NEW ENGLAND FEEDING NEW ENGLAND

VOLUME 4

UNDERSTANDING MARKET CHANNELS AND FOOD EXPENDITURES

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NEW ENGLAND FEEDING NEW ENGLAND

Volume 1:
Estimating Resilient Eating Patterns

Volume 2:
Estimating Production for 30% Regional Self-Reliance

Volume 3:
Economic Impact of New England's Food System

» **Volume 4: Understanding Market Channels and Food Expenditures**

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On the cover, clockwise from top left: City Market in Burlington, Vermont (City Market); Vernon Family Farm in Newfields, New Hampshire (Nicole Cardwell, NHFA); local meat section at Hannaford (Hannaford); moving boxes of fresh produce at Plainville Farm, in Hadley, MA (Adam DeTour Photography); Boston College campus farmers market (MFPC); CTown supermarket in Hartford, Connecticut (CFSA)

What would it take for *30%* of the food consumed in New England to be regionally produced by *2030*?

What will it really take to grow, raise, produce, harvest, and catch more regional food and move it through a complex supply chain to our homes and other places we eat? What do we need to do in the near term, by 2030, to make tangible progress towards this bold goal? How might the increasing and escalating impacts of climate change impact our ability to feed ourselves? What can we do as a region to make our food system more equitable and fair, resilient and reliable? To answer these questions, the **New England State Food System Planners Partnership**—a collaboration between six state-level food system organizations—and Food Solutions New England—who are mobilizing their networks to strengthen and grow the New England regional food system—convened four teams of researchers.

This research volume examines the question: **What market channels offer the best opportunities for sourcing local and regional food products?** A *Market Demand Team* found that consumer access to food is heavily concentrated in two market channels: grocery stores and supercenters for food eaten at home and restaurants, including quick service formats, for food eaten away from home. With the majority of food sales made through these two channels, increased sourcing and offering of regional foods on store shelves and menus will be a key strategy to achieving our 30% by 2030 goal.

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1 Introduction

Can the six New England states provide *30%* of their food from regional farms and fisheries by *2030*?

This question guided research conducted by the New England State Food System Planners Partnership to help policy-makers, funders, food system businesses and stakeholders, community groups, and consumers understand the relative resilience of New England's food system. Why does this question matter? After all, America's food and beverage production capacity—farms, fisheries, processors, and manufacturers—is enormous, abundant, and diverse. Food imports from around the world have steadily increased. Our food distribution systems are timely and efficient. Our grocery stores and restaurants are stocked, affordable, and convenient. Even our waste disposal systems are a flush and weekly pickup away.

In most of our lived experiences, we have not had to answer the question—***Where does our food come from?***—with specificity, although our ancestors certainly could. And yet, accumulating evidence indicates that we are entering a new era of human experience. Due to linked challenges that are *simultaneously taking place everywhere across the planet*, Americans will no longer be able to reasonably expect that every food they want will be easily available for them to buy year-round.

New England Feeding New England

If where our food came from suddenly mattered, would New England be prepared with a reliable, safe, and abundant food supply? What will it really take to grow, raise, produce, harvest, and catch more regional food and move it through supply chains to our homes and other places where we eat? There are very few examples of long-term planning for healthy, reliable food supplies. Unlike other systems that provide essential goods and services, like energy and water, *no one* is currently in charge of planning and preparing for healthy, reliable, and resilient long-term food supplies.

In 2014, Food Solutions New England published A New England Food Vision, which imagined what it would take to produce 50% of New England's food supply from regional sources by 2060. It found that the region *could* theoretically supply 50% of its food by focusing production on fruits, vegetables, dairy products, and grass-finished meats, while importing the majority of food grains, feed grains, oilseeds, and sweeteners. Based on a target of 2,300 calories per person per day, 4 million additional acres of land in agriculture would be required to do this (about three times more than is currently in active production, although about 6.8 million acres were in cropland and pasture in New England in 1945).

Volume 4 Research Summary

What market channels offer the best opportunities for sourcing local and regional food products?

New England Feeding New England updates the analysis from *A New England Food Vision* and explores opportunities at an intermediate and more easily imaginable range: **what would it take for *30%* of the food consumed in New England to be regionally produced by *2030*?** To explore key questions about our long-term food supply, four research teams were assembled across New England:

1. **Dietary Patterns Team:** How would food consumption patterns have to change in order to make the best use of what regional food producers can grow, harvest, and catch? This Team developed dietary scenarios for "Unchanged Eating"—a continuation of how we currently eat—and "Resilient Eating"—a dietary pattern much more closely in alignment with U.S. Dietary Guidelines—in 2030 (see Volume 1).

2. **Food Production Team:** How much food do we produce in New England compared to how much food we consume? The Food Production Team analyzed current regional food self-reliance and developed a model to explore New England's potential to increase its self-reliance based on dietary scenarios prepared by the Dietary Patterns Team (see Volume 2).

3. **Economic Impact Team:** Do we have the right mix of industries to ramp up food production? The Economic Impact Team estimated the number of people employed in New England's food system, the economic impact of food system activities, economic multipliers for each industry, and areas of growth or contraction (see Volume 3).

4. **Market Channels Team:** What market channels offer the best opportunities for sourcing local and regional food products? The Market Demand Team analyzed market concentration trends, sales data from retail food market channels, consumer expenditures for the six states, and explored specific challenges within each market channel (Volume 4).

How will regionally produced food ultimately end up on consumers' plates? **Volume 4** examines the role of market channels—grocery stores, restaurants, institutions and others—in distributing food to New England consumers and the potential for each to contribute to meeting a collective goal of 30% regional food products by 2030. To do this, the Market Channels Team was tasked with the following:

- Identify the access points or "market channels" through which people get food
- Determine how much of what we eat is represented by each market channel (i.e., "market relevance")
- Describe who utilizes each market channel

- Examine procurement decision drivers by market channel
- Estimate 30% of total food and beverage expenditures by each state and the region
- Highlight opportunities within each market channel to increase sourcing of regionally grown and produced food

Volume 4 illuminates areas where more transparency is required to accurately and efficiently assess our collective progress. This investigation has surfaced critical findings that provide guidance on where to focus our attention in the future:

1. **All markets need to be part of meeting our regional goal.** Consumers rely on a combination of market channels. Getting to 30% by 2030 in consumer expenditures is going to require every market channel to sell more regional food.

2. **Consumer access to food is heavily concentrated in two major market channels: 1) grocery stores and supercenters for food eaten at home and 2) restaurants, including quick service (i.e., fast food), for food eaten away from home.** With the majority of consumers' food sales made through these two channels, increased sourcing and offering of regional foods on store shelves and menus will be a key strategy to achieving our 30% by 2030 goal.

   Our current understanding of regional food sourcing is limited within these channels due to lack of transparency around product cost/profit margin, lack of tracking and reporting due to lack of information, capacity, interest or obligation, business models, and purchasing incentives that do not prioritize regional goods. To gain access to this information, we have to build relationships with these businesses and develop the business case for better tracking and sharing of procurement data.

   Some consumers are willing to pay more for local products - food retailers and restaurants can do a better job of underscoring the value of these products by differentiating themselves from non-regional competitors.

   However, unlike in other channels, there is limited cohesive advocacy capacity to influence change in grocery stores and restaurants, where the customer base is completely decentralized. For example, unlike in the institutional sector—where students, families, and communities may know one another and have infrastructure for collaborative advocacy—it is much harder to coordinate among customers of a particular grocery store or restaurant.

3. **Individual stores and restaurants are dependent on larger logistical networks.** New England has good distribution coverage. Distributors are knowledgeable salespeople who can promote local products- assuming a producer can gain access to the right distributor. Shorter food supply chains are not automatically more resilient, but coordination and cooperation within short supply chains from local producers/manufacturers to retailers/restaurants can create advantages that make the local supply chain competitive with dominant industry actors. Small distributors can also share assets to reduce costs and pass along cost savings. Local producers and consumers can encourage grocers to carry specific products and independent retailers can request their distributors carry these products. As intermediaries in the value chain, distributors' data could help us understand regional purchasing better.

4. **Total purchasing power of the market channel does not necessarily correlate with the importance of the sector to those who eat there.** Institutional markets, while their purchasing power is significantly smaller than grocery stores and restaurants, are a potential source of food for 1 in every

4 New Englanders. School meals are especially important to children from low-income families for whom these meals provide a majority of daily nutrition. In some institutional settings (e.g., prisons), consumers are entirely reliant on the food provided for extended periods of time with no choice in what is offered.

Our region has many institutional leaders in regional sourcing, who help us to know most of what we do know about our progress toward our goals today. This has been spurred by national advocacy groups like Real Food Challenge, targeted philanthropy like the Henry P. Kendall Foundation New England Food Vision Prize, and backbone support of key organizations like Farm to Institution New England (FINE), which acts as both resource coordinator and data aggregator.

5. **Market options are simultaneously ubiquitous and insufficient.** Across New England, there are thousands of outlets to access food and yet often this food is inaccessible physically, culturally, and economically, to consumers due to a variety of factors. Over the past 15 years in New England, the prevalence of food insecurity has averaged 8.7% on the low end in New Hampshire, and 14.1% on the high end in Maine. Food insecurity in New England is one indicator that food availability alone is not enough.

   Social determinants of health play a major role in the number and types of food businesses that are available in a given area. For instance, regardless of consumer density, predominantly Black and Hispanic neighborhoods are known to be underserved by traditional grocery stores and over represented by "quick service chain restaurants" (i.e., fast food) and dollar stores. In addition to meeting the immediate food needs of consumers, we need to address root causes of inequities in our food system and make pathways for increased sovereignty and ownership by historically marginalized groups.

6. **Seasonality will continue to create challenges for local markets when consumers are used to year-around availability.** The seasonality of local food is a challenge for retailers. The consistentcy of local food products is also critical. Season extension strategies from farm-based hoop houses to high-tech hydroponic greenhouses increase local food availability. Secondary markets (e.g., processors) can also help balance out seasonal fluctuation. Consumers are less likely to pay a premium for local frozen products, but retailers and food service can use lightly processed frozen ingredients year round in prepared foods. In this scenario, producers capture peak season profitability and the retailer or institution potentially benefits from premium pricing on items marketed as local, even when out of season.

7. **Fresh, local products alone are not enough to meet our regional sourcing goals.** As a practical matter, a significant amount of calories currently consumed by Americans come from processed and manufactured food products. Although tracking of regional food products is more complicated and time consuming for multi-ingredient products, regional food processors and manufacturers have an important role to play in sourcing regional ingredients.

8. **The profile and purchasing power of the New England consumer is changing.** In 2030, the population of the region will be larger, older, and more racially and ethnically diverse. To be responsive to these shifting demographics, producers and buyers will need to think through how to offer food products that are more culturally inclusive and meet the palate preferences of future consumers.

9. **A standard definition of regional food will help everyone to more accurately track regional sourcing and participate in a shared goal of 30% by 2030.** With the exception of the Vermont Local Definition, there is no other official definition of local and regional in New England. Ideally, definitions and guidance on tracking regional purchases will recognize cross-state value chains, understanding that production and consumption are concentrated in different parts of New England.

Methodology

In this report, **"region" is defined as the six New England states.** The terms **"regional foods" and "regionally produced" refer to single ingredients that are grown, raised or harvested in New England, as well as products transformed or manufactured with a majority of regional ingredients by companies based in New England.** This definition is adapted from the State of Vermont Act 129, Vermont Local Food Definition. This definition of region is not yet universally adopted nor consistently used for tracking and reporting food purchases.

As each section of this report will explain in greater detail, we relied on a variety of secondary sources and these sources may use different geographic distinctions or descriptions, including the popular catch-all of "local." The combined lack of shared definition and tracking methodology across market channels is a significant barrier to establishing a complete and accurate baseline calculation of regional food expenditures. **Adoption of a regional food definition and standard tracking methodology across market channels would help to support future reporting and calculations of progress against regional food sourcing goals.** What gets tracked should also include values-based food metrics such as climate-friendly growing practices, supply chain transparency, and fair labor practices.

The majority of market demand research draws from secondary sources (e.g., books, academic journals, newspaper articles, publicly available data sets, industry reports, trade magazines, and organizational websites). In some cases, primary data collection previously conducted by regional food system stakeholder groups supports this research. In key channels like grocery retail, where the research team did attempt primary research given the size and importance of the market sector (e.g., direct inquiry to Whole Foods and Ahold Delhaize), company representatives were either unable or unwilling to provide specifics of their local procurement strategies. The balance of data available by market channel is a reflection of the extent to which it is privatized and/or whether that channel sees investment in regional food systems as a competitive differentiator.

Food can travel many different paths from where it is produced or harvested to where it is finally consumed and its cost increases with every transaction. This means the end price of food to the consumer can vary widely depending on the complexity of the value chain traveled prior to final purchase and the market channel through which it is obtained. A carrot on a school lunch tray and a carrot on the plate at a Michelin-star restaurant could technically come from the same farm, and yet the consumer's cost could range from free to whatever the market will bear depending on the potential interim cost margins applied for packaging, transportation, distribution, food service preparation, marketing, and so on.

This Volume of New England Feeding New England uses dollars as the unit to represent regional food expenditures. As the theoretical final transaction in the food value-chain, this is when a food item is at its highest monetary value. In instances where food is received at no cost to the end consumer (e.g., food pantry, free school meals), an intermediary (e.g., distributor, nonprofit organization, or the government) is the final purchaser, not the end consumer.

Home Production

We recognize that there is food grown for individual consumption that does not rely on any market channel and yet has value. For example, USDA archives show that there were 20 million Victory Gardens in the United States, which produced 10 billion pounds of food or around 40 percent of the U.S. vegetable supply in 1943.[1] While subsequent decades saw a decline in home gardening, there has been renewed interest in formalizing the right to farm and grow food for individual consumption as part of the food sovereignty movement. According to the National Gardening Association's 2022 National Gardening Survey, the COVID-19 pandemic created 18.3 million new gardeners. Currently, 35% of U.S. households grow vegetables, fruits, and other food, with an average garden yielding $600 worth of produce in a year.

Photo credit: Vermont Community Garden Network

The unsatisfying reality is that data for local and regional food purchases for most market outlets in New England is very limited. Even estimating the overall size of the New England retail food market is not without complication. In the next section, we provide food and beverage expenditure estimates from three data sources— the State-level Food Expenditure Series, the Economic Census, and the Consumer Expenditure Survey. From these sources we can essentially create lower and upper estimates of *current* total and per capita food and beverage expenditures for the 6 New England states, and *project* out to 2030:

> *Currently,* ***total food and beverage expenditures*** *in New England range between $57.4 billion and $87.1 billion. By 2030, food and beverage expenditures are estimated to reach $98.4 billion.*

	LOW ESTIMATE	HIGH ESTIMATE	2030 ESTIMATE
TOTAL FOOD AND BEVERAGE EXPENDITURES	$57.4 billion	$87.1 billion	$98.4 billion
30% OF TOTAL	$17.2 billion	$26.1 billion	$29.5 billion

> *On a* ***per capita basis****, the average New Englander would currently have to spend between $1,139 and $1,760 on regional food and beverage products per year to reach 30%. By 2030, that amount would increase to $1,890.*

	LOW ESTIMATE	HIGH ESTIMATE	2030 ESTIMATE
30% PER CAPITA	$1,139	$1,760	$1,890

> *Given the relative size of its population,* ***Massachusetts*** *would have to do the heavy lifting for the region, spending between $7.9 billion and $12.1 billion to reach 30% currently, and $13.2 billion by 2030.*

	LOW ESTIMATE	HIGH ESTIMATE	2030 ESTIMATE
30% OF TOTAL	$7.9 billion	$12.1 billion	$13.2 billion

2 Estimating Food Expenditures

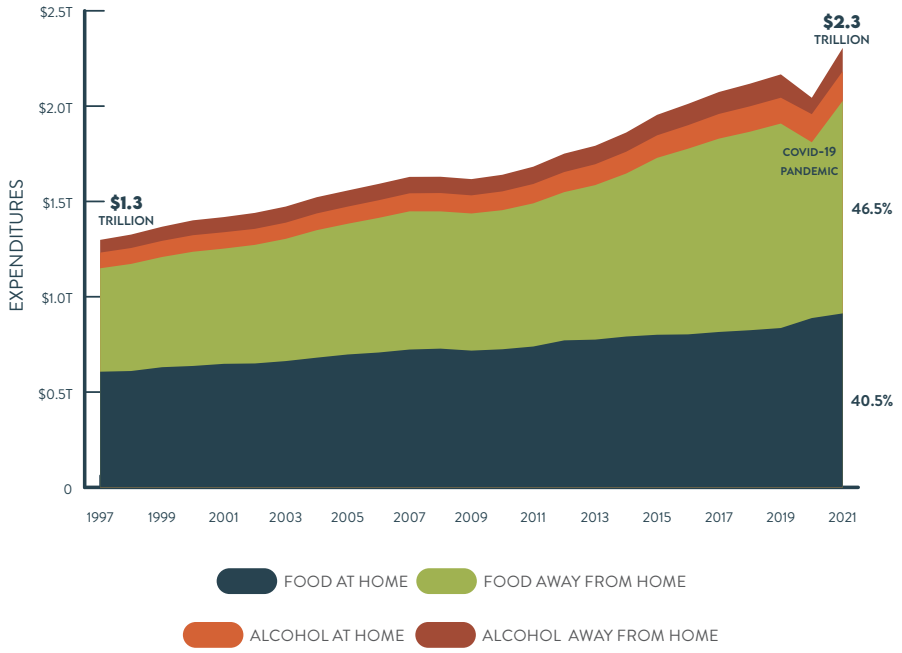
National, regional, and state food expenditure and market channel data are available from the USDA's Food Expenditure Series and State-level Food Expenditure Series, the U.S. Census Bureau's Economic Census, and the Bureau of Labor Statistics' Consumer Expenditure Survey. From this data we can see long-term trends, including how much money we spend on food, what kind of food we buy, and where we buy it from. All dollar values are in 2020 dollars.

U.S. Food Expenditures

The USDA Economic Research Service's Food Expenditure Series is based on the U.S. Census Bureau's annual, quarterly, monthly, and 5 years sales data (i.e., the Economic Census). The Food Expenditure series is deemed the most comprehensive estimate of food and beverage expenditures in the country because it captures food acquisitions by all final purchasers, not just households. This data set is primarily categorized by Food At Home (FAH) and Food Away From Home (FAFH) expenditures, but it is also disaggregated by specific outlet type.

Examples of FAFH include food and beverage sales associated with "eating out" compared to FAH, which are foods and beverages obtained for preparation at home. In 2010, the share of Americans' food budget for FAFH surpassed FAH for the first time and has continued to represent the majority of expenditures, with the one exception being a temporary reversal at the onset of the COVID-19 pandemic in 2020 (Figure 1).

FIGURE 1: U.S. Food Expenditures by Channel, 1997-2021



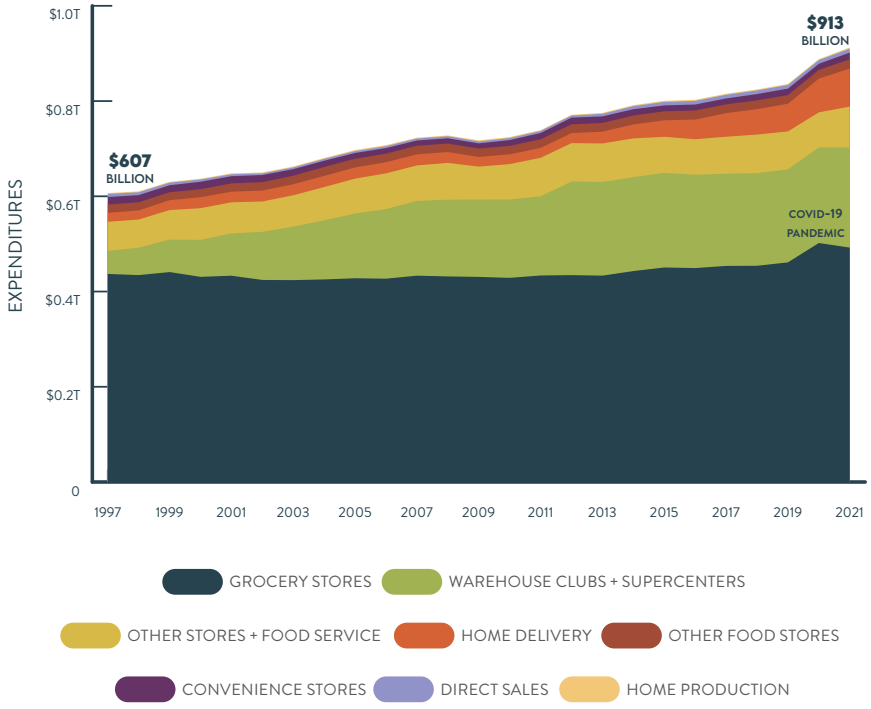
Source: USDA Economic Research Service, *Food Expenditure Series*, https://www.ers.usda.gov/data-products/food-expenditure-series/. All dollar figures are presented as constant 2020 dollars.

In 2021, total national food expenditures exceeded $2.3 trillion ($6,943.60 per capita). Grocery stores, warehouse clubs and super-centers, limited-service restaurants, and full-service restaurants accounted for 64.4% of sales. Table 1 (page 9) identifies food and alcohol expenditures by market channel in 2019 (pre-pandemic), 2020 (pandemic onset), and 2021 (pandemic).

The FAH (Figure 2) and FAFH (Figure 3) categories are detailed by market channel, including traditional supermarkets, big box stores, independent grocers, convenience stores, online marketplaces, and specialty food outlets. FAH also considers direct purchases from farms, home production, and alcohol purchases from liquor stores, food stores, or other sources. All types of restaurants are a key FAFH channel along with vended meals, donated meals, institutions, bars, and hospitality destinations.

Grocery stores consistently represent the largest single market channel. In 2021, they accounted for 22.7% of consumer food purchases, followed by limited-service restaurants (17.3%), full-service restaurants (14.7%), and warehouse clubs and supercenters (9.7%). As the following research reveals, there is broad value differentiation within each channel and variable interest to source

FIGURE 2: U.S. Food Expenditures for Food at Home by Channel, 1997-2021



Source: USDA Economic Research Service, *Food Expenditure Series*, https://www.ers.usda.gov/data-products/food-expenditure-series/.

FIGURE 3: U.S. Food Expenditures for Food Away From Home by Channel, 1997-2021

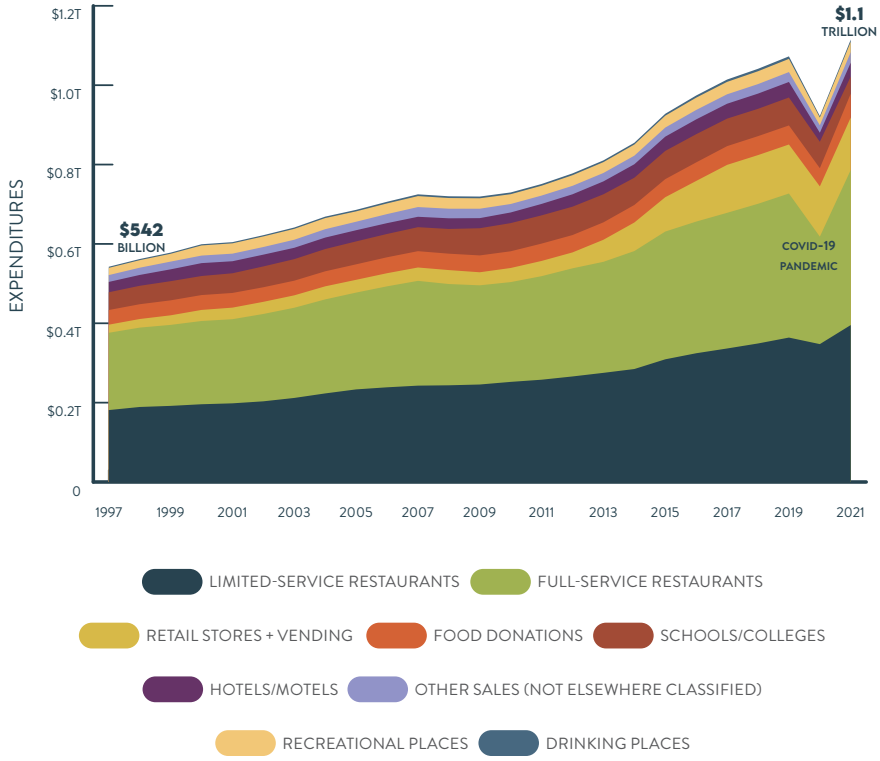


TABLE 1: Food and Alcohol Expenditures, Without Taxes and Tips, For All Purchasers, 2019-2021

	Market Channel	2019	2020	2021	2021 % of Total	2021 % of FAH
Food at Home (FAH)	Grocery Stores	$461,212,629,764	$501,885,406,250	$492,298,903,613	22.7%	46.4%
	Warehouse Clubs and Supercenters	$195,427,087,639	$200,630,093,750	$209,981,341,050	9.7%	19.8%
	Other Stores and Food Service	$79,605,724,459	$73,734,429,688	$86,059,155,555	4.0%	8.1%
	Home Delivery	$58,090,889,411	$70,857,726,563	$79,925,272,115	3.7%	7.5%
	Other Food Stores	$18,153,720,532	$18,315,419,922	$19,520,414,731	0.9%	1.8%
	Convenience Stores	$13,627,849,209	$12,816,013,672	$14,014,409,410	0.7%	1.3%
	Direct Sales	$7,633,686,112	$7,631,449,219	$8,183,316,429	0.4%	0.8%
	Home Production and Donations	$2,160,322,619	$2,297,550,781	$2,693,022,682	0.1%	0.3%
FAH - Alcohol	Liquor Stores	$52,673,384,619	$60,573,074,219	$61,218,809,151	2.7%	5.5%
	Food Stores	$35,213,943,279	$37,629,699,219	$37,372,821,751	1.6%	3.3%
	Other Alcohol Sales (Not Elsewhere Classified)	$47,594,546,045	$49,195,609,375	$56,859,400,331	2.5%	5.1%
	TOTAL FAH	**$971,393,779,981**	**$1,035,566,437,500**	**$1,068,126,873,814**	**47.3%**	**100.0%**
Food Away From Home (FAFH)	Limited-Service Restaurants	$363,964,547,353	$347,489,843,750	$395,526,033,924	17.3%	33.8%
	Full-Service Restaurants	$362,997,987,117	$270,811,093,750	$390,862,353,450	14.7%	28.8%
	Retail Stores and Vending	$123,584,136,079	$126,640,218,750	$132,282,270,537	5.8%	11.3%
	Food Donated	$48,033,686,695	$45,880,082,031	$60,063,973,739	2.8%	5.5%
	Schools and Colleges	$70,393,111,206	$66,510,289,063	$43,105,092,575	2.0%	4.0%
	Hotels and Motels	$39,113,322,435	$22,822,457,031	$35,022,069,236	1.3%	2.6%
	Other FAFH (Not Elsewhere Classified)	$24,963,955,643	$18,830,357,422	$26,449,929,017	1.2%	2.2%
	Recreational Places	$33,213,917,625	$19,381,875,000	$26,219,815,953	1.1%	2.2%
	Drinking Places	$6,375,154,189	$3,786,534,668	$5,399,179,772	0.2%	0.4%
FAFH - Alcohol	Eating and Drinking Places	$100,941,553,835	$72,113,632,813	$102,805,688,661	3.9%	7.6%
	Hotels and Motels	$11,121,512,773	$6,483,643,066	$9,935,467,734	0.4%	0.7%
	Other Alchol (Not Elsewhere Classified)	$10,412,870,064	$7,453,177,734	$9,694,834,272	0.4%	0.8%
	TOTAL FAFH	**$1,195,115,785,167**	**$1,008,203,203,125**	**$1,237,366,668,295**	**51.2%**	**100.0%**
	TOTAL FOOD AND ALCOHOL EXPENDITURES	**$2,166,509,565,148**	**$2,043,769,640,625**	**$2,305,493,542,109**	**100.0%**	

Source: USDA Economic Research Service, *Food Expenditure Series*, https://www.ers.usda.gov/data-products/food-expenditure-series/.

regionally. Institutions and direct selling to consumers generate relatively small percentages of total food and beverage expenditures, but represent much of what we know about current progress in sourcing regional foods. The complexity and opacity of retail and restaurant market channels leave large gaps in our understanding of their current contribution to regional sourcing, but their size alone means they have an undeniably important contribution to make in offering more regionally-produced foods to consumers.

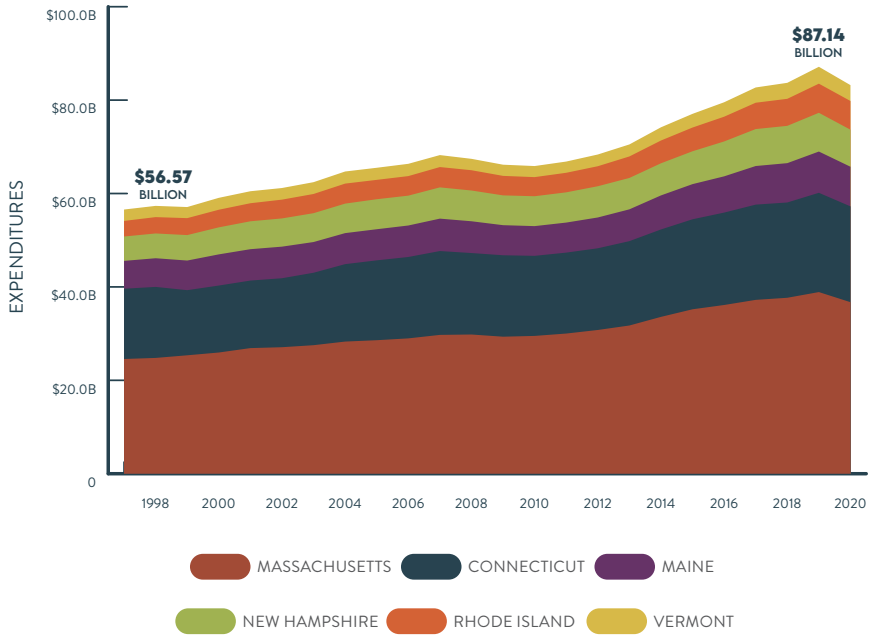
State-Level Food Expenditure

In April 2023, the USDA Economic Research Service released their ***first*** State-level Food Expenditure Series. The State-level analysis has a similar methodology to the national estimate, but uses a different underlying dataset (the proprietary National Establishment Time Series Database). **Food expenditures in New England increased from $56.57 billion in 1997, to $87.14 billion in 2019, a 54% increase** (sales dropped to $83.20 billion in 2020, the first year of the COVID-19 pandemic). This is equal to $5,867.89 per capita for New England residents. Comparing the State-level Food Expenditure Series to the national Food Expenditure Series, we see that New England accounts for 4.0% of national food expenditures.

Massachusetts accounted for 44%-46% of New England food expenditures during this timeframe, and 44.6% of sales in 2019. Connecticut accounted for 24%-27%, and 24.4% of sales in 2019. Maine (10.1%), New Hampshire (9.5%), Rhode Island (7.2%), and Vermont (4.2%) accounted for the remaining 31.0% in 2019 (Figure 4).

In contrast to the national trend—where FAFH expenditures exceeded FAH expenditures in 2010—the switchover did not occur in New England until 2016 (with the one exception being a temporary reversal at the onset of the COVID-19 pandemic in 2020). This trend varied slightly from state-to-state: the switchover happened in 2011 in Massachusetts and Rhode Island, in 2018 in Connecticut,

FIGURE 4: New England Food Expenditures, 1997-2020

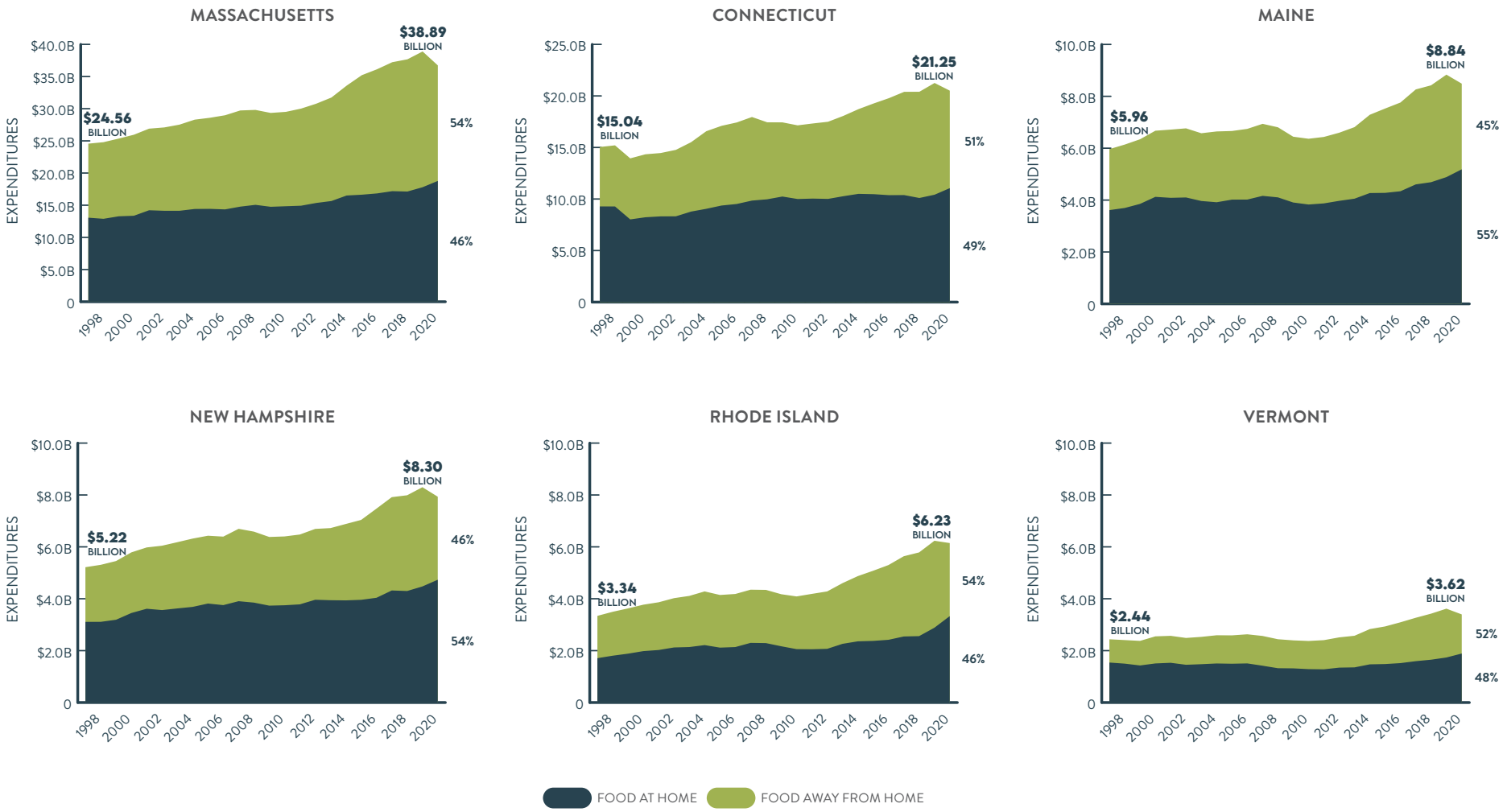


Source: USDA Economic Research Service, *Food Expenditure Series*, https://www.ers.usda.gov/data-products/food-expenditure-series/. Unlike the national Food Expenditure Series, the State-level analysis does not include estimates for home production, donations (e.g., to food banks), schools, or colleges.

and in 2016 in Vermont, but it has not happened in Maine or New Hampshire (Figure 5).

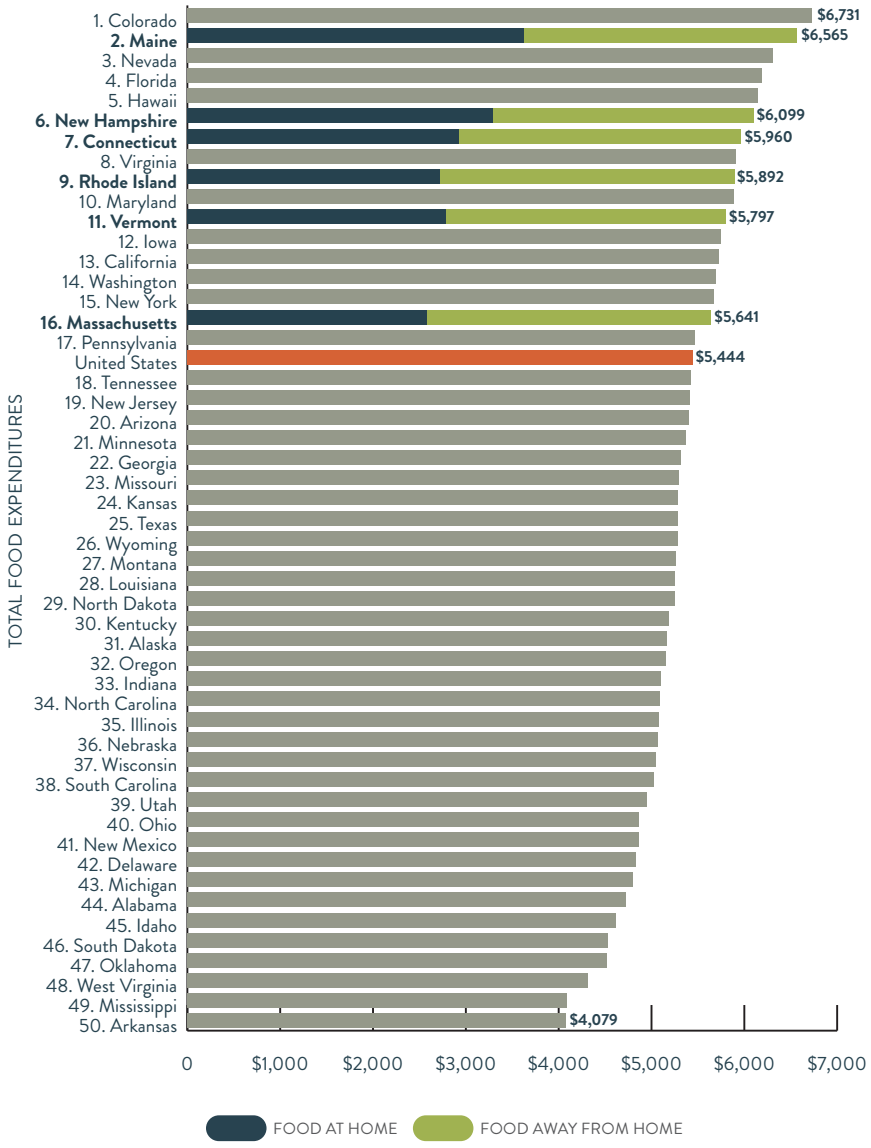
The six New England states have some of the highest food expenditures of any of the 50 states, and all of them are above the U.S. average (Figure 6). Explanations for why this is the case are not explained in the USDA report, but reasons could include higher food prices due to shipping distances, consumer preferences (e.g., for more expensive seafood instead of other proteins in Maine), alcoholic beverage purchases (which are higher in the Northeast than other regions of the country), and higher median incomes (e.g., contrast the low food expenditures of Southern states with lower median incomes and high rates of poverty to the New England states).

FIGURE 5: New England Food Expenditures by State, 1997-2020



Source: USDA Economic Research Service, *Food Expenditure Series*, https://www.ers.usda.gov/data-products/food-expenditure-series/. Note: percentages are for 2019.

FIGURE 6: Per Capita State-Level Food Expenditures, 2019



Source: USDA Economic Research Service, April 2023, *Estimating the State-Level Food Expenditure Series*, https://www.ers.usda.gov/webdocs/publications/106409/tb-1962.pdf?v=4590.6.

The new State-level Food Expenditure Series does not identify where these expenditures are made, other than FAH or FAFH. But another data source—the Economic Census—identifies expenditures by market channel. The latest available food expenditure estimates from the 2017 Economic Census,—$85.5 billion—are comparable to the State-level Food Expenditures Series estimates for 2017 - $82.7 billion.

Economic Census

The Economic Census, the "official measure of the Nation's businesses and economy," is conducted every five years and is available at a state level. **The 2017 Economic Census—the latest year of available data—estimates that the six New England states had sales of $85.5 billion ($5,772 per person) at retail food stores and food and beverage serving businesses (Figure 7).** This estimate includes purchases made by New England residents and visitors.

- Grocery stores ($39.4 billion, 46.1% of total sales) and all types of restaurants ($32.1 billion, 37.6%) accounted for 83.7% of retail food sales.
- Liquor stores ($4.7 billion, 5.5%), food service contractors operating within schools, hospitals, and sports venues ($3.1 billion, 3.7%) convenience stores ($2.1 billion, 2.5%), and specialty food stores such as butcher shops and fish markets ($1.3 billion, 1.5%) accounted for another 13.2% of sales.
- **Direct to consumer sales at farmers markets, farm stands, and community supported agriculture (CSAs)—the only official source of local food sales available—accounted for just 0.3% ($293 million) of total sales.** At 1.6% ($52.7 million), Vermont had the highest percentage of direct to consumer sales as a percentage of total retail food sales.

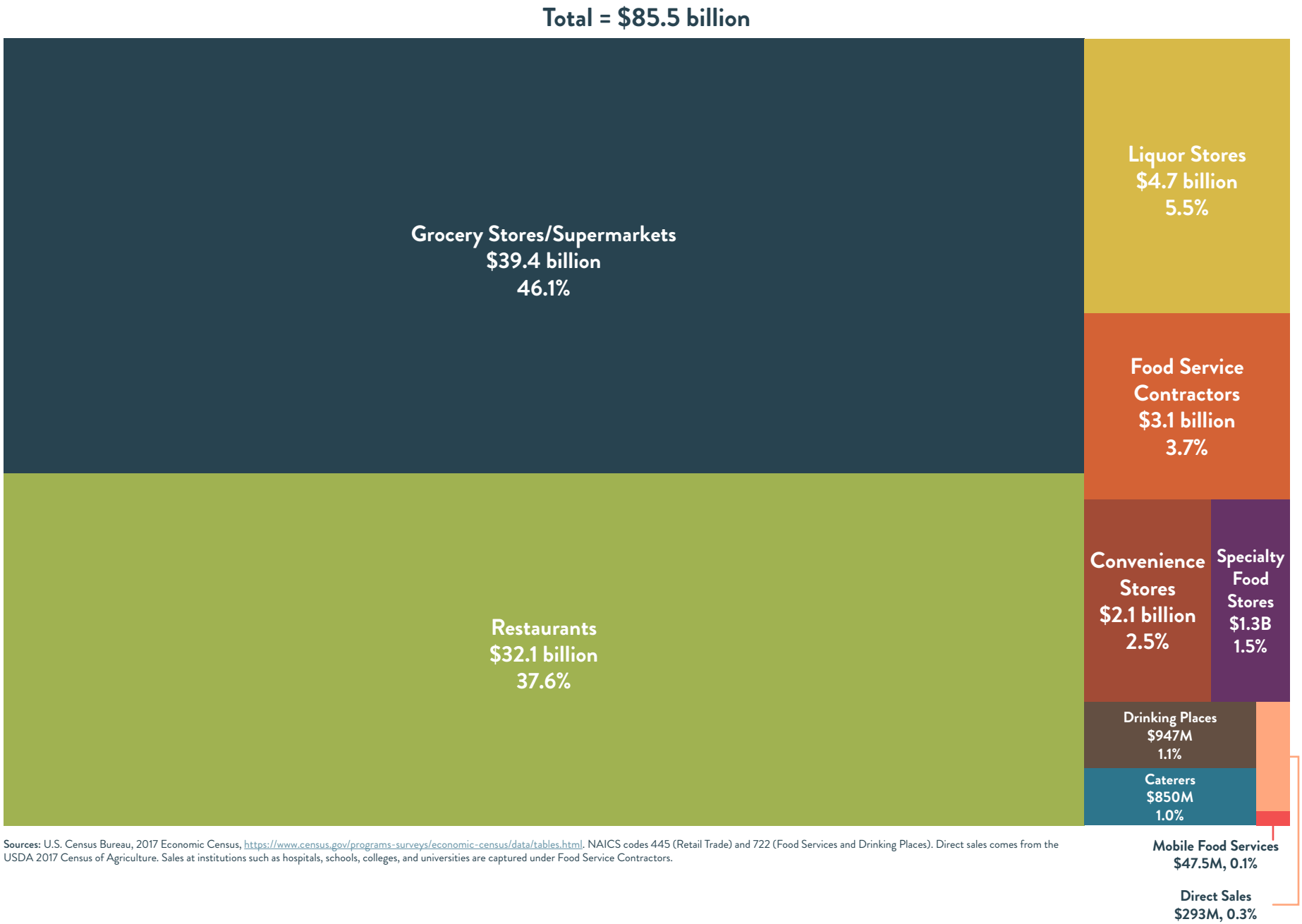
Note that the top market channels in New England in 2017 accounted for 83.7% of total sales, while the top market channels for the national Food Expenditures Series accounted for 64.4% of total sales in 2021. It is not clear why this discrepancy between New England and the rest of the country exists.

In 2017, Massachusetts had 46.4% of New England's population and accounted for 49% ($41.9 billion) of New England's retail food sales (Figure 8). Connecticut had 24.1% of the region's population and accounted for 22% ($19.0 billion) of retail food sales. **New England's two most populous states, then, accounted for 71% of the region's total retail food sales.** New Hampshire ($8.4 billion), Maine ($7.0 billion), Rhode Island ($5.8 billion), and Vermont ($3.3 billion) made up the remaining 29% of sales.

Photo credit: Pete's Greens

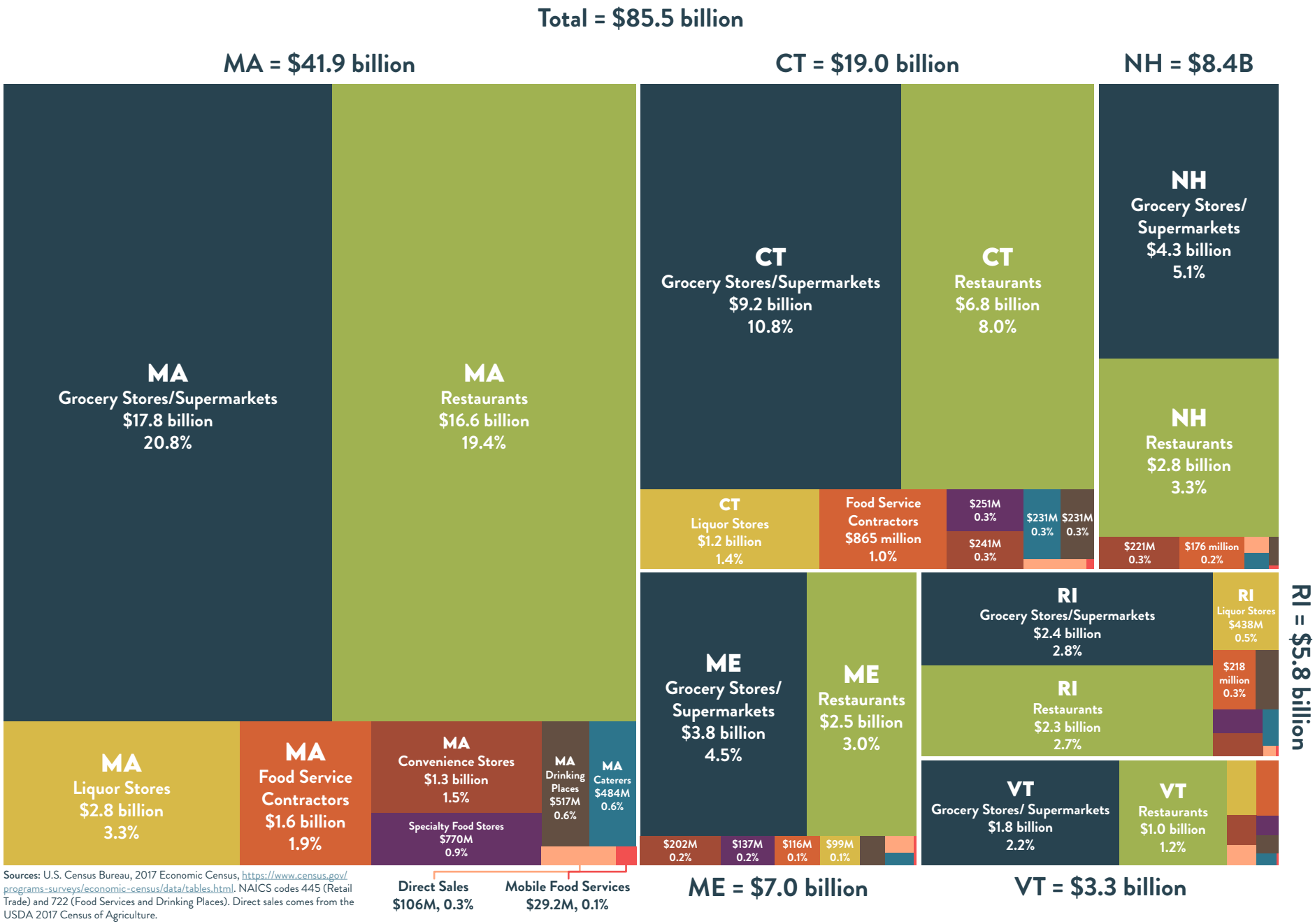
Direct to consumer sales, like the Pete's Greens CSA in Vermont, make up a very small percentage of total retail food sales.

FIGURE 7: New England Food Stores and Services Sales, 2017



Sources: U.S. Census Bureau, 2017 Economic Census, https://www.census.gov/programs-surveys/economic-census/data/tables.html. NAICS codes 445 (Retail Trade) and 722 (Food Services and Drinking Places). Direct sales comes from the USDA 2017 Census of Agriculture. Sales at institutions such as hospitals, schools, colleges, and universities are captured under Food Service Contractors.

FIGURE 8: New England Food Stores and Service Sales by State, 2017



Sources: U.S. Census Bureau, 2017 Economic Census, https://www.census.gov/programs-surveys/economic-census/data/tables.html. NAICS codes 445 (Retail Trade) and 722 (Food Services and Drinking Places). Direct sales comes from the USDA 2017 Census of Agriculture.

Consumer Expenditures

One other data source, the Consumer Expenditure Survey (CES), is frequently used to make sense of the way Americans spend their money. CES estimates are released twice a year, typically 8-9 months after the survey—which asks a sample of households to keep track of expenditures for 2 weeks. Across all years, income levels, and other demographic variables such as race or Hispanic ethnicity, housing and transportation are the top expenditures, followed by food (Table 2).

Average household expenditures vary by region, income level, race, ethnicity, age, and education level, but they are essentially *proportionally* the same for all demographics. That is, White and Asian households tend to have higher household incomes and expenses, and consequently spend more on food and other items than Hispanic and Black Households. But, **White, Asian, Hispanic, and Black households all spend roughly 12% of household income on food (Table 3).** There are a few notable, but modest, differences:

- Hispanic households tend to spend more on beef than other households;
- Asian households tend to spend more on pork, poultry, fish and seafood, eggs, fruits, and vegetables than other households;
- White households tend to spend more on nonalcoholic and alcoholic beverages than other households.

Across all income quintiles, consumer expenditures were spread across the food groups in roughly the same way, though the dollar amounts were different. One notable difference is that people in the lowest quintile spent a much larger percentage of income on food for consumption at home (75.6%) compared to people in the highest income quintile (63.8%). Similarly, households where the reference person did not graduate from high school spent a much larger percentage of income on food for consumption at home (75.0%) compared to households where the reference person was a college graduate (61.4%).

The CES does *not* provide results by state, rather it groups states into regions. New England is grouped into the Northeast Region—New England plus New York, Pennsylvania, and New Jersey. Within

TABLE 2: Percent Distribution of Total Annual Expenditures by Major Category for All Consumer Units, 2018-2021

Category	2018	2019	2020	2021
Average annual expenditures	100%	100%	100%	100%
Housing	32.8%	32.8%	34.9%	33.8%
Transportation	15.9%	17.0%	16.0%	16.4%
Food	**12.9%**	**13.0%**	**11.9%**	**12.4%**
Personal Insurance and Pensions	11.9%	11.4%	11.8%	11.8%
Healthcare	8.1%	8.2%	8.4%	8.1%
Entertainment	5.3%	4.9%	4.7%	5.3%
Cash Contributions	3.1%	3.2%	3.7%	3.6%
Apparel and Services	3.0%	3.0%	2.3%	2.6%
Education	2.3%	2.3%	2.1%	1.8%
Miscellaneous	1.6%	1.4%	1.5%	1.5%
Personal Care Products and Services	1.3%	1.2%	1.1%	1.2%
Alcoholic Beverages	**1.0%**	**0.9%**	**0.8%**	**0.8%**
Tobacco Products and Supplies	0.6%	0.5%	0.5%	0.5%
Reading	0.2%	0.1%	0.2%	0.2%

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Surveys, multiple years, https://www.bls.gov/cex/tables.htm.

TABLE 3: Food Expenditures by Race and Hispanic/Latino Ethnicity, 2021

Category	White	Asian	Hispanic / Latino	Black
Average annual expenditures	$71,641	$78,726	$57,955	$51,013
Housing	$23,617	$28,378	$20,832	$19,142
Transportation	$11,191	$10,494	$11,505	$9,072
Food	**$8,716**	**$10,527**	**$8,158**	**$6,124**
Food at Home	$5,485	$,6,918	$5,272	$4,026
Cereals/Bakery	$702	$871	$654	$531
Meat/Fish/Eggs	$1,097	$1,588	$1,285	$1,030
Dairy Products	$533	$544	$461	$304
Fruits and Vegetables	$1,061	$1,650	$1,104	$805
Sugar/Sweets	$200	$171	$154	$116
Fats/Oils	$137	$174	$130	$110
Misc. Foods	$1,140	$1,328	$914	$699
Nonalcoholic Beverages	$538	$518	$511	$396
Food Away From Home	$3,232	$3,609	$2,886	$2,098
Alcoholic Beverages	$643	$373	$421	$215

Source: U.S. Bureau of Labor Statistics, Consumer Expenditure Surveys, multiple years, https://www.bls.gov/cex/tables.htm.

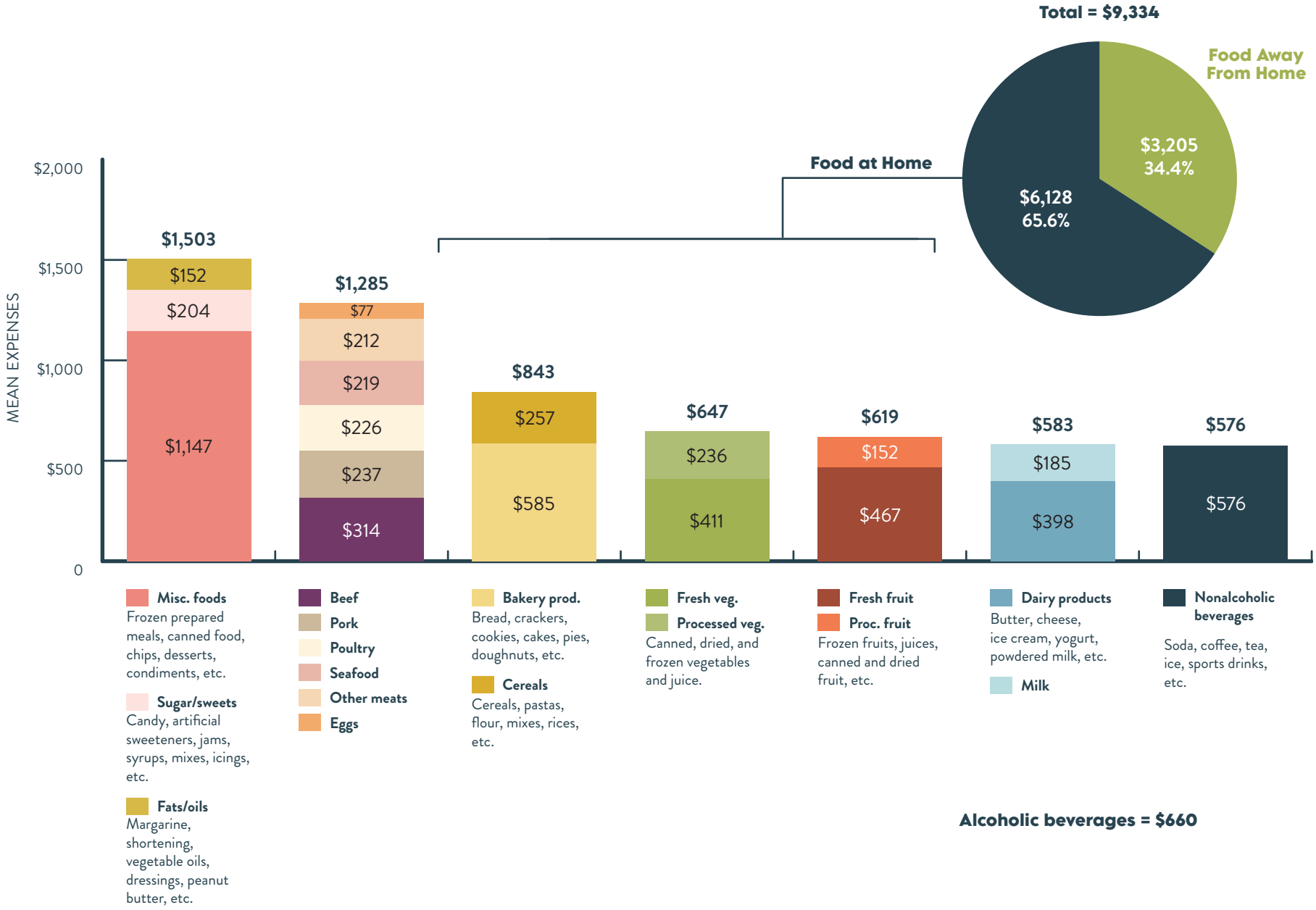
the Northeast region, average expenditures in 2021 were $72,678. Housing (35% of total) and transportation (14%) were the top expenditures, followed by **food at $9,334 (13%).** Food purchased for consumption at home accounted for about 66% ($6,128) of expenditures, while food purchased away from home accounted for 34% ($3,205). As can be seen in Figure 9, **ultra-processed foods—miscellaneous foods (e.g., prepared meals, canned food, chips), bakery products (e.g., bread, crackers, cookies), and nonalcoholic beverages (e.g., soda, coffee)—were the top food expenditure categories.**

Ultra-processed food products dominate grocery store shelves and are the top food expenditures for American consumers.

We can multiply the average household expenditure by the number of households in New England to arrive at an estimate of total food expenditures: about $55.2 billion. The CES provides compelling results at a household level, but it does not capture the total value of food purchases in a region or the country:

- CES estimates only include foods purchased by households - this means that 10% to 20% of foods purchased at restaurants by businesses are not included;
- CES estimates exclude food purchases that are bundled with another activity (e.g., hospital meals);
- CES estimates provide little information about where food and beverages are purchased except for at home or away from home.[2]

FIGURE 9: Average Expenditures Across All Consumer Units in the Northeast, 2021



Source: Consumer Expenditure Survey, Annual Expenditure Means by Region of Residence.

Getting to 2030

The unsatisfying reality is that data for local and regional food purchases for most market outlets in New England is very limited. Even estimating the overall size of the New England retail food market is not without complication. Using three data sources—the State-level Food Expenditure Series, the Economic Census, and the Consumer Expenditure Survey—we can essentially create lower and upper estimates of *current* total and per capita food and beverage expenditures for the 6 New England states, and *project* out to 2030.

Across these three data sources, total food and beverage expenditures in New England currently range between $57.4 billion and $87.1 billion. Calculating the compound annual growth rate from the State-level Food Expenditure Series, food and beverage expenditures are estimated to reach $98.4 billion by 2030.

	LOW ESTIMATE		HIGH ESTIMATE		2030 ESTIMATE
TOTAL FOOD AND BEVERAGE EXPENDITURES	**$57.4 billion**	——	**$87.1 billion**	→	**$98.4 billion**

New England would have to spend between $17.2 billion and $26.1 billion to reach 30% of expenditures currently, depending on the data source, and $29.5 billion by 2030.

30% OF TOTAL	**$17.2 billion**	——	**$26.1 billion**	→	**$29.5 billion**

On a **per capita basis**, the average New Englander would currently have to spend between $1,152 and $1,760 on regional food and beverage products per year to reach 30%. By 2030, that amount would increase to $1,890.

	LOW ESTIMATE		HIGH ESTIMATE		2030 ESTIMATE
30% PER CAPITA	**$1,139**	——	**$1,760**	→	**$1,890**

Given the relative size of its population, **Massachusetts** would have to do the heavy lifting for the region, spending between $7.6 billion and $12.1 billion to reach 30% currently, and $13.2 billion by 2030.

	LOW ESTIMATE		HIGH ESTIMATE		2030 ESTIMATE
30% OF TOTAL	**$7.9 billion**	——	**$12.1 billion**	→	**$13.2 billion**

The next four sections provide low and high expenditure estimates from three current data sources and a projection out to 2030. Each state's contribution to 30% in regional food and beverage expenditures is calculated in two ways: 1) by the proportion of people (or households) in each state, and 2) by 30% of total food expenditures.

Consumer Expenditure Survey, 2021

At the lower end of the spectrum, the Consumer Expenditure Survey estimated $9,334 in average *household* food expenditures in 2021 (note that the Consumer Expenditure Survey does not comprehensively estimate all food expenditures and this estimate covers the Northeast region, which includes New England plus New York, New Jersey, and Pennsylvania). Table 4 (page 21) identifies the average number of households from 2017 to 2021—and the number of people per household—in each New England state. Multiplying the number of households in New England by the average Northeast expenditure yields a value of approximately $57.4 billion. Thirty percent of $55.2 billion is about $17.2 billion. We can then estimate that:

- The average **New England** household would have to spend about $2,912 per year, or $1,139 per person, on regional food products at the various market channels to reach the 30% goal.
- Whether allocated proportionally or by 30% of total food expenditures, **Massachusetts** households would have to spend about $7.9 billion per year. The average household would have to spend a little over $2,900 per year, and per capita spending would be about $1,130 on regional food.
- Whether allocated proportionally or by 30% of total food expenditures, **Connecticut** households would have to spend a little over $4.0 billion per year. The average household would have to spend slightly more than $2,900 per year, and per capita spending would be about $1,120.
- **Maine** households would have to spend over $1.65 billion per year. The average household would have to spend between $2,895 and $2,923 per year, and per capita spending would range from $1,200 to $1,212.
- Whether allocated proportionally or by 30% of total food expenditures, **New Hampshire** households would have to spend a little more than $1.56 billion per year. The average household would have to spend between $2,899 and $2,922 per year, and per capita spending would range between $1,129 and $1,138.
- Whether allocated proportionally or by 30% of total food expenditures, **Rhode Island** households would have to spend over $1.23 billion per year. The average household would have to spend between $2,905 and $2,926 per year, and per capita spending would range between $1,104 and $1,138.
- **Vermont** households would have to spend between $757.6 million (allocated proportionally) and $770.9 million (allocated by 30% of total food expenditures) per year. The average household would have to spend between $2,886 and $2,937 per year, and per capita spending would range from $1,171 to $1,192.

TABLE 4: Estimate of 30% Regional Food Sales Using the **Consumer Expenditure Survey**, 2021

	New England	MA	CT	ME	NH	RI	VT
2017-2021 Number of Households	5,912,617	2,714,448	1,397,324	571,064	540,498	426,769	262,514
Average Number of People Per Household 2017-2021	2.43	2.48	2.50	2.31	2.46	2.46	2.35
% of Households in New England	100%	45.9%	23.6%	9.6%	9.1%	7.2%	4.4%
Consumer Expenditure Series							
Total Retail Market Sales (2021)	$57,396,957,922	$26,307,163,895	$13,528,158,228	$5,564,995,451	$5,264,622,630	$4,162,299,996	$2,569,717,722
Contribution by Percent of Households	**$17,219,087,377**	**$7,903,561,106**	**$4,063,704,621**	**$1,653,032,388**	**$1,566,936,951**	**$1,239,774,291**	**$757,639,845**
Average Annual Household Spending	$2,912.26	$2,911.66	$2,908.20	$2,894.65	$2,899.06	$2,905.02	$2,886.09
Average Per Capita Spending	$1,138.70	$1,130.75	$1,121.53	$1,200.25	$1,129.32	$1,130.17	$1,171.06
Contribution by 30% of Total Retail Market Sales	**$17,219,087,377**	**7,892,149,169**	**$4,058,447,468**	**$1,669,498,635**	**$1,579,386,789**	**$1,248,689,999**	**$770,915,317**
Average Annual Household Spending	$2,912.26	$2,907.46	$2,904.44	$2,923.49	$2,922.10	$2,925.92	$2,936.66
Average Per Capita Spending	$1,138.70	$1,129.11	$1,120.08	$1,212.21	$1,138.29	$1,138.29	$1,191.57
Average of Both Per Capita Estimates	$1,152.35	$1,129.93	$1,120.81	$1,206.23	$1,133.81	$1,121.11	$1,151.81

Economic Census, 2017

The Economic Census estimated total retail food expenditures of about $85.5 billion. Thirty percent of $85.5 billion is $25.6 billion (Table 5, page 23). We can then estimate that:

- The average **New Englander** would have to spend about $1,732 on regional food products per year to reach the 30% goal (the average household would have to spend $4,337).
- **Massachusetts** would have to spend between $11.9 billion and $12.6 billion per year, depending on allocation method, to reach the 30% goal. The average Bay Stater would have to spend somewhere between $1,734 and $1,834 per year to reach the 30% goal (the average household would have to spend between $4,383 and $4,636).
- **Connecticut** would have to spend between $5.7 billion and about $6.2 billion per year. The average Nutmegger would have to spend somewhere between $1,594 and $1,729 on regional food products to reach the 30% goal (the average household would have to spend between $4,079 and $4,423).
- **Maine** would have to spend between $2.1 billion and $2.3 billion per year. The average Mainer would have to spend somewhere between $1,582 and $1,728 on regional food products (the average household would have to spend between $3,701 and $4,041).
- **New Hampshire** would have to spend between $2.3 billion and $2.5 billion per year. The average Granite Stater would have to spend somewhere between $1,728 and $1,873 on regional food products (the average household would have to spend between $4,317 and $4,679).
- **Rhode Island** would have to spend between $1.7 billion and $1.8 billion per year. The average Rhode Islander would have to spend somewhere between $1,634 and $1,723 on regional food products (the average household would have to spend between $4,046 and $4266).
- **Vermont** would have to spend between $990 million and $1.1 billion per year. The average Vermonter would have to spend somewhere between $1,583 and $1,723 on regional food products (the average household would have to spend between $3,770 and $4,103).

TABLE 5: Estimate of 30% Regional Food Sales Using the **Economic Census**, 2017

	New England	MA	CT	ME	NH	RI	VT
2017 Population	14,806,708	6,863,560	3,575,324	1,335,743	1,350,395	1,056,554	625,132
% of New England's Population	100%	46.4%	24.1%	9.0%	9.1%	7.1%	4.2%
2017-2021 Number of Households	5,912,617	2,714,448	1,397,324	571,064	540,498	426,769	262,514
Economic Census							
Total Retail Market Sales (2017)	$85,478,766,861	$41,948,891,287	$19,000,542,488	$7,044,973,247	$8,429,447,153	$5,755,774,254	$3,299,138,432
Contribution by Percent of Population	**$25,643,630,058**	**$11,898,644,347**	**$6,180,114,844**	**$2,307,926,705**	**$2,333,570,335**	**$1,820,697,734**	**$1,077,032,462**
Annual Per Capita Spending	$1,731.89	$1,733.60	$1,728.55	$1,727.82	$1,728.06	$1,723.24	$1,722.89
Average Annual Household Spending	$4,337.10	$4,383.45	$4,422.82	$4,014.45	$4,317.44	$4,266.24	$4,102.76
Contribution by 30% of Total Retail Market Sales	**$25,643,630,058**	**$12,584,667,386**	**$5,700,162,746**	**$2,113,491,974**	**$2,528,834,146**	**$1,726,732,276**	**$989,741,530**
Annual Per Capita Spending	$1,731.89	$1,833.55	$1,594.31	$1,582.26	$1,872.66	$1,634.31	$1,583.25
Average Annual Household Spending	$4,337.10	$4,636.18	$4,079.34	$3,700.97	$4,678.71	$4,046.06	$3,770.24
Average of Both Per Capita Estimates	$1,731.89	$1,783.58	$1,661.43	$1,655.04	$1,800.36	$1,678.78	$1,653.07

State-Level Food Expenditures, 2019

At the other end of the spectrum, the State-level Food Expenditure Series estimated total retail food expenditures of about $87.1 billion in 2019. Thirty percent of $87.1 billion is $26.1 billion (Table 6, page 25). We can then estimate that:

- The average **New Englander** would have to spend about $1,760 on regional food products per year to reach the 30% goal (the average household would have to spend $4,421).
- **Massachusetts** would have to spend between $11.7 billion and $12.1 billion per year, depending on allocation method, to reach the 30% goal. The average Bay Stater would have to spend somewhere between $1,692 and $1,759 per year to reach the 30% goal (the average household would have to spend between $4,299 and $4,468).
- **Connecticut** would have to spend between $6.3 billion and about $6.4 billion per year. The average Nutmegger would have to spend somewhere between $1,759 and $1,788 on regional food products to reach the 30% goal (the average household would have to spend between $4,490 and $4,563).
- **Maine** would have to spend between $2.4 billion and $2.7 billion per year. The average Mainer would have to spend somewhere between $1,768 and $1,970 on regional food products (the average household would have to spend between $4,166 and $4,641).
- **New Hampshire** would have to spend between $2.4 billion and $2.5 billion per year. The average Granite Stater would have to spend somewhere between $1,767 and $1,830 on regional food products (the average household would have to spend between $4,450 and $4,606).
- **Rhode Island** would have to spend between $1.86 billion and $1.87 billion per year. The average Rhode Islander would have to spend somewhere between $1,754 and $1,768 on regional food products (the average household would have to spend between $4,349 and $4383).
- **Vermont** would have to spend between $1 billion and $1.1 billion per year. The average Vermonter would have to spend somewhere between $1,739 and $1,759 on regional food products (the average household would have to spend between $4,134 and $4,182).

TABLE 6: Estimate of 30% Regional Food Sales Using **State-Level Food Expenditures**, 2019

	New England	MA	CT	ME	NH	RI	VT
2019 Population	14,849,662	6,894,883	3,566,022	1,345,770	1,360,783	1,058,158	624,046
% of New England	100%	46.4%	24.0%	9.1%	9.2%	7.1%	4.2%
2017-2021 Number of Households	5,912,617	2,714,448	1,397,324	571,064	540,498	426,769	262,514
State-Level Food Expenditures							
Total Retail Market Sales (2019)	$87,136,190,000	$38,894,950,000	$21,254,590,000	$8,835,080,000	$8,299,010,000	$6,235,040,000	$3,617,520,000
Contribution by Percent of Population	**$26,140,857,000**	**$12,129,357,648**	**$6,299,946,537**	**$2,352,677,130**	**$2,378,817,987**	**$1,856,000,847**	**$1,097,915,994**
Annual Per Capita Spending	$1,760.37	$1,759.18	$1,759.33	$1,767.63	$1,767.33	$1,753.99	$1,759.35
Average Annual Household Spending	$4,421.20	$4,468.44	$4,489.87	$4,165.59	$4,449.52	$4,348.96	$4,182.31
Contribution by 30% of Total Retail Market Sales	**$26,140,857,000**	**$11,668,485,000**	**$6,376,377,000**	**$2,650,524,000**	**$2,489,703,000**	**$1,870,512,000**	**$1,085,256,000**
Annual Per Capita Spending	$1,760.37	$1,692.34	$1,788.09	$1,969.52	$1,829.61	$1,767.71	$1,739.06
Average Annual Household Spending	$4,421.20	$4,298.66	$4,563.28	$4,641.38	$4,606.31	$4,382.96	$4,134.09
Average of Both Per Capita Estimates	$1,760.37	$1,725.76	$1,773.71	$1,868.58	$1,798.47	$1,760.85	$1,749.21

Estimating State-Level Food Expenditures in 2030

Using the compound annual growth rate for each state and New England from the State-level Food Expenditure Series from 1997 to 2020, we can project food expenditures in 2030 (Table 7, page 27). We calculate that total New England food expenditures will grow from $87.1 billion in 2019, to $98.4 billion in 2030. Thirty percent of $98.4 billion is $29.5 billion. We can then estimate that:

- The average **New Englander** would have to spend about $1,890 on regional food products per year to reach the 30% goal in 2030.
- **Massachusetts** would have to spend between $13.1 billion and $13.3 billion per year, depending on allocation method, to reach the 30% goal. The average Bay Stater would have to spend somewhere between $1,872 and $1,890 per year on regional food products to reach the 30% goal.
- **Connecticut** would have to spend about $7.0 billion per year on regional food products. The average Nutmegger would have to spend somewhere between $1,889 and $1,909 on regional food products to reach the 30% goal.
- **Maine** would have to spend between $2.6 billion and $3.0 billion per year. The average Mainer would have to spend somewhere between $1,883 and $2,104 on regional food products, depending on the allocation method.
- **New Hampshire** would have to spend between $2.8 billion and $3.1 billion per year. The average Granite Stater would have to spend somewhere between $1,734 and $1,883 on regional food products.
- **Rhode Island** would have to spend between $2.1 billion and $2.4 billion per year. The average Rhode Islander would have to spend somewhere between $1,895 and $2,085 on regional food products.
- **Vermont** would have to spend between $1.2 billion and $1.4 billion per year. The average Vermonter would have to spend somewhere between $1,739 and $1,759 on regional food products.

Figure 9 visually depicts the low (based on the Consumer Expenditure Survey) and high (based on the Economic Census and State-level Food Expenditure Series) estimates for each state. Using current food expenditure estimates, **New England would have to spend somewhere between $16.6 billion and $25.6 billion on regional food products to reach 30% of total food expenditures. By 2030, that amount is estimated to increase to $29.5 billion.**

It is possibly useful to think of the lower estimate as representing resident spending, while the upper estimate represents resident *plus* visitor spending, but we can not clearly delineate the difference between residential and visitor spending (see Box: Estimating Visitor Food Expenditures, page 28). In other words, since visitors to the region likely spend a significant amount of money on food and beverages, it would be the case that the dollar amount that each New England resident would have to spend is less than indicated here - but we do not know how much less.

Given the relative size of its population, Massachusetts would have to do the heavy lifting for the region, spending between $7.9 billion and $12.6 billion to reach 30% with current estimates, and over $13.2 billion by 2030. Connecticut would have to spend somewhere between $4.0 billion and $6.4 billion using current estimates, and about $7.0 billion by 2030. The other states would have to spend a much smaller amount to reach 30% currently and in 2030.

TABLE 7: Estimates of 30% Regional Food Sales in 2030 Using State-Level Food Expenditures Compound Annual Growth Rate

	New England	MA	CT	ME	NH	RI	VT
2019	$87,136,190,000	$38,894,950,000	$21,254,590,000	$8,835,080,000	$8,299,010,000	$6,235,040,000	$3,617,520,000
2020	$83,205,410,000	$36,731,110,000	$20,510,420,000	$8,488,210,000	$7,932,890,000	$6,146,480,000	$3,396,300,000
Compound Annual Growth Rate from 1997-2020	**1.7%**	**1.8%**	**1.4%**	**1.5%**	**1.8%**	**2.7%**	**1.5%**
2021	$84,613,100,000	$37,379,170,000	$20,788,710,000	$8,619,450,000	$8,078,790,000	$6,311,620,000	$3,445,660,000
2022	$86,044,600,000	$38,038,660,000	$21,070,770,000	$8,752,710,000	$8,227,380,000	$6,481,200,000	$3,495,730,000
2023	$87,500,320,000	$38,709,780,000	$21,356,670,000	$8,888,040,000	$8,378,700,000	$6,655,330,000	$3,546,540,000
2024	$88,980,660,000	$39,392,750,000	$21,646,440,000	$9,025,460,000	$8,532,800,000	$6,834,140,000	$3,598,080,000
2025	$90,486,060,000	$40,087,760,000	$21,940,140,000	$9,165,000,000	$8,689,740,000	$7,017,760,000	$3,650,370,000
2026	$92,016,920,000	$40,795,040,000	$22,237,830,000	$9,306,700,000	$8,849,560,000	$7,206,310,000	$3,703,420,000
2027	$93,573,680,000	$41,514,800,000	$22,539,550,000	$9,450,590,000	$9,012,320,000	$7,399,920,000	$3,757,240,000
2028	$95,156,780,000	$42,247,250,000	$22,845,370,000	$9,596,710,000	$9,178,080,000	$7,598,740,000	$3,811,850,000
2029	$96,766,660,000	$42,992,630,000	$23,155,340,000	$9,745,080,000	$9,346,880,000	$7,802,900,000	$3,867,240,000
2030	**$98,403,770,000**	**$43,751,160,000**	**$23,469,520,000**	**$9,895,750,000**	**$9,518,790,000**	**$8,012,540,000**	**$3,923,450,000**
Projected 2030 Population	15,623,015	7,012,009	3,688,630	1,411,097	1,646,471	1,152,941	711,867
Contribution by Percent of Population	**$29,521,131,000**	**$13,249,838,732**	**$6,970,007,118**	**$2,666,398,130**	**$3,111,159,045**	**$2,178,588,521**	**$1,345,138,454**
Annual Per Capita Spending	$1,889.59	$1,890.33	$1,888.77	$1,882.86	$1,882.64	$1,894.77	$1,907.62
Contribution by 30% of Total Retail Market Sales	**$29,521,130,000**	**$13,125,348,000**	**$7,040,856,000**	**$2,968,725,000**	**$2,855,637,000**	**$2,403,762,000**	**$1,177,035,000**
Annual Per Capita Spending	$1,889.59	$1,871.84	$1,908.80	$2,103.84	$1,734.40	$2,084.90	$1,653.45

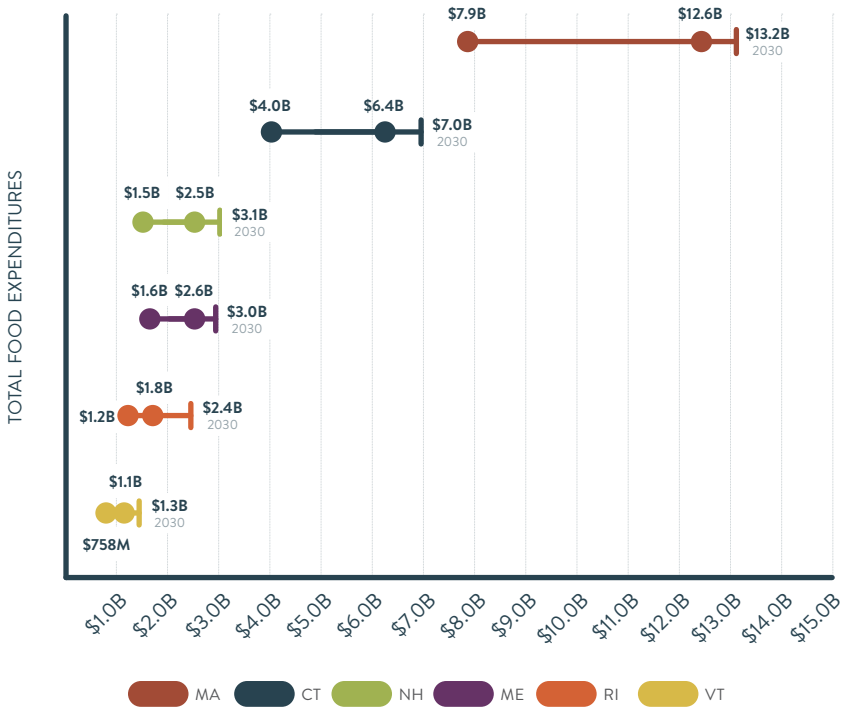
Estimating Visitor Food Expenditures

Departments of tourism in the six New England states estimate visitor expenditures on food and other goods and services. These estimates come from different years and cover slightly different market channels (i.e., some states estimate grocery sales and some states do not).

- **Connecticut:** In 2017, visitors to Connecticut are estimated to have spent $2.331 billion on food and beverages.
- **Maine:** In 2022, visitors to Maine are estimated to have spent $1,972,353,200 at restaurants, and $767,326,300 on groceries, for a total of $2,739,679,500.
- **Massachusetts:** In 2020, visitors to Massachusetts are estimated to have spent $2,582.5 billion on food services.
- **New Hampshire:** In 2022, visitors to New Hampshire are estimated to have spent $854.2 million for food services, and $230.1 million at food stores, for a total of $1.084 billion.
- **Rhode Island:** In 2020, visitors to Rhode Island are estimated to have spent $868 million on food and beverages.
- **Vermont:** In 2017, visitors to Vermont are estimated to have spent $600 million for restaurants and bars, and $145 million at grocery and convenience stores, for a total of $745 million.

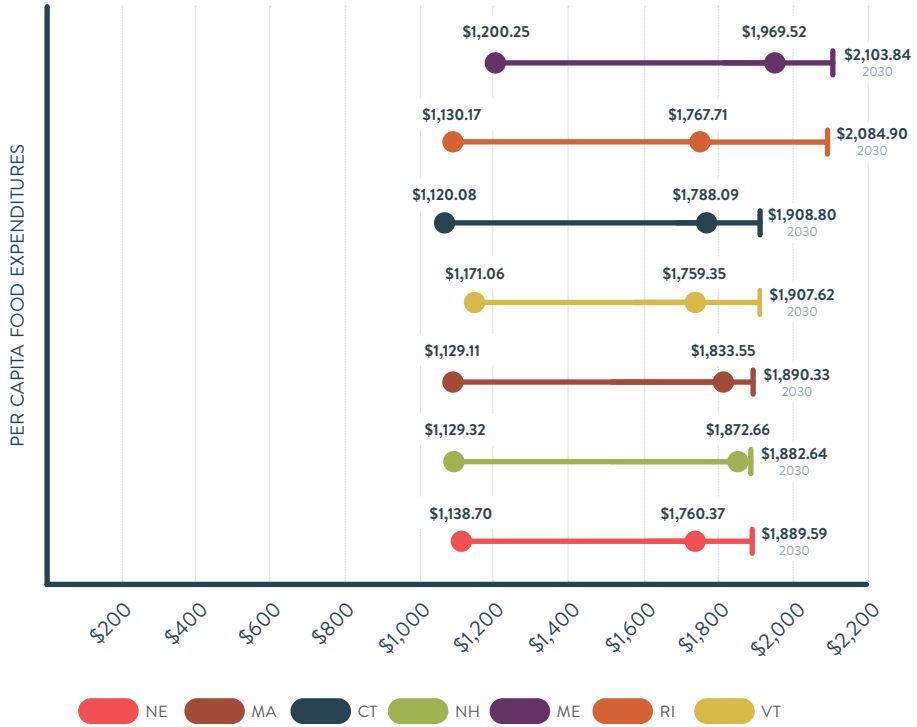
Taken together, visitors to New England likely spend more than $10.3 billion on food and beverages from restaurants and grocery stores every year. Methodologically, we could remove $10.3 billion from the total estimated by the USDA's State-level Food Expenditure Series or the Economic Census, to arrrive at residential retail food market. That would reduce the amount that the average New Englander would have to spend per year to reach 30%. As a practical matter, *a significant number of visitors to each state come from the region* (i.e., other New England states, Canada, and Northeastern states like New York and New Jersey). From that point of view, it may not be desirable to delineate residential and visitor spending. Every dollar spent on local/regional food products will make a difference, no matter who spends the dollar.

FIGURE 10: Low and High Estimates of Total Food Expenditures by State



On a per capita basis, the average New Englander would have to spend somewhere between $1,139 and $1,760 (Figure 11; $3.12 to $4.82 per day). Again, the dollar amount that New Englanders would have to spend would likely be less than this amount due to visitor spending, but we do not know by how much. The difference between low estimates and high estimates for 30% of current total expenditures for each state ranged from $600 to $700.

FIGURE 11: Per Capita Low and High Estimates of Food Expenditures by State



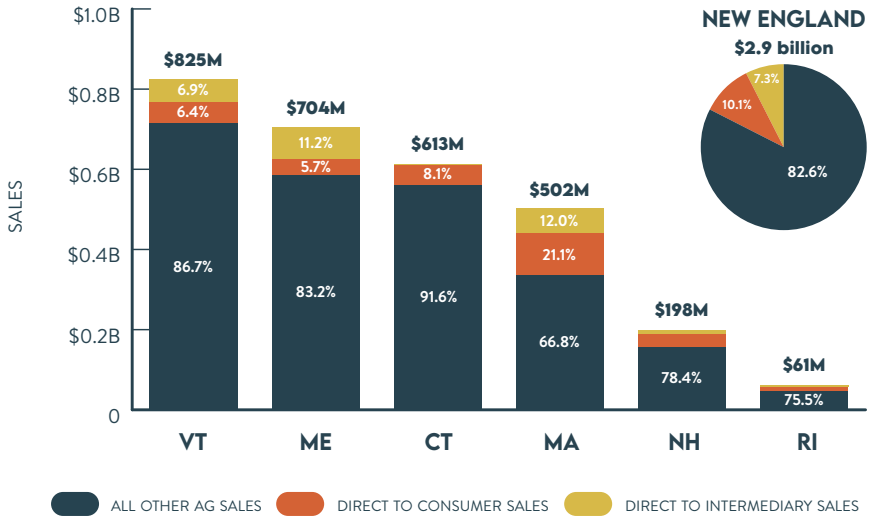
Reaching 30% of total food expenditures requires an adequate supply of regional food and beverage products that are carried by the suite of market channels. **The question is: are sales from New England's farms, fishing operations, food and beverage processors and manufacturers *remotely* close to our low ($16.6 billion), high ($26.1 billion), and 2030 ($29.5 billion) estimates?** As shown in Table A1 in Volume 3: Economic Impact of New England's Food System, it is fortuitously the case that New England farms, fishing operations, and food and beverage processors and manufacturers had total output of **$25.9 billion** in 2017. A significant amount of that production leaves the region, but it is at least conceivable, then, that 30% of sales could be generated by regional food and beverage products. *Comfortably* reaching 30% of total food expenditures would require regional farms, fishing operations, food and beverage processors and manufacturers to significantly scale up production by 2030.

From the Economic Census and the State-level Food Expenditure Series we know that the *size of the pie*—residential and visitor expenditures—in New England ranged from $82.7 billion in 2017 to $87.1 billion in 2019. How much of that amount is made up by local or regional food sales? **The *only* official source of local sales data is the USDA Census of Agriculture, which is conducted every five years (2017 is the latest available year of data), and the USDA Local Food Marketing Practices Survey (LFMPS), conducted in 2015 and 2020.** But estimates from these three years—2015, 2017, 2020—provide somewhat confounding results, based on differences in the list of farms surveyed, reference periods, definitions, and weighting methodologies used by the Census and the LFMPS.

For example, the 2015 LFMPS estimated that New England farmers generated nearly *$804 million* in direct sales to consumers (i.e., farmers markets, farm stands, and CSAs) and intermediaries (i.e., institutions, stores). The 2017 Census of Agriculture estimated about *$505 million* in direct sales. The 2020 LFMPS estimated *$900 million* in direct sales. In other words, there is a range of several hundred million dollars between the three years of data. For consistency's sake—to compare apples to apples—we used data from the 2017 Census of Agriculture to compare to the 2017 Economic Census and State-level Food Expenditure Series. Data from the LFMPS are discussed in a later section.

In 2017, direct to consumer sales were over $293 million, while direct to intermediated markets equaled over $211 million, for a total of about $505 million. This is equal to 17.4% of total *agricultural* sales. While Vermont and Maine had the highest total agricultural sales of the six states, Massachusetts (33.2%), Rhode Island (24.5%), and

FIGURE 12: Direct Sales by State Compared to Total Agricultural Sales, 2017



Source: USDA 2017 Census of Agriculture, https://www.nass.usda.gov/AgCensus/.

New Hampshire (21.6%) had the highest percentages of direct sales out of total New England agricultural sales (Figure 12). **The six New England states comprise just 5% of the nation's population, but they accounted for 17% of total national direct food sales.**

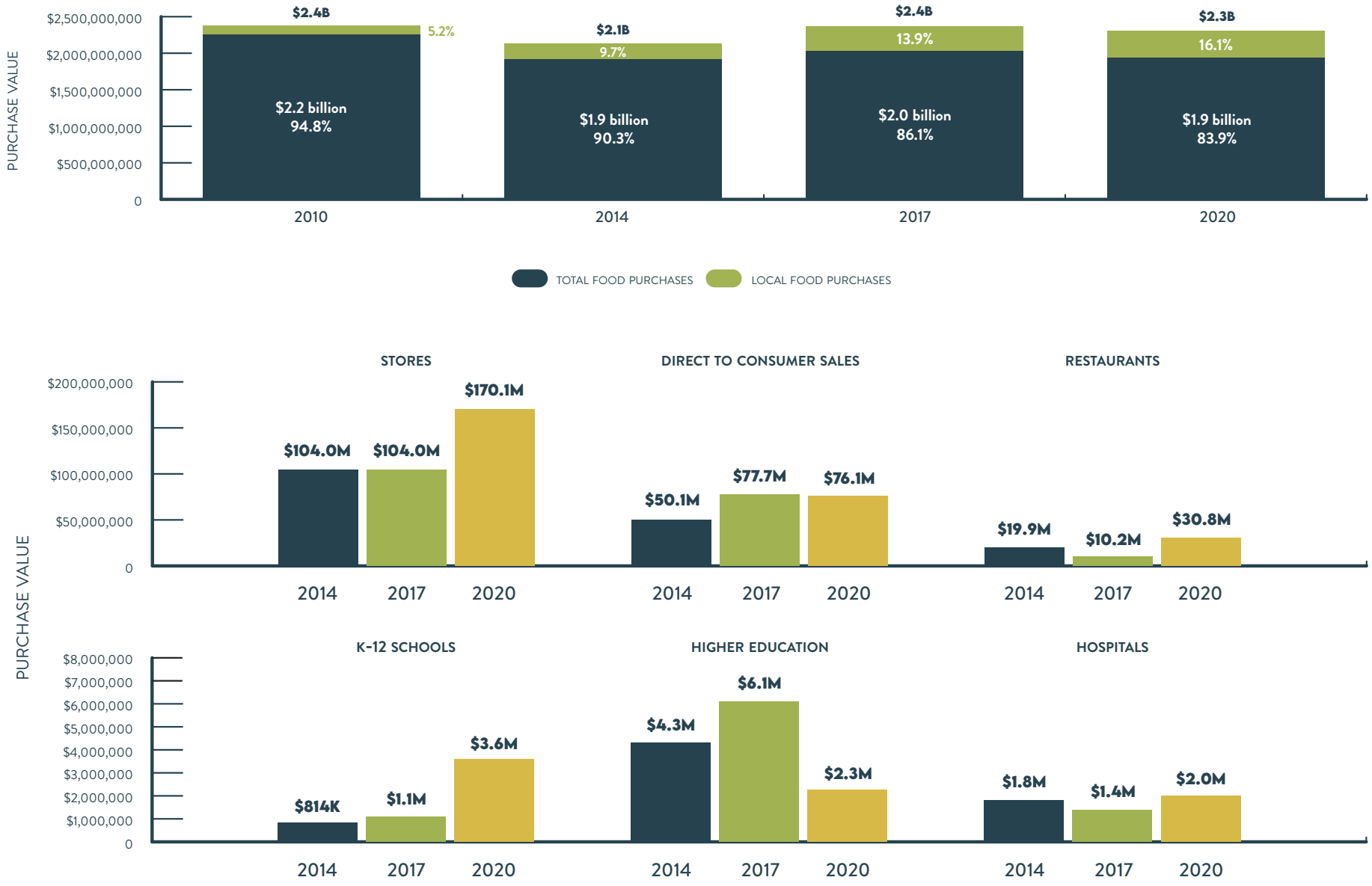
Compared to the 2017 Economic Census, direct to consumer sales equaled just 0.3% of total New England retail food sales. Compared to the 2017 State-level Food Expenditure Series, direct to consumer sales equaled just 0.4% of total New England retail food sales. To avoid double-counting, direct to intermediary sales were not included in this estimate (i.e., direct to intermediary sales are a catch-all category in the Census of Agriculture - we do not know precisely which market channels to allocate those values). **With both direct to consumer and direct to intermediary sales values we can conservatively estimate that local or regional food sales were more than 0.3% but less than 1% of total retail food sales.**

One unique data caveat is Vermont's Local Food Counts methodology. Conducted four times (2010, 2014, 2017, and 2020), Vermont's Local Food Counts showcase growth in local food sales at most market outlets, as well as improved data reporting and collection. In 2020, Vermont's local sourcing was estimated to equal 16.1% ($371 million, $595.17 per person) of total food purchases (Figure 13, page 31). **Grocery stores accounted for the majority of local food sales, followed by direct sales, restaurants, and distributors. Dairy products, processed/manufactured food products, beverages, and meat were the top local products sold.** Given their value to understanding actual regional food purchases, Local Food Counts will be conducted in the five other New England states in 2023.

Photo credit: Community Involved in Sustaining Agriculture (MA)

Food businesses that are able to create all or mostly regionally sourced products (e.g., pizza) will be at an advantage to support our regional resiliency goal.

FIGURE 13: Vermont Local Food Count, 2010, 2014, 2017, 2020



The premise of increased regional procurement supporting improved social, economic, and environmental resiliency must be reconciled with the reality of structural barriers and inequities that exist in our food system. A 2018 Gallup poll showed that 73% of Americans try to include "locally grown foods" in their diet.[3] Not everyone who would prefer to buy regional food has the resources to realize their aspiration. It is important to acknowledge root causes—poverty, racism, government policies—that negatively impact our food choice architecture today.

As we consider the characteristics of the various market channels and their role in regional food accessibility, we should bear in mind the economic and geographic barriers faced by historically marginalized and underserved populations. Disparities and inequities in food access are systemic and the result of structural racism. Resilient solutions to the root causes that have stripped communities of their food sources and choices cannot be entirely reliant on markets and enterprises to do the right thing, but should endeavor to return control to the communities which they serve.

Knowing what it will take for us to continue to advance toward our region's target sourcing goals is as important as knowing where we are today. **The bottom line is that getting to 30% by 2030 in consumer expenditures is going to require every market to sell more local food and the ability for those living in and visiting New England to acquire it.**

3 Market Channels

A market channel represents **the means by which food and beverage products move from a point of origin to a format and outlet accessible by end consumers** (e.g., at a farm stand, grocery store, or restaurant). A market channel transfers the ownership of goods along a value-chain from the point of production to the point of consumption. Wholesale and retail markets are defined by the sales relationship that occurs, either business-to-business for wholesale, or business-to-consumer for retail. Generally, wholesale transactions occur at higher volume and lower cost than retail transactions.

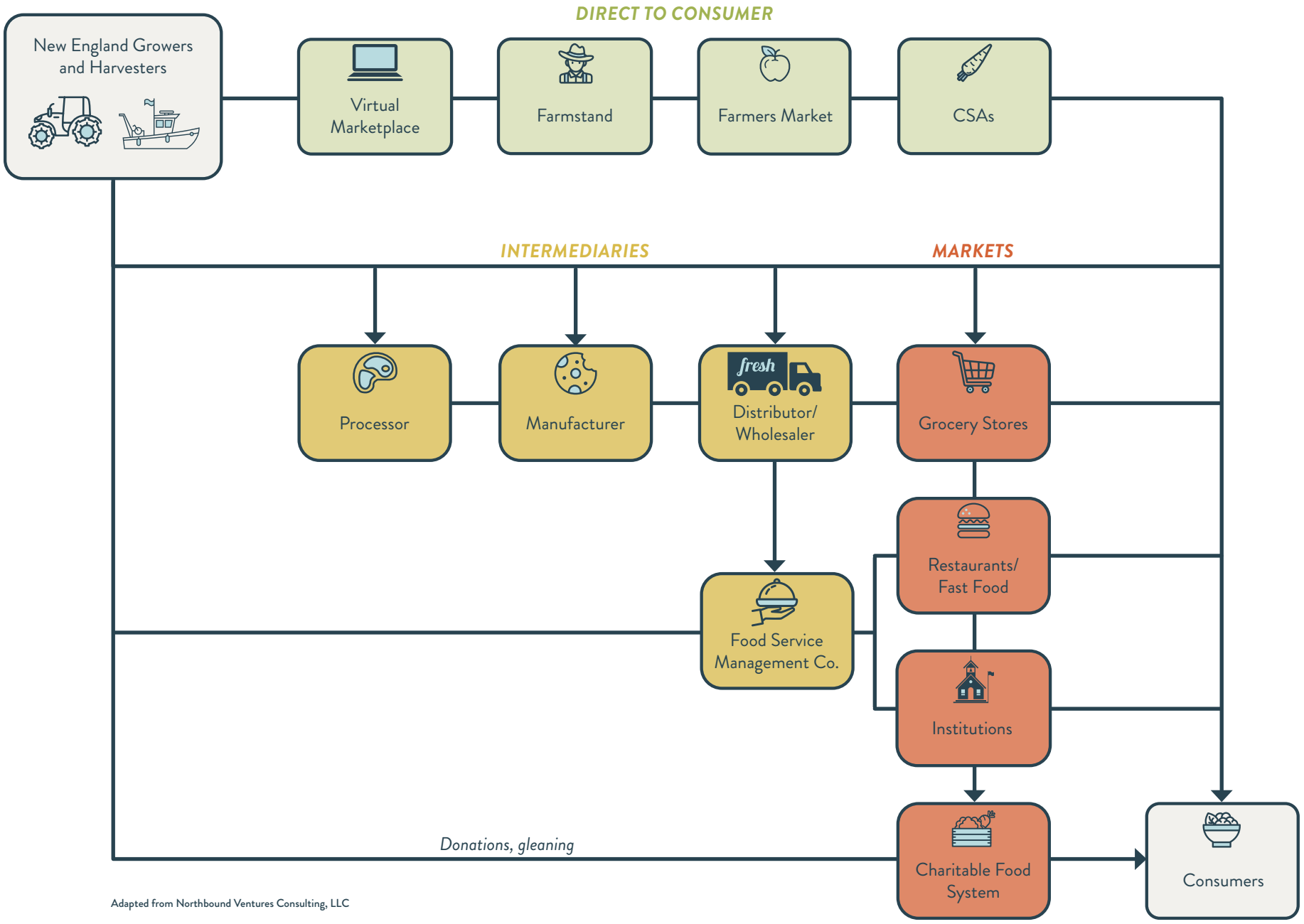
Food products can flow directly to consumers and intermediated markets from farmers and fishermen or may follow a path that includes a number of other service providers. For example, distributors aggregate, store, and transport food products. They move agricultural goods from producers to manufacturers and they move finished food products from processors and manufacturers to food service operators and retail outlets. Since each industry, sector, and region has unique needs, there are different types and specializations of distributors. Examples of national broadline (i.e., distributing a wide array of products) food service distributors include Sysco, US Foods, and Performance Food Group. These companies carry a large and diverse portfolio of products for institutions and restaurants. Examples of national system food distributors include UNFI (based in Providence, RI) and McLane Company, which service grocery store chains and independent food retailers. There are all sizes and specialties of distributors, both geographically and by food category. Many food manufacturers also self-distribute to retailers and food service operations, and grocery chains are also vertically integrating to self-distribute.[4]

While distributors may look very similar, the pandemic highlighted how disparate supply chains can be. For example, the food service and retail supply chains operate in parallel, rarely overlapping or intersecting. These industries carry similar products and have similar needs, but are siloed (Figure 14).

How Distribution Works

Distributors create the supply chain, offer capacity and efficiencies, and help retailers increase sales. For example, new producers and brands can leverage relationships with distributors to get their products in front of more consumers. Sometimes distributors have relationships with grocery managers and can get new products onto shelves. In other cases, the distributor may be making a large delivery and can easily add another brand or product that is not big enough to deliver directly to the retail outlets.

FIGURE 14: Possible Distribution Pathways From Producers to Consumers



Adapted from Northbound Ventures Consulting, LLC

In contrast to the few large broadliners, most distributors are independent operators that specialize in one specific aspect of the food system.[5] For example, Associated Grocers of New England focuses on selling to retail accounts while sourcing from both national and regional suppliers. Distributors can specialize in a specific product category (e.g., seafood or fresh produce such as P.J. Merrill Seafood in Portland, Provisions International Cheese in Maine and Vermont, and Davidson Specialty Foods in Connecticut), service a specific region (e.g., Crown O' Maine in Maine, New Hampshire, and connecting hubs, Wohrle's Food in Massachusetts, or Napoli Foods in Connecticut), represent a specific manufacturer or sector (e.g., independent grocery stores, institutions, or restaurants), or they can specialize in a specific distribution service (e.g., Wilcox Ice Cream & Specialty Foods offers freezer storage and frozen freight shipping in Vermont). These businesses exist to help producers, manufacturers, and retailers move, store, and/or aggregate their products.

Specialization offers distributors quality and price advantages. Distributors can grow or shift offerings more quickly than individual farms can to fill needs within the supply chain. In some cases, growing distribution networks can be a chicken-and-egg problem. The region is limited by the size and types of distributors available. This number will not grow until there is demand, but the companies that depend on distribution cannot grow without access to distribution. If there is a market opportunity, a company could expand or form to fill this need, but sometimes large companies vertically integrate instead, take control of their own distribution fleet and warehouses (e.g., Hannaford).

Each type of distributor has its own business model. Some provide first mile logistics and connect farms to the supply chain. A distributor can purchase directly from a producer or manufacturer or only transport products procured by the food service operators, grocery stores, or institutions that the distributor works with. Other distributors own warehouses and maintain inventory for their buyers, while others

Photo credit: Adam DeTour Photography

Getting pallets of fresh blueberries ready for loading onto the truck at Plainville Farm, in Hadley, MA.

merely provide cross-docking, a direct transfer of products from inbound trucks to outbound delivery vehicles, eliminating the need for storage. Some provide value-added processing or aggregation services. It is important to also recognize that aggregation comes with risks. The distributor is responsible for ensuring that products from multiple farms or companies are equivalent.[6] Others select products and offer merchandising support for their clients. A distributor might own a fleet of refrigerated trucks or hire a freight service.

Barriers to Accessing Distribution

As helpful as distribution can be, there are challenges for producers or brands to access this important route to larger markets. **The industry has undergone significant consolidation in the last 30 years.** Larger companies gain efficiencies of scale, making them more cost competitive against smaller companies. When there are producers to strengthen their ability to satisfy wholesale, retail, and fewer companies

in a market, the lack of competition is a source of market power for the remaining players; this allows distributors to use exclusive agreements, rebates, and other anti-competitive practices to limit new distributors from entering the market - in turn, limiting product sourcing. Current distributors' strong alliances with established brands makes it difficult for new brands to enter the market.

One of the serious challenges to profitability that local and regional producers, processors, and manufacturers face is first-mile delivery, which refers to the process where products are moved from a farm, landing, or facility to a distribution center. **The challenge of first mile delivery is sometimes resolved by nonprofit and mission-based distributors like food hubs.** There are about 21 food hubs in New England (Table 8). The USDA defines a regional food hub as "a business or organization that actively manages the aggregation, distribution, and marketing of source-identified food products primarily from local and regional institutional demand." Food hubs are an important subset of food value chains. Many farmers and ranchers, especially smaller and mid-sized operations, often lack the capacity to access retail, institutional, and commercial food service markets on their own, and consequently miss out on the fastest growing segment of the local food market. By offering a combination of aggregation, distribution, and marketing services at an affordable price, food hubs make it possible for many producers to gain entry into new larger-volume markets that boost their income and provide them with opportunities for scaling up production.

On the sales side, large distributors tend to deprioritize lower profit-bearing relationships with small grocers, independent retailers, or local coops, making it difficult for these retail locations to compete in the market. They can also discourage these accounts by requiring high minimums that smaller retailers cannot meet. **Distributors are the center of the supply chain and they can influence what products are sold and where. While these anti-competitive behaviors are known and discussed by industry insiders, there is not much federal antitrust**

TABLE 8: New England Food Hubs

State	Food Hubs	
Connecticut	Brass City Harvest	Northwest Connecticut Food Hub
Maine	Fresh Start Farms	
Massachusetts	Boston Food Hub	Coastal Foodshed
	New Entry Food Hub	Three Rivers Farmers Alliance
	Western MA Food Processing Center	Worcester Regional Food Hub
New Hampshire	Fresh Start Farms	Kearsarge Food Hub
	NH Community Seafood	Taproot Marketplace
Rhode Island	Farm Fresh RI	Farmers' Community Food Hub
Vermont	ACORN	Farm Connex
	Food Connects	Intervale Food Hub
	Green Mountain Farm Direct	

Photo credit: Intervale Food Hub

The Intervale Food Hub (Burlington, Vermont) offers cross-docking services, frozen/refrigerated storage, and sales wholesale quantities of local products.

action being taken. Regulators are more focused on the consolidation of the grocery industry, which is explored in the next section.

Through online research and interviews, we were able to generate a list of 109 unique distributors with headquarters in New England states, ranging in territory from a single state to having a global footprint (Table 9). Data was collected on the name of a distributor, the coverage area, product categories covered, a website link as well as revenue and asset information when available. Many distribution websites call out the specific delivery regions they cover within the state (e.g., northern Maine or eastern New Hampshire).

Distributors were counted toward each coverage territory in an effort to present strengths and gaps of food distribution across New England. Local sourcing was identified by researching each website with a conservative approach; for example, a list of local producers or a webpage dedicated to local sourcing methods. No specific definition of local sourcing was used; this was left to the discretion of the distributor. Food hubs and aggregators that do not offer distribution are excluded.

Massachusetts has the most distributors (25) and 16 of these (64%) carry local products. **As distributors identify as having larger coverage areas, mentions of "local" decrease.** About 35% of the companies researched have annual revenue under $5 million, which aligns with similar research conducted by Farm to Institution New England. **Distributors with under $5 million in revenue per year report carrying the highest levels of local products.** Nearly half of the distributors that service New England have headquarters outside of the region, many of them in New York and New Jersey. Another common trend is to have a distribution center on the border and use it as a hub to bring food into New England.

TABLE 9: Number of Distributors by Region and Mentions of Local Sourcing

State/Region	Number of Distributors Serving State	Number of Distributors in Area that Mention Local
Massachusetts	25	16
Vermont	21	15
New Hampshire	14	9
Connecticut	13	5
Rhode Island	12	5
Maine	9	8
New England	22	11
Northeast	6	2
National	16	0
North America	3	0
Global	1	0

Photo credit: Commonwealth Dairy

Grocery Stores/Supermarkets

A little more than 32% (over $702 billion) of food and beverage expenditures in the United States, and 46% (over $39 billion) of expenditures in New England, are made at grocery stores, warehouse clubs, or supercenters. For many Americans, grocery stores provide affordable and convenient access to food. Two significant challenges impact consumers' access to grocery stores:

1. Consolidation and vertical integration within the grocery industry and distributors' influence contribute to where stores are located and what they feature on the shelves;

2. Lower-income, predominantly Black, Hispanic, or Indigenous communities are less likely to have full-service grocery stores due to a long history of racism, housing discrimination, displacement, and lack of investment, culminating in "supermarket redlining."[7] This can mean paying more for food, spending more time in transit to get food, and a higher likelihood of shopping at supercenters or dollar stores.[8]

The modern grocery store was born in the 1920s in Tennessee, when Clarence Sanders patented the self-service concept—which forced customers to use turnstiles to enter and exit—at his Piggly-Wiggly stores.[9] This innovation transformed the food retail industry, but it was not until the self-service format moved to the East Coast that the industry experienced massive growth; this was fueled by the "mass merchandising" of products after the Great Depression.[10] The post-WWII expansion of the food retail industry benefited from rapid suburbanization, expansion of the transportation network, rising incomes, and the structure of the nuclear family.[11]

The "supermarket"—the preferred retail sales format and cultural icon of the U.S. food retail industry—has been exported globally. In recent years, transnational food retail corporations, like Ahold Delhaize and ALDI, have expanded their footprint in the U.S.[12] The grocery retail sector has also experienced big capital injections from private equity firms whose interests are questionable: since 2015, seven major grocery chains, all owned by private equity firms, have filed for bankruptcy (including Tops, which has two stores in Vermont). The private equity playbook is to use leveraged buyouts to buy a company using high levels of debt that it then passes over to the company. After the buyout, the private equity firms add on more debt to pay themselves dividends, or they sell off assets or real estate: "Strangled by debt and newly obligated to pay rent, these grocery chains have neither the ability to cut prices to compete with low-cost chains nor the resources to invest and compete with upscale markets."[13] Coming out of bankruptcy, stores have reduced benefits to workers, fired workers, and closed some store locations.

The grocery retail industry is also strongly vertically integrated, both in the United States and Europe.[14] Examples of vertical integration, which refers to when one firm is engaged in different—or all—parts of the production process, include:

- Farms and land owned by the firm
- Processing and manufacturing facilities owned by the firm
- Private label products that are wholly owned by the firm, or their wholesale partners
- E-commerce and home delivery.

The Challenge of Market Concentration

Consumers typically rely on a combination of food sources, and many variables influence the extent to which source is important to individual or household purchasing practices, including:

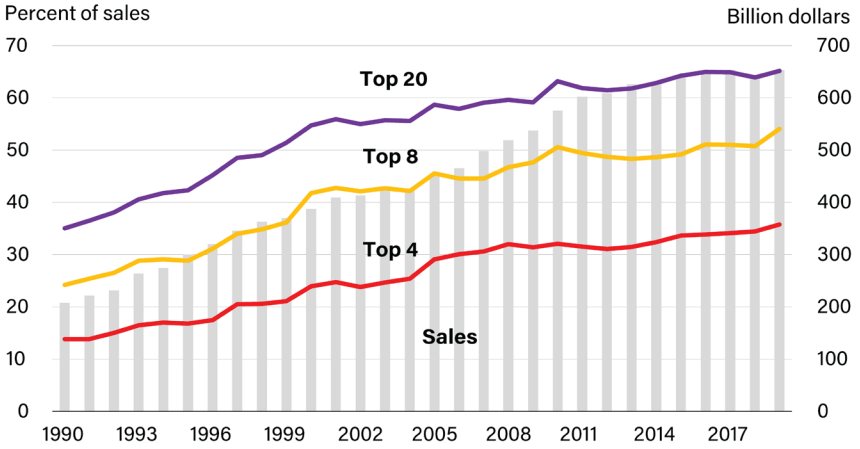
- **Availability:** What institutions or retailers are nearby?
- **Awareness:** Does the consumer know where food is being sold or served?
- **Autonomy:** Does the consumer have the ability to choose where and what they eat?
- **Affordability:** How expensive are the food options? Is it possible to exercise supplemental payment options (e.g., SNAP, universal free school meals)?
- **Age:** Is the consumer of school age or in the workforce, where institutional food service is an option?
- **Transportation:** Does the consumer have adequate personal mobility, own a vehicle, or have access to affordable public transit?
- **Time/convenience/competing obligations:** Does the consumer have the time to get food based on where it is located and the mode(s) of transportation available? Do work hours or childcare duties overlap with the hours when food is available?
- **Quality/diversity of food options:** Do the food options represent acceptable quality and are they familiar to the consumer? Do they reflect the consumer's values and beliefs?
- **Experience/safety (e.g., language spoken):** Does the consumer feel welcome and is information regarding food options clear?
- **Habit:** Continuation of a learned pattern: "This is where my family shopped when I was a kid."

Consumer purchasing practices are also significantly influenced by market concentration (i.e., when the share of a market controlled by a small number of businesses). Eye-opening research on the concentration of ownership, wealth, and power among food system businesses shows that, starting in the 1980s, an acceleration in mergers and acquisitions among food system businesses has meant that just a few companies dominate almost all aspects of food production, processing, manufacturing, distribution, and retailing.[15]

The USDA Economic Research Service estimates that grocery store market concentration has increased from 1990 to 2019: the top 4 grocery stores and supercenters—Walmart, Kroger, Albertsons, and Ahold Delhaize—accounted for about 15% of total sales in 1990 and 34% of total sales in 2019 (Figure 15).[16]

FIGURE 15: Top 4, 8, and 20 Firms' Share of U.S. Food Sales, 1990-2019

The share of food sales at supermarkets, other grocery stores, warehouse clubs, and supercenters of the top 4, 8, and 20 retailers trended upwards for the last three decades



Notes: Sales are estimated based on the sales per employee ratio calculated by firm size and North American Industry Classification System (NAICS) code. NAICS codes included: 445110 (supermarkets and other grocery (except convenience) stores) and 452311 (warehouse clubs and supercenters). Food sales are calculated using the Economic Census product lines statistics on the percentage of sales on food (on and off premises).

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, and National Establishment Time Series.

Within New England, these top 4 chains—Ahold Delhaize (Stop and Shop, Hannaford), Albertsons (Shaw's and Star Market), and Walmart—have at least 699 stores (Kroger currently has no stores in New England). Note, however, that the most prolific type of food retailer in America and New England are dollar stores: Dollar Tree/Family Dollar and Dollar General operate at least 914 stores in New England (Table 11, page 42, Figure 16, page 44).

The total number of grocery stores in the United States increased 7% (from 47,000 to 51,000) from 2005 to 2015. The number of independent, non-chain stores (i.e., stores with fewer than 4 locations) also increased during this time period, albeit at a much slower pace. The number of independent stores declined in 1,116 counties (36%) and increased in only 915 counties (29%). The net effect, the USDA Economic Research Service found, was that **the share of independent stores declined in 41% of all counties, including every county in Connecticut and most counties in Massachusetts.**[17] Independent stores are often more likely to stock local and regional food products, and the loss of these stores may impact our ability to reach our 30% by 2030 goal.

Reduced competition enables firms to exercise market power, and can lead to fewer choices—especially locally or regionally sourced choices—and higher prices for consumers. This happens because these companies use their dominant positions to reduce quality, increase prices, decrease innovation, and erect barriers of entry to new entrants. Market concentration is also very pronounced in the types of food products available in grocery stores: when consumers look at the grocery shelves, they may see dozens of brands owned by a few companies (Table 10). Those companies also have tools to access premium in-store real estate. Plus, they can use their market power to exclude new brands. With increased consolidation, there is less overall shelf space in a store for new brands to put their products. Another issue of local foods accessing grocery stores is stocking fees and free-fills. These are fees, free products, or premiums that brands

TABLE 10: Market Share of Selected Grocery Items

Grocery Item (Year)	Parent Company	Market Share
Beer (2017)	**Top Companies**	**78.5%**
	Anheuser-Busch InBev	41.6%
	Molson Coors	24.3%
	Constellation Brands	8.9%
	Heineken N.V.	3.8%
Fresh Bread (2020)	**Top Companies**	**60.8%**
	Grupo Bimbo	26.9%
	Flowers Foods	24.6%
	Campbell Soup Company	7.1%
	Lewis Bakeries	2.1%
	Private Label/Store Brand	17.0%
Yogurt (2019)	**Top Companies**	**74.5%**
	Danone	33.0%
	Chobani Global Holdings	18.4%
	General Mills	17.3%
	Groupe Lactalis	5.8%
	Private Label/Store Brand	7.8%
Fresh Cut Salad (2017)	**Top Companies**	**54.2%**
	Cultrale-Safra	21.7%
	Itochu	14.0%
	Taylor Fresh Foods	11.2%
	Bonduelle	7.3%
	Private Label/Store Brand	35.8%
Meat, Beef, and Poultry Processing (2021)	**Top Companies**	**48.8%**
	JBS SA	18.7%
	Tyson Foods	15.4%
	Cargill	9.0%
	WH Group	5.7%

Source: Food & Water Watch, November 2021, *The Economic Cost of Food Monopolies: The Grocery Cartels*, https://www.foodandwaterwatch.org/wp-content/uploads/2021/11/IB_2111_FoodMonoSeries1-SUPERMARKETS-V2FINAL.pdf.

must pay or provide to grocery stores to get access to shelf space or high value locations like end caps. Dominant and established brands have budgets for these fees. Start-ups and smaller firms have less capital available, which limits their placement in retail. For brands to compete successfully, they need a lot of capital, which creates another barrier for smaller or new food brands that have less access to capital and are often provided with worse terms than larger firms with more resources.

Over 300 food industry mergers and acquisitions in the food retail sector were recorded in 2019 alone. Three large mergers carried the weight of much of the change in industry structure: the acquisition of Safeway by Albertsons in January 2015, and the acquisition of Delhaize by Ahold in June 2015.[18] Amazon also acquired Whole Foods in the summer of 2017.

All three instances of consolidation had important effects for the New England region:

- In 2015, Ahold and Delhaize merged into Ahold-Delhaize, a Dutch-Belgian conglomerate. In New England, it owns Hannaford (originally founded in Portland, ME in 1883) and Stop & Shop (originally founded in Somerville, MA in 1919). Hannaford has a total of 153 stores across Maine, Massachusetts, Vermont, and New Hampshire. Stop & Shop has 153 supermarkets across Rhode Island , Massachusetts, and Connecticut.
- Although there are no Safeway supermarkets in New England, Albertsons owns Shaw's (founded in Portland, ME in 1860) and Star Market (founded in Watertown, MA in 1915). There are currently 154 Shaw's and Star Markets in the region, except for New Hampshire.
- Whole Foods, acquired by Amazon, has 39 stores in the region, but none in Vermont.

By default, regions and localities have no choice about which stores (and supply-chains) they want to sponsor, and even further, they have little influence over what gets "stocked" on the shelves of supermarkets due to "slotting fees" paid by manufacturers to supermarkets.[19]

The ownership structure of the New England grocery retail industry raises questions about the ability of the region to exercise some control over incorporating regional food and beverage products. Communities have little control or leverage to influence what type of supermarket companies and retailers settle in their region.[20]

New England Food Retail Sector

More than 20 supermarket chains/retailers operate in the New England region (Table 11, Figure 16). The region is an important investment zone for domestic corporations, such as Walmart, Albertsons (Shaw's & Star Market), and Amazon (Whole Foods), and transnational corporations, such as Ahold-Delhaize (Hannaford and Stop & Shop), and ALDI. Transnational corporations generally target New England for its relatively high-income profile compared to the rest of the U.S.

Walmart, Costco, Sam's Club, and BJ's have a strong presence in the region. For instance, Walmart/Sam's Club has 150 stores in the region, 85 of which are supercenters featuring groceries as well as general merchandise. The effect of Walmart supercenters may well lead to annual savings for consumers, but their practices exert strong competitive, downward price pressures on local supermarket chains and product brands. One study found that Walmart supercenters in New England "result in a decrease in grocery prices between 6 and 7% for national brand goods at conventional supermarkets within a radius of five miles from the supercenter."[21]

TABLE 11: New England Supermarket Chains *(sorted by number of stores in New England)*

Name of Store (Parent Company)	Founded	Ownership (New England Headquarters if Listed)	Number of Stores in New England	Total Number of Locations	Total Revenue	Number of Employees
Dollar Tree/Family Dollar *(Dollar Tree, Inc.)*	1986 — GA, TN, VA (Dollar Tree) 1959 — Charlotte, NC (Family Dollar)	Public/Multinational (Chesapeake, VA)	**618 stores:** 246 (MA), 121 (CT), 93 (ME), 73 (RI), 61 (NH), 24 (VT)	7,912 (Dollar Tree) 8,267 (Family Dollar)	$28.3 billion (2022)	59,330
Dollar General *(Dollar General Corporation)*	1939 — Scottsville, KY	Public/Multinational (Goodlettsville, TN)	**296 stores:** 76 (CT), 63 (ME), 55 (MA), 43 (NH), 39 (VT), 20 (RI)	18,460	$34.2 billion (2022)	158,000
Stop and Shop *(Ahold Delhaize)*	1914 — Somerville, MA	Multinational (Quincy, MA)	**242 stores:** 127 (MA), 88 (CT), 27 (RI)	406	$15.2 billion (2022)	60,000
Shaw's and Star Market *(Albertsons Companies)*	1860 — Portland, ME	Public (W. Bridgewater, MA)	**154 stores:** 79 (MA), 27 (NH), 21 (ME), 19 (VT), 8 (RI)	154	$6.4 billion	30,000
Hannaford *(Ahold Delhaize)*	1883 — Portland, ME	Multinational (Scarsborough, MA)	**151 stores:** 66 (ME), 38 (NH), 30 (MA), 17 (VT)	183	$4.2 billion (2022)	20,000
Walmart/Sam's Club *(Walmart, Inc.)*	1962 — Rogers, AR	Public/Multinational (Bentonville, AR)	**151 stores:** 48 (MA), 34 (CT), 28 (NH), 25 (ME), 9 (RI), 7 (VT)	10,585	$611.3 billion (2022)	2.3 million
Ocean State Job Lot	1977 — North Kingstown, RI	Private (North Kingstown, RI)	**119 stores:** 48 (MA), 28 (CT), 17 (NH), 16 (RI), 7 (ME), 3 (VT)	145	$700 million (2022)	5,600
Market Basket *(DeMoulas Supermarkets)*	1917 — Lowell, MA	Private (Tewksbury, MA)	**90 stores:** 53 (MA), 33 (NH), 2 (ME), 2 (RI)	90	$4.0 billion (2022)	25,000
ALDI Nord/ALDI Süd *(ALDI-Nord, ALDI-Süd)*	1913 — Essen, Germany	Private (Essen, Germany)	**66 stores:** 29 (CT), 16 (MA), 9 (NH), 9 (RI), 3 (VT)	11,235	$121.1 billion (2021)	25,000
Big Y Foods *(D'Amour Family)*	1936 — Chicopee, MA	Private (Springfield, MA)	**59 stores:** 30 (CT), 29 (MA)	84	$2.4 billion	12,000
BJ's Wholesale Club *(BJ's Wholesale Club Holdings)*	1984 — Medford, MA	Public	**58 stores:** 30 (MA), 13 (CT), 7 (NH), 5 (RI), 3 (ME)	229	$15.4 billion (2021)	25,000

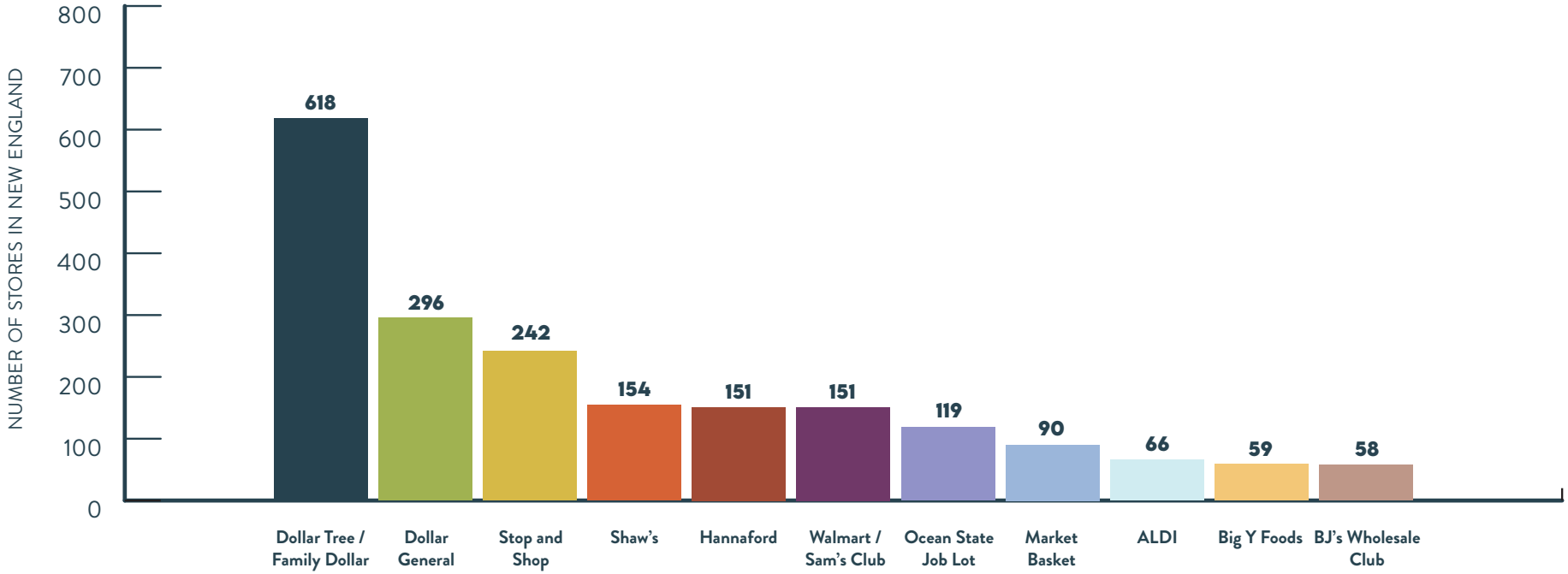
* Green = independent New England based stores.

TABLE 11: New England Supermarket Chains *(sorted by number of stores in New England)*

Name of Store (Parent Company)	Founded	Ownership (New England Headquarters if Listed)	Number of Stores in New England	Total Number of Locations	Total Revenue	Number of Employees
Whole Foods *(Amazon)*	1980 — Austin, TX	Public (Austin, TX)	**49 stores:** 32 (MA), 10 (CT), 3 (NH), 3 (RI), 1 (ME)	476	$17 billion (2021)	91,000
Price Chopper/Market 32 *(Northeast Grocery, Inc.)*	1973 — Schenectady, NY	Private (Schenectady, NY)	**43 stores:** 15 (MA), 15 (VT), 9 (CT), 4 (NH)	131	$3.5 billion	24,000
Shop Rite/Price Rite *(Wakefern Food Corp.)*	1946 — Newark, NJ	Cooperative (Keasby, NJ)	**38 stores:** 19 (CT), 16 (MA), 2 (RI), 1 (NH)	321	$17.8 billion (2021)	80,000
Trader Joe's *(Trader Joe's)*	1967 — Pasadena, CA	Private (Monrovia, CA)	**33 stores:** 19 (MA), 8 (CT), 3 (NH), 1 (ME), 1 (RI), 1 (VT)	556	$16.5 billion (2020)	15,810
Roche Bros. Supermarkets *(Roche Bros.)*	1952 — Roslindale, MA	Private (Mansfield, MA)	**20 stores:** 20 (MA)	20	$389 million (2019)	4,600
Costco *(Costco)*	1983 — Seattle, WA	Public/Multinational (Issaquah, WA)	**11 stores:** 6 (MA), 3 (CT), 1 (NH), 1 (VT)	828	$166.8 billion	288,000
CTown Supermarkets	1975 — NY	Private (White Plains, NY)	**10 stores:** 10 (CT)	200	Undisclosed	Undisclosed
Dave's Fresh Marketplace	1994 — North Kingstown, RI	Private (E. Greenwich, RI)	**10 stores:** 10 (RI)	10	$276 million	1,000
Seabra Foods, Inc. *(Seabra Market)*	1971 — Newark, NJ	Private (Newark, NJ)	**7 stores:** 4 (MA), 3 (RI)	16	$53 million	2,000
Stew Leonard's	1969 — Norwalk, CT	Private (Norwalk, CT)	**7 stores:** 7 (CT)	7	$400 million	2,226
Wegmans *(Wegmans Food Markets)*	1916 — Rochester, NY	Private (Gates, NY)	**6 stores:** 6 (MA)	107	$10.8 billion	50,000
Donelan's *(Patel Brothers, Inc.)*	1948 — Littleton, MA	Private (Littleton, MA)	**6 stores:** 6 (MA)	6	$84 million (2021)	350
Patel Brothers *(Patel Brothers, Inc.)*	1974 — Chicago, IL	Private (Hanover Park, IL)	**5 stores:** 3 (MA), 1 (CT), 1 (NH)	57	$140 million	Undisclosed
Caraluzzi's	1949 — Bethel, CT	Private (Bethel, CT)	**4 stores:** 4 (CT)	7	$9.6 million	100
Highland Park Market	1960 — Manchester, CT	Private (Manchester, CT)	**3 stores:** 3 (CT)	3	$29.1 million	150

* Green = independent New England based stores.

FIGURE 16: Top 10 Grocery Stores in New England by Number of Stores



Even though large corporate food retail entities and supercenters seem to have a strong grip on New England, numerous independent and family-owned small/midsize supermarket chains, as well as food co-ops, represent an important commercial segment within the region. For instance, firmly rooted midsize supermarket chains, such as Big Y and Market Basket, originate within the region. Big Y, founded in 1936 in Chicopee (MA), has some 59 stores in Massachusetts and Connecticut. Market Basket, founded in Lowell (MA) in 1917, has 80 stores in New England, although none in Connecticut and Vermont.

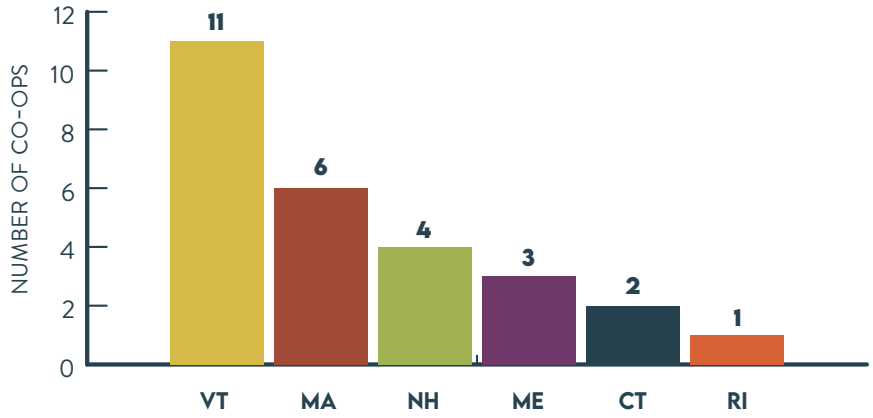
Small supermarket chains, such as Roche Bros. (MA), Stew Leonard's (CT), Caraluzzi's (CT), and Highland Park Market (CT), are part of the food retail fabric of the region, mainly in suburban areas and small towns of Massachusetts and Connecticut. Small ethnic food retail chains like Patel Brothers and the Aurora Grocery Group, of Indian- and Dominican-descent, respectively, have supermarkets in Connecticut and Massachusetts.

The Neighboring Food Co-op Association (NFCA) is an association of values-driven food co-ops across all New England states (and New York State) that maximizes local sourcing of products. There are 27 co-ops in New England, with many more under development (Figure 17). Sales data for co-ops is included under Grocery Stores/Supermarkets in Figures 4 and 5, but specific values are not available. In 2022, NFCA estimated that:

- Vermont's 11 co-ops operated 13 storefronts that employed 940 people, generated over $147 million in annual revenue, and sold more than $51 million in local products.

- Massachusetts' 6 co-ops operated 8 storefronts that employed 400 people, generated over $64.3 million in annual revenue, and sold more than $16 million in local products.
- New Hampshire's 4 co-ops operated 7 storefronts that employed 565 people, generated over $125 million in annual revenue, and sold more than $25 million in local products.
- Maine's 3 co-ops employed 175 people, generated over $24.4 million in annual revenue, and sold more than $8.6 million in local products.
- Connecticut's 2 co-ops employed more than 90 people, generated over $12.5 million in annual revenue, and sold more than $2.1 million in local products.
- Rhode Island's 1 co-op employed more than 40 people, generated $5.5 million in annual revenue, and sold more than $465,000 in local products.

FIGURE 17: Number of Food Co-ops in New England



Source: Neighboring Food Co-op Association.

Photo credit: Nicole Cardwell, New Hampshire Food Alliance

Since 2009, the Littleton Food Co-op in New Hampshire has offered locally sourced food and beverage products.

Geographic Presence

Grocery retail corporations spatially "manage" different sections of the New England region (Table 12). Dollar Tree/Family Dollar, Dollar General, Walmart, and Trader Joe's are the only major chains present in all the states of the region. Whole Foods, ALDI, and Shaw's & Star Market (Albertsons) are present in five states of the region. Price Chopper, Shop/Price Right, Market Basket, Hannaford, BJ's, and Costco are present in four states of the region. Thirteen food retail outlets have stores in three or fewer states of the region, among them some significantly important "subregional" chains like Big Y, Stop & Shop, Roche Bros., and Wegmans.

The geography of regional food retail raises a variety of questions related to the ability of the New England region to achieving the New England Feeding New England goal:

1. **In what ways can the location prerogatives and preferences of companies be reconciled with a more equitable or balanced distribution of food retail outlets to respond to the local needs of citizens?** Research has revealed uneven spatial distribution of supermarkets creates "food deserts" and "supermarket redlining."[22] Vulnerable communities, in both urban and rural areas, experience the impact of these exclusions. Zoning laws and regulations can also be responsible for exclusionary practices.[23] Further, it is well known that racial and ethnic segregation and income inequality can be powerful social determinants of health and food insecurity, especially for diabetes and hypertension, which are strongly correlated to the food store "retail mix" of neighborhoods.[24]

2. **What is the willingness of small and midsize supermarket chains and food cooperatives to increase food sourcing produced from within the region?** Anecdotally, we know that high price points resulting from accessing low quantity volumes and higher production costs in the region are a problem for this segment of the food retail sector, yet we also know that several chains do have "local/regional buying programs" and are making efforts to connect to local food sources.[25] Factoring local content into the "local buying equation," however, entails participating in a complex web of relationships between wholesalers and distributors. Big supermarket chains often have internal conflicts between the marketing and procurement divisions of their corporations. The marketing division would like to show greater local context, yet they are restrained by the "cost arguments of procurement."[26]

3. **How can independent food retailers compete with the proliferation of dollar stores?** Independent retailers are more likely to be owned and managed within the region and to buy local/regional food. With dollar stores saturating markets and gobbling up real estate, how can resources be catalyzed to support locally-owned enterprises to be more competitive?

TABLE 12: Sample Geography of Supermarket Chains in New England

Company	MA	CT	NH	ME	VT	RI
Dollar Tree/ Family Dollar	246	121	61	93	24	73
Dollar General	55	76	43	63	39	20
Walmart	48	34	28	25	6	6
Ocean State Job Lot	48	28	17	7	3	16
Trader Joe's	19	8	3	1	1	1
Whole Foods	32	10	3	1	0	3
ALDI	16	29	9	0	3	9
Shaw's + Star Market	78	0	27	21	19	8
BJs	30	13	7	3	0	5
Price Chopper	15	9	4	0	15	0
Shop/Price Right	16	19	2	0	0	2
Market Basket	53	0	33	2	0	2
Hannaford	30	0	38	66	19	0
Costco	6	3	1	0	1	0
Stop & Shop	127	88	0	0	0	27
Big Y	29	20	0	0	0	0
Roche Bros.	20	0	0	0	0	0
CTown Supermarkets	0	10	0	0	0	0
Dave's Fresh Marketplace	0	0	0	0	0	10
Seabra Foods	4	0	0	0	0	3
Stew Leonard's	0	7	0	0	0	0
Wegmans	6	0	0	0	0	0
Donelan's Fresh Market	6	0	0	0	0	0
Patel Brothers	3	1	1	0	0	0
Caraluzzi's	0	4	0	0	0	0

Orange = stores in all New England states
Green = stores in 5 New England states
Blue = stores in 4 New England states
Yellow = stores in 3 or fewer New England States

Technological Development in Food Retail Post-COVID 19 Pandemic

The COVID-19 pandemic exposed the fragility of general and product-specific supply chains and imposed strong physical restrictions upon the ability of customers, especially vulnerable, isolated, and physically challenged customers, to reach food retail outlets.[27] Consequently, the food retail industry aggressively pursued a variety of digital technological solutions to overcome bottlenecks.

A recent report by McKinsey & Company (2022) forecasts that the food retail sector "is now on the edge of the next transformation in e-commerce: grocery executives expect e-commerce penetration to more than double for their own organizations in the next three to five years."[28] Major supermarket chains are implementing omni-channel marketing and logistics strategies[29] to push for the convergence in how consumers shop. Large supermarket chains have internalized operations by acquiring their own "data science" organizations such as Peapod, which is owned by Ahold-Delhaize. They are also blending "high-tech" and "big data" solutions, as in the case of the Amazon-Whole Foods "techno-grocery" industrial merger. Even smaller supermarket chains are jumping onto the "tech bandwagon" by outsourcing their e-grocery and retailing platforms to specialized companies.[30]

These trends have influenced the supermarket chains which operate in New England. Price Rite is piloting automated delivery robots, and storage and retrieval functions. Highland Park, a family owned supermarket chain, outsourced the management of its e-grocery platform to Instacart. Roche Bros., however, has kept such functions within the company. Stop & Shop implanted "Scan-It", one of the first companies to implement "cashier-less" self-check-out (well before the COVID-19 pandemic). ALDI, Wegmans, and Whole Foods are using visual and digital recognition technologies combined with mobile applications in which customers can scan and bag their groceries while they shop. Such technologies seek reductions in labor costs, product stocking timeframes, and customer delivery time.

Will these trends benefit the New England food retail sector and its customers?

- Automation and omni-channel "customer experience unification" are likely to exacerbate patterns of exclusion, especially for elderly and disadvantaged customers, who lack access to digital and computerized technologies to engage with the food retail sector.

- Automation and digitalization trends may broaden the gap between retailers who cannot follow the fast pace of modernization of larger companies, which is likely to turn into further cost disadvantages for smaller food retailers. This is particularly a relevant challenge for the cooperative and small food supermarket chains and retailers.

- "First-mile" challenges could arise because big food retailers may become even more selective in sifting agricultural producers that are "technologically incompatible" to move their products into regional supply chains.

Disparities in Food Access

The geography of supermarket chains also impacts food access and security: from rural communities in Essex County, Vermont, to urban neighborhoods in Providence, healthy food is easier to get for some people, but expensive or far away for others. These disparities and inequities in food access are systemic and the result of structural racism and poverty: Food access challenges and food insecurity disproportionately impact Black, Hispanic, Indigenous, low income, and rural New Englanders.

The Team used data from the USDA Food Access Research Atlas to map *low-income* (i.e., the tract's poverty rate is greater than 20%) and *low access* (i.e., where a significant number of the population is greater than one-half mile from the nearest store for an urban area or greater than 10 miles for a rural area census tracts) by race and Hispanic ethnicity (Figure 13). The Food Access Research Atlas includes proximity to supercenters (i.e., very large big box stores), supermarkets (i.e., grocery stores with 10 or more checkout lanes), and large grocery stores (i.e., grocery stores that are smaller than supermarkets), but warehouse clubs are excluded from the USDA's analysis because they are only available to people who pay an annual membership fee. Drug stores, dollar stores, and convenience stores are also excluded because the Food Access Research Atlas does not have consistent data on where these food sources are, what they carry, and when they are open.[31]

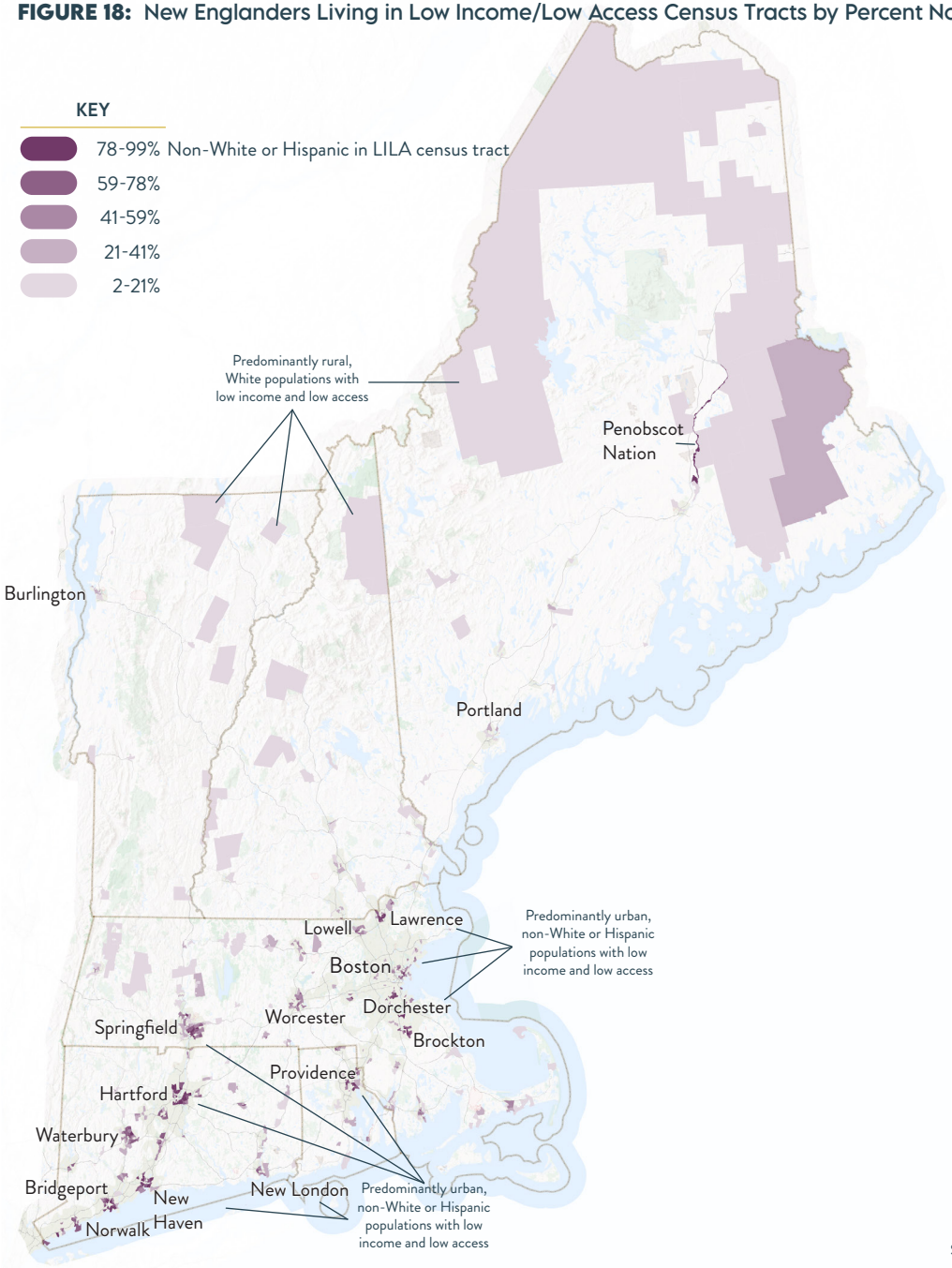
We have added the locations of dollar stores (i.e., Dollar Tree/Family Dollar and Dollar General) via web searches. Some research supports the hypothesis that "widening income inequality and the decline of many city neighborhoods and entire swaths of the country" drives the growth of dollar stores.[32] The former chief executive of Dollar General said "The Dollar General customer is in a permanent recession, and we want to help them."[33] Dollar stores fill a need in communities lacking basic retail services, but research conducted by the Institute for Local Self-Reliance (ILSR) found that dollar stores commonly offer narrow selections of processed foods, with limited offerings of fresh vegetables, fruits, and meats. More to the point, ILSR suggests that the proliferation of dollar stores is "not merely a byproduct of economic distress. They're a cause of it."[34]

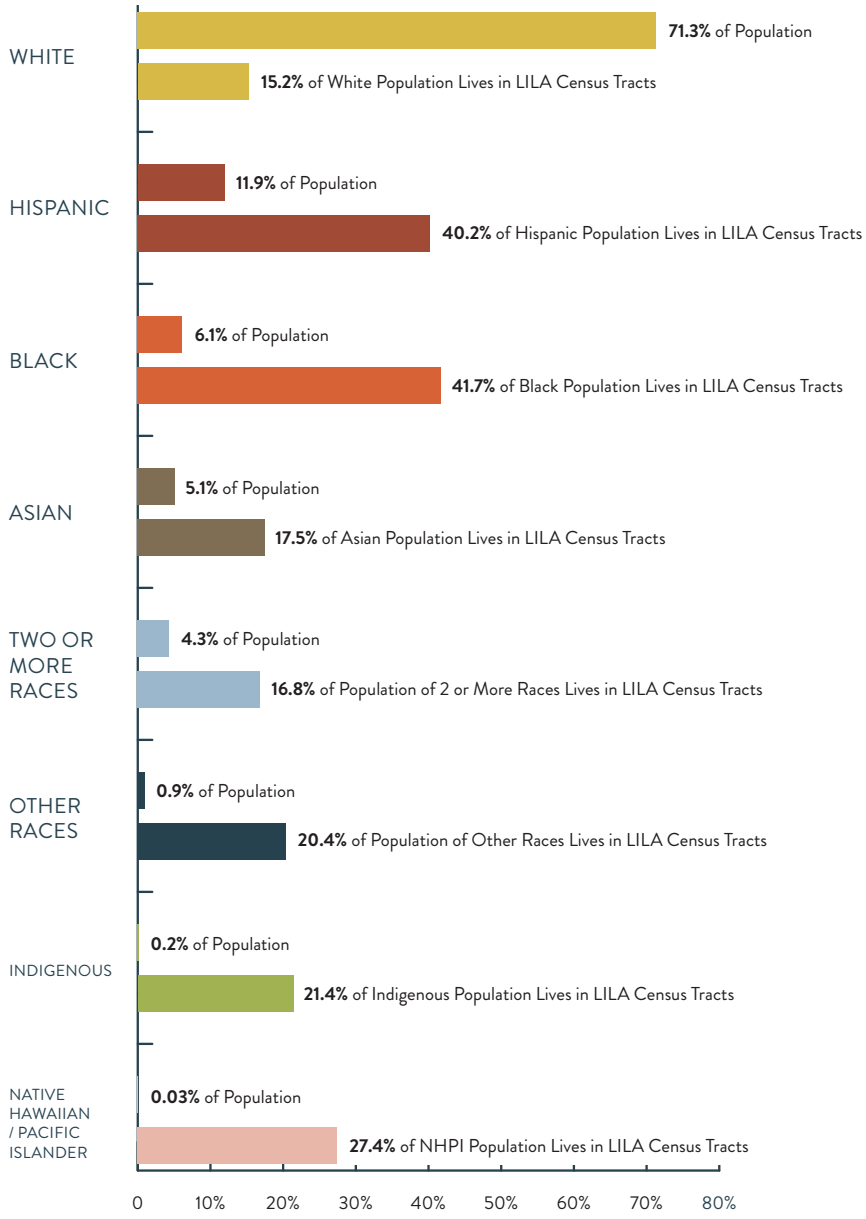
ILSR argues that rural areas are particularly susceptible to dollar stores because 1) decades of growth by Walmart already weakened or eliminated independent stores, and 2) Dollar General and Dollar Tree/Family Dollar saturate communities with multiple store locations, making it very challenging for independent stores to survive.

We found a strong correlation between race and Hispanic ethnicity and the likelihood of living in a low-income, low access (LILA) census tract in New England. When we intersect LILA census tracts by the percent of the population that is Black, Hispanic/Latino, Indigenous, Asian, two or more races, some other race, or Native Hawaiian/Pacific Islander (i.e., by the percent that is not White), a disturbing—but not unexpected—pattern emerges: nearly 20% (2.9 million) of New Englanders live in a LILA census tract. Although White New Englanders make up 71.3% of the region's population, only 15.2% of White people live in LILA census tracts. Every other category—**Hispanic/Latino, Black, Asian, Indigenous, Native Hawaiian/Pacific Islander, two or more races, some "other" race—make up 28.7% of New England's population, but *45.9%* of New England's population living in LILA census tracts (Figure 18).**

Figure 19 zooms into a specific example: Springfield, Massachusetts, a city that was redlined in 1935. Here we see a clustering of LILA census tracts with predominantly Hispanic and Black residents and an abundance of dollar stores, with some of the major chains like Walmart on the periphery. Maps for each state and selected cities are available at the New England Food System Planners Partnership website to deepen understanding of our region's food access disparities.

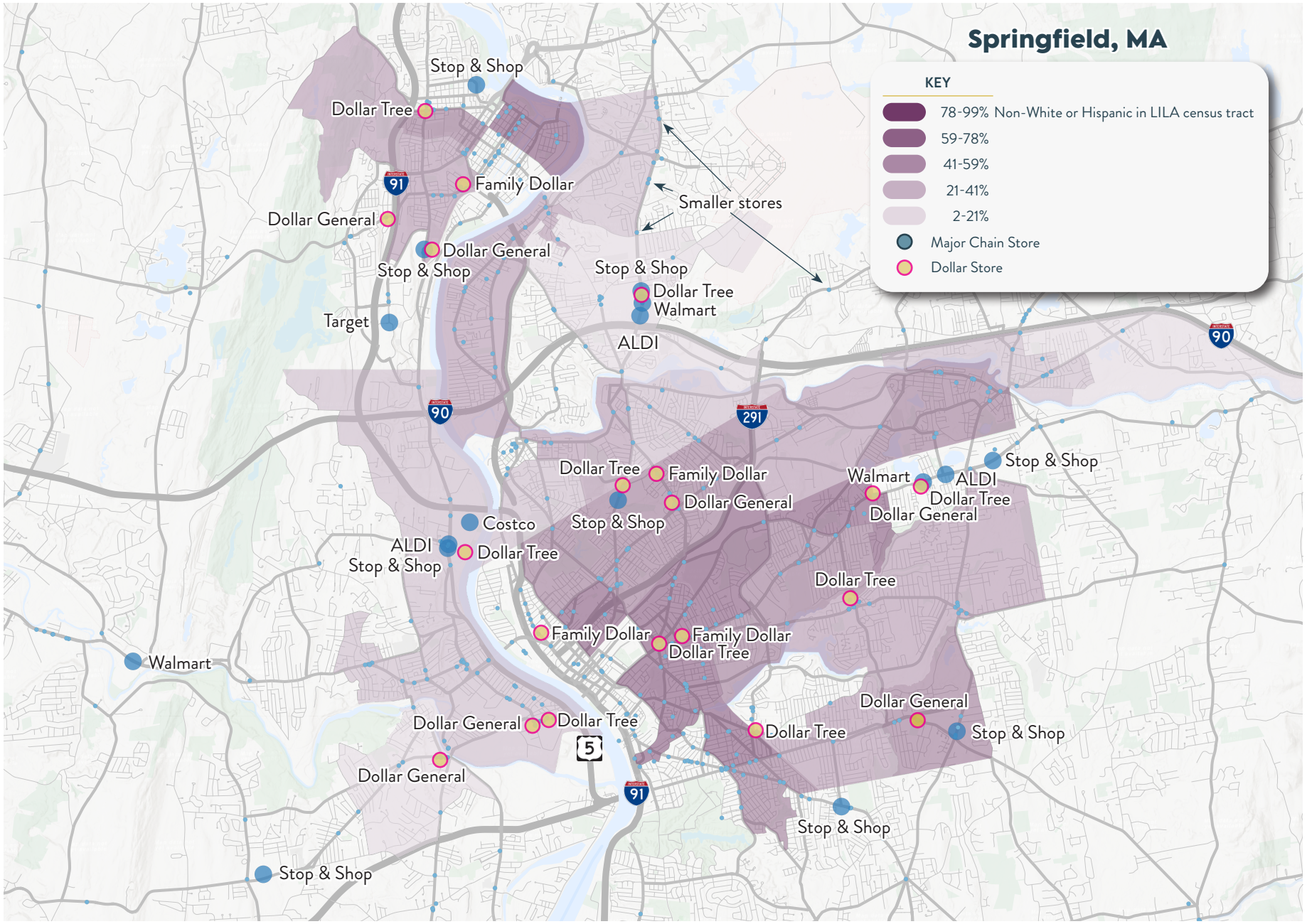
FIGURE 18: New Englanders Living in Low Income/Low Access Census Tracts by Percent Non-White or Hispanic/Latino





Sources: USDA Food Access Research Atlas and American Community Survey, Table B03002, Hispanic or Latino Origin by Race.

FIGURE 19: Location of Grocery Stores in Low Income/Low Access Census Tracts in Springfield, Massachusetts by Percent Non-White or Hispanic/Latino



Restaurants

About 32% (over $786 billion) of food and beverage expenditures in the United States, and about 38% (over $32 billion) of expenditures in New England, are made at full-service and limited-service restaurants. The industry is primarily divided into two segments: full service restaurants (FSR), where diners sit and eat, and limited, or quick, service restaurants (LSR or QSR), where diners may stay and eat or take a meal to go. These segments may be further stratified by style, cost, and cuisine, ranging from tablecloth fine dining to family friendly to fast casual.

Market concentration is evident in the scale and ubiquity of full-service restaurants, like Olive Garden and Applebee's (Table 13), and limited-service (i.e., fast food) restaurants like McDonald's and Starbucks (Table 14). Combined, the 20 top-grossing chains for both types of restaurants have over 143,000 locations nationwide, and sales of over $225 billion. The universe of restaurants also includes independent, locally-owned operations and chains, which are managed by local employees, but owned or franchised by a corporation. In 2021, independent restaurants with one to two locations represented 53% of total restaurants in the U.S.[35] Ninety percent of restaurants have fewer than 50 employees and 70% are single-unit operations. Forty-one percent of restaurants are owned by minorities, compared to 30% of businesses in the overall private sector.[36]

Regional fast food chains include Kelly's (MA), Moe's Italian Sandwiches (NH, ME, MA), D'Angelo (CT, ME, MA, NH, RI), Spike's Junkyard Dogs (MA, RI), and Duchess (CT). Regional full-service chains include Not Your Average Joe's (MA, NH, RI), Skinny Pancake (VT, NY), and Legal Sea Foods (MA, RI). Revenue data for these regional chains is not easily available. A company search tool called Kona Equity suggests that Legal Sea Foods has annual revenue of $240 million, Not Your Average Joe's is at $50 million, while Kelly's has annual revenue of $26 million, and Duchess is at $5 million.

TABLE 13: 20 Top-Grossing Full-Service Restaurants in America, 2019

Rank	Chain	2019 Sales	2019 Stores
1	Olive Garden	$4,351,000,000	867
2	Applebee's	$4,085,000,000	1,665
3	Buffalo Wild Wings	$3,700,000,000	1,215
4	Chili's	$3,550,000,000	1,240
5	IHOP	$3,300,000,000	1,710
6	Texas Roadhouse	$2,886,000,000	544
7	Denny's	$2,710,000,000	1,559
8	Outback Steakhouse	$2,630,000,000	725
9	Cracker Barrel	$2,525,000,000	662
10	Red Lobster	$2,350,000,000	670
11	The Cheesecake Factory	$2,180,000,000	204
12	LongHorn Steakhouse	$1,864,000,000	518
13	Red Robin	$1,675,000,000	561
14	Golden Corral	$1,635,000,000	475
15	Waffle House	$1,500,000,000	1,900
16	BJ's Restaurant	$1,150,000,000	208
17	TGI Friday's	$1,120,000,000	388
18	Hooters	$900,000,000	344
19	P.F. Chang's	$890,000,000	216
20	Bob Evans	$810,000,000	460
	TOTAL	**$45,811,000,000**	**16,131**

Source: FSR Magazine, August 2020, "The 50 Top-Grossing Full-Service Restaurants in America," https://www.fsrmagazine.com/chain-restaurants/50-top-grossing-full-service-restaurants-america.

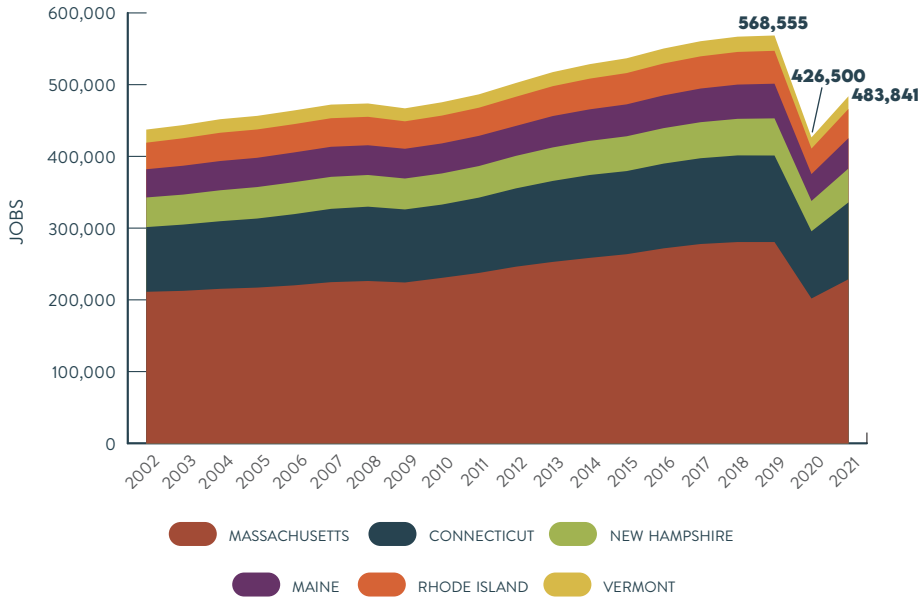
TABLE 14: 20 Top-Grossing Limited-Service Restaurants in America, 2020

Rank	Chain	2020 Sales	2020 Stores
1	McDonald's	$40,518,000,000	13,682
2	Starbucks	$18,750,000,000	15,328
3	Chick-Fil-A	$12,800,000,000	2,607
4	Taco Bell	$11,000,000,000	6,799
5	Wendy's	$10,231,000,000	5,881
6	Burger King	$9,657,000,000	7,081
7	Dunkin'	$8,762,000,000	9,083
8	Subway	$8,318,000,000	22,190
9	Domino's	$8,287,000,000	6,355
10	Chipotle	$5,985,000,000	2,750
11	Sonic Drive-In	$5,680,000,000	3,526
12	Panera Bread	$5,500,000,000	2,175
13	Pizza Hut	$5,400,000,000	6,561
14	KFC	$4,700,000,000	3,943
15	Popeyes Louisiana Kitchen	$4,587,000,000	2,634
16	Arby's	$4,215,000,000	3,369
17	Little Caesars	$4,000,000,000	4,211
18	Dairy Queen	$3,978,000,000	4,361
19	Panda Express	$3,817,000,000	2,263
20	Jack in the Box	$3,673,000,000	2,241
	TOTAL	**$179,858,000,000**	**127,040**

Source: QSR, 2021, "The QSR 50 Big Chart," https://www.qsrmagazine.com/content/qsr50-2021-top-50-chart.

Over the past three years, the COVID-19 pandemic has brought wrenching changes to the way we live. To date, over 6.9 million people on Earth, including over 1.1 million Americans and at least 48,000 New Englanders have died, an irreplaceable and unfathomable loss. Short- and long-term analyses of food system disruptions due to the pandemic are emerging. In the short term, the temporary closure of restaurants, schools, colleges, and other food service venues spiked ***unemployment***—particularly for restaurant workers (Figure 20). Within New England, employment within the food services and drinking places sector decreased by about 25% (-142,000 jobs) from 2019 to 2020. Employment then increased by 13.4% (+57,000) from 2020 to 2021, still 85,000 less than in 2019. It is possible that employment may have fully rebounded when 2023 data is released.

FIGURE 20: New England Food Services and Drinking Places Employment



Sources: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, https://www.bls.gov/data/home.htm; U.S. Census Bureau, Nonemployer Statistics, https://www.census.gov/programs-surveys/nonemployer-statistics/data/tables.html.

In the long-term, there is concern that the COVID-19 pandemic will ultimately lead to *more* market concentration, as larger food system businesses able to withstand the economic turmoil are now in a position to acquire businesses and retail spaces that allow them to diversify their product offerings and expand their reach. For example, Yelp found that over 90,000 restaurants permanently closed in 2020,[37] and major chains are buying up available commercial real estate.[38]

In addition to the labor force and supply chain disruptions generated by the COVID-19 pandemic, climate change events, and high-energy costs and food supply disruptions created by the Russian invasion of Ukraine, have also impacted restaurant operations. The National Restaurant Association, the major U.S. foodservice trade association, regularly surveys their membership. **In 2023, 30% of membership reported that business conditions will never return to normal.** Half of restaurant operators said that they would be less profitable in 2023 than they were in 2022. The new normal for the restaurant industry includes broad-based, ongoing and emerging challenges, including food and labor costs brought on by higher inflation (Table 15). Nine out of 10 respondents in each restaurant category reported experiencing supply delays or shortages of key food or beverage items.

Restaurants are responding to higher costs by increasing menu prices, changing menu items, reducing hours of operation, postponing plans for expansion, not operating at full capacity, reducing the number of employees, and more (Table 16). About 15% of restaurant operators also now add fees or surcharges to checks due to higher costs, and the majority of these operators expect that these fees will stay in place for more than a year. The new normal for restaurants also includes mobile payments, increased takeout and delivery, greater use of kiosks in LSRs, more use of automation, robotics, and artificial intelligence, smaller footprints, meal kits, and more healthy options, including plant-based proteins.

TABLE 15: Percent of Restaurant Operators Who Say the Following Are a Significant Challenge For Their Restaurant, 2023

Significant Challenges	Family Dining	Casual Dining	Fine Dining	Quick Service	Fast Casual
Food costs	93%	91%	89%	95%	93%
Inflation	91%	90%	83%	93%	91%
Labor costs	92%	89%	90%	92%	87%
Recruiting and retaining employees	77%	76%	73%	83%	79%
The economy	81%	74%	71%	78%	78%
Energy or utility costs	72%	66%	63%	59%	59%
Government regulation	54%	44%	44%	41%	48%
Food availability	46%	32%	28%	39%	46%
Attracting new customers	30%	26%	21%	34%	33%
Obtaining credit or financing	34%	20%	14%	33%	31%
Competition with other restaurants	22%	18%	19%	27%	25%
Bringing back repeat customers	21%	12%	10%	25%	20%

Source: National Restaurant Association, 2023, State of the Restaurant Industry 2023, https://restaurant.org/research-and-media/research/research-reports/state-of-the-industry/.

Regarding local/regional food and beverages, the National Restaurant Association identified several interesting trends: in 2023, the top culinary trend identified by 500 chefs and members of the American Culinary Federation is "experiences/local culture and community." A survey of consumers found that 74% of adults said that they would

TABLE 16: Actions Taken by Restaurants by Segment Because of Higher Costs, 2023

Actions	Family Dining	Casual Dining	Fine Dining	Quick Service	Fast Casual
Increase menu prices	87%	90%	87%	86%	88%
Change menu items	63%	74%	69%	45%	49%
Reduce hours of operation	52%	48%	49%	43%	47%
Postpone plans for expansion	36%	35%	29%	45%	40%
Not operate at full capacity	32%	37%	39%	31%	37%
Reduce number of employees	29%	30%	29%	36%	34%
Close on days they would normally by open	34%	36%	42%	26%	27%
Incorporate more technology	20%	24%	15%	23%	22%
Postpone plans for new hiring	18%	16%	21%	18%	20%
Eliminate 3rd party delivery	15%	16%	17%	7%	11%

Source: National Restaurant Association, 2023, State of the Restaurant Industry 2023, https://restaurant.org/research-and-media/research/research-reports/state-of-the-industry/.

be likely to order locally sourced food (i.e., from within a 100-mile radius), 72% of all adults said they were more likely to visit a restaurant that uses sustainable and environmentally friendly business practices, and 64% of all adults said they would be more likely to order food that was grown or raised in an organic or environmentally friendly way. The percentages that would support such practices are much higher for younger demographics and lowest for Baby Boomers (ages 59-77). At the same time, only a modest percentage of restaurant operators selected "purchase more items from local sources" as an action they had taken to address higher food costs. The most common action was shopping around for other suppliers,

TABLE 17: Percent of Restaurant Operators Who Took the Following Actions Due to Higher Food Costs in Recent Months

Action Taken	Family Dining	Casual Dining	Fine Dining	Quick Service	Fast Casual
Shop around for other suppliers	72%	74%	73%	52%	67%
Cut costs in other areas of the operation	56%	55%	48%	60%	55%
Increase tracking of food waste	41%	39%	30%	47%	46%
Adjust portion sizes	40%	52%	47%	28%	39%
Substitute lower cost items on the menu	35%	45%	37%	23%	29%
Purchase more items from local sources	28%	27%	31%	24%	36%

Source: National Restaurant Association, 2023, State of the Restaurant Industry 2023, https://restaurant.org/research-and-media/research/research-reports/state-of-the-industry/.

followed by cutting costs in other areas of operation, tracking food waste, adjusting portion sizes, and substituting lower cost items on the menu (Table 17).

Independently owned restaurants typically have more flexibility in their menu design and autonomy in sourcing than those adhering to a broader brand standard. Sourcing standards for larger food chains (e.g., McDonalds, Taco Bell, Pizza Hut, Panera) also tend to focus on sustainability attributes such as carbon footprint, water use, fair labor, and organic certification more than sourcing local ingredients. Chipotle is an exception, reporting 11% local sourcing of ingredients like beans, tofu, cilantro and avocado in a 2021 statement, but no geographic detail for their 54 unique local farmers is available and, unfortunately, this list of items is unlikely to be serviced by New England farms.[39]

Many independent restaurants directly market themselves as "farm to table" establishments, with some listing their vendor partners on their websites or menus, but these are claims that would need to be verified via procurement records review to determine what percentage of total food sourcing is actually regional. Another strategy for assessing restaurants' contribution to sourcing regional food has been taken in the Vermont Local Food Count, which asks distributors how much food—defined by the Vermont Local Food Definition—they are selling to restaurants. In the most recent Vermont Local Food Count (2020), distributors reported selling more than $30 million worth of Vermont product to the state's restaurant operators.

Restaurants have an undeniably important role to play in increasing the availability of regional food to consumers. One strategy in the region to promote this is the Vermont Fresh Network (VFN). VFN is a nonprofit organization that works to advance relationships among farmers, chefs, and consumers to grow markets for more locally grown food. The network's more than 300 members have to meet a set of qualifications which, for culinary partners, includes purchasing a minimum of 15% of annual food purchases that are Vermont-grown or raised from at least four VFN farmers or food producers. Menu items also have to represent three of the six USDA food groups year-round.

This is a model that other New England states might look to in developing similar strategies. Such networks could help to build connections between growers and intermediaries and verify regional purchases in the future. Independently owned restaurants are more likely to have the flexibility and desire to source regionally and the distinction of being part of a credentialed network could support their marketing to a consumer base increasingly interested in establishments that support the local economy by featuring local foods.

Photo credit: Vermont Fresh Network

Kayla Silver, owner of Salt & Bubbles Wine Bar in Essex Junction, Vermont, is a member of the Vermont Fresh Network.

Institutions

About 3.2% (over $69 billion) of food and beverage expenditures in the United States, and 3.7% ($3.1 billion) of expenditures in New England, are made at institutions. While institutions are credited with only a little more than 3% of food expenditures, these market channels provide some of the clearest insight available on regional sourcing progress and potential. Our ability to understand regional sourcing across these sites is a direct result of a decade's worth of work by Farm to Institution New England (FINE), Health Care Without Harm, and the benefit of having a federally funded national schools meals program with nutrition standards and related programs like Farm to School.

Four million New Englanders, or 25% of the region's population, spend time in one of New England's 20,000 institutions every day (Table 18).[40] These residents rely on schools, hospitals, colleges, early care sites, correctional facilities, and other institutions for employment, food, housing, healthcare, and education. Institutions are a critical source of meals for some of the most vulnerable populations including children, the sick, the elderly, and the incarcerated. Institutions touch the lives of all New Englanders and can be a key lever in making sure people have access to local, nutritious, culturally connected, and reliable food sources regardless of their income level, race/ethnicity, and geography. Many residents rely on institutions for multiple—and in some cases all—daily meals. **This level of reliance makes the institutional sector a critical area of focus for building a resilient and equitable regional food system.**

Calculating local and regional food purchasing at institutions is challenging for a variety of reasons, including lack of information sharing across supply chains, lack of alignment around definitions of local and regional food (e.g., some institutions include an ingredient threshold for local/regional purchases while others count any product that was manufactured or processed regionally), and procurement models (e.g., paid versus free school meal). Most institutional data collection is also self-reported through surveys and does not include the full universe of institutions in the region. Any data collection in this sector requires piecing together several methodologies.

TABLE 18: Number of Institutions in New England

State	K-12 Public	K-12 Private	Early Childhood Sites	Colleges/ Universities	Hospitals	Jails	Prisons	Total
Connecticut	1,022	315	3,219	28	41	Unified system	14	4,639
Maine	599	152	1,591	24	40	13	7	2,401
Massachusetts	1,852	657	7,577	84	120	17	17	10,324
New Hampshire	494	209	654	20	32	10	4	769
Rhode Island	320	112	767	11	14	Unified system	7	1,013
Vermont	312	112	1111	15	23	Unified system	6	1,579
New England	**4,599**	**1,557**	**14,919**	**182**	**270**	**40**	**55**	**20,725**

Colleges and Universities

As of 2022, there were 182 two-year and four-year colleges and universities in New England with dining services. These facilities serve approximately 843,000 students and employ over 272,000 people.[41] The average age for undergraduates enrolled full-time in the US is 21.8 years and 92% of undergraduates are under the age of 24.[42] The majority of colleges (79%) in New England have more racially diverse student bodies than the state population in which they exist.[43]

The higher education sector is distinct in that college students, particularly undergraduates, are typically at an age where they are newly autonomous in their decision-making, have values they want to see represented, and yet are still within an instructional setting that has an opportunity to educate them on nutrition, agriculture, food sovereignty, and the importance of values-based food. In addition, college students with meal plans have a significant amount of choice when it comes to food options compared to other institutional eaters, including where they eat, what they eat, and whether or not they eat food provided by the institution. Transition to college is not without its challenges and for many students, a college dining program may be financially out of reach. According to the College and University Food Bank Alliance, 30% of college students are food insecure and the number of colleges with a food pantry has grown from 88 to over 700 in the last decade.

Campuses have many touch points in the food system beyond dining services (e.g., through campus farms and gardens, food and agriculture literacy education, food pantries and other efforts to create more access to food). By connecting all of these pieces effectively, college dining programs not only have the opportunity to allocate money towards the regional economy, but they can also make sure a significant number of people have access to nutritious local food.

Data collected prior to COVID-19 showed that colleges across New England spent $398 million on food and served 89 million meals annually.[44] Campus food procurement is complex and relies on a number of factors, including:

- Student demand for locally sourced, fresh food
- The priorities of food service directors and their food procurement staff, who make food purchases
- The priorities of administrators who oversee the budgets of dining services
- Parents' and families' expectations of a school's dining options
- Sustainability departments (e.g., setting targets for local, sustainable, or other values-based food purchases)
- Presence of campus farms or gardens that supply food to campus dining and/or food pantries.

External influencers include organizations with programs designed to influence food purchasing decisions, such as Real Food Challenge, the Association for the Advancement of Sustainability in Higher Education (AASHE), Menus of Change, and the nascent Anchors in Action framework which is expected to inform AASHE, Real Food Challenge, the Center for Good Food Purchasing, and Health Care Without Harm's food purchasing standards.[45] State policies on procurement affect the food purchasing processes of the 78 public colleges and universities in New England. Some policies, such as local purchasing preferences, can incentivize local procurement, but others, such as those that favor the lowest bid without consideration of other key factors, can hamper local procurement.[46]

College dining may be run by either the college itself ("self-operated") or may be contracted out. Most contracted dining services are operated by a large national or multinational food service management company (FSMC), such as Sodexo, Aramark, and Compass Group (i.e., Chartwells and Bon Appetit). In New England, less than one-third of colleges have self-operated dining services. Of those with contracted dining services, 32% use Sodexo, about 15% use Compass Group, and 11% use Aramark.[47]

These FSMCs can drive significant change through company-wide local procurement goals, by bringing local vendors into their systems, and by instituting common tracking and reporting programs. However, these companies, like any large institutional food purchaser, rely on a food distribution system that favors large national and international food suppliers at the expense of small producers and suppliers. This system also creates additional barriers for people of color, women, and others who have been excluded from land and business ownership due to historical and systemic racism and prejudices.[48] The FSMC business model has traditionally prioritized purchasing from "preferred vendors," those that offer financial incentives in the form of volume discount allowances. While this "economies of scale" advantage is not itself problematic, reliance on this model disincentivizes sourcing smaller volumes of product from a a greater number of small and mid-sized producers - exactly the profile of New England farms and food businesses.

Colleges report an interest in purchasing more local foods, and New England suppliers are interested in increasing sales to institutions.[49] In FINE's 2018 survey of college dining, responding food service directors reported spending an average of 21.5% of their budgets on local food, which was a higher percentage than schools (16%)[50] or hospitals (15%)[51] had reported at that time. That survey allowed campuses to define "local" themselves and the definition varied across the region.

Respondents reported that dairy, seafood, and vegetables were the product categories where the highest percent of their product budget went to local foods. Meanwhile, chicken, seafood, and other types of meat were most frequently mentioned as products difficult to source locally.[52]

FINE's most recent data collection in 2021 shifted from allowing respondents to use their own definition of local to asking respondents to report using a six-state (with a 50 mile-buffer) definition with a 50% ingredient threshold. 2021 data collection also required respondents to be "tracking" their purchases before they could provide a dollar amount. Responses to the 2021 survey were low due to impacts of the COVID-19 pandemic but show that more consistent definitions and better tracking leads to a lower—but more accurate—estimate of spending on regional food than previously reported. For the 34 campuses that reported both a total and regional spend in 2021, the regional spend was, on average, 6% of their total spend. Averages ranged from less than 1% to 49%. Eleven of those respondents reported over 10% of their budgets going to regional spending.

There are a number of trends that may negatively affect the local food purchasing potential of this sector. Over the last decade, college enrollment has declined. As a result, some colleges have closed or merged operations; the 182 New England colleges with dining services today is down from 200 in 2018[53] and 210 in 2015.[54] Fewer students results in fewer meal plans purchased, which in turn affects campus dining budgets[55] and can spur efforts to reduce costs and/or generate revenue through other means.

One of the most critical steps to getting more local food to institutions will be to improve data collection, tracking systems, and transparency in supply chains. FINE has been collecting data in the campus sector since 2015 and has found that varying definitions of "local," inadequate tracking systems that do not consistently and accurately include

metrics related to local food, and lack of information from suppliers make it difficult to accurately assess local purchases. With improved tracking and metrics, institutions can increase regional food purchases by setting appropriate goals. These goals can be incorporated into contracts with FSMCs, into campus operations, and can set expectations and open opportunities with suppliers. Improved state procurement policies that incentivize local procurement can also help public institutions accept bids and work with local suppliers. A 2019 report from FINE and the Center for Agriculture and Food Systems (CAFS) at Vermont Law School, Regional Trends in New England Farm to Institution Procurement Policy, offers specific recommendations for each New England state and the region, and there are also lessons to be learned from farm to school incentive programs developed in New York and Vermont.[56]

Colleges and universities are in a unique position to shape the food system not only as food buyers, but also by educating future food systems leaders and decision makers and by conducting research into better agricultural practices and food systems. Campuses' influences on local food systems and their own food-related efforts would likely benefit from on-campus advisory groups that include their major influencers and stakeholders: students, faculty, dining and sustainability staff, administrators, campus farmers, and those who work on food access and security for students. Currently, many of these people and departments work in isolation, but could benefit from a more holistic approach and information sharing.

Other key levers include:

- Improve food tracking and traceability systems
- Look to farm to school incentive policies in Vermont and New York as a model for the campus sector
- Work with key influencers including students and administration, and connect food efforts on campus more broadly (i.e., access, security, education, research, dining)
- Leverage requests for proposals and the contracting process to increase local and regional food purchases as has been effective in Vermont (Sodexo's Vermont First) and Maine (Sodexo's Maine Plate)
- Recognize ways that current sourcing practices exclude BIPOC people from decision-making, land ownership/farming and invest in equitable programs and policies
- Offer better tracking and transparency throughout the supply chain to allow for local spend tracking. In turn, institutions can incentivize institutional sales from distributors by coordinating purchases to address seasonal availability, and reduce differences in specifications
- Address barriers to working with smaller farmers, including forward contracts and food safety/insurance requirements
- Understand the challenges of students who are food insecure (e.g., housing, job, schedule, stigma) and support their access to healthy, regional food options

Public and Private K-12 Schools

The public and private school market represents 2.2 million PreK-12th graders across nearly 2,000 districts, charters, and private schools in New England (Table 19, page 59). **The most populous states, Massachusetts and Connecticut, represent 72% of the New England PreK-12 student population.** The vast majority of students, 91%, attend traditional public or public charter schools across the region.

While the regional median public district enrollment is 921 students, this number is skewed downward by Maine and New Hampshire which have a greater proportion of smaller districts and supervisory unions than the other states. In contrast, Vermont has the largest median district enrollment in the region due to the size of its supervisory unions, despite having the lowest total enrollment.

A significant proportion of students in the region are concentrated in the largest districts across the region. Nearly 780,000 students, 39% of all public school students, attend the top twenty largest districts within each state – just 10% of districts. Across the region, students in districts enrolling 1,550 or more students (35% of districts) account for 80% of total public/charter school enrollment.

Public school enrollment of BIPOC students averages 40% across New England, with the greatest numbers concentrated in Massachusetts, Connecticut, and Rhode Island. Forty percent of public school students in New England qualify for free or reduced price school meals.

Children at higher risk of food insecurity (e.g., those from households participating in the Supplemental Nutrition Assistance Program) are more likely to depend on school meals for a portion of their daily nutrition.

Photo credit: Hunger Free Vermont

School lunch at Hunt Middle School in Burlington, Vermont.

TABLE 19: Overview of PK-12 School Population in New England by State[a]

Schools	New England	MA[b]	CT[c]	ME[d]	NH[e]	RI[f]	VT[g]
Public Districts							
Districts and public charter schools	1,127	399	199	222	193	63	51
Student enrollment	1,986,563	911,529	513,572	172,414	168,538	138,566	81,944
Median district enrollment	921	1,365	1,366	337	382	1,206	1,450
Largest district enrollment	46,169	46,169	19,420	6,472	12,428	21,656	4,374
Top 20 districts enrollment	778,989[h]	261,605	219,895	62,425	80,630	105,072	49,362
Top 20% districts enrollment	39%[h]	29%	43%	36%	48%	76%	60%
BIPOC enrollment (%)	40%	44%	51%	13%	17%	46%	11%
Free/reduced price meal eligibility	40%	44%[i]	41%	38%[j]	21%	41%	34%
Private Schools							
Schools	1,123	369	295	113	151	82	113
Student enrollment	185,286	80,809	51,209	14,500	16,491	13,290	8,987
Total Enrollment	**2,171,849**	**992,338**	**564,781**	**186,914**	**185,029**	**151,856**	**90,931**

a Refers to the school year 2021 – 2022. Does not include students who are home schooled or schools/districts with no actively enrolled students.
b https://www.doe.mass.edu/infoservices/reports/enroll/; All data are SY21/22.
c https://edsight.ct.gov/SASPortal/main.do; Public school data are SY21/22. Private school data are SY20/21.
d https://www.maine.gov/doe/data-reporting/reporting/warehouse/enrollment; http://nces.ed.gov/ccd/elsi/; Public school data are SY21/22. Private school data are SY19/20.
e https://www.education.nh.gov/who-we-are/division-of-educator-and-analytic-resources/bureau-of-education-statistics/attendance-and-enrollment-reports; http://nces.ed.gov/ccd/elsi/; Public school data are SY21/22. Private school data are SY19/20.
f https://www.eride.ri.gov/reports/reports.asp; http://nces.ed.gov/ccd/elsi/; Public school data are SY21/22. Private school data are SY19/20.
g https://education.vermont.gov/data-and-reporting/vermont-education-dashboard/enrollment; All data are SY21/22.
h Refers to 120 top districts across all six states
i State publishes data on low-income students only.
j Data unavailable for current school year. Refers to SY20/21.

USDA School Nutrition Programs

The USDA Food and Nutrition Service (FNS) oversees seven federal programs that provide financial or direct food assistance to participating schools across New England (Table 20, page 63). These programs are administered at the state level by state education agencies, while local school food authorities operate the programs in schools. These programs include:

- School Breakfast Program (SBP)
- National School Lunch Program (NSLP)
- Child and Adult Care Food Program (CACFP)
- Summer Food Service Program (SFSP)
- Special Milk Program (SMP)
- Fresh Fruit and Vegetable Program (FFVP)
- USDA Foods Program

In school year 2019, schools participating in the NSLP received USDA Foods, called "entitlement" foods, at an effective value of 36.25 cents per lunch served. In the same year, the USDA purchased 1.945 billion lbs of food valued at $1.886 billion for the program to support U.S. agriculture. Of the New England states, only Maine (frozen blueberries, potatoes), New Hampshire (frozen Alaskan Pollack fish sticks), and Massachusetts (processed vegetable oil) were represented, collectively just 4% of volume and 1% of purchased value. While many of the products featured in the USDA Foods program are grown in the region, New England's small and mid-size farms are at a distinct disadvantage to participate in the USDA Foods program due to their production capacity. This effectely diminishes the allowable budget school food service directors have to spend on regional foods.

Currently, Kansas is the only state permanently eligible to receive cash payments in lieu of USDA Foods. Select school districts nationally (<100) that were part of a 1981 pilot project of alternatives to USDA Foods (cash in lieu and commodity letters of credit) were authorized by Congress to continue with these though no additional schools could be added. More than thirty years later, it seems time to revisit a cash in lieu alternative to achieve greater equity in the ability of New England producers, and those in similarly disadvantaged states, to benefit from this federal program aimed at supporting American agriculture.

Excluding the SFSP and CACFP, these programs provide financial reimbursements or direct food assistance to states that provide nutritionally balanced, low-cost or free meals, and fluid milk during the school year. The SFSP provides reimbursements to districts offering free meals to children in low-income areas during the summer. The CACFP provides reimbursements for meals and snacks served to children and youth enrolled in afterschool care programs, as well as in participating child care centers, day care homes, and emergency shelters.

In SY 2019, more than 75 million breakfasts, 180 million lunches, and 6 million summer meals were served by school districts across New England. An additional 2 million ½ pints of milk were served through the Special Milk Programs, and 69 million meals and snacks were served through the Child and Adult Care Feeding Program, a significant portion of which were offered at afterschool programs. Total federal financial assistance provided for these programs was $757 million to cover food costs, labor, infrastructure, and overhead expenses. **Despite the significant impact of these programs in the region, school breakfast and lunch participation averaged just 24% and 57%, respectively, in 2019, suggesting the potential for growth in local food spending.**

TABLE 20: Fiscal Year 2019 USDA Child Nutrition Program Data by State[a]

Program Metrics	New England	MA	CT	ME	NH	RI	VT
Meals Served							
School Breakfast Program	77,700,000	36,200,000	19,200,000	8,500,000	3,700,000	5,900,000	4,200,000
National School Lunch Program	182,900,000	86,100,000	47,400,000	15,400,000	13,300,000	13,000,000	7,600,000
Children and Adult Care Food Program[b]	69,200,000	38,700,000	10,600,000	6,600,000	4,200,000	5,200,000	3,800,000
Summer Food Service Program	5,900,000	2,600,000	1,400,000	700,000	300,000	400,000	500,000
Special Milk Program[c]	2,100,000	700,000	400,000	100,000	600,000	200,000	100,000
Cash Payments[c]							
School Breakfast Program	$142,100,000	$69,000,000	$37,000,000	$13,400,000	$5,700,000	$10,600,000	$6,500,000
National School Lunch Program[d]	$474,100,000	$227,900,000	$129,800,000	$38,300,000	$25,900,000	$34,800,000	$17,400,000
Children and Adult Care Food Program[e]	$108,500,000	$62,100,000	$18,200,000	$9,300,000	$4,600,000	$8,600,000	$5,700,000
Summer Food Service Program	$17,700,000	$7,500,000	$4,300,000	$2,200,000	$1,000,000	$1,300,000	$1,400,000
Special Milk Program[f]	$430,000	$150,000	$90,000	$20,000	$120,000	$30,000	$20,000
Fresh Fruit and Vegetable Program[g]	$14,100,000	$3,500,000	$2,600,000	$2,100,000	$2,100,000	$2,000,000	$1,900,000
Average Daily Meals and Participation[h]							
School Breakfast Program average daily meals	463,827	214,921	114,393	52,185	22,319	34,813	25,197
School Breakfast Program average participation rate	24%	24%	23%	32%	13%	26%	31%
National School Lunch Program average daily meals	1,109,892	526,432	284,286	95,318	80,389	77,705	45,762
National School Lunch Program average participation rate	57%	58%	56%	59%	47%	59%	56%

Note: Data in the table refer to SY2019 to reflect a typical year prior to the COVID-19 pandemic, which significantly impacted school food service program operations and meal volumes.

a Sources: https://www.fns.usda.gov/pd/child-nutrition-tables; FY2019 chosen to highlight a normal year prior to disruptions caused by the Covid 19 pandemic.

b CACFP data include child and adult meals served in residential care settings as well as after-school programs.

c ½ pints served

d Reflects federal payments only. States and municipalities provide additional financial support to districts.

e Includes in-kind food assistance from the USDA Foods program averaging 10.1% across the region.

f Cash payment estimated as ½ pints served * 20.50 cents, the average Federal reimbursement per half-pint of milk served in 2019, https://www.govinfo.gov/content/pkg/FR-2018-07-19/pdf/2018-15465.pdf

g Estimate based on 2019 funding formula: https://www.fns.usda.gov/ffvp/allocation-funds-fy-2019

h Participation data are nine-month averages; summer months (June-August) are excluded. Average participation rate calculated as reported average daily meals / ((2019 enrollment) * state average daily attendance rate). Average daily attendance rates calculated from National Center for Education Statistics enrollment tables available here: https://nces.ed.gov/programs/digest/d21/tables/dt21_203.80.asp

Current Food Spending In New England K-12 Institutions

While it is difficult to assess the current total food expense across all K-12 meal programs in the region, a plausible estimate can be made of food spending in the SBP and NSLP utilizing nationally benchmarked cost data from the USDA School Nutrition and Meal Cost Study (SNMCS), which is a nationally representative, comprehensive assessment of the school meal programs including foodservice operations, meal costs, and revenues.[57]

Table 21 details the estimated food expenses by USDA program and state, extrapolated from the reported FY2019 meal volumes in Table 19. FY2019 was chosen for this estimate to highlight expenses in a normal year prior to disruptions caused by the COVID-19 pandemic. Cost estimates for the CACFP are not included in this estimate, as the program expenses detailed by USDA do not discern between K-12 afterschool programs and non-K-12 residential facilities, which are both served by the program. Note also that these estimates are likely an underestimate for the current year, as the food cost benchmarks have likely increased with inflation over the past few years.

In this analysis, total K-12 meal program food expense is estimated at $473 million for the region. School breakfast food expense for the region is estimated to be $84.4 million, derived by multiplying reported breakfast meals served by an average of $1.15 food cost per meal, which is a national average estimated from school district responses provided as part of the SNMCS. School lunch food expense is estimated at $358.9 million for the region, which reflects NSLP meal volume multiplied by $1.70 food cost per meal derived from the SNMCS, plus USDA commodity food in-kind assistance of $48 million reported by USDA. Summer meals food expense is estimated similarly, utilizing the $1.70 lunch food cost benchmark. Special milk program food expense is estimated at $900,000, which is derived from ½ pints of milk served multiplied by $0.41 per unit. This milk cost is current for SY22/23 and is derived from the milk contract awarded by the Education Cooperative, a purchasing collaborative representing 17 districts in eastern Massachusetts.

TABLE 21: Estimated 2019 Food Expenses by USDA Program

Program Metrics	New England	MA	CT	ME	NH	RI	VT
Meals Served							
School Breakfast Program[a]	$89,400,000	$41,600,000	$22,100,000	$9,700,000	$4,300,000	$6,800,000	$4,800,000
National School Lunch Program[b]	$358,900,000	$170,000,000	$92,100,000	$30,000,000	$26,800,000	$25,200,000	$14,800,000
Summer Food Service Program[c]	$10,000,000	$4,400,000	$2,400,000	$1,200,000	$600,000	$700,000	$800,000
Special Milk Program[d]	$900,000	$300,000	$200,000	$30,000	$200,000	$100,000	$0
Fresh Fruit and Vegetable Program[e]	$14,100,000	$3,500,000	$2,600,000	$2,100,000	$2,100,000	$2,000,000	$1,900,000
Total	**$473,300,000**	**$219,800,000**	**$119,400,000**	**$43,100,000**	**$34,000,000**	**$34,700,000**	**$22,300,000**

a Total SBP breakfasts (see Table 2) * $1.15 average food cost per breakfast; SNMCA Vol.3, pg. xxxviii; https://www.fns.usda.gov/school-nutrition-and-meal-cost-study
b Total NSLP lunches (Table 2) * $1.70 average food cost per lunch + total USDA commodity food in-kind assistance (Table 2); SNMCA, Vol.3, pg. xxxviii; https://www.fns.usda.gov/school-nutrition-and-meal-cost-study
c Total SFP meals (Table 2) * $1.70 average food cost per lunch; SNMCA, Vol.3, pg. xxxviii; https://www.fns.usda.gov/school-nutrition-and-meal-cost-study
d Total SMP ½ pints (Table 2) * $0.41 average cost per unit; TEC purchasing collaborative 2022 milk contract award; https://tec-coop.org/cooperative-purchasing-program/food-bid/
e Estimate based on 2019 funding formula: https://www.fns.usda.gov/ffvp/allocation-funds-fy-2019

Note that the NSLP accounts for 76% of the total estimated food expense for the K-12 programs in the region. NSLP food expenses in Massachusetts and Connecticut alone account for 55% of the food cost estimate.

USDA Meal Pattern Requirements

In order for meals to qualify for federal reimbursement, participants in USDA meal programs must adhere to a set of nutritional standards set forth by USDA including required minimum offerings of meat and meat alternatives, grains, vegetables, fruits, and fluid milk. In addition to these minimum requirements, NSLP participants are also required to offer minimum amounts of a diversity of vegetables across the school week including offerings from five vegetable subgroups including legumes, dark green vegetables (e.g., kale, broccoli), red/orange vegetables (e.g., tomatoes, carrots), starchy vegetables (e.g., potatoes, corn), and "other" vegetables (e.g., celery, cucumbers).[58] These minimum required offerings for USDA meal programs are important to keep in mind when assessing potential opportunities for increasing local sourcing in K-12 institutions across the region. That said, estimating the true current baseline of regional sourcing is more difficult.

Current Local Food Use in New England K-12 Institutions

The best current estimate of local food purchasing in schools across the region comes from the USDA Farm to School Census which was conducted in the fall of 2019. All School Food Authorities (SFAs) participating in the NSLP in the 50 States, U.S. territories, and Washington DC during SY 2018/19 (n=18,832) were invited to participate in the Census.[59] Of those, a total of 12,634 SFAs (67%) completed the Census.

Table 22 (page 66) provides an overview of the 693 New England survey respondents by state and organization type. Massachusetts and Connecticut institutions accounted for 62% of total New England respondents. The vast majority (86%) of census responses were from public school or public charter districts, with the remaining 14% of respondents closely split across private schools and other educational programs. The overall response rates to the census from public districts and charter schools averaged 52% for New England states based on the comprehensive lists maintained by each state's department or agency of education. Of note, was the low response rate (19%) from public districts in New Hampshire, as well as lack of responses from several of the largest districts within each state.

Regarding respondent participation in USDA meal programs, a minority (10%) participated in the NSLP alone, while a strong majority (89%) also participated in the SBP. Participation in the CACFP, SFSP, and FFVP varied by state, averaging 15%, 31%, and 35% respectively for the region.

Census respondent definitions of "local" varied considerably. A quarter of respondents defined "local" as coming from within a 200 mile range, while just over one-third defined "local" as produced within the county, state, "other" boundary, or "within the region," though no definition of "other" or "region" accompanied those responses. Though there was some variation by state, 40% of respondents across the region specified that they had no set definition of "local" foods, suggesting that some regional coordination across the states will be required prior to additional regional assessments of local food usage in the K-12 market. Reported use of local foods in school breakfast and lunch programs was high, averaging 71% in the SBP and 75% in the NSLP.

TABLE 22: Overview of Respondents from 2017 USDA Farm to School Census

Program Metrics	New England	MA	CT	ME	NH	RI	VT
Total respondents	693	307	123	132	37	52	42
% of Census respondents[a, b]	100%	44%	18%	19%	5%	8%	6%
Respondents by Organization Type[a]							
Public/charter districts[c]	86%	85%	86%	93%	97%	73%	79%
Private schools + other programs	14%	15%	14%	7%	3%	27%	21%
Estimated public/charter district response rate	53%	66%	53%	55%	19%	60%	65%
Number of largest 20 districts responding	14	13	12	17	6	17	13
Respondent Participation by Program Type[d]							
School Breakfast Program	89%	86%	89%	94%	86%	90%	90%
Child and Adult Care Food Program - afterschool programs	15%	10%	12%	19%	5%	25%	50%
Summer Food Service Program	31%	21%	33%	45%	14%	33%	62%
Fresh Fruit and Vegetable Program	35%	25%	25%	49%	41%	42%	74%
National School Lunch Program only	10%	12%	10%	6%	8%	10%	5%
Definition of Local[e]							
Produced ≤ 100 mile radius	21%	23%	18%	21%	24%	17%	19%
Produced ≤ 200 mile radius	25%	29%	21%	22%	27%	19%	21%
Produced within county, state, region, or other	35%	31%	33%	42%	24%	42%	50%
No definition/don't know	40%	40%	46%	36%	49%	38%	29%
Current Local Food Usage by Program[f]							
% serving local foods in School Breakfast Program	71%	70%	71%	69%	56%	85%	89%
% serving local foods in National School Lunch Program	75%	74%	75%	76%	65%	77%	90%

a Rows and columns may not sum to 100% due to rounding errors.
b Percentage of total respondents.
c Estimate based on total public district data gathered from state departments of education; see Table 17.
d Percentage of respondents within state.
e Regional boundary not defined in survey instrument or by respondent.
f Percentage of respondents participating in program within state.

Frequency of Serving Local

While specific spending data for individual items other than milk was not reported in the Farm to School Census, respondents were asked to estimate how often they served local food groups including fruits, vegetables, fluid milk, other dairy, proteins, baked goods, and "other" food in their meal programs. Table 23 provides an overview of response rates and reported frequency of serving local food groups.

There was a high non-response for several of the food categories in this question, making estimates for frequency of protein, grains, and other dairy products in the region difficult to generalize. The response rates for serving local fruits and vegetables was higher, however, with 46% of respondents indicating serving local fruit and 37% serving local vegetables on at least a weekly basis. Of the 41% of respondents answering this question regarding fluid milk, the majority indicated offering it daily.

TABLE 23: Reported Frequency of Serving Local Foods[a]

	Fruits	Vegetables	Fluid Milk	Other Dairy	Proteins	Grains	Other
Daily	20%	13%	34%	4%	2%	6%	1%
Few times per week	12%	13%	1%	5%	2%	3%	0.1%
Weekly	14%	11%	2%	2%	2%	2%	0.4%
Few times per month	6%	10%	1%	2%	2%	0.4%	0.6%
Monthly	3%	4%	1%	1%	2%	1%	0.3%
Occasionally	11%	13%	1%	3%	4%	2%	0.4%
Never	1%	1%	1%	2%	1%	1%	–
No response	33%	34%	59%	81%	85%	85%	97%

a Percentage of total respondents (n=693). Rows and columns may not sum to 100% due to rounding errors.

Reported K-12 Spending Levels on Local Foods

Census respondents were asked how much they spent on local foods and fluid milk in SY 2018/19, as well as the source for their responses (Table 24). Across all respondents, total expenditures on local food for the region during SY 2018/19 were reported as $29.47 million, 56% of which ($16.52 million) was reported as spent on local milk. However, there are several challenges to utilizing these data to accurately estimate total regional spending on these local items.

For example, the overall response rate to the census and the representativeness of the respondent pool as detailed in Table 20, where overall response to the census by public districts and charters was ~53%. As a result, only ~40% of New England districts and charter schools provided a local spending response in the census, ranging from a low of 14% in New Hampshire to a high of 53% in Vermont. Further complicating the issue, the likelihood of reporting spending levels increased with student enrollment size. For instance, reporting of spending levels averaged 63% among districts in the

TABLE 24: Reported K-12 Spending on Local Foods[a]

	New England	MA	CT	ME	NH	RI	VT
Reported Local Food Spending							
Total Local Food Spending	$29,470,000	$11,470,000	$8,890,000	$3,620,000	$520,000	$3,530,000	$1,440,000
Local Fluid Milk Spending	$16,520,000	$6,570,000	$5,080,000	$2,480,000	$200,000	$1,710,000	$470,000
Fluid Milk % of Total	56%	57%	57%	69%	39%	49%	33%
Question Response Rates							
Public District/Charter Overall Response Rate[a]	40%	49%	40%	42%	14%	49%	53%
Percentage Providing Local Spending Level by Respondent Student Enrollment Quartile[b]							
Q1 (≤ 297 students)	57%	41%	64%	67%	60%	55%	100%
Q2 (≤ 1,243 students)	69%	71%	56%	70%	68%	67%	83%
Q3 (≤ 2,542 students)	81%	74%	82%	94%	77%	90%	81%
Q4 (≤ 30,604 students)	86%	82%	86%	100%	100%	94%	83%
Percentage Providing Local Spending Level by Respondent Student Enrollment Quartile							
Q1 (≤ 297 students)	2%	1%	2%	7%	0.2%	1%	3%
Q2 (≤ 1,243 students)	8%	8%	4%	10%	25%	2%	25%
Q3 (≤ 2,542 students)	16%	16%	6%	38%	46%	3%	49%
Q4 (≤ 30,604 students)	74%	75%	88%	45%	29%	94%	23%
Reported Local Spending Based on Financial Records or Budget Projects							
Percentage of Respondents	50%	47%	59%	39%	54%	64%	58%
Percentage of Reported Total Spend	68%	69%	68%	62%	61%	75%	60%

a Percentage of total public districts and charter schools responding to this question.
b Quartiles calculated at the regional level.

lowest two enrollment quartiles, while reporting averaged 84% among the two largest quartiles. These larger districts accounted for 90% of the total reported enrollment in the census and consequently, 90% of total reported local spending in the census. Since larger districts account for the highest proportion of local spending, the absence of spending data from 16% of the largest census respondents (representing nearly 173,000 students) and lack of data from more than one-third of the 20 largest districts within each state who did not respond to the census (representing nearly 274,000 students) indicates that reported local spending is a significant underestimate of the true total for the region.

Additionally, in terms of reporting accuracy, only 50% of question respondents indicated that they used financial reports, procurement records, or budgets to inform their response, while the other half of respondents indicated estimating their response only. There was some variability in the use of purchasing records by state, which ranged from a low of 47% by Massachusetts respondents to a high of 64% by Rhode Island respondents. Respondents relying on records to report their local spending levels accounted for 68% of the total local food spend reported for New England.

Lastly, respondents varying definitions of "local" mean that there are erroneous exclusions of New England purchases reported by districts (e.g., reporting local as in-state purchases only) as well as erroneous inclusions of non-New England purchases (e.g., fluid milk from New York) in the total reported local food spend for the six states.

Photo credit: Vera Chang

The Iron Chef competition in Vermont is one way to introduce children to local foods.

Top Local Food Groups and Items

Despite the absence of key data and the potential error inherent in the 50% of estimated spending level responses and varying definitions of "local", the census does provide a baseline from which to estimate overall demand patterns by food group and item from which a regional opportunity assessment can be built.

For instance, census respondents were asked to rank their top five food groups and specific items based on spending level. Response rates varied by spending rank, with 71% of total New England respondents providing at least a top category and product and just 43% of respondents indicating an item for all five spending ranks. Table 25 provides an overview of the question response rate by state along with the percentage of question respondents selecting each food group by spending tier.

The highest spending level indicated for a local food group across the five spending tiers was fruit (indicated by 90% of respondents), followed by vegetables (74%), and fluid milk (30%). The second through fifth highest local spending levels indicated were predominantly vegetables and fruits. Other products, proteins, and grains were selected as top purchased groups by a small minority of respondents. These patterns were largely consistent across all six states with the exception of higher rates of purchasing proteins and other products indicated by New Hampshire and Vermont respondents.

TABLE 25: Top Local Food Groups Purchased in School Nutrition Programs by Spending Level

	New England	MA	CT	ME	NH	RI	VT
Total Survey Respondents	**693**	**307**	**123**	**132**	**37**	**52**	**42**
Question Response Rate[a]							
Top local group	71%	65%	76%	73%	70%	75%	88%
Second local group	63%	58%	64%	69%	59%	65%	86%
Third local group	57%	52%	54%	64%	54%	62%	69%
Fourth local group	49%	44%	49%	53%	43%	52%	69%
Fifth local group	43%	38%	44%	46%	38%	44%	67%
Respondents Identifying Group in Top Five Spending Tiers[b]							
Fruit	90%	90%	89%	93%	81%	90%	92%
Vegetable	74%	73%	71%	82%	77%	74%	59%
Fluid milk	30%	26%	27%	39%	19%	33%	38%
Other	11%	7%	9%	14%	23%	13%	24%
Protein	8%	6%	2%	9%	19%	–	32%
Other dairy	7%	4%	4%	3%	15%	–	43%
Grains/baked goods	5%	6%	3%	2%	4%	18%	8%

a Percentage of survey respondents within state.
b Percentage of question respondents within state.

Respondents were also asked to rank their top five local items purchased, which were selected from a group of 82 fruits, vegetables, proteins, dairy products, and baked goods. Table 26 provides an overview of the top twenty items indicated across those spending tiers. **Apples were cited as the local product with the highest spending level by far, with 87% of respondents listing them as a top five purchase.** Fluid milk was the second highest purchase indicated by 30% of respondents overall, with tomatoes ranked third overall, and lettuce, potatoes, carrots, cucumbers, and squash ranking closely behind.

Estimating the Impact of Increasing Local Food Purchasing in New England Schools

There are two key mechanisms to increase local food purchasing in the K-12 market in New England. The first is increasing participation in subsidized meal programs, either through targeted marketing to students at the district level or through legislative action at the state level that lowers barriers to accessing free school meals. Holding aside the potential to increase CACFP and summer meal rates, which are

TABLE 26: Top 20 Local Items Purchased in School Nutrition Programs by Reported Spending Level[a]

Program Metrics	New England	MA	CT	ME	NH	RI	VT
Apples	87%	85%	88%	92%	81%	87%	92%
Fluid milk	30%	26%	27%	39%	19%	33%	38%
Tomatoes	28%	32%	29%	27%	15%	31%	14%
Lettuce	22%	27%	18%	19%	31%	8%	19%
Potatoes[b]	22%	15%	13%	29%	15%	36%	22%
Carrots	19%	20%	11%	29%	35%	3%	19%
Cucumbers	19%	23%	22%	13%	19%	13%	11%
Squash	16%	16%	19%	11%	15%	28%	8%
Corn	14%	11%	17%	14%	8%	33%	8%
Other	11%	7%	9%	14%	23%	13%	24%
Bell peppers	11%	11%	16%	9%	4%	10%	11%
Broccoli	11%	10%	10%	12%	12%	13%	8%
Pears	10%	12%	24%	3%	–	3%	–
Kale	8%	14%	3%	1%	4%	8%	5%
Blueberries	7%	3%	1%	27%	4%	3%	–
Peaches	6%	6%	11%	2%	4%	15%	–
Salad mix	6%	8%	3%	4%	12%	8%	5%
Strawberries	6%	7%	8%	7%	4%	3%	–
Beef	5%	3%	–	8%	12%	–	30%
Zucchini	5%	5%	1%	4%	–	5%	5%

a Percentage of question respondents within state.
b Does not include sweet potatoes.

typically limited to larger districts serving lower-income populations, the main regional opportunity for increasing meal volumes lies in the SBP and NSLP, both of which have considerable room for participation growth. For example, assuming level enrollment and daily average attendance rates, growing participation in the SBP and NSLP from their current levels by just 6% would result in more than a quarter million additional meals served per day across the region. Higher participation in these two programs, particularly if the current percentage of local spending is constant, would translate to higher overall local spending and additional revenue for districts.

The second opportunity to increase local spending in the K-12 market is to increase the prevalence of local items on school menus in each section of the meal tray, including protein, grains, fruits, vegetables, and milk. Results from the Farm to School Census show that while many districts indicate offering local items on at least a weekly basis (see Table 23, page 67), significant growth potential remains across all food categories. While larger increases of local sourcing may be difficult for all districts to achieve in the absence of additional revenue to offset potential cost increases, marginal increases by districts currently lagging in local sourcing can still have an impact.

For example, if districts "shifted up" from their current frequency of local offerings (e.g., moving from weekly to a few times per week), the impact on total local servings across the school year would be dramatic. Table 27 details a rough approximation of the potential impact of shifting to slightly higher frequency of local fruit offerings among census respondents providing their current frequency. Among just this small sample of districts, "shifting up" one frequency level results in an estimated potential increase of 21 million servings of local fruit per year – a 46% jump.

Obviously not every district in the region will have the capacity to make such a shift in local sourcing without dramatic federal policy change. That said, in the absence of growing school meal participation rates—which would be assisted by universal free meal legislation—potential cost increases can be offset with mechanisms such as purchasing collaboratives, forward contracting with local producers, local food purchasing incentives, and highlighting seasonal local items when supply is high.

TABLE 27: Estimated Impact of Change in Frequency of Serving Local Fruit Among Census Respondents[a]

Frequency	% Reporting	Potential Servings[b]	Adjusted Reporting	Potential Servings[b]
Daily[c]	30%	30,147,660	48%	52,830,900
Few times per week[d]	18%	8,821,260	21%	10,510,360
Weekly[e]	21%	5,255,180	10%	2,247,595
Few times per month[f]	10%	1,284,340	4%	650,920
Monthly[g]	4%	325,460	16%	1,058,030
Occasionally[h]	16%	423,212	1%	15,708
Never	1%	0	0%	0
Total	**100%**	**46,257,112**	**100%**	**67,313,513**

a Percentage of question respondents (n=467). Rows and columns may not sum to 100% due to rounding errors.
b Assumes lunch servings only, based on 95% average daily attendance, 60% meal participation.
c Assumes 180 days across school year
d Assumes 70 days (twice per week) across school year
e Assumes 35 days (once per week) across school year
f Assumes 20 days (twice per month) across school year
g Assumes 10 days (once per month) across school year
h Assumes 4 days per school year

In summary, the potential for increasing regional sourcing of food in the K-12 market is significant. Nevertheless, as the push for additional local food spending by K-12 institutions increases, two key components of successfully measuring its impact will be a consistent regional definition of "local" shared among K-12 food service directors, along with guidance for districts on maintaining comprehensive and accurate financial records to inform true spending level responses.

Correctional Facilities

As of 2022, there were 95 prisons and jails across the six New England states that house and feed an estimated 29,000 incarcerated individuals (Table 28).[60] Unlike other parts of the country, there are no privately-owned facilities in New England. Three New England states operate under a unified system where the state administers all facilities that hold people pre-trial and after sentencing. Three states have two separate systems for state and county-run facilities. Prisons and jails are unique in the institutional sector because incarcerated people rely on the system for *all* of their nutrition, and they have few if any choices related to what they eat, when they eat, or where they eat.

TABLE 28: Incarcerated Populations and Facilities by State

	Number of Prisons	Prison Population	Number of Jails	Jail Population
MA	17	5,872	17	5,305
CT	14	9,368	Unified system	n/a
ME	7	1,845	13	1,304
RI	7	2,086	Unified system	n/a
NH	4	1,941	10	n/a
VT	6	1,292	Unified system	n/a
TOTAL	**55**	**22,404**	**40**	**6,609**

a Population and facility information for ME, MA, and VT were provided by state Departments of Correction; information for CT, NH, and RI was publicly available site-level data.
b Population and facility numbers do not include juvenile centers (see exceptions below), detention centers, mental health facilities (see exception below), or transition units.
c MA state prison data includes Department of Corrections-run mental health facilities as well as state prisons.
d ME state prison data includes one state-run youth facility.

Black, Hispanic, and Indigenous people are disproportionately incarcerated in the United States due to racism and discriminatory practices across the criminal justice system. One in five Black people born in 2001 are likely to be incarcerated in their lifetime, compared to one in 10 Hispanic people and one in 29 White people. Black men constitute about 13% of the male population, but about 35% of those incarcerated.[61] Hispanic people are also overrepresented in jails and prisons but data misclassification suggests that rates are lower than they really are. In every New England state, Black people are overrepresented in the carceral system. According to the Vera Institute, "Black people are more likely to be stopped by the police, detained pretrial, charged with more serious crimes, and sentenced more harshly than white people—even when controlling for things like offense severity."[62]

There are widely reported concerns regarding the quality of food in carceral facilities, including taste, variety, temperature, texture, nutrition, and cleanliness; as well as the conditions for eating (rushed, sometimes unsanitary, in a crowded mess hall or alone in a cell, and with constant oversight of corrections officers). The negative mental and physical health issues that result from these conditions have been widely documented across the United States.[63] These conditions have worsened over the COVID-19 pandemic when many facilities switched to cold lunches, and incarcerated individuals were more likely to be fed in their cells, instead of common spaces. **Building a resilient New England food system means that all New Englanders, including those who are incarcerated, have the right to food that is nutritious, substantial, and culturally appropriate, and that food is never used as punishment.** It is essential to increase the amount of nutritious, fresh food, while also focusing on regional food. Encouraging and incentivizing procurement of regional food can incrementally increase the amount of dignified food overall.

There are a number of factors that impact how jails and prisons in New England purchase food. As all New England prisons and jails are public institutions, they must follow state procurement rules and purchase from state approved and contracted vendors. This limits direct local food procurement opportunities, though some states have created exceptions to procurement practices. Every state has a

department or agency responsible for overseeing the state's carceral system: Connecticut, New Hampshire, Maine, and Rhode Island have established separate departments within their executive branch, Massachusetts has embedded it in the Executive Office of Public Safety and Security, and the Vermont Department of Corrections sits within the Agency of Human Services.

Departments of Corrections (DOC) are often amongst the largest departments in state government based on the size of their budgets, but they have a very low expenditure of funds on food on a per capita basis. In 2021, the average expenditure on food per person in Maine, Massachusetts, and Vermont, was less than $5 per day.[64] In comparison, federal reimbursement rates for a combined school breakfast, lunch, and snack in SY 20-21 was $6.90.[65]

Established menus must be followed, including special menus to meet health and religious specifications, which reduces flexibility in some facilities. Compliance with established menus is a feature of inspections and can be the cause of grievances and lawsuits by incarcerated individuals. Correctional facilities often have limited and antiquated food preparation, cooking, and storage infrastructure. Strict security requirements limit incarcerated cooking staff's access to knives and food storage, making it difficult to process whole foods, so facilities often rely on frozen and processed foods. Correctional officers supervise and monitor food operations, food service directors oversee procurement, and the majority of food service staff are incarcerated people. Because the population in some facilities is transient, the turnover of food service staff can be high. However, this also varies: in some facilities there are individuals with very long sentences and thus a more consistent workforce.

Inconsistent definitions of local and regional and a lack of supply chain transparency make it challenging to report on regional purchases in the carceral system. Greater transparency is needed across the supply chain to understand the baseline of regional purchasing.

Representatives from at least three states expressed interest in procuring more regional food and shared that the products they are most likely to purchase locally (using their definition of local) are produce, eggs, potatoes, milk, and berries. The products they reported as least likely to purchase regionally are meat, protein, state contracted items, dry goods, and frozen food.[66]

In New England, some carceral programs already have gardens, provide culinary training, and leverage their budgets to purchase regional food. These programs, such as the ones happening at the Mountain View Correctional Facility in Charleston, (ME),[67] can be modeled elsewhere as potential opportunities to reduce harm in this system. Other key levers include:

- Increase allocation of DOC funds for food procurement
- Develop resources and toolkits to increase regional procurement: clarify policy framework to understand opportunities for direct purchases, menu substitution, in-facility processing
- Utilize onsite garden and farm production for therapy, education and feeding the incarcerated population, and potentially other consumers, with consideration to fair and humane labor practices
- Promote and amplify examples and stories of local food procurement, gardens, and culinary programs that are generating greater regional food expenditures
- Reduce food waste to reduce costs
- Conduct research to better understand the connection between more caloric and nutrient dense meals and lower recidivism rates, lower food-related aggression, and lower health costs

- More research, programs, and visibility on how incarcerated people can accumulate resources to support them upon reentry

- Increased transparency and information sharing from supply chain and DOC stakeholders.

Health Care

There is a widely researched correlation between an unhealthy diet and heart disease, type 2 diabetes, and other chronic diseases.[68] One analysis found that annual diet-related Cardiometabolic disease costs the U.S about $50.4 billion annually.[69] Easing the barriers that health care facilities face in purchasing fresh, regional food is critical to reducing the strain on our health care system that supports a resilient regional food economy.

There are 270 health care facilities across the six New England states, with approximately 32,600 staffed beds[70] (an estimated 21,300 at any given time using the national 65.5% occupancy rate) and 360,000 hospital employees.[71] Most health care facilities operate multiple dining streams for patient meals, cafeteria meals, and catering with unique requirements for each in terms of sourcing, packaging, nutrition, and allergens. And though their budgets are often tight, health care facilities spend millions of dollars on food every year. A 2018 survey from Health Care Without Harm (HCWH) showed that hospitals spent $280 million on food and beverage in 2016-17.[72] Hospitals operate year round making them stable markets—and they also have legal requirements to spend funds that support their community through programs like the Community Benefits Program.[73]

Hospitals face many of the same challenges that other sectors do in buying regional food within food service management companies (FSMC) contracts, navigating distributor agreements, and buying direct from producers. Many hospitals, both self-operated and managed by FSMCs, work with Group Purchasing Organizations (GPOs), national or regional organizations that pool the volume of their members to obtain savings from vendors and manufacturers. GPOs can streamline the procurement process for hospitals and keep prices low and stable by focusing on a limited number of products in high volumes that allow for discounts and rebates. Most GPOs require facilities to purchase a high percentage of their products from on-contract suppliers, creating limitations to what they can purchase from local vendors.

HCWH has surveyed hospitals in New England on their food purchasing behavior, with the last pre-COVID survey collecting data about 2016-17. Results showed that 29% of respondents said they buy local food on contract with their GPO, while 20% bought local food on contract with their FSMC. Fourteen percent reported buying local food through a food hub and 47% said they purchase local food directly from farmers. Nearly half of respondents also reported reducing the amount of meat and poultry served in the year prior.[74] Reducing the amount of meat served in hospitals, and choosing to purchase meat raised without routine antibiotics, is one of HCWH's key strategies for addressing the climate crisis.[75]

The COVID-19 pandemic has had an enormous impact on hospitals across the United States, impacting their budgets, staffing, capacity, and relationships with local vendors. Research done by HCWH shows that 48% of facilities shut down food service during some point in the pandemic and 74% changed food and nutrition protocol during the pandemic.[76]

In addition to procuring regional food in dining services, several hospitals have focused their regional food efforts by providing on-site farmers markets, small retail outlets, and CSA partnerships, for staff and patients.[77] These models allow for more regional food at their facilities without the regulations required for patient meals, cafeteria meals, and catering.

"Food is Medicine" programs that address diet-related health risks or conditions have blossomed across the country. Food is Medicine programs are fundamentally a nexus between nutrition and health and include interventions such as:

- **Medically tailored meals:** meals that are individually tailored to health conditions (including ready-to-eat meals that can be reheated in an oven or microwave).
- **Medically tailored groceries:** includes distribution of unprepared and/or lightly processed foods for preparation of nutritionally complete meals at home.
- **Produce prescriptions:** doctor prescriptions for healthy food that are distributed via voucher or debit card that can be redeemed for produce.

Food is Medicine interventions may include food insecurity screening in health care settings for patient populations, reducing barriers for patients to access food assistance, connecting patients to short- and long-term nutrition assistance programs, and increasing the capacity of health care providers to incorporate food insecurity mitigation strategies into patient treatment plans.

Within New England, Food is Medicine interventions have taken a variety of interesting forms:

- In Connecticut, the Hartford Hospital opened a facility designed to look like a real grocery store stocked with only healthy items.
- In Maine, MaineHealth began offering a free, one-year program to support people with one or more chronic health issues who have limited access to healthy food by providing free healthy food, peer support, and menu planning with a health educator.
- In 2019, Massachusetts launched a Food is Medicine State Plan that developed recommendations to scale up access to food is medicine interventions. They envision an integrated system where 1) food and nutrition needs are identified in a health care setting; 2) health information technology supports patient connection to appropriate nutrition resources; 3) well-supported community-based nutrition organizations offer food is medicine services and programming; and 4) health care dollars provide sustainable funding streams for clinical screening and Food is Medicine services and programming.
- In New Hampshire, Dartmouth Health's Culinary Medicine Program "brings together clinical, academic and community nutrition and culinary initiatives to create a cohesive vision for the future of food as medicine." The institution offers several culinary skills classes for patients and has improved meal offerings at the Dartmouth Hitchcock Medical Center.
- The Rhode Island Healthy Eating & Active Living 2023-2028 Strategic Plan calls for expanding healthcare coverage to include produce prescriptions, home delivered meals for eligible patients, and other evidence-based approaches to improve access to nourishing foods as part of food is medicine approach.
- In Vermont, five organizations offer Health Care CSA programs that link health care clinics with farms. In 2022, 46 health care clinics and 25 farms provided support to food insecure people.

Other Institutional Food Service

There are other institutional food service operations for which we were not able to obtain comprehensive regional sourcing data. For example, there are 840 assisted living communities with 32,900 licensed beds in New England. These facilities offer food to residents, either via in-house food service operations or with the support of a food service management company. One multi-facility management company, Senior Living Residences (SLR), has 18 locations across Massachusetts, Connecticut, and New Hampshire. SLR promotes its partnership with Baldor Specialty Foods, a Boston-based distributor, and direct relationships with local farms and several Boston-based fisheries: "through most seasons, a significant portion of the menu is farmed locally in traditional outdoor farms during the New England growing season, as well as cultivated during other times of the year in specialized greenhouses."[78] Another senior living operator, Northbridge Communities, manages 19 communities in Maine, New Hampshire, Massachusetts, and Connecticut. It serves residents with its Eat Fresh, Eat Local program via partnerships with 40 New England farms. In the senior living segment, quality of dining is a necessity and local sourcing seems to be a competitive differentiator.

Prior to the COVID-19 pandemic, corporate cafeterias were helping to drive growth in the contract hospitality services sector.[79] The post-pandemic workplace is anticipated to look quite different, with more flexibility for employees to continue to work from home, smaller central offices, and revised benefits including food options. Industry insights suggest that while some companies may still see on-site meal options as a way to attract and retain employees, food service footprints are likely to be smaller and the overall offering to include partnership programs with external restaurants.[80] Similar trends are likely in the government sector, which with the exception of public schools, tends to reflect the business and industry segment in its food service offering. Exceptions may be in defense-based or research specific facilities where entry is restricted and it is more important to internalize operations.

Finally, there are cultural and leisure venues, which include sports stadiums, museums, and parks. The food offerings for these locations vary significantly from fast food format to high end dining. Given the small size of this segment of the market, we did not focus on it in our research, though we would note that there are select case studies to be held up as models. For example, since 2015, Fenway Farms sits atop a formerly underutilized 5,000 square foot rooftop of Fenway Park in Boston. This farm now produces and sells 6,000 pounds of produce annually through the park concession operations.[81] MASS MoCA and Clark Art Institute in the Berkshires of Massachusetts are both museums whose menus intentionally feature locally sourced food as well.

While each institutional sector has some unique characteristics and opportunities to improve local food purchases, there are also some shared potential levers for change. Schools and colleges, which mainly source fall to spring, could coordinate with hospitals and elder care facilities, which source all year, to purchase and process local food for use all year. Institutions can also coordinate with each other to create fewer purchase specifications so that farmers and suppliers can more easily meet institutional needs. State procurement policies that incentivize local food purchases can benefit all public institutions in multiple sectors. State and federal programs that support small farmers in becoming wholesale ready (e.g., from meeting food safety needs, to understanding institutional needs, to creating business plans that work for institutional sales) can address major barriers that currently keep small farmers from selling to institutions.

Direct to Consumer and Intermediated Markets

About 0.4% (nearly $8.2 billion) of food and beverage expenditures in the United States, and about 0.3% ($293 million) of expenditures in New England, are direct sales from farmer to consumer. Direct markets are important because they allow producers to capture more income for each product sold (compared to wholesale), require low up-front investment, give producers more autonomy over the products they sell, and foster customer relationships through experiential marketing (an increasingly important tactic across all industries).

Every five years (e.g., 2012, 2017), the USDA Census of Agriculture asks farmers to report on their production and sales, including what they sell through different market channels. In 2015, the USDA National Agricultural Statistics Service (NASS) also began conducting the Local Food Marketing Practices Survey (LFMPS), which identifies strengths, weaknesses, and opportunities within **direct to consumer markets** (e.g., farmers markets, Community Supported Agriculture (CSA), and farm stands) and **direct to institutional and intermediated markets** (e.g., schools, hospitals, grocery stores, restaurants, and wholesale to other regional processing and distribution channels). The second Local Food Marketing Practices Survey, administered in 2020, presents the first opportunity for comparisons in these markets.

As noted previously, estimates from these three years—2015, 2017, 2020—provide somewhat confounding results, based on differences in the list of farms surveyed, reference periods, definitions, and weighting methodologies used by the Census and the LFMPS. For example, the LFMPS also does *not* include data for Rhode Island. Consequently, we use the values from the 2017 Census of Agriculture to compare to retail food sales, and we use the 2015 and 2010 LFMPS to compare changes at two different points in time.

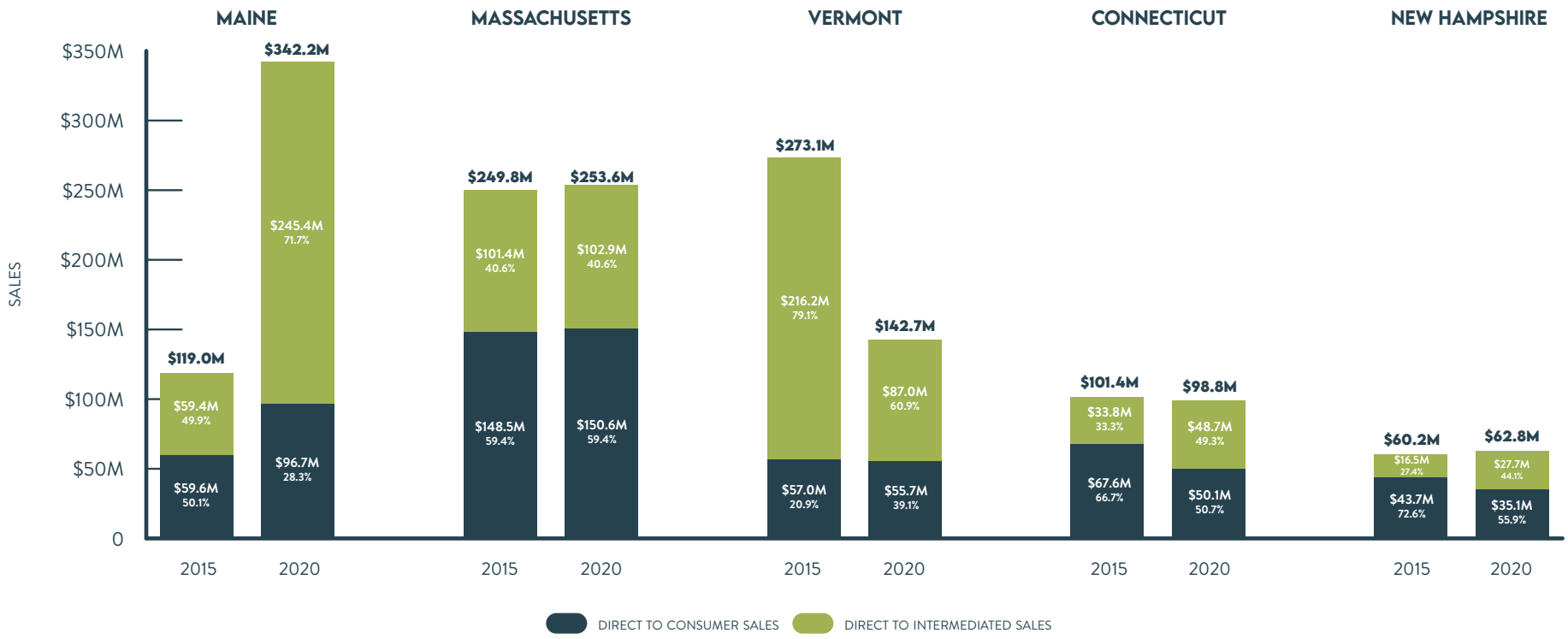
The 2020 Local Food Marketing Practices Survey was also conducted in the first year of the COVID-19 pandemic, which upended consumer behavior across most sectors. Institutional and retail markets experienced significant volatility throughout the pandemic due to school closures and a sharp decline in food spent away from home at restaurants. Still, many farms in the direct to consumer sector did not indicate that their sales were negatively affected – in fact, many rose to the occasion with increased online and other direct sales.

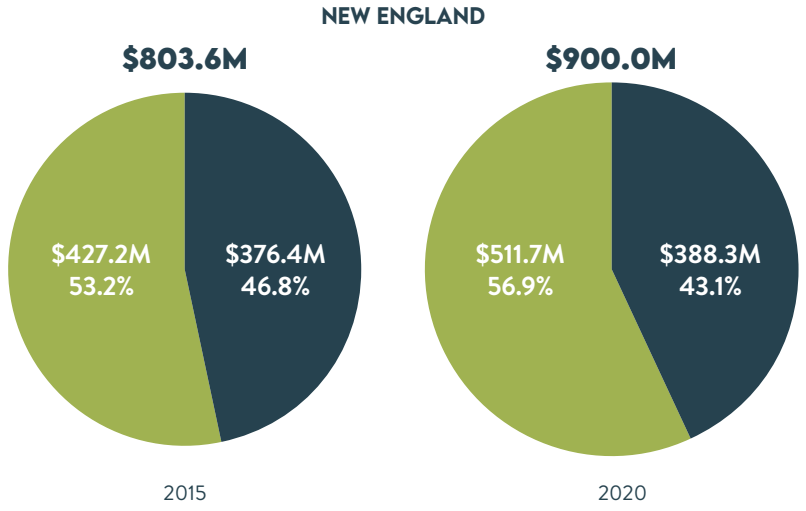
In 2015, New England farmers reported nearly $804 million in direct and intermediated sales (Figure 21). Vermont accounted for 34% of total New England sales, and 79% of Vermont's sales were direct to intermediated markets. Massachussets accounted for 31% of total New England sales, with more than 59% of sales going direct from farmer to consumer. Maine (14.8%), Connecticut (12.6%), and New Hampshire (7.5%) generated a smaller percentage of direct sales.

In 2020, New England farms reported over $900 million in sales through these markets, with roughly $388 million through direct to consumer markets and $511 million through intermediated and institutional markets. **While the six New England states comprise just 5% of the nation's population, they accounted for over 10% of the total local food sales nationwide.** With the exceptions of Hawaii and New Jersey, no other state in the nation comes close to achieving this level of local food market share.

In 2020, Maine farms accounted for 38% of total New England sales, and about 72% of Maine's sales were to intermediated channels. In fact, Maine contributed nearly half of all intermediated and

FIGURE 21: New England Local Food Marketing Practices Survey Results, 2015, 2020





Source: USDA National Agricultural Statistics Service, *Local Food Marketing Practices*, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/readings/#reports.

institutional sales ($245.4 million). These sales represent more than a quadrupling of growth for the state since the 2015 LFMP survey, indicating either that Maine's intermediated and institutional markets were able to rapidly expand during this period, or NASS was able to reach a much more representative farm sample in the most recent survey year.

Massachusetts farms reported over $253 million in sales in 2020, about equal to 2015 sales. The percentage of sales to direct to consumer channels (59.4%) and direct to intermediated sales (40.6%) were the same in 2015 and 2020. The high percentage of direct to consumer sales in Massachusetts—which accounted for 40% of the regional direct to consumer total—was accomplished with just 22% of the region's farms. With over 300 farmers markets, about 200 CSAs, and the bulk of the region's population, Massachusetts' direct-to-consumer market share may not necessarily be surprising.

Most states were able to maintain growth in direct to consumer market channels between the 2015 and 2020 LFMP surveys, especially Maine at 77%, but both Connecticut and New Hampshire experienced declines in the market channel of nearly 20%. Nearly all states experienced growth in the direct to intermediated market channel, except for Vermont, where a 56% drop in sales—from $216 million in 2015 to $87 million in 2020—remains the lone example of market decline in this sector during this period. An explanation for this is not readily available from the LFMPS but likely represents a data collection issue.

Agricultural sector sales—like vegetables, fruit, and dairy—are not available at the state level in the LFMPS. We can look at the 2017 Census of Agriculture to understand the relative market share of specific products (Table 29). In 2017, the leading local food sales sectors were vegetable and melon farms and fruit and tree nut farms, with $188 million and $85 million respectively. Well over half of these sales were made in direct-to-consumer markets, which makes sense for highly perishable, fresh products. These items tend to be flagship products at any farmers market or farm store; they are the products that bring customers in, and the products around which entire CSAs and farm shares are formulated. Even for commodities that tend to have lower value per unit than other livestock or value-added products, it is still ultimately unsurprising that they account for almost 60% of all direct to consumer sales.

Direct to consumer markets are still not affordable to all who would like to utilize them and accessibility fluctuates with the seasons. The majority of farmers markets only take place during the growing season (April - November). Ways to bridge these challenges include approaches like the Massachusetts Healthy Incentives Program (HIP). Since April 2017, more than 113,000 households (182,600 individuals) have used $32 million in HIP dollars with 187 farms across the Commonwealth. HIP supports Supplemental Nutrition Assistance Program (SNAP) participants to purchase produce in any form (e.g., fresh, dry, frozen, canned, seed), simultaneously bolstering the local farm economy by making these produce purchases eligible exclusively at farmers markets, farm stores, mobile markets, and CSA programs. The state's annual budget allocation for the program has grown from $1.35 million in FY17 to $24 million for FY23. Advocates for its permanent funding include a coalition of more than 300 farmers, farmers markets, nonprofit agricultural/food system organizations, faith institutions, healthcare institutions, individuals with lived food insecurity experience, and others. Few other policies are in place across New England that both expand fresh produce access to those most vulnerable and offer direct support to New England's agricultural economy.

Intermediated and institutional sectors could purchase more fruits and vegetables. These markets tend to rely upon higher volumes, consistency, availability, and value-added processing to ensure that demand can be met. Farms from the farthest reaches of Maine to the fertile Connecticut River Valley have the potential to reach

TABLE 29: Number of New England Farming Operations With Direct and Intermediated Sales by Category

NAICS Code	Category	Total Operations with Sales	Operations with DTC Sales	Percent of Total Operations	DTC Sales	Percent of Total Sales	Operations with Inter. Sales	Percent of Total Operations	Intermed. Sales	Percent of Total Sales
	TOTAL AGRICULTURE	32,336	8,422	26%	$277,673,000	10%	2,798	9%	$218,215,000	8%
1112	Vegetables and melons	3,295	1,989	60%	$100,160,000	24%	836	25%	$88,296,000	21%
1113	Fruits and Tree Nuts	2,669	1,078	40%	$64,870,000	33%	356	13%	$19,689,000	10%
11212	Dairy Cattle and Milk Production	1,421	231	16%	$26,345,000	3%	127	9%	$33,670,000	4%
1114	Greenhouse and Nursery	3,494	665	19%	$13,979,000	2%	213	6%	$12,870,000	2%
1125	Aquaculture + Other Animal Prod.	5,922	726	12%	$11,097,000	6%	266	4%	$14,699,000	8%
1123	Poultry and Egg Prod.	962	454	47%	$7,112,000	16%	112	12%	$13,803,000	32%
112111	Beef Cattle	3,474	745	21%	$8,075,000	20%	118	3%	$2,873,000	7%
1124	Sheep + Goat	2,217	575	26%	$4,020,000	28%	141	6%	$6,599,000	45%
1122	Hogs + Pigs	520	217	42%	$1,354,000	45%	45	9%	$190,000	6%
1111	Oilseed + Grain	264	39	15%	$76,000	0.6%	10	4%	not disclosed	n/a

Source: USDA 2017 Census of Agriculture, https://www.nass.usda.gov/AgCensus/.

processors that freeze perishable produce like blueberries, broccoli, and more.

Livestock farms also have a significant potential to integrate their products more smoothly into direct to consumer and intermediated markets. While just 6% of dairy products are sold through direct market channels, the sales value still amounted to over $60 million in 2017, or the third-largest local food sector in the region. Direct sales accounted for about $26 million of this total, where farms sell their milk, cheeses, and yogurts mostly at farmers markets and farm stores. The $33 million in intermediated and institutional markets presents an even bigger opportunity for dairy; because milk is highly perishable, it is inherently one of the best-suited regional food products. And while most of New England's dairy reaches the shelves at retail stores within the region, there is still an opportunity for local institutions like hospitals, schools, and universities, to make a commitment to source directly from regional suppliers. These procurement contracts can provide a more stable revenue stream for dairies rocked by years of

volatility in traditional retail markets. Consumer preferences have also shown that value-added products like artisan cheese are increasingly popular, compelled by unique flavors and pride for the local craft. The continued expansion of regionally-branded, high-quality cheeses in retail markets will help to ensure that the region's remaining dairies have a place on the shelves.

The poultry and egg sector has one of the highest local food market shares out of any livestock sector – or any sector. Nearly half of all poultry and eggs produced in New England are sold through direct sales channels, with twice as many sales in the intermediated and institutional sector. This signals strong market viability as well as the potential for growth in the sector. Egg production is likely easier to scale to larger markets, especially since it does not have the same slaughter infrastructure requirements as poultry production, but as poultry becomes more heavily substituted for other forms of meat, the region must plann for ways to increase access to local poultry products.

Red meat consumption has dropped overall in the past decade, but a strong case can be made for the majority of beef and pork consumption to be locally-sourced and sustainably raised. While just 25% of the region's beef operations reported direct to consumer sales, most of the $11 million value came through direct to consumer markets, nearly four times the amount as in intermediated and institutional markets. New England beef operations often are not capable of meeting demand in larger commodity markets, so maintaining viability in the local food sector will be increasingly important. Access to slaughterhouse facilities will be key, but innovation in the sector (e.g., Vermont beef on dairy pilot project) can help dairy farmers diversify their income stream and make more money per head. Similarly, while local food sales revenue amounted to just $1.5 million, nearly half of all hog and pig operations reported direct to consumer sales in the region.

Lastly, the aquaculture sector has potential to expand further into local retail markets. There were $25 million in local food sales reported in 2017, with more than half in the intermediated and institutional sector. Relationships between producers and retailers can help introduce both farmed finfish and shellfish to local markets, especially in the restaurant and tourism industry.

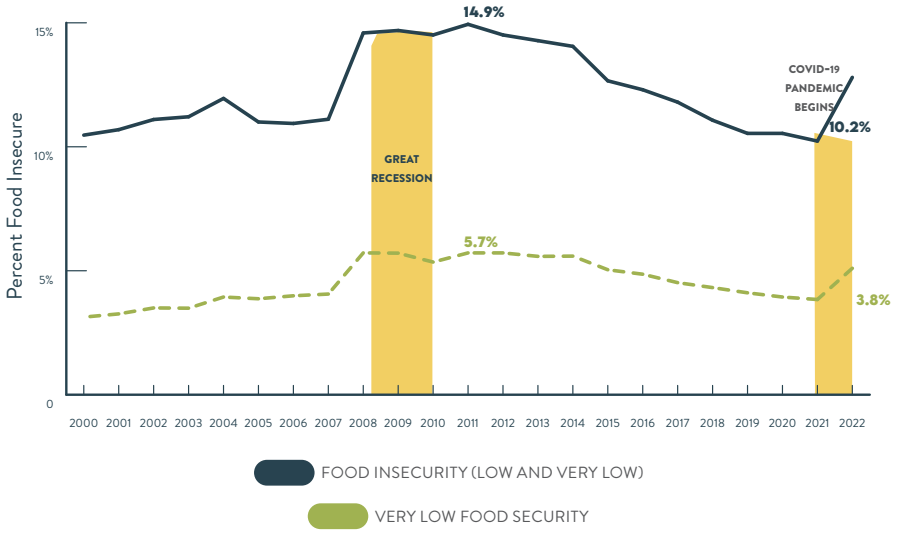
While there is certainly a need for greater investment in processing and warehousing infrastructure across New England, the biggest barriers to expanding intermediated markets may lie with the region's limited agricultural land base and current farm size typology. As of 2017, roughly two-thirds of the region's farms did not gross even $10,000 in revenue, and the median farm size ranged from 20-75 acres across each of the six states. Even with simplified access to processing infrastructure and retail markets, New England farms would still face an uphill battle in expanding their agricultural footprint to create more supply needed to meet demand. **Efforts to protect farmland, improve access to land, and support farm viability must remain front and center to local food system planning.**

Charitable Food System

The USDA defines food security as having access, at all times, to enough food for an active, healthy life for all household members. Food insecure households are uncertain of having, or unable to acquire, enough food to meet the needs of all their members at some time during the year. This may be the result of insufficient money or other resources for food. In 2021, 13.5 million (10.2%) U.S. households experienced low and very low food security (Figure 22). Households with very low food security have some household members whose eating patterns are disrupted at times during the year, with self-reported food intake below levels considered adequate.[82]

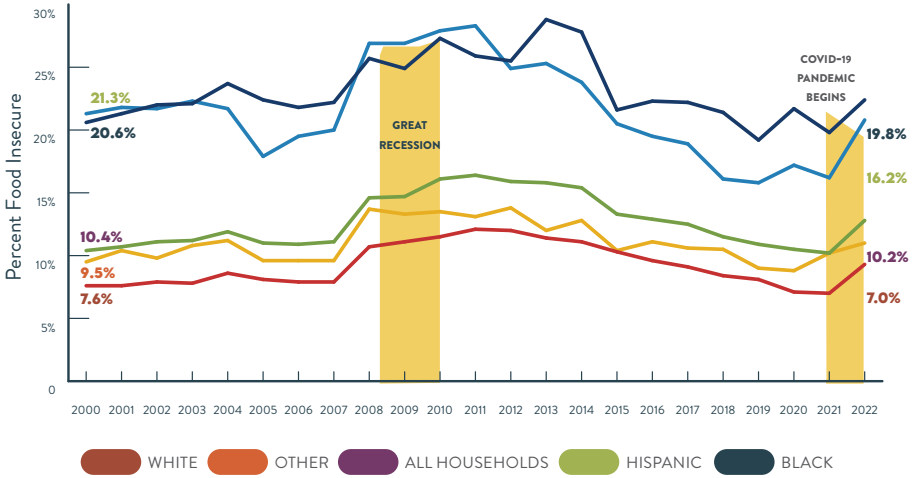
The profile of food insecurity in the U.S. reflects the ongoing legacy of structural and systemic racism. Feeding America's website emphasizes that persistent food insecurity is the result of "discriminatory policies and systems that result in racial and gender inequities in pay/earnings and wealth. For example, Black and Hispanic families have considerably less wealth than white families. According to the Federal Reserve Board, Black families' median wealth is less than 15 percent that of white families ($24,100 vs. $188,200) and the median wealth of Hispanic families is about 20 percent that of white families ($36,100 vs. $188,200). Similarly, the National Women's Law Center reports that, among full-time, year-round workers, Native American women are typically paid only 60 cents for every dollar paid to white, non-Hispanic men. This gap in pay typically amounts to a loss of $2,055 every month or $24,656 every year."[83] Figure 23 shows big disparities in food insecurity between Black and Hispanic households and all other households.

FIGURE 22: Prevalence of Food Insecurity in the U.S.



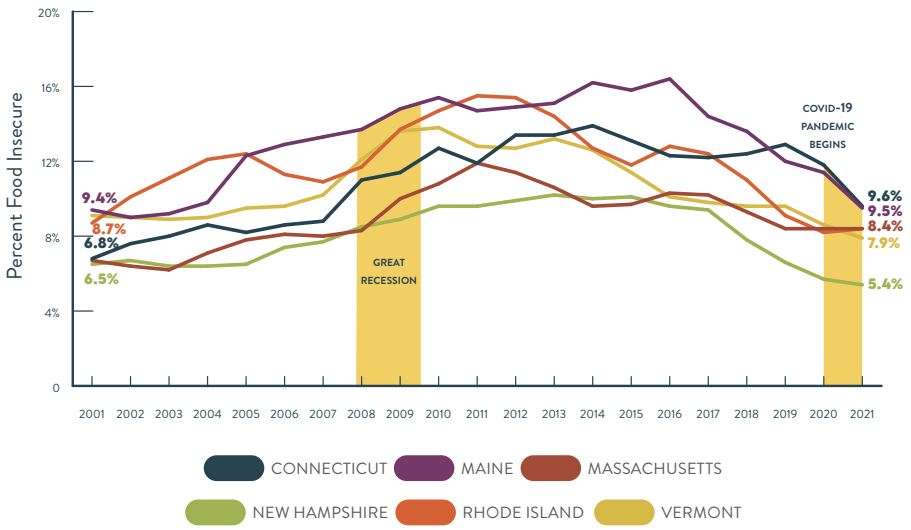
Source: USDA Economic Research Service, multiple years, Statistical Supplement to Household Food Security in the United States, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/readings/#reports.

FIGURE 23: Prevalence of Food Insecurity in the U.S. by Race/Ethnicity



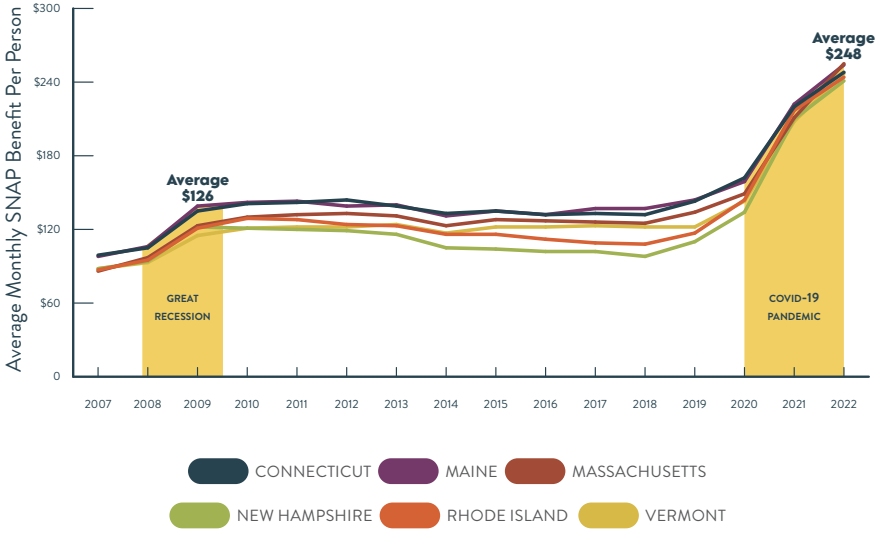
Source: USDA Economic Research Service, multiple years, Statistical Supplement to Household Food Security in the United States, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/readings/#reports.

FIGURE 24: Prevalence of Food Insecurity in New England



Source: USDA Economic Research Service, multiple years, Statistical Supplement to Household Food Security in the United States, https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/readings/#reports.

FIGURE 25: Average Monthly SNAP Benefits Per Person



Source: KFF, Average Supplemental Nutrition Assistance Program (SNAP) Benefits Per Person, https://www.kff.org/other/state-indicator/avg-monthly-snap-benefits.

Among the New England states, Connecticut (9.6%) and Maine (9.5%) had the highest rates of food insecurity in 2021, followed by Massachusetts and Rhode Island (tied at 8.4%), Vermont (7.9%), and New Hampshire (5.4%). Across Figures 22, 23, and 24, it is clear that food insecurity spikes during times of economic hardship, specifically the Great Recession (December 2007-June 2009). The impacts of the Great Recession lingered for many years after the fact. The end result is that very limited progress has been made in reducing food insecurity over the past 20 years.

The COVID-19 pandemic also triggered economic hardship across the country, but rates of food insecurity are not noticeably higher in 2020 and 2021. What explains this? The federal government rapidly fortified the social safety net: "In the early, panicked days of the pandemic, the United States government did something that was previously unthinkable. It transformed itself, within weeks, into something akin to a European-style welfare state."[84] The federal government is estimated to have spent about $5 trillion to mitigate the consequences of the pandemic, including more assistance for food assistance programs. The Supplemental Nutrition Assistance Program (SNAP) is by far the most important tool currently available for addressing food insecurity. The average monthly SNAP benefit increased from an average of $126 per person in New England in 2009, to $248 per person in 2022 (Figure 25). However, most of the safety net programs started or expanded during the pandemic have ended, and there is an expectation that food insecurity rates will increase in 2023.

The charitable food system, made up of food banks and food pantries, *supplements* the supplementary assistance programs by helping people make ends meet, serving people otherwise ineligible for federal/state programs, and connecting those with food to those who need it. The function of a food bank is to acquire perishable or non-perishable food for redistribution to food-insecure individuals. John

van Hengel is credited with founding the first food bank, St. Mary's Food Bank in Phoenix (AZ) in 1967. Twelve years later, van Hengel would establish Second Harvest, today known as Feeding America, the nation's second largest charity and network of 200 food banks. *Food Bank News* estimates there are actually 371 food banks across the country: Feeding America's 200 food banks and 77 partner distribution organizations, plus 53 independent food banks not associated with Feeding America, and an unknown number of food-rescue organizations and organizations that prepare meals and deliver them directly to clients.[85] Food bank programming includes mobile food pantries, school pantries, SNAP outreach, nutrition education, advocacy, retail food rescue, and gleaning and food production from their own farms.

New England has 14 food banks. These food banks are the primary distribution partner to many of New England's 1,713 food pantries, shelters, and other direct service providers.[86] The estimated combined revenues of these food banks exceeds $600 million. While many food banks hold ending hunger as part of their mission, the reality is that the food bank sector continues to grow as food insecurity increases. The sheer scale of product food banks handle demands sophisticated logistical efficiency, but the efficacy of this model has its critics. It is argued that food relief temporarily treats a symptom, but ending hunger requires channeling resources at the root causes of racism, poverity, injustice, and inequity.

Food banks rely on both monetary and food donations from federal and state governments, corporations, foundations, and individuals. The Emergency Food Assistance Program (TEFAP) is a federal program that helps supplement the diets of low-income Americans by providing them with emergency food assistance at no cost. Similar to USDA Foods in schools, through TEFAP, the USDA provides 100% American-grown USDA Foods (formerly known as "commodities") and administrative funds to states, who in turn provide the food to select local agencies, usually food banks. State allocations are determined by the number of unemployed persons and the number of people with incomes below the poverty level in the state.

A New England example is the Massachusetts Emergency Food Assistance Program (MEFAP) provides critical funding via the Massachusetts Department of Agricultural Resources (MDAR) to Massachusetts' four food banks - Greater Boston Food Bank (GBFB), Food Bank of Western Massachusetts (FBWM), Worcester County Food Bank (WCFB), and Merrimack Valley Food Bank (MVFB). In 2021, MDAR provided $30 million in funding to the program, which included $2,190,699 (7.7% of total food purchase funding) for the Massachusetts (Mass) Grown Initiative. Since 1999, the Mass Grown Initiative enables low-income households to access fresh produce, while offering local farmers a new market opportunity. The regional food banks collectively spent Mass Grown funding on 3,714,608 pounds of produce (98.4%), local milk and yogurt (1.4%) and poultry (0.2%) from 26 local farms.[87]

In 2022, USDA Agricultural Marketing Service established the Local Food Purchase Assistance Cooperative Agreement Program (LFPA) as part of the "Build Back Better" initiative, authorized by the American Rescue Plan. According to the USDA's website, the purpose of LFPA is "to maintain and improve food and agricultural supply chain resiliency by awarding up to $400 million through non-competitive cooperative agreements with state and tribal governments to support local, regional, and underserved producers through the purchase of domestic local foods. Local and regional farmers and ranchers are those within the state or 400 miles of delivery destination. The cooperative agreements will allow for state and tribal governments to procure and distribute local and regional foods and beverages that are healthy, nutritious and unique to their geographic area. The food will meet the needs of the population, and serve feeding programs, including food banks, schools and organizations that reach underserved communities. In addition to increasing local food consumption, funds will help build and

expand economic opportunity for local and socially disadvantaged producers."[88]

Looking Forward

Over the past three years, globalization, the COVID-19 pandemic and supply chain disruptions, climate change events, and high-energy costs and food supply disruptions created by the Russian invasion of Ukraine have created a perfect storm that is straining traditional supply chains all over the planet. A few observations about the status of supply chains operating within the New England region are relevant:

1. In the future, large food supermarket chains expect to grow "self-managed distribution" systems. In a self-distribution model, companies purchase goods directly from their manufacturers, store those products in their own warehouses, and transport them through their own networks. Ahold-Delhaize (Hannaford and Stop & Shop) has its supply-chain headquarters in Quincy, MA—ADUSA Supply Chain Services—which provides a range of services to one of the largest grocery retail supply chains in the nation. ADUSA Supply Chain Services includes functions that support end-to-end supply chain operations, such as human resources, finance, business process management, research and development, innovation, sales and operations planning, data and analytics, vertical integration, and e-commerce operations and logistics. They are seeking to densify their supply-chain infrastructure in the region through such an approach, and will build extra-large cold storage facilities on the edge of the New England region in southern Connecticut and in Pennsylvania.[89]

2. Removing wholesale distributors between producers and retailers may open or close opportunities for regional actors. A study of eleven independently owned supermarkets and food supply chains in low-income areas of the Northeast found diverse licensing arrangements between wholesalers and distributors, and supermarkets.[90] A few of the supermarkets used alternatives to large grocery wholesalers and enjoyed a degree of purchasing flexibility from these wholesalers. Other retailers benefited from economies of scale by purchasing from their chain store wholesalers, although they had to follow strict guidelines for store layout, assortment of products, and other store operations.

3. We are seeing that farmers markets, community supported agriculture, and other direct-sales outlets are not enough to sustain small-and midsized farms. "Agriculture of the middle"—farms that are generally too large to make a living by selling through direct markets, but too small to be competitive in larger commodity markets—likely need their own infrastructure. Processing, warehousing, and distribution infrastructure is often not designed for small and midsized farms, and so they struggle with market access and profitability'.[91] Regional food hubs and value-added processors are critical to helping New England farms gain entrance to markets otherwise out of reach (e.g., institutions). In considering how we organize a right-sized food value chain for the region so that farmers can be profitable, we must simultaneously hold up how these same supply chains can ensure that everyone has access to fresh, healthy food.

4. As discussed earlier, the geography of grocery stores has profound implications for the region due to its potential equity imbalances and influence on social and commercial determinants of health in the communities of the region. Those imbalances must be understood against the lattice of more racially and ethnically diverse communities, rural areas, "gateway cities," "brownfield" and regenerative land use practices, coastal communities, minority-majority emerging suburbs and central cities.

5. New England's food retail industry is a "mature," yet also dynamic and multi-layered industry. What can be done to improve the relationship between producers, processors/manufacturers, the food retail industry, and consumers? In this Volume, we suggest that the New England region once bore the footprint of innovation in food retail, to the point it became highly attractive to larger corporate actors which both acquired local chains and injected capital into the region. The key question is "how much leeway—and what kinds of competitive advantages—the independent food retail sector, composed of co-ops, small and mid-size supermarket chains, can achieve to survive the fast-pace and cut-throat waves of sectoral consolidation?" In short, is the fast pace of market concentration and e-commercialization the inevitable fate of independent food retail businesses?

   The large food retail actors of the sector may instinctively approach growth and expansion, and its connection to people and workers in the region by adopting low-road strategies that erode the livelihood of communities and workers. Alternatively, we may find forms of governance, of increasing accountability and transparency, and of exercising collective action to reset the relations between the food retail sector and the New England region.

6. The food retail market channel is perhaps the most important connection between people and the food system in the country. Other channels, such as institutions, also influence how and what we eat it. During the COVID-19 pandemic, as restaurants, schools, and other types of eating establishments shut down, grocery store employees were deemed essential workers and at-home food preparation and consumption increased dramatically. Supermarkets, online retailers, CSA and farmstand sales, as well as at home gardening, all increased. But as the pandemic has waned and restaurants and other eating establishments have reopened, consumers appear to be returning to their pre-pandemic ways of obtaining food. Whether local farmers, fishers and food producers can hold onto the increase in their local and regional share of what is able to flow in and out of food retail still remains to be seen.

7. Food banks the size of the Greater Boston Food Bank (GBFB), the 15th largest by revenue in the country, like any large distributor, tend to need to work with aggregators or farms large enough to supply a significant volume of product. Any farm large enough to sell directly to the GBFB is typically selling a single product. The federal government is providing incentives to value chain partners that should help food banks and others to be even more inclusive of more local farms, but this is not a guaranteed long-term resource. If food insecurity rates and dependence on charitable food programs remain at current levels or increase in the coming months as pandemic assistance programs are retired, more effort has to be invested in findings ways for New England product to be included in food relief organizational spending.

4 Next Steps

Can the six New England states provide 30% of their food from regional farms and fisheries by 2030? The New England State Food System Planners Partnership, through its *New England Feeding New England* project, set out to explore this question. Inspired by Food Solution New England's *New England Food Vision* of achieving 50% regional consumption by 2060, our objective was to better understand our current food system environment, and exactly what it will take to grow, raise, produce, harvest, catch and move more food through a complex regional supply chain to our homes and other places we eat.

The 16 NEFNE researchers developed this foundational research so that we can begin to mobilize around a regional food goal, develop strategies, and take action to build a more just, equitable, resilient, and reliable regional food system. A central concept of this approach is the idea of **regional food self-reliance**, **which is an estimate of how much food we produce compared to how much food we consume.** No single county or state can provide a full menu of food products to meet the needs of its population. For example, within New England, the northern states have *most of the farmland*, while the southern states have *most of the consumers*. Moving toward 30x30 will require, for example, enormous investment in retaining and expanding land in agriculture in the northern states, with most of the people, political power, and potential sources of funding based in southern New England.

A resilient regional food system is both an *investment* in our shared future and an *insurance policy* against future risks.

This dynamic—big population centers in the southern states, and major agricultural production in the northern states—sets the stage for exploring regional food self-reliance.

Volume 4 has highlighted areas where more transparency in market channels is required to eventually accurately and efficiently assess our collective progress toward 30x30. Our research has identified several challenges that require our ongoing attention. For example, consumer access to food is heavily concentrated in two major market channels: grocery stores/supercenters and restaurants. However, unlike in other channels, there is limited cohesive advocacy capacity to influence change in grocery stores and restaurants, where the customer base is completely decentralized and decision-making is firmly in the hands of multinational corporations.

As we consider the characteristics of the various market channels and their role in regional food accessibility, we should bear in mind the economic, geographic, and cultural barriers faced by historically marginalized and underserved populations, particularly Black, Hispanic/Latino, and Indigenous New Englanders. Resilient solutions to the root causes that have stripped communities of their food sources and choices cannot be entirely reliant on markets and enterprises to do the right thing, but rather return control to the communities they serve.

Reaching 30% of total food expenditures requires an adequate supply of regional food and beverage products that are carried by the suite of market channels. **The question is: are sales from New England's farms, fishing operations, food and beverage processors and manufacturers *remotely* close to our low ($16.6 billion), high ($26.1 billion), and 2030 ($29.5 billion) estimates?** As shown in Table A1 in Volume 3: Economic Impact of New England's Food System, it is fortuitously the case that New England farms, fishing operations, and food and beverage processors and manufacturers had total output of **$25.9 billion** in 2017. A significant amount of that production leaves the region, but it is at least conceivable, then, that 30% of sales could be generated by regional food and beverage products. *Comfortably* reaching 30% of total food expenditures would require regional farms, fishing operations, food and beverage processors and manufacturers to significantly scale up production by 2030.

The Questions We Started With

- What might change if we intentionally and regionally plan for our future, making significant investments in strengthening our regional food system and communities?
- If we ate in a healthier, more resilient way, could more of our food be supplied by regional production?
- Could the six New England states meet a goal of supplying 30% of the region's food by 2030?
- Do we have the right mix of industries to ramp up food production? What sectors are growing? What sectors are contracting?
- What market channels offer the best opportunities for sourcing regional and local products?

After a year of intensive exploration by four research teams, we can begin to answer these questions. We have identified key stakeholder groups that we want to engage with over the coming years, because we believe that they have a big role to play in producing and sourcing more regional food and getting into the market channels where most New Englanders access it. We have identified a number of areas where additional investments are most needed to have the greatest impact in order to achieve the 30% regional goal.

The Questions We Now Have

What do we need to do by 2030 to make tangible progress towards this bold vision? What can we do as a region to make our regional food system more equitable and fair, resilient and reliable?

Market Channels Questions

- Since most people get their food from grocery stores and restaurants, how do we get more local and regionally produced food into these market channels?
- How do we contend with corporate consolidation and proliferation of discount stores in grocery retail? Can federal or other interventions shift power over food choices back to communities?

- How do we help regional products get into relevant distribution channels?
- What level of public and private investment will be needed to build out infrastructure (including production, processing, distribution, aggregation, storage infrastructure) scaled to small- and medium-producers?
- How do we maintain and expand important gains made in institutional market channels (e.g., schools, colleges, and hospitals) as advocacy expands to other market channels?
- What models of food retail could bring more local and regional foods to low income/low access communities?
- What additional public support is necessary to enable lower income New Englanders to purchase/access regional food and beverage products?
- How do we market and position local and regional foods to be competitive against lower cost options from farther afield?
- How do we expand state specific local food purchasing incentives to recognize regional foods?
- How do we connect more consumers to the sources of their food and grow direct to consumer sales in tandem with other market channels?
- How do we collectively advocate to policy-makers to revise long standing spending programs that disadvantage New England farmers and fishers and hamper increased utilization of regional foods in our local institutions?
- How do we build the capacity to consistently track and report local and regional purchases, including capturing local and regional ingredients incorporated into value-added products? How can we differentiate between residential and visitor purchases?
- How do we build on local and regional values to ensure that markets are also prioritizing purchases that meet other values like environmental sustainability, fair labor, animal welfare, and so on?

What Comes Next for the Region?

A regional approach to food system resilience means that we work collectively to adapt, expand, and fortify New England's food production and distribution systems to ensure the availability of adequate, affordable, and culturally appropriate food for all who call New England home. As a collaboration between state-level food system organizations and the region-wide Food Solutions New England network, the New England Feeding New England project provides additional focus for communication, collaboration, and coordination in the region.

It is clear that sustained and collaborative action along with a significant and coordinated investment of resources will be required to meet the 30% by 2030 goal. But we know that the work we intend to do together is by no means the totality of what will be needed. We invite you to consider—and then act upon—how your business, your organization, your community and your choice around the food you consume can contribute towards the regional goal we are inspired to work towards. It will take all of us working together, in alignment toward the goal. Each of us—whether we are a farmer, fisher, food entrepreneur, retailer, nonprofit organization, researcher, educator,

capital provider, government official, community organizer, or an "eater"—has an important role to play. Each of us has something to contribute, to advance, to accomplish.

System-level change is by its very nature complex, and no one organization, entity or state can change it alone. System-level change requires collaboration, highly networked multi-stakeholder alignment, transparency, continuous communication and strategic action that is properly resourced and built upon trusted relationships.

So let's come together around this goal of 30% by 2030 so that we can build the kind of equitable, resilient, and reliable regional food system that we need to adapt to climate change and ensure that everyone who lives in New England has access to healthy, regionally sourced food from successful food producers and retailers.

We need to do this. We can do this. We invite you to be part of what comes next.

Photo credit: Community Involved In Sustaining Agriculture

The Franklin Community Co-op Green Fields Market in Massachusetts stocks over 2,000 local and regional products.

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