorted by who they target and how they work

03 **Case study: soda taxes**
A price tool aimed at consumers

04 **Case study: cottage food laws**
A rule change aimed at small producers

05 **Proposed improvements**
Then Sylvia: how to design policies with measurement in mind

Food Market 101 & Menu of State Food Policies

HOW A FOOD MARKET WORKS

Every food market has two sides



Supply

Farms, processors and grocers. How much they will sell at each price.

Demand

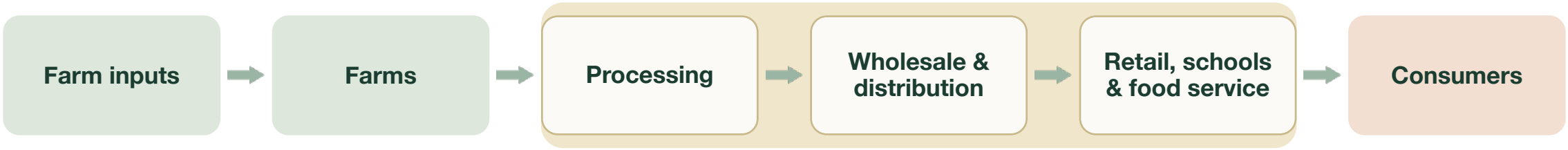
Households, schools and food banks. How much they will buy at each price.

HOW FOOD MOVES

Farm policy and nutrition policy rarely meet

Agricultural policy
Commodity programs, crop insurance, water

Food & nutrition policy
SNAP, school meals, dietary guidance

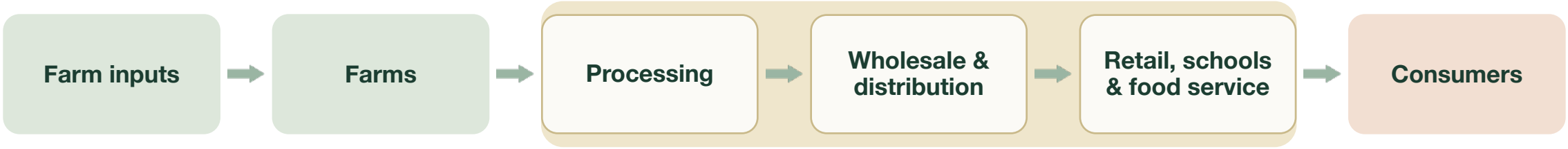


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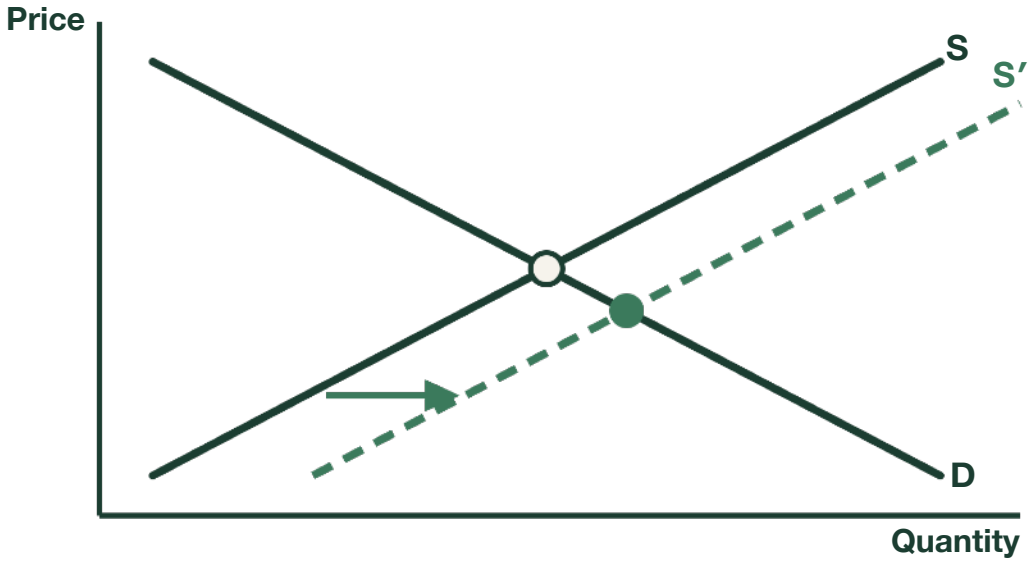


Where most state and local levers act
State purchasing through food hubs · school procurement · soda taxes collected from distributors · EBT and checkout rules at stores

The middle of the chain is where states can connect the two.

Policy moves one side of the market

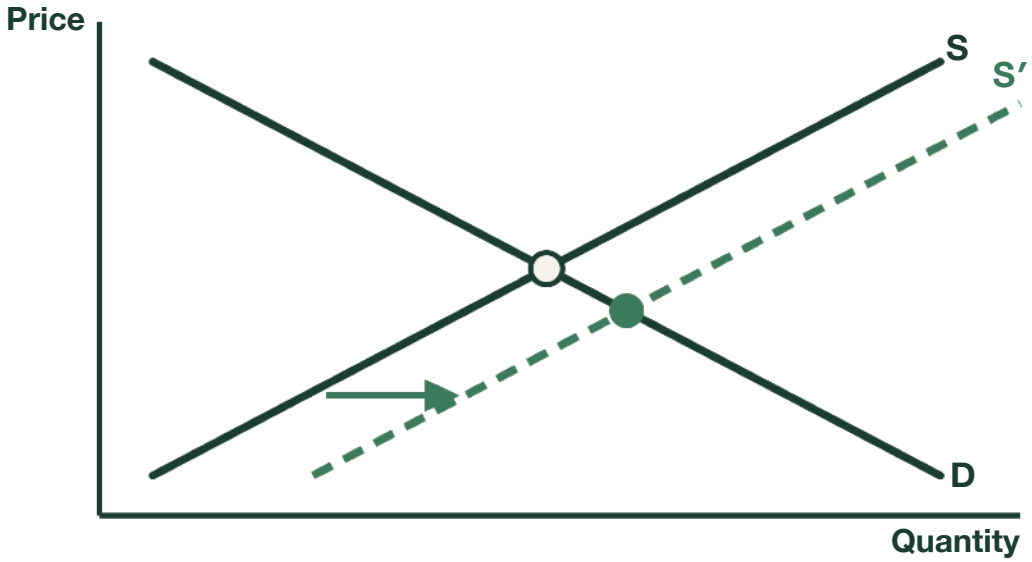
Push on supply



Lower sellers' costs (grants, purchasing, easier entry): more food sold, at a lower price.

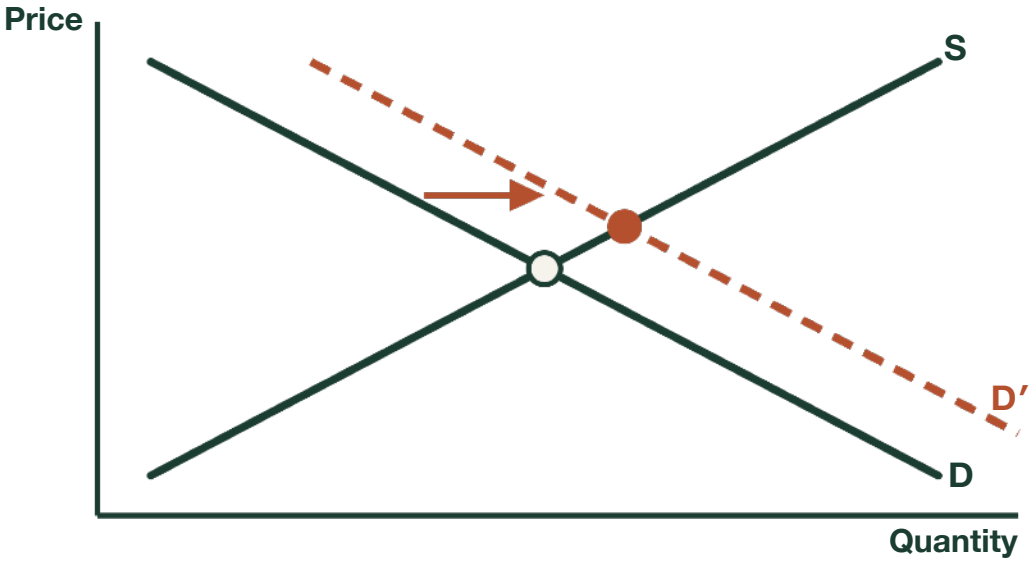
Policy moves one side of the market

Push on supply



Lower sellers' costs (grants, purchasing, easier entry): more food sold, at a lower price.

Push on demand



Change what buyers pay (incentives up, taxes down): purchases shift toward the targeted food.

TWO KINDS OF TOOLS

States can change prices, or change the rules

FISCAL

Subsidies and taxes

Change what food costs to buy or to sell.

First question: **what does it cost, and who pays?**

REGULATORY

Rules and entry barriers

Change what can be sold, by whom, and where.

First question: **who must comply, and what are the risks?**

Each kind can push on supply or on demand.

THE MENU

State and local levers for healthy, local food

▪ Local food ▪ Healthy food ▪ Both ▲ Expands options ▼ Restricts

	Supply side · producers & sellers	Demand side · consumers
Fiscal subsidies & taxes	▲ **State food-bank purchasing (LFPA)** California 2026 (state funds) · Minnesota ▲ **Farm-to-school incentives** Oregon 2011 · Michigan 2016	▲ **SNAP produce incentives** NYC 2005 · California 2009 · Michigan 2009 ▲ **EBT at farmers' markets** California markets since 2003 ▼ **Soda tax** Berkeley 2015 · Philadelphia 2017 · Seattle 2018
Regulatory rules & entry barriers	▲ **Cottage food laws** WY 2001/2015 · CA 2012 · nearly all states ▼ **Healthy checkout ordinance** Berkeley, CA 2021 ▼ **Fast-food zoning limits** South Los Angeles 2008	▼ **SNAP purchase restrictions** IN, IA, NE, UT, WV 2026 · 22 states approved

THE MENU

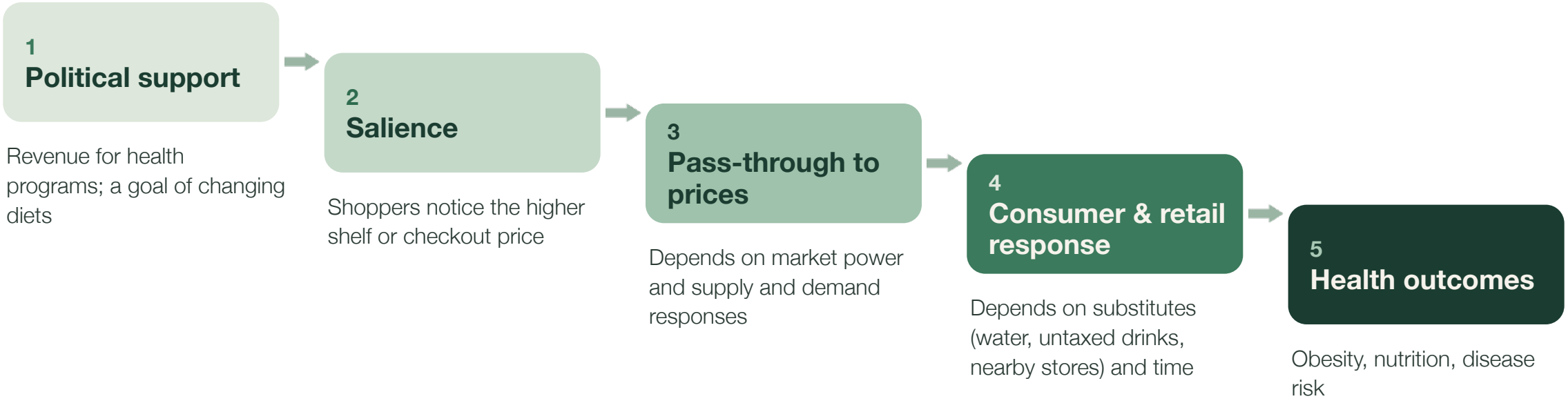
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Case Study 1 · Soda Taxes

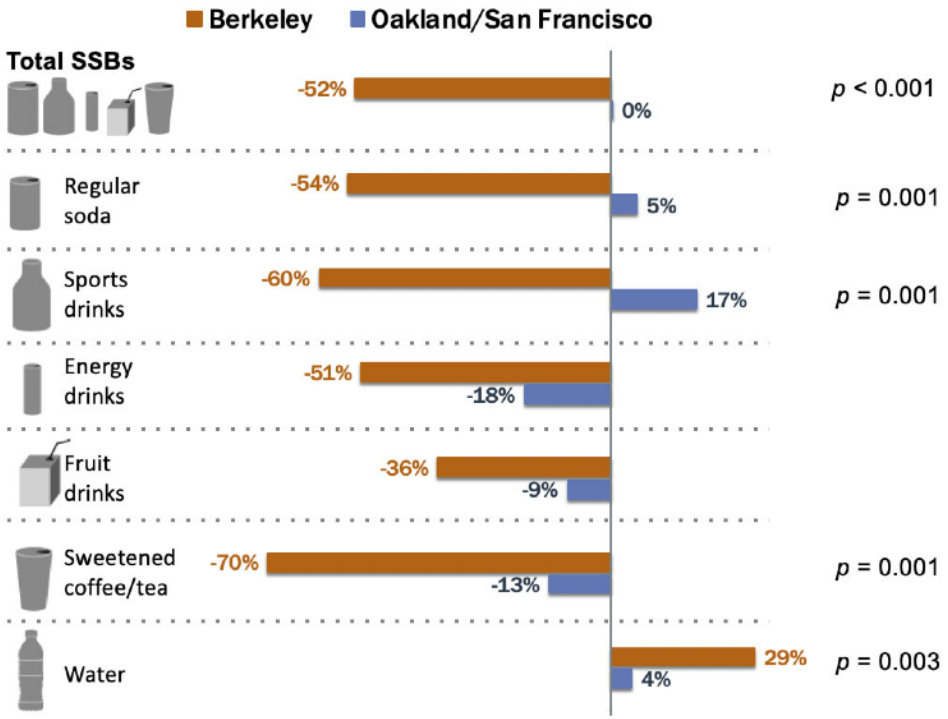
Five links between a tax and better health



Every link has to hold. Most debates are about which one breaks.

Adapted from Alston (UC Davis) & Okrent (2017), *The Effects of Farm and Food Policy on Obesity in the United States*, Fig. 9.2

Purchases fell where the tax applied



Change in intake, Berkeley vs. Oakland/San Francisco. Lee et al. (2019), *AJPH*

BERKELEY, CA · 2015

Sugary-drink intake **fell by about half** over three years. Nearby cities without the tax saw no change.

PHILADELPHIA, PA · 2017

Taxed-drink sales in the city **fell 38%**. About **a quarter of that drop moved to stores outside the city**.

Lee et al. (2019), *AJPH* · Roberto et al. (2019), *JAMA*

Soda buyers are sensitive to price

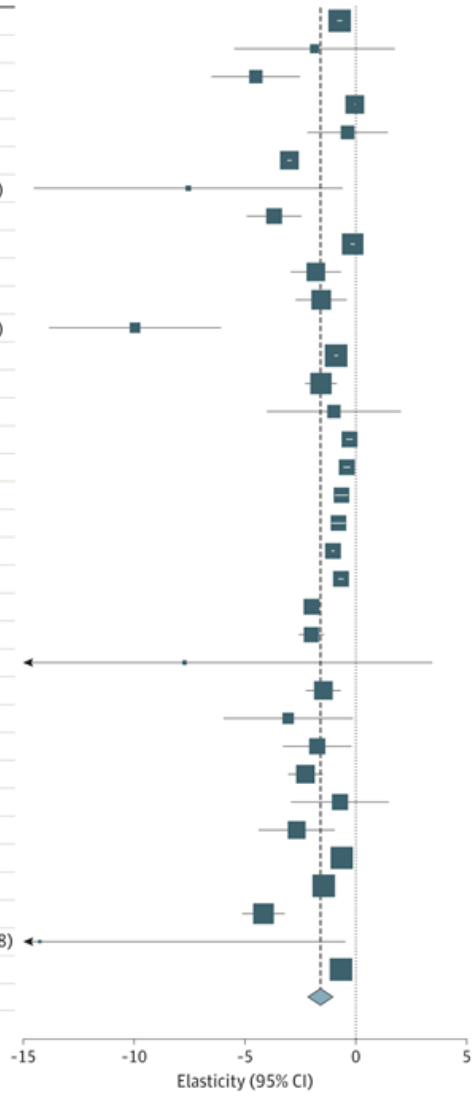
−1.59

Average price elasticity of sugary drinks, across tax studies worldwide

A **10%** price increase leads to **16%** fewer purchases.

Andreyeva et al. (2022), *JAMA Network Open*

Source	Tax Jurisdiction	Elasticity (95% CI)	Model weight, %
Alvarado et al,[63] 2019	Barbados	-0.73 (-0.84 to -0.62)	5.1
Bollinger and Sexton,[82] 2018	Berkeley, CA	-1.86 (-5.48 to 1.76)	0.8
Lozano-Rojas,[86] 2020	Berkeley, CA	-4.51 (-6.50 to -2.52)	1.8
Mendez,[87] 2019	Berkeley, CA	-0.05 (-0.06 to -0.03)	3.5
Rojas and Wang,[88] 2017	Berkeley, CA	-0.37 (-2.19 to 1.44)	1.9
Silver et al,[89] 2017	Berkeley, CA	-3.00 (-3.09 to -2.91)	3.5
Taylor et al,[90] 2019	Berkeley, CA	-7.56 (-14.53 to -0.59)	0.3
Taylor et al,[90] 2019	Berkeley, CA	-3.69 (-4.92 to -2.45)	2.5
Mora et al,[109] 2018	Catalonia, Spain	-0.14 (-0.23 to -0.05)	4.6
Vall Castelló and Lopez Casasnovas,[111] 2020	Catalonia, Spain	-1.81 (-2.94 to -0.68)	3.5
Caro et al,[57] 2018	Chile	-1.56 (-2.71 to -0.41)	3.9
Nakamura et al,[59] 2018	Chile	-9.96 (-13.84 to -6.08)	1.1
Powell et al,[104] 2020	Cook County, IL	-0.89 (-0.97 to -0.81)	5.1
Schmacker and Smed,[61] 2020	Denmark	-1.57 (-2.29 to -0.86)	4.6
Capacci et al,[54] 2019	France	-0.99 (-4.01 to 2.04)	1.8
Aguilar et al,[29] 2019	Mexico	-0.29 (-0.43 to -0.14)	2.5
Arteaga et al,[30] 2017	Mexico	-0.41 (-0.56 to -0.26)	2.5
Colchero et al,[34] 2016	Mexico	-0.65 (-0.94 to -0.35)	2.4
Colchero et al,[33] 2016	Mexico	-0.78 (-1.11 to -0.46)	2.4
Colchero et al,[35] 2017	Mexico	-1.03 (-1.09 to -0.97)	2.5
Colchero et al,[37] 2017	Mexico	-0.67 (-0.79 to -0.55)	2.5
Ng et al,[39] 2019	Mexico	-2.00 (-2.00 to -2.00)	2.5
Pedraza et al,[40] 2019	Mexico	-2.00 (-2.58 to -1.43)	2.3
Cawley et al,[99] 2020	Oakland, CA	-7.73 (-18.90 to 3.45)	0.2
Cawley et al,[69] 2019	Philadelphia, PA	-1.47 (-2.25 to -0.68)	3.5
Cawley et al,[70] 2019	Philadelphia, PA	-3.05 (-5.97 to -0.13)	1.3
Roberto et al,[72] 2019	Philadelphia, PA	-1.74 (-3.29 to -0.20)	2.6
Seiler et al,[73] 2019	Philadelphia, PA	-2.27 (-3.04 to -1.50)	3.5
Gonçalves and Santos,[64] 2019	Portugal	-0.72 (-2.92 to 1.49)	2.6
Cornelsen et al,[114] 2017	Restaurant, UK	-2.67 (-4.39 to -0.95)	3.2
Alsukait et al,[66] 2020	Saudi Arabia	-0.64 (-0.93 to -0.34)	5.0
Powell and Leider,[106] 2020	Seattle, WA	-1.45 (-1.64 to -1.25)	5.1
Breeze et al,[113] 2018	Sheffield, UK	-4.17 (-5.12 to -3.21)	4.3
Hoffer and Sheehan,[92] 2020	WA state	-14.26 (-28.04 to -0.48)	0.1
Rojas and Wang,[88] 2017	WA state	-0.67 (-0.68 to -0.66)	5.1
Random effects model: $I^2 = 100\%$, $\chi^2_{34} = 122928.58$ ($P < .001$)		-1.59 (-2.11 to -1.08)	100.0
Test for overall effect: $t_{34} = -6.26$ ($P < .001$)			



Three places the effect can leak

Shoppers cross the border

City taxes push some buying to nearby stores. In Philadelphia, about a quarter of the drop.

Roberto et al. (2019) · Seiler, Tuchman & Yao (2021)

Who pays

Lower-income households pay a larger share of income, and may also gain more health.

Allcott, Lockwood & Taubinsky (2019)

Political pushback

Cook County, IL repealed its tax in 2017. California and Washington blocked new local taxes in 2018.

State preemption is a state-level lever

The design decides how much of the effect survives.

Case Study 2 · Cottage Food Laws

Cottage food laws lower the cost of starting

WITHOUT THE LAW

- Rent a commercial kitchen
- Get a food-facility permit
- Pass routine inspections

High fixed cost before the first sale

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WITH THE LAW

- Use your home kitchen
- Register and label products
- Sell low-risk foods, up to a cap

Low cost to start; risk managed by limits

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Low cost to start; risk managed by limits

A supply-side shift: more small sellers can enter the market.

More small food businesses where the law allows

CALIFORNIA · 2012

AB 1616

Baked goods, jams and other low-risk foods

CALIFORNIA · 2018

AB 626

Home-cooked meals, where counties opt in

WYOMING · 2015

Food Freedom Act

Among the most permissive; direct sales

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Home-cooked meals, where counties opt in

WYOMING · 2015

Food Freedom Act

Among the most permissive; direct sales

O'Hara, Castillo & Thilmany (2021), *AEPP*

Comparing states before and after their laws: **more baked-goods businesses**, with the largest gains among one-person firms.

McDonald (2019), *Food Policy*

Survey of 775 producers: **stricter rules** appear to discourage rural and women entrepreneurs.

Missing: who the operators are, and how recent expansions changed their businesses.

Four open questions our study will answer

Are sales caps holding businesses back?

Informs: where to set caps, and when growing sellers need a next step

How: a survey of every licensed California operator (English and Spanish) and 25–40 interviews, leading to a policy brief and a survey any state can reuse.

Team: Kaitlyn Harper, Kristin Kiesel, Sandy Sum, UC Davis · Olivia Henry & Sue Mosbacher, UC ANR

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Do stricter local rules keep people out?

Informs: one statewide rulebook versus county-by-county control

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PROPOSED IMPROVEMENTS

Small design changes that could help

Soda taxes

1 **Tax at a wider level**

State or regional taxes leave less room to shop across the line.

2 **Pair the tax with an incentive**

Fund produce incentives with the revenue: push and pull together.

3 **Tax by sugar content**

Tiered rates, as in the UK (2018), reward reformulation.

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Cottage food laws

1 **One statewide rulebook**
California's 58 county jurisdictions apply rules differently.

2 **Keep caps and channels current**
As California did in 2022 (AB 1144): higher caps, more ways to sell.

3 **Pair with food-safety training**
Low-cost courses keep risk low as more people enter.

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Low-cost courses keep risk low as more people enter.

For both: decide how you will measure success before launch.

State policies can address the healthy food-gap. Design decide how, consumer and retail responses shape impact.

Soda taxes: strong evidence, but effects leak across borders.

Cottage food laws: more small businesses at low budget cost.

Next: Sylvia Klosin on how to design policies for tracking success.

REFERENCE · SOURCES

Research behind these slides

FROM UC DAVIS AGRICULTURAL & RESOURCE ECONOMICS

Alston & Okrent (2017). *The Effects of Farm and Food Policy on Obesity in the United States*. Palgrave Macmillan.

Alston, **Sumner** & Vosti (2008). Farm subsidies and obesity in the United States. *Food Policy*.

Sexton & Xia (2018). Increasing concentration in the agricultural supply chain. *Annual Review of Resource Economics*.

National Academies panel incl. **Beatty** (2020). *A Consumer Food Data System for 2030 and Beyond*.

Harper, **Kiesel** & **Sum** (in progress). Constraints and opportunities in California's cottage food industry.

OTHER SOURCES

Allcott, Lockwood & Taubinsky (2019), *QJE*

Andreyeva et al. (2022), *JAMA Network Open*

Harnack et al. (2016), *JAMA Internal Medicine*

Lee et al. (2019), *American Journal of Public Health*

McDonald (2019), *Food Policy*

O'Hara, Castillo & Thilmany (2021), *AEPP*

Roberto et al. (2019), *JAMA*

Seiler, Tuchman & Yao (2021), *J. Marketing Research*

Weitzman (1974), *Review of Economic Studies*

Institute for Justice (2022, 2025) · CDPH, cottage food data

CDC *MMWR* (2022) · IFIC (2025) · OTA (2025) · USDA ERS