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# CONSUMER FOOD INSIGHTS

*Center for Food Demand Analysis and Sustainability  
College of Agriculture, Purdue University  
Jayson L. Lusk and Sam Polzin*

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# INTRODUCTION

[Consumer Food Insights \(CFI\)](#) is a monthly survey of more than 1,200 Americans from across the country. Since January 2022, the Center for Food Demand Analysis and Sustainability (CFDAS) at Purdue University has used this survey to track trends and changes in consumer food demand and food sustainability behaviors.<sup>1</sup> Visit [purdue.ag/CFDAS](http://purdue.ag/CFDAS) or contact [cfdas@purdue.edu](mailto:cfdas@purdue.edu) for more details.

In this issue, we analyze the CFI results according to annual household income categories: *less than \$50,000*; *\$50,000 - \$100,000*; and *more than \$100,000*. We compare responses between these groups over the last 18 months of data collection (January 2022 - June 2023) to assess whether households at different income levels have changed their behaviors in different ways as food inflation has persisted and now begun to ease.<sup>2</sup> Other questions included in this month's survey asked how consumers might change their food choices if a recession were to occur. We also gauge feelings about artificial intelligence (AI) and its use in the agri-food system.

## KEY INSIGHTS FROM JUNE

- In the event of a recession, consumers report that they would cut back most on steak, pork, and dining out.
- Reported food spending has risen by 2.1% from last June, much less than the 6.7% government estimate of food inflation.
- The national food insecurity rate increased to 17%, which matches our highest recorded rate from March 2022.
- Households making less than \$50,000 annually are buying groceries online at a higher rate than other households.
- Households making more than \$100,000 annually report greater willingness to take risks, though less so when it comes to food.
- Consumers largely have positive or neutral feelings about applying AI in the food and agriculture sectors.

SFP  
INDEX  
**69**<sub>/100</sub>

FOOD  
INSECURITY  
**17%**

FOOD  
SPENDING  
**\$189**<sub>/WEEK</sub>

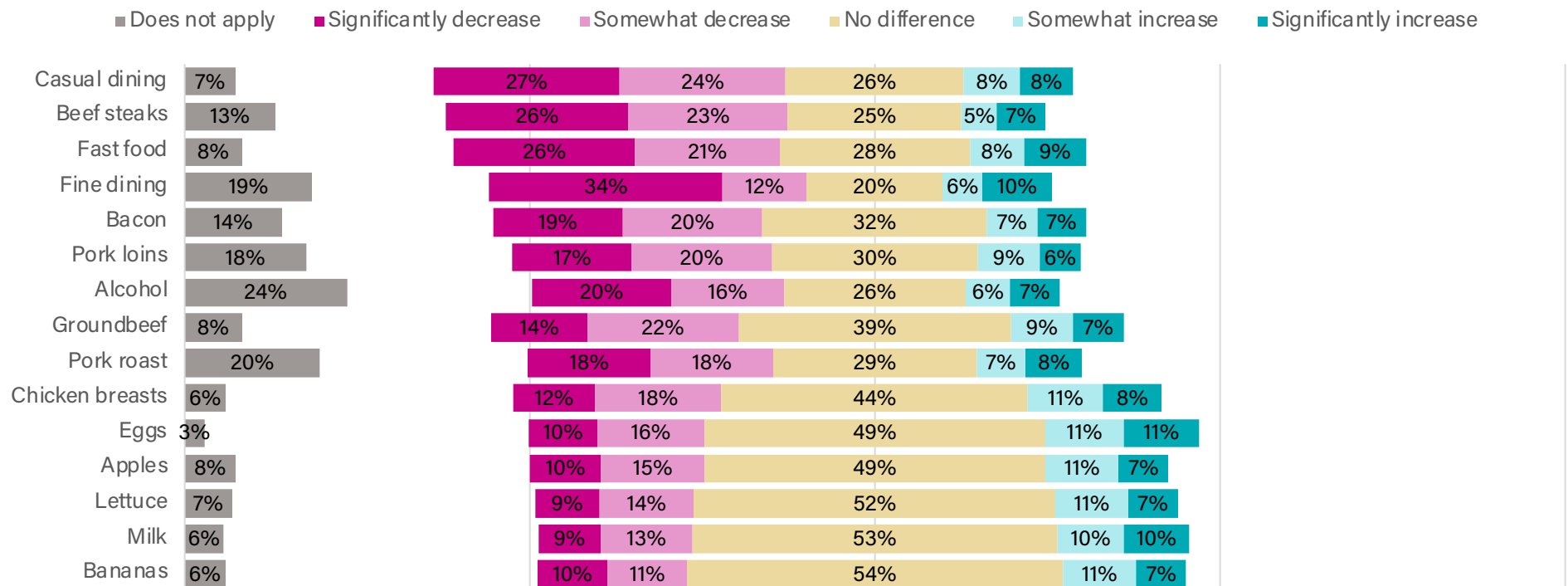
GROCERY  
STOCKOUTS  
**14%**

# RECESSION BEHAVIORS

## How could a recession change food spending?

We asked consumers to predict how their spending on specific foods might change if a recession were to cause household incomes to fall 25% (**Figure 1**). Consumers are most confident that their spending on fine dining would decrease but generally expect to cut back on dining out as well as on meat products. A majority of consumers reported that there would be no change in their spending on foods like bananas, milk, and lettuce. Notably, more than 20% of consumers also think their spending on eggs would increase, which could be the result of substitution as households might rely more on this cheaper protein source.

**Figure 1.** Predicted Changes to Food Spending as a Result of a 25% Income Loss from a Recession, Jun. 2023

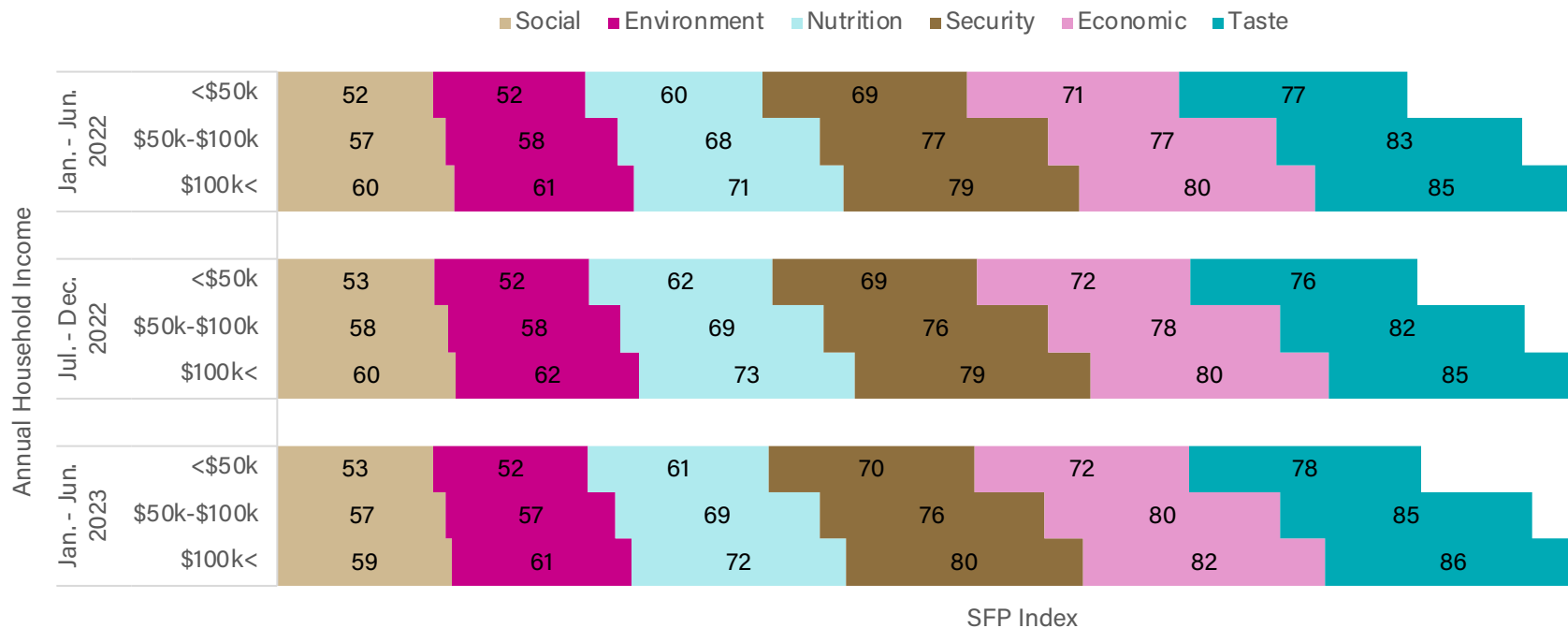


# SUSTAINABLE DIETS

## Are Americans making sustainable food purchasing decisions?

The Sustainable Food Purchasing (SFP) Index<sup>3</sup> has remained stable over the past 18 months but scores continue to vary depending on consumers' annual household incomes (**Figure 2**). Across most sub-indicators, the highest income households (more than \$100,000) have nearly a 10-point advantage over the lowest income households (less than \$50,000). Those with a household income of \$50,000 - \$100,000 tend to score closer to the highest than the lowest income households, though there is not a single indicator or time period where these middle income consumers score the same or better than the highest income consumers. These differences have remained relatively consistent since the start of the survey period.

**Figure 2.** Sustainable Food Purchasing Index by Annual Household Income, Jan. 2022 - Jun. 2023

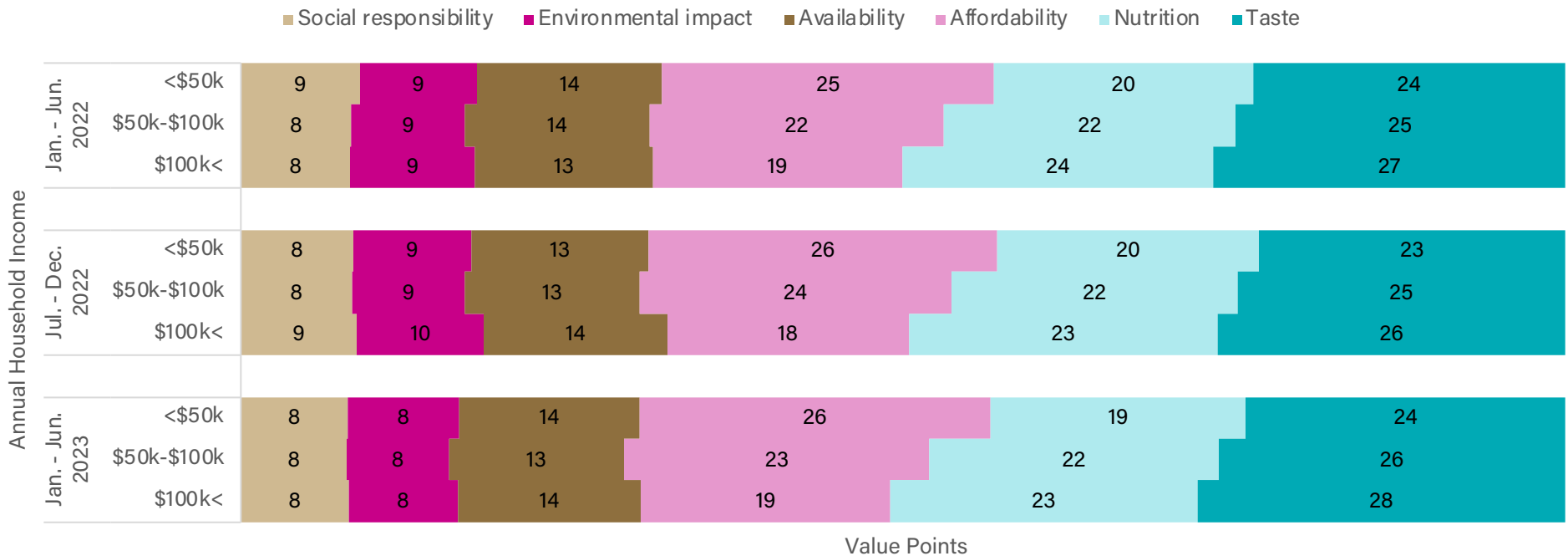


# FOOD VALUES

## What attributes do Americans most value when purchasing food?

Every month, respondents are asked to allocate 100 points to six food attributes based on their importance when grocery shopping. These attributes closely reflect the components of the SFP Index. On a monthly basis, we have not observed significant changes in the distribution of points across attributes. However, the annual household income of a consumer appears to have correlate to some of their food values (**Figure 3**). As incomes increase, consumers value the taste and nutrition of their food more. Conversely, as incomes decrease, consumers value the affordability of their food to a greater degree. How much consumers value the social responsibility, environmental impact, or availability of their food does not change much relative to thier incomes.

**Figure 3.** Share of 100 Points Allocated to Food Attributes by Per Person Weekly Food Spending, Jan. 2022 - Jun. 2023



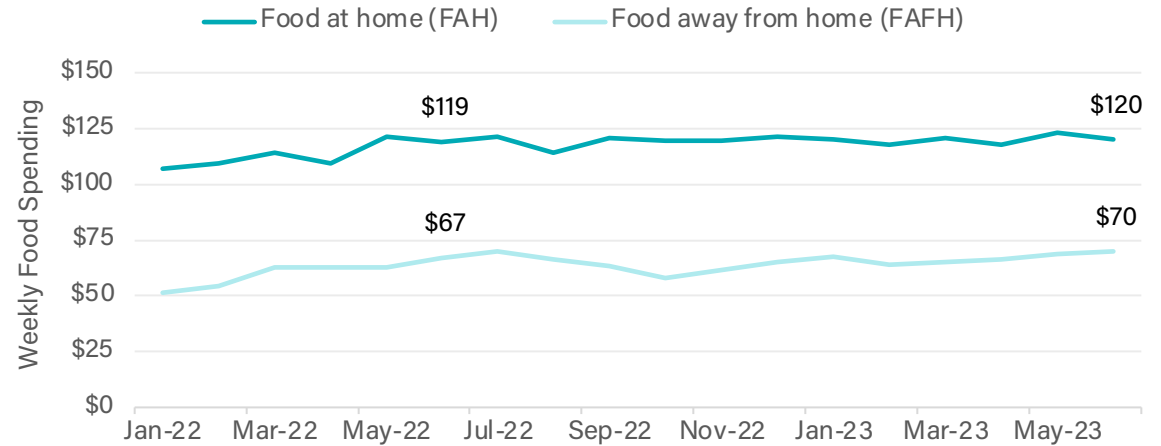
# FOOD EXPENDITURES

## How much are American households spending on their food?

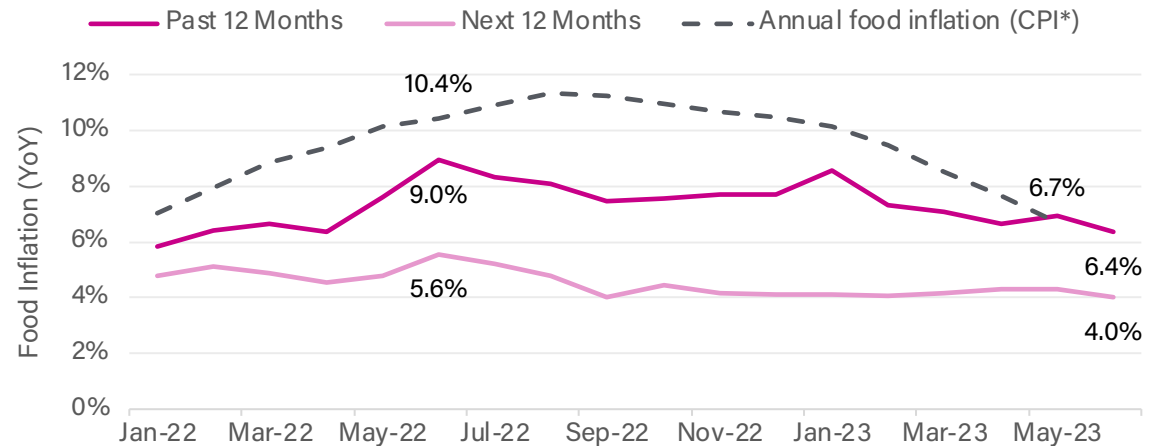
Each month, consumers report their household's weekly spending on food from the last 30 days (**Figure 4**). On average, consumers are spending about \$120/week on groceries (FAH) and \$70/week on restaurants and other carryout (FAFH).<sup>4</sup> Compared to last May, FAH spending is up only 1% and FAFH spending is up 4%. As consumers go out more throughout the summer and as inflation, particularly for FAFH, remains high, we can expect that FAFH spending could continue to increase at this higher rate.

After rising marginally last month, the consumer estimate of annual food inflation has fallen again to 6.4%, which is the lowest consumer estimate since April 2022 (**Figure 5**). This estimate is also just below the 6.7% government estimate for annual food inflation released in May. Consumers continue to predict that annual inflation over the next year will be about 4%, which does not seem to be a bad guess given the consistent decline in food inflation since last summer.

**Figure 4.** Weekly Household Food Expenditures, Jan. 2022 - Jun. 2023



**Figure 5.** Consumer Estimates of Food Inflation Compared to Gov. Estimate, Jan. 2022 - Jun. 2023



\*The Consumer Price Index (CPI) is a measure of inflation computed by the U.S. Bureau of Labor Statistics.

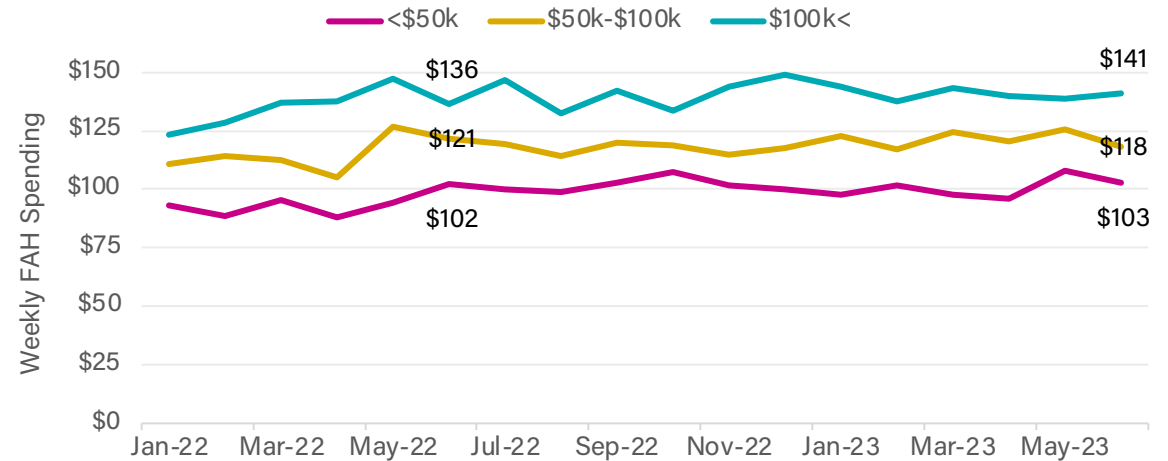
# FOOD EXPENDITURES

## How do low and high income households differ in their food spending?

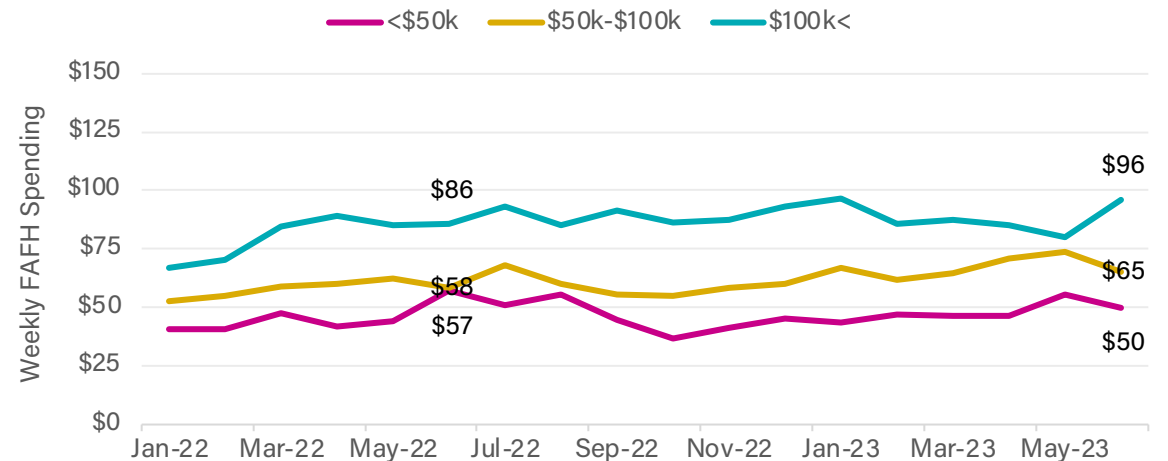
Unsurprisingly, higher income households spend more on food. **Figure 6** shows that households who make more than \$100,000 annually are now spending nearly \$40 more per week on groceries than those who make less than \$50,000 annually. Yet, between these income brackets, the rate of increase in FAH spending since the start of 2022 remains largely comparable. The highest earners do not appear to be dramatically outpacing the lowest earners in their spending.

This trend holds true for FAFH spending. There is, in fact, currently a wider gap in FAFH spending compared to FAH spending between the highest and lowest income households (**Figure 7**). Those making more than \$100,000 annually have been spending dramatically more on restaurant food compared to the start of 2022. While others have also increased their spending, it appears that FAFH spending could have peaked for lower income households while it continues to rise for the highest earners.

**Figure 6.** Weekly Household FAH Expenditures by Annual Household Income, Jan. 2022 - Jun. 2023



**Figure 7.** Weekly Household FAFH Expenditures by Annual Household Income, Jan. 2022 - Jun. 2023





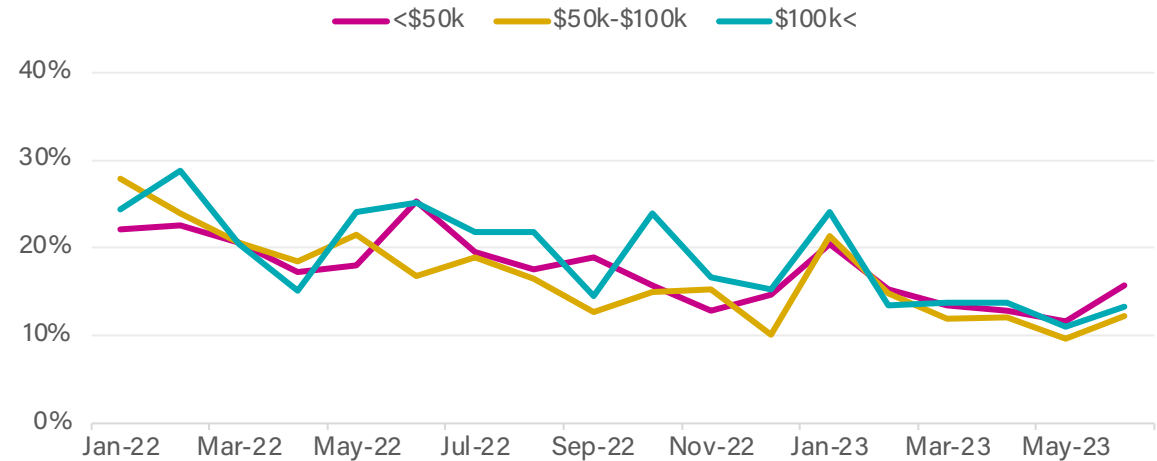
# FOOD EXPENDITURES

## How do low and high income households differ in their grocery experiences?

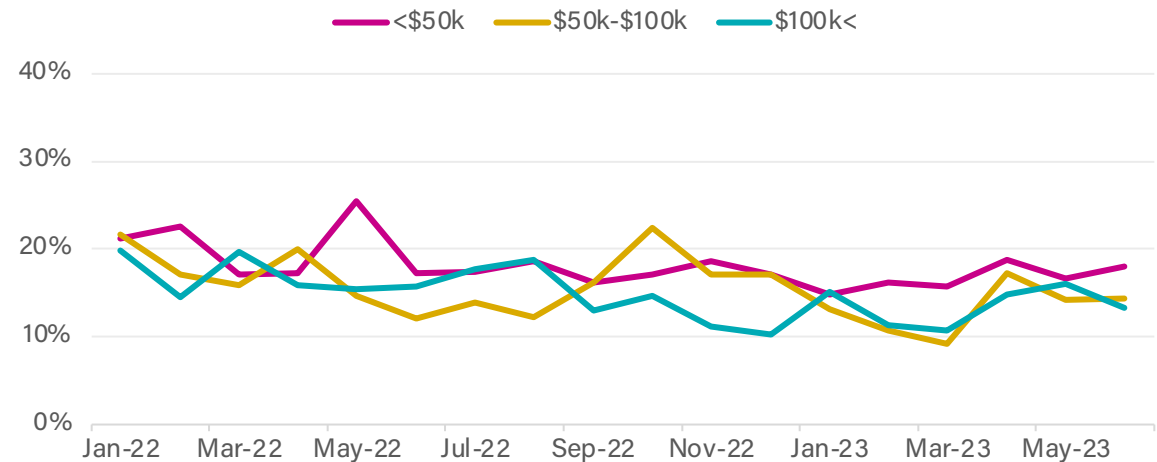
Consumers report whether they have faced any stockouts of specific food products at the stores where they usually shop (**Figure 8**). There has been a downward trend in reports of stockouts since January 2022, though this rate has jumped again this month. With regards to consumers of different income levels, we do not observe any group experiencing higher rates of stockouts.

**Figure 9** shows the share of consumers who are purchasing their groceries online. On average, there had been a moderate decrease in the share of shoppers purchasing their groceries online, but this trend has largely leveled out. Notably, households making less than \$50,000 annually appear to be now buying groceries online at a higher rate than households making more than \$100,000 annually. This trend has held for many many months. As the pandemic opened online grocery to SNAP recipients and as these options have expanded, online grocery options evidently remain a key tool for a range of shoppers.

**Figure 8.** Rate of Grocery Stockouts by Annual Household Income, Jan. 2022 - Jun. 2023



**Figure 9.** Rate of Online Grocery Shopping by Annual Household Income, Jan. 2022 - Jun. 2023



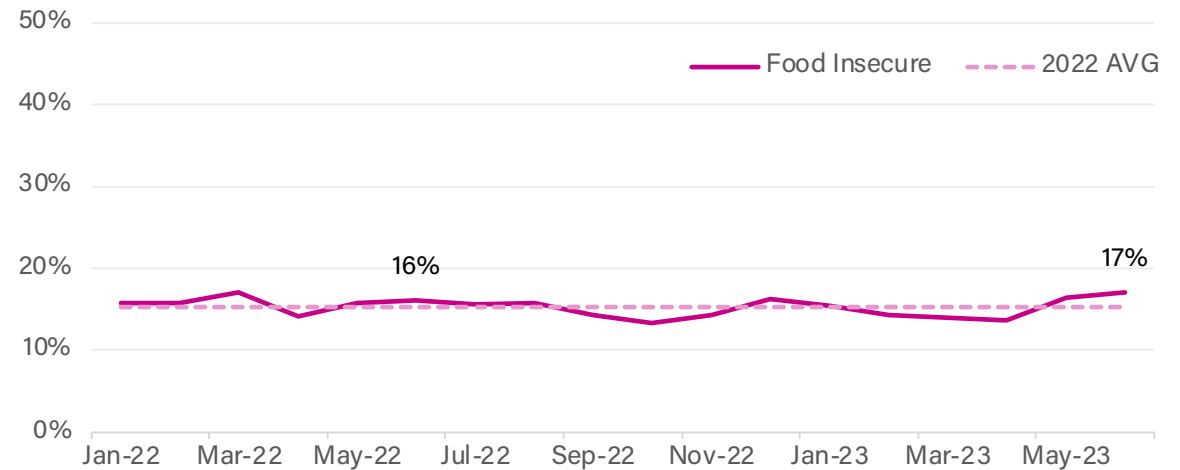
# FOOD SECURITY

## Which Americans are having trouble buying food for their families?

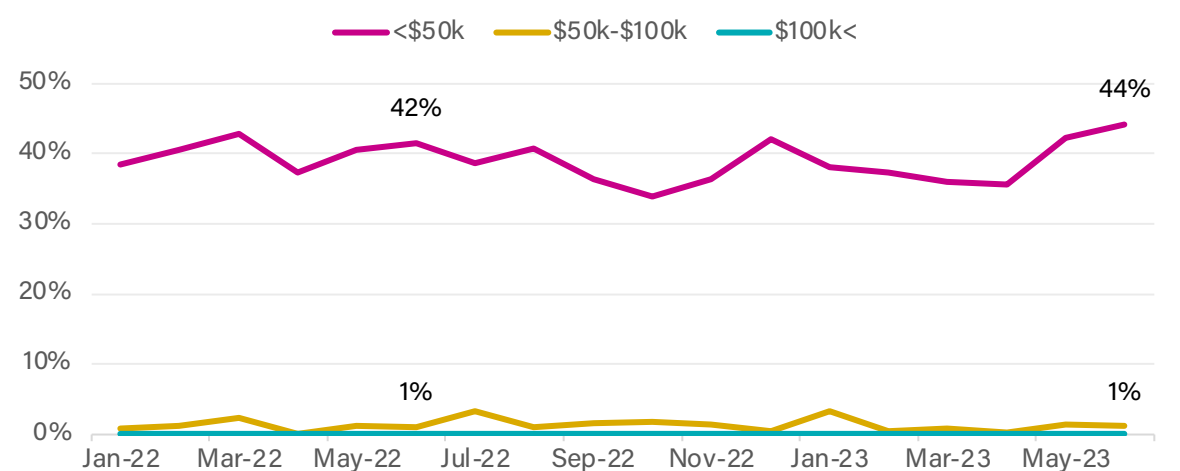
Based on a set of six standard questions<sup>5</sup> about food purchased and eaten in the in the past 30 days, we estimate national food insecurity to be about 17.1%. **Figure 10** shows that this rate is the highest since March 2022. **Figure 11** further reveals that most food insecure households are making under \$50,000 annually.

**Figure 12** complicates this picture of insecurity a bit as we see that a range of households have forgone groceries and eating out because they are waiting on their paycheck. In addition, **Figure 13** reveals that a sizeable portion of households making more than \$50,000 annually rely on food assistance to fill gaps in their spending, which is likely helping to keep the rate of insecurity down. Moreover, over 40% of households making less than \$50,000 annually are food insecure while about 25% of these households have received free food or SNAP benefits, indicating that there are likely many households eligible for assistance who are not receiving it.

**Figure 10.** Rate of Household Food Insecurity in Last 30 Days, Jan. 2022 - Jun. 2023

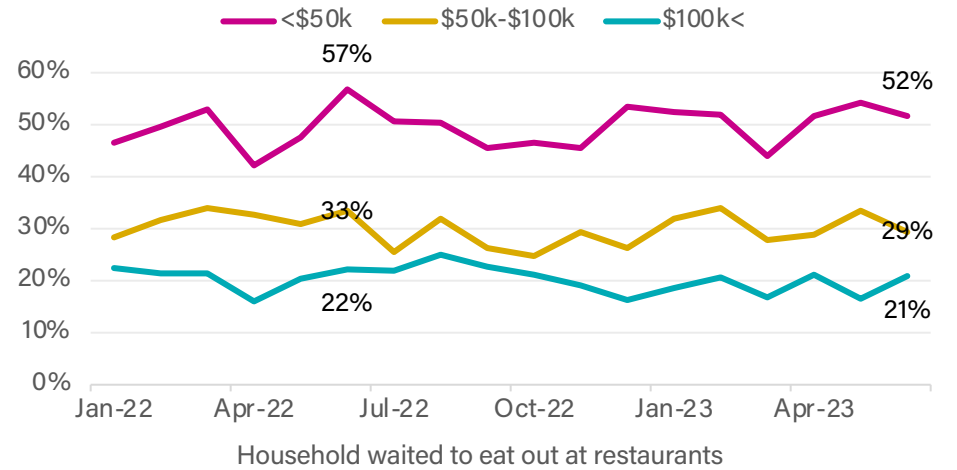
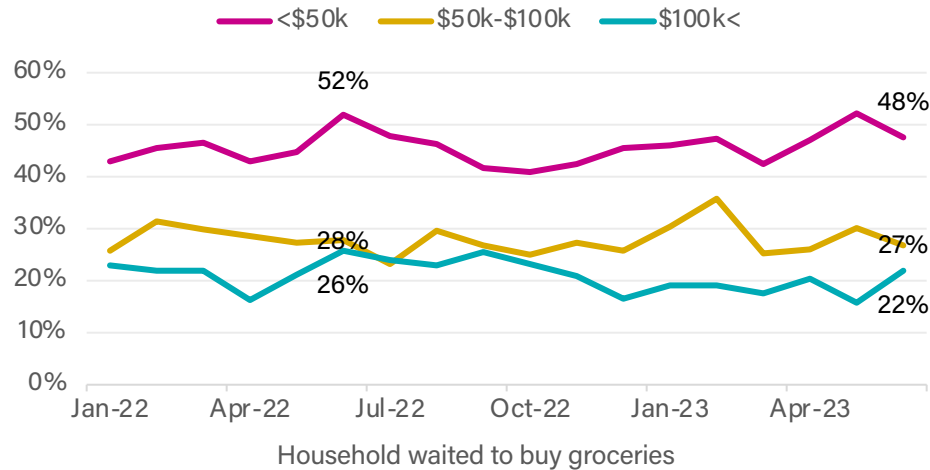


**Figure 11.** Average Number of Months Receiving Household SNAP Benefits, Jan. 2022 - Jun. 2023

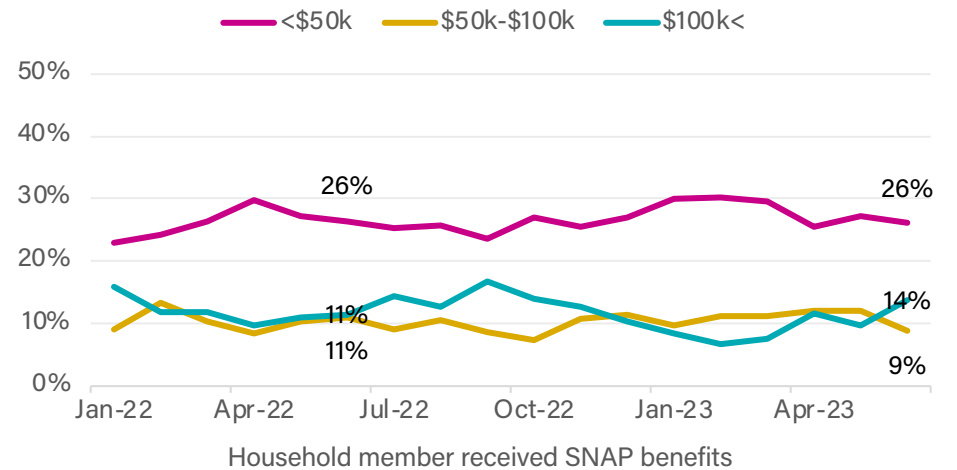
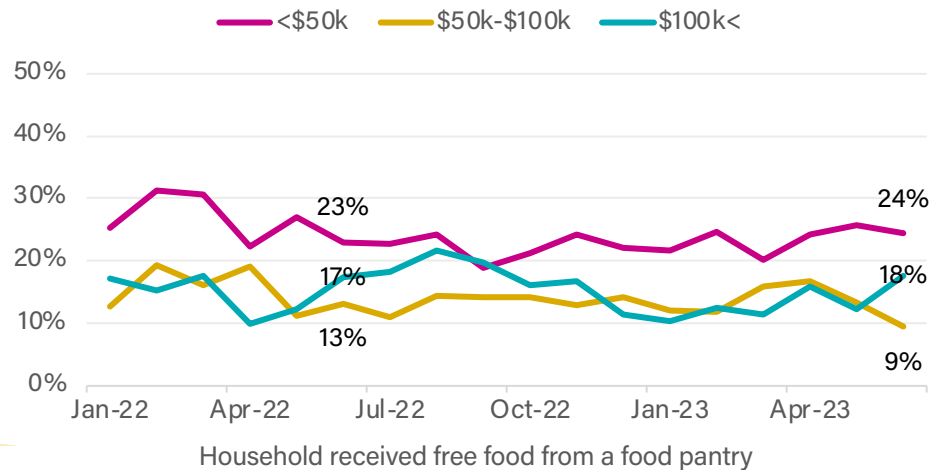


# FOOD SECURITY

**Figure 12.** Rate of Households Waiting on Next Paycheck to Buy Groceries and Dine Out by Annual Household Income, Jan. 2022 - Jun. 2023



**Figure 13.** Rate of Households Receiving Free Food and SNAP Benefits by Annual Household Income, Jan. 2022 - Jun. 2023

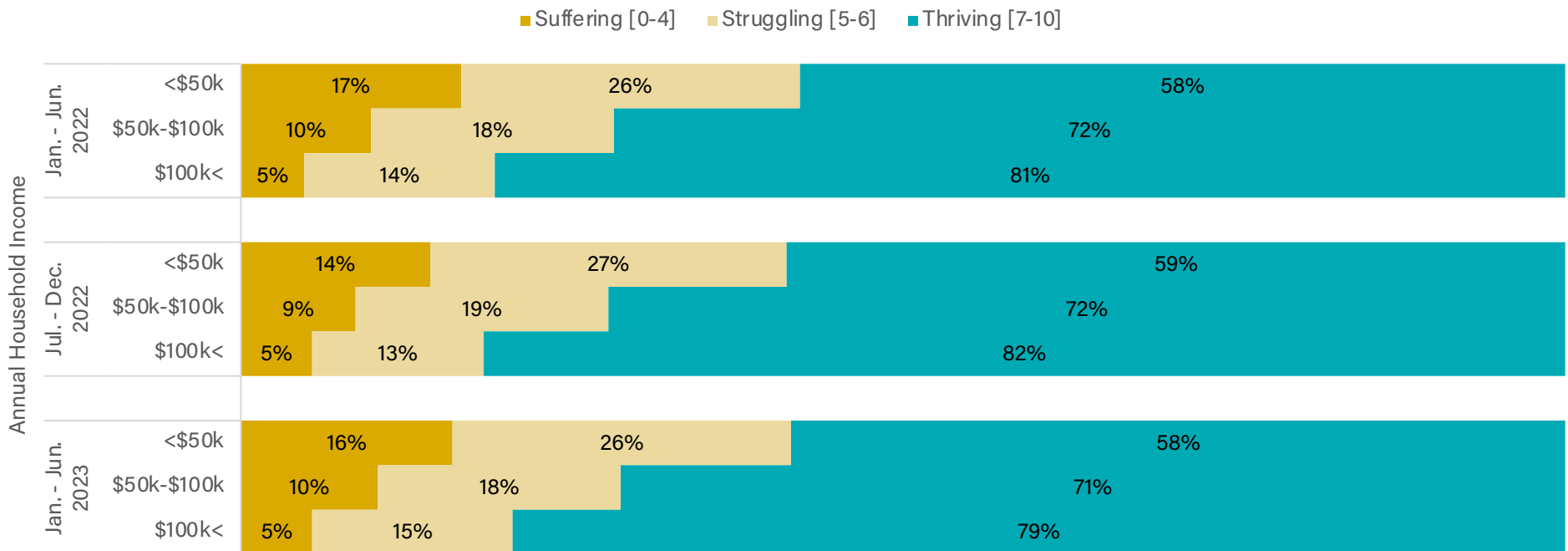


# FOOD SATISFACTION

## Are Americans satisfied with their diets?

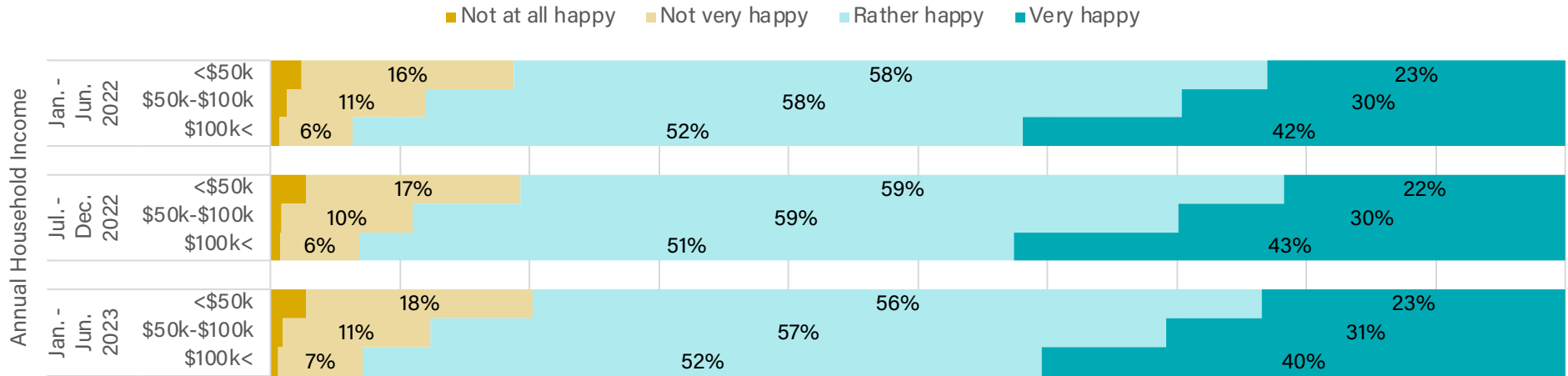
Respondents score their own diet on a 0-10 scale, with top of that scale representing their ideal diet.<sup>6</sup> Scores are categorized as thriving (7-10), struggling (5-6) or suffering (0-4). On average, a significant majority of Americans (71%) continue to be considered thriving on this Well-Being Index. Furthermore, **Figure 14** reveals that consumer diet well-being has a strong correlation to income level. Specifically, there is an over 20 percentage-point gap between the share of high-income and low-income consumers who are thriving in 2023. We see a similar near 20 percentage-point gap among those who are 'very happy' with their diets (**Figure 15**). This gap remains unchanged when considering those who are 'very happy' with their lives (**Figure 16**).

**Figure 14.** Diet Well-Being Index (0-10 Scale) by Annual Household Income, Jan. 2022 - Jun. 2023

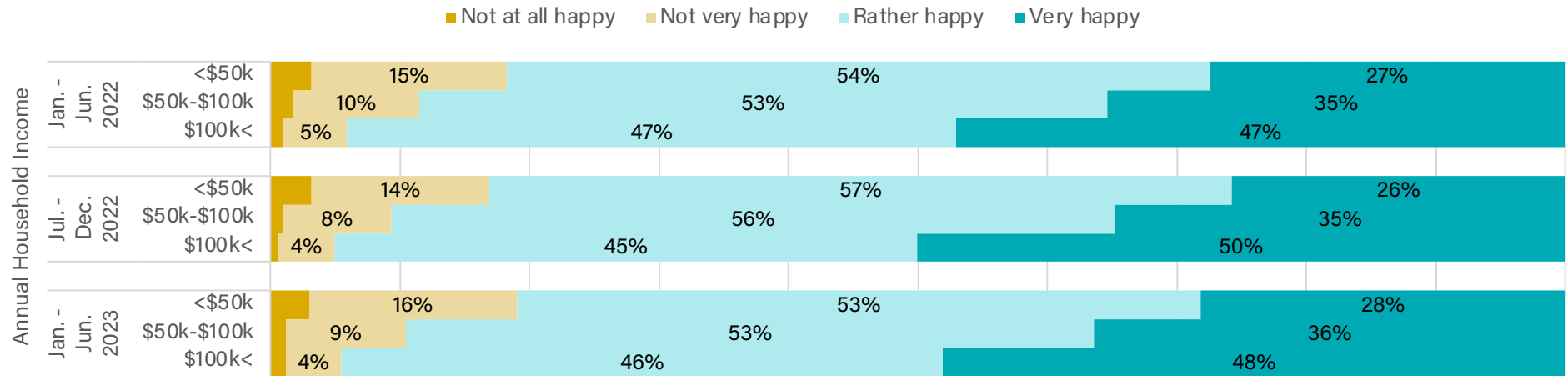


# FOOD SATISFACTION

**Figure 15.** Rate of Consumer Diet Happiness by Annual Household Income, Jan. 2022 - Jun. 2023



**Figure 16.** Rate of Consumer Life Happiness by Annual Household Income, Jan. 2022 - Jun. 2023



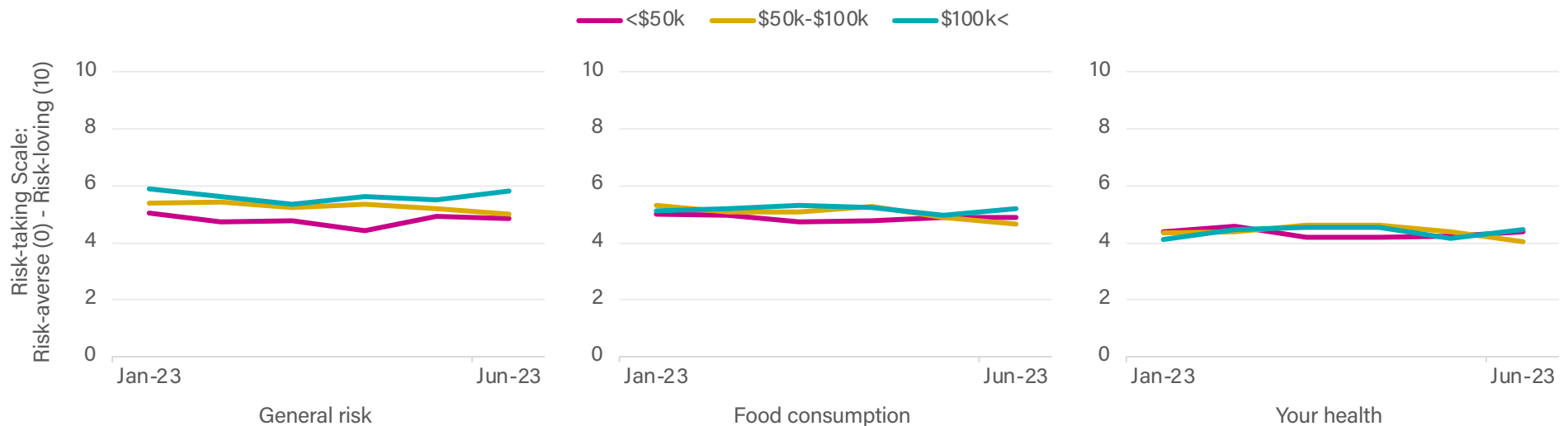
# CONSUMER BEHAVIORS

## How are Americans navigating their food environment?

Consumers describe their willingness to take risks on a 0 (risk-averse) to 10 (risk-loving) scale (**Figure 17**). With regards to general risk, consumers in higher income households are slightly more willing to take risks. When it comes to food consumption, however, this gap in risk-taking closes. The higher income consumers become more risk-averse, while the lowest income consumers score similarly on the risk-taking scale. For every household income group, consumers are also most risk-averse concerning their health.

Interestingly, households making more than \$100,00 annually are slightly less concerned with food safety in the kitchen as they more often eat unwashed fruits, undercooked meat, and raw dough (**Figure 18**). But these same consumers appear more concerned with the contents of their food, for example, checking labels for GMO and clean ingredients. Income level further correlates with how often consumers purchase foods that are commonly deemed more ethical or sustainable, such as cage-free eggs or organic foods. The most shared behaviors across income levels include checking sell-by dates, trying to reduce food waste, and choosing generic brands.

**Figure 17.** Self-Reported Attitudes Toward Risk by Annual Household Income, Jan. 2022 - Jun. 2023



# CONSUMER BEHAVIORS

Figure 18. Frequency of Consumer Shopping and Eating Habits by Annual Household Income, Jan. 2022 - Jun. 2023

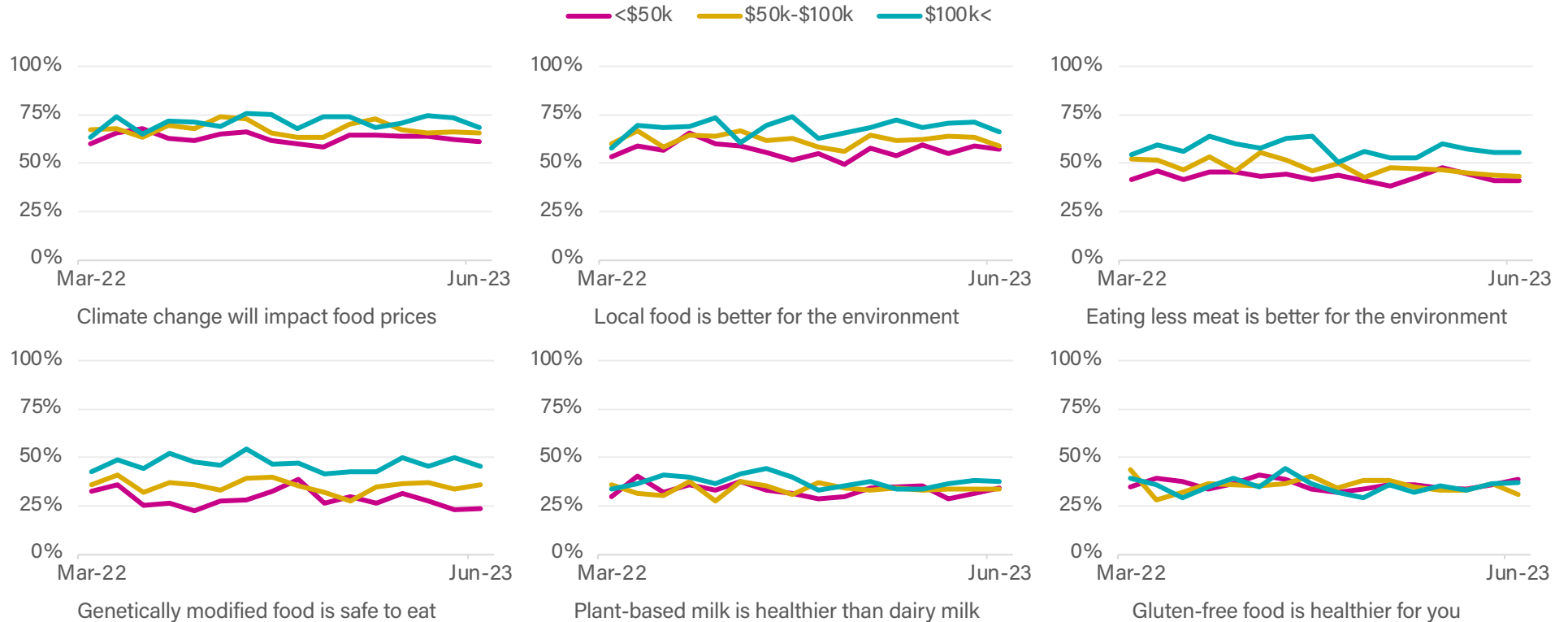


# CONSUMER BELIEFS

## What do Americans believe about their food and food system?

The highest income consumers are generally more willing to agree that there is a connection between food and the climate (**Figure 19**). However, the largest gap between high- and low-income consumers concerns the belief that GMO food is safe to eat. These groups are much more aligned in their beliefs when it comes to the healthfulness of plant-based milks and gluten-free food. On average, each income has been no change in these beliefs over the last 19 months.

**Figure 19.** Share of Consumers who 'Somewhat Agree' or 'Strongly Agree' with Claims about Food by Annual Household Income, Mar. 2022 - Jun. 2023



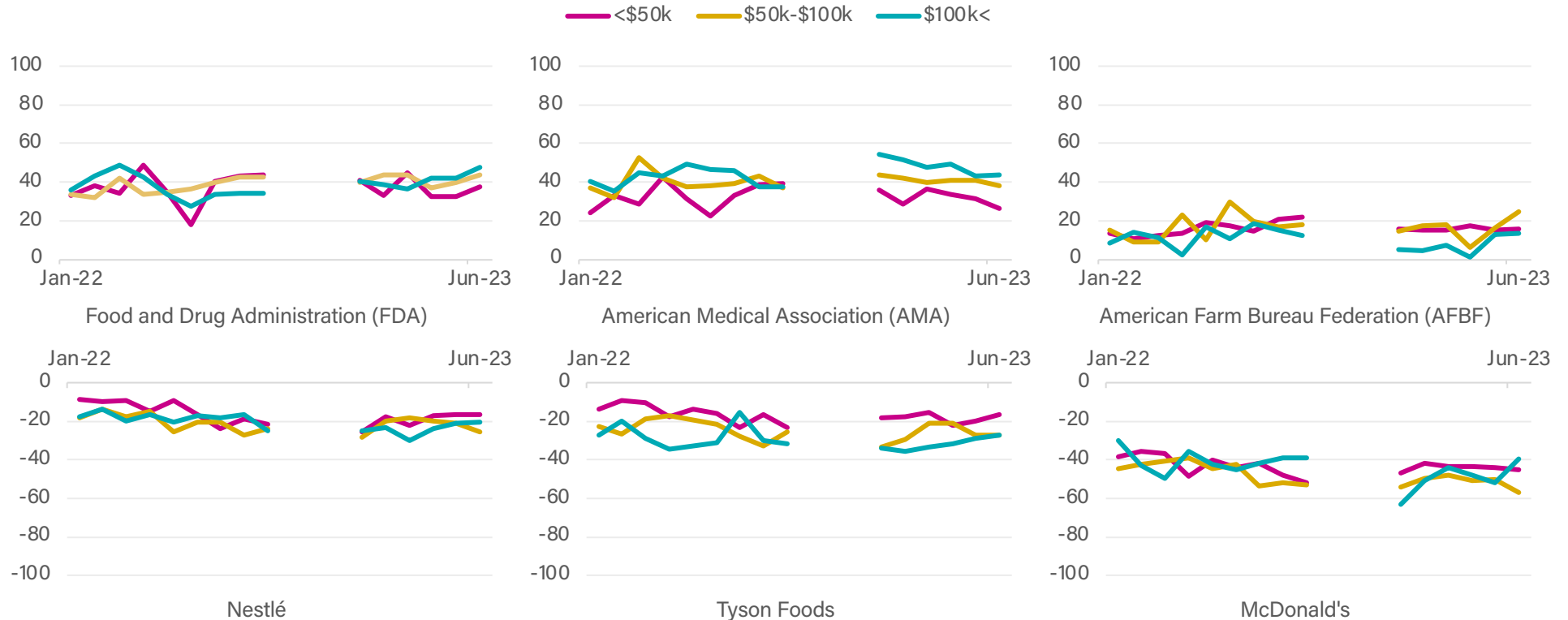


# CONSUMER TRUST

## Who do Americans trust on topics of food?

Respondents select their most trusted and least trusted sources of food-related information, which are scored on a Trust Index from -100 (least trusted) to 100 (most trusted) (**Figure 20**). On this index, the FDA is more consistently trusted across incomes brackets than the professional organization the AMA while the lobbying group the AFBF performs even worse on the index. The multinational food processors Nestlé and Tyson are broadly distrusted (Tyson more so than Nestlé) but much less so than fast food company McDonald's.

**Figure 20.** Trust Index of Food-Related Information Sources by Annual Household Income, Jan. 2022 - Jun. 2023

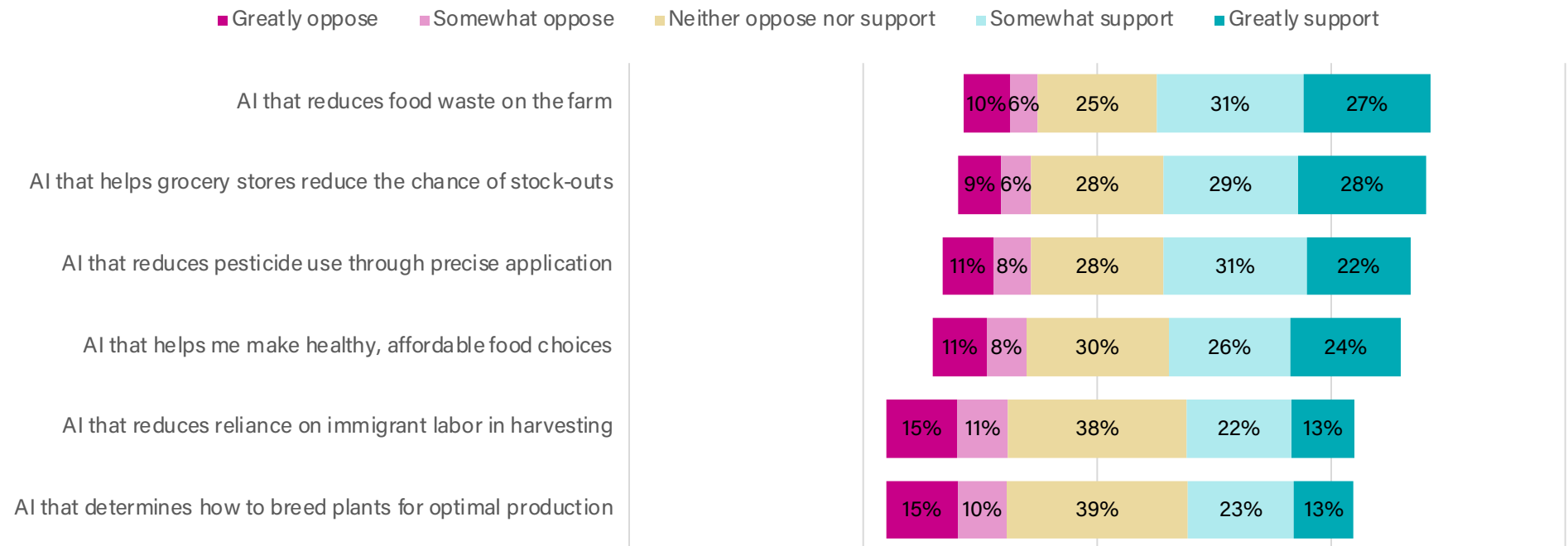


# ARTIFICIAL INTELLIGENCE

## Do Americans want AI influencing the agri-food system?

Over the past year, the rise of chatbots and other applications of artificial intelligence (AI) has sparked intense discussion about the role of AI technologies in society. We thus asked how consumers feel about developing AI tools for use in the food and agriculture sectors (**Figure 21**). A majority of consumers feel fairly supportive of employing AI to improve areas like food waste, pesticide application, and even food choice. People are less sure about introducing AI to explicitly reduce reliance on immigrant labor or improve plant breeding. Immigration and breeding technologies like genetic modification are also two generally contentious issues, as well as the use of AI to eliminate jobs, so it is less surprising that these areas might receive greater skepticism from consumers without more information.

**Figure 21.** Consumer Support for the Application of AI in Food and Agriculture, Jun. 2023



# ENDNOTES

**1** Data were collected from an online panel maintained by the company Dynata over a three-day period from May 15-17, 2023. The eligible population included U.S. adults ages 18+. A weighting method called iterative proportional fitting (or raking) was applied to ensure a demographically balanced sample by age, sex, race, census region, income, and SNAP participation. Every respondent from the previous month was re-contacted and asked to take the survey again. About 37% of May's sample participated this month, thus the rest of the sample was filled in with a new pool of respondents. Data collection for every survey begins on the third Monday of each month, unless otherwise dictated by holidays or extenuating circumstances. This report is released on the second Wednesday of the following month.

**2** Sample sizes per annual household income category:

January - June 2022	<i>Less than \$50,000: n=3,233; \$50,000 - \$100,000: n=2,391; and More than \$100,000: n=1,895</i>
July - December 2022	<i>Less than \$50,000: n=2,947; \$50,000 - \$100,000: n=2,643; and More than \$100,000: n=1,868</i>
January - June 2023	<i>Less than \$50,000: n=3,178; \$50,000 - \$100,000: n=2,394; and More than \$100,000: n=1,961</i>
Average monthly	<i>Less than \$50,000: n=780; \$50,000 - \$100,000: n=619; and More than \$100,000: n=477</i>

**3** The Sustainable Food Purchasing (SFP) Index is a self-reported measure of food purchasing designed to assess how well consumer shopping habits align with healthy diets from sustainable food systems, as described by the [EAT-Lancet Commission on Food, Planet, Health](#). A top score of 100 reflects consumer food purchasing that aligns with a set of key recommendations for better nurturing human health and supporting environmental sustainability. The SFP Index includes six components—Nutrition, Environment, Social, Economic, Security, and Taste—correlating with the different strategies for achieving food systems transformation.

**4** Food at home (FAH) refers to food sales meant for home or off-site consumption and the value of donations and non-market acquisitions, which is acquired from outlets such as grocery stores, convenience stores, direct sales, etc. Food away from home (FAFH) refers to food sales meant for immediate consumption, federal food programs, and food furnished as an ancillary activity, which is acquired from outlets such as restaurants, bars, schools, etc.

**5** High or marginal food security (i.e., food secure): 0-1 reported indications of food-access problems; little indication of change in diet or food intake. Respondents who reported an annual household income above 185% of the Federal poverty line were also screened as

# ENDNOTES

having high food security. This determination was made according to research by [Ahn et al. \(2020\)](#), which shows that using a modified income-based screening procedure for internet surveys better approximates government estimates of food insecurity. Low food security (i.e., food insecure): 2-4 reported indications of reduced quality, variety, or desirability of diet; little indication of reduced food intake. Very low food security (i.e., food insecure): 5-6 reported indications of disrupted eating patterns, changes in diet, and reduced food intake.

**6** This scale is based on the [Cantril Scale](#) used in Gallup's World Poll to assess well-being and happiness around the world. Thus, we use the same validated conceptual labels—thriving, struggling, and suffering—to group responses.