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Supplementary information

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Rising temperatures increase added sugar intake disproportionately in disadvantaged groups in the USA

In the format provided by the authors and unedited

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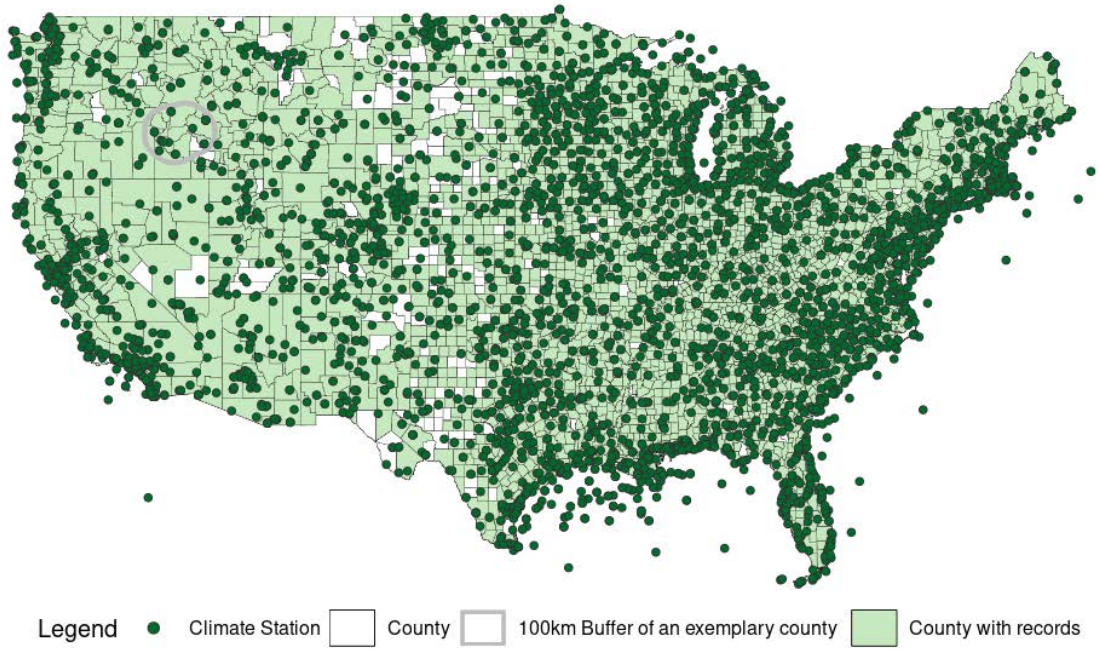

Figure S1 Climate stations and counties with homescan data records. This figure shows the distribution of climate stations and the counties containing household purchase records used for regression. The buffer expands the county boundaries by 100km to encompass more climate stations for obtaining the average climate data of that county.

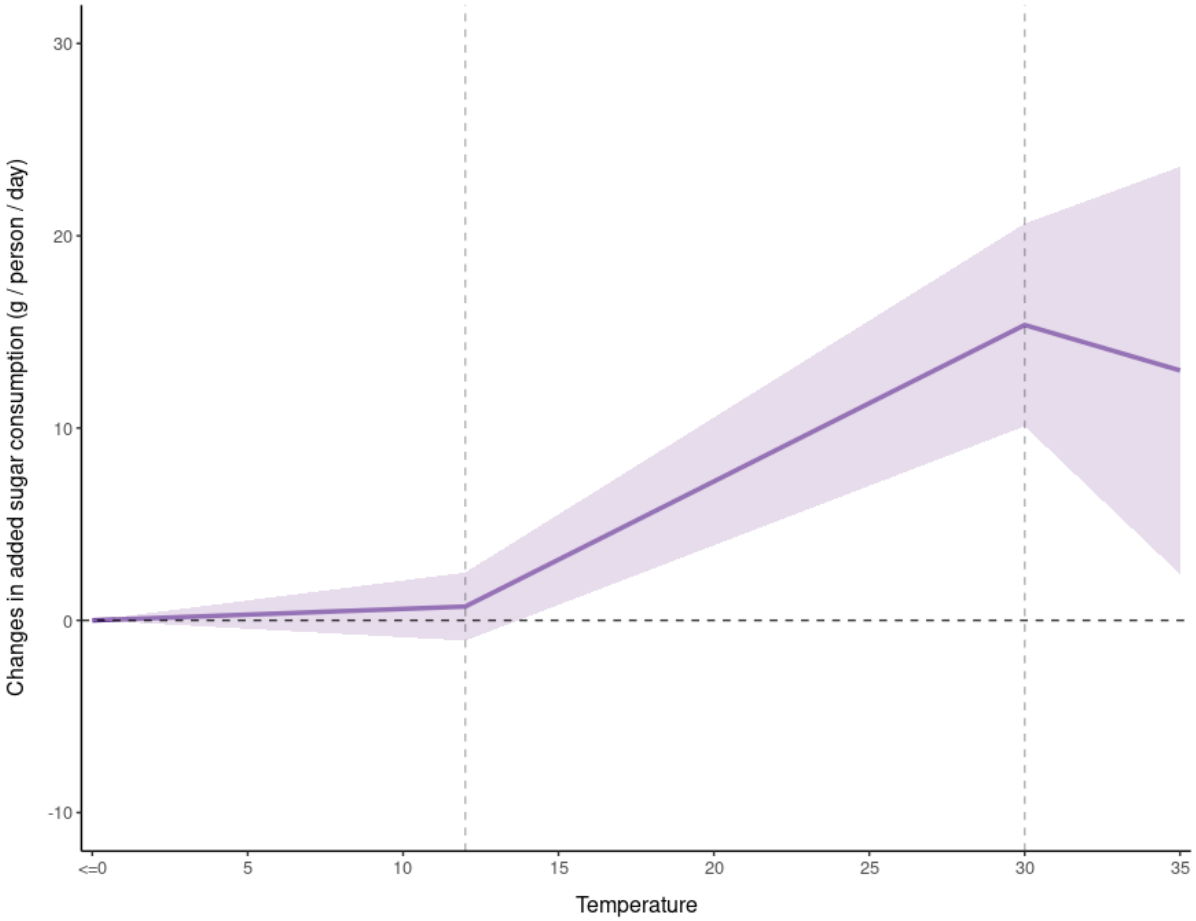

Figure S2 Effects of temperature on added sugar consumption using the spline model. The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S4. The shaded areas show the 95% confidence intervals (i.e. mean values ± 1.96SEM).

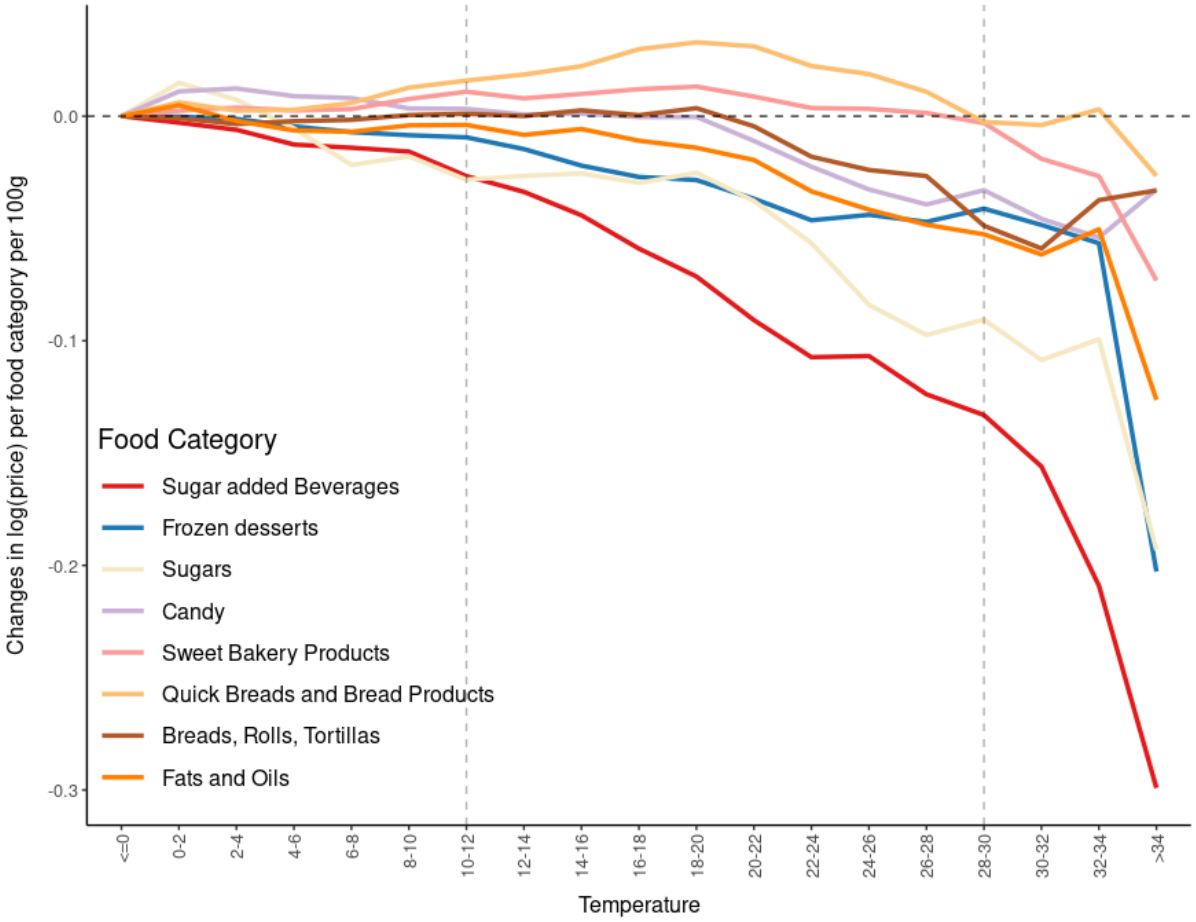

Figure S3 how the prices change with temperature (county level). Price represents the log price of each food category per 100 grams. And the price of each food category is averaged to the monthly average level of each county based on household purchase data. The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S12.

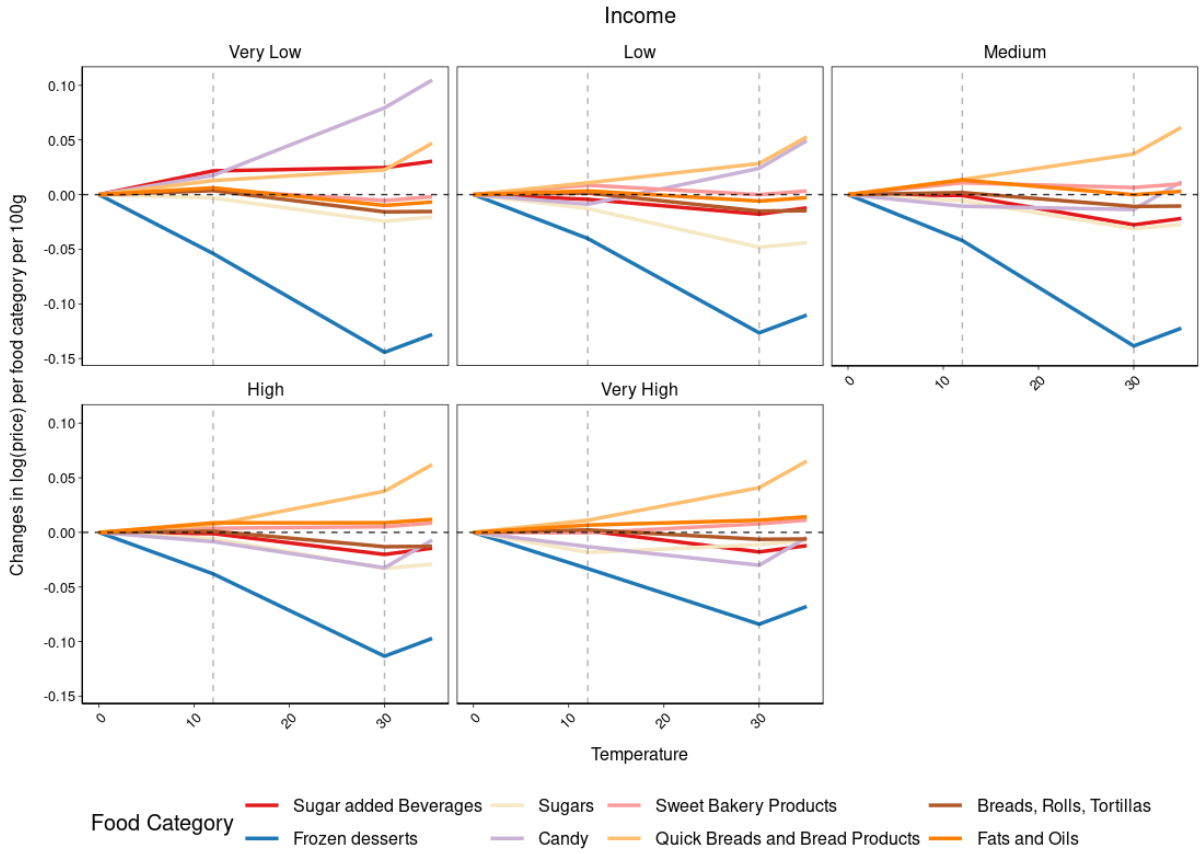

Figure S4 how the prices change with temperature by income groups (household level). Price represents the log price of each food category per 100 grams. And to compare the level of change in the prices of food purchased by households in different income groups, the price of each food category is averaged to the monthly average level of each household based on household purchase data. The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S13.

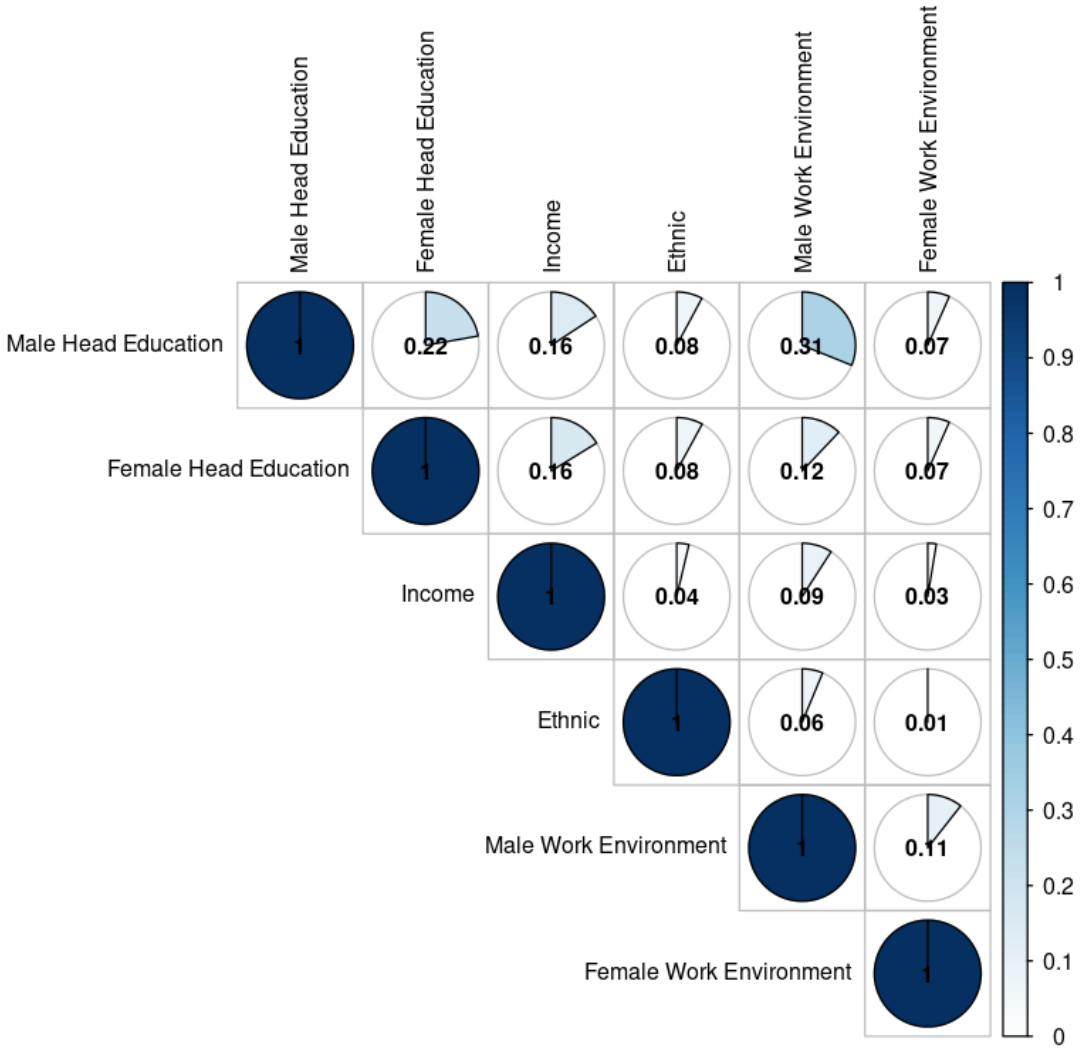

Figure S5 The correlation between socioeconomic characteristics in the heterogenous effect analysis. We used Cramer's V correlation coefficient to measure the correlation because they are categorical variables. Cramer's V correlations between six categorical variables were computed using Pearson's χ^2 statistic ($V = \sqrt{\frac{\chi^2/n}{min\,(r-1,c-1)}}$) via R's assocstats( ).

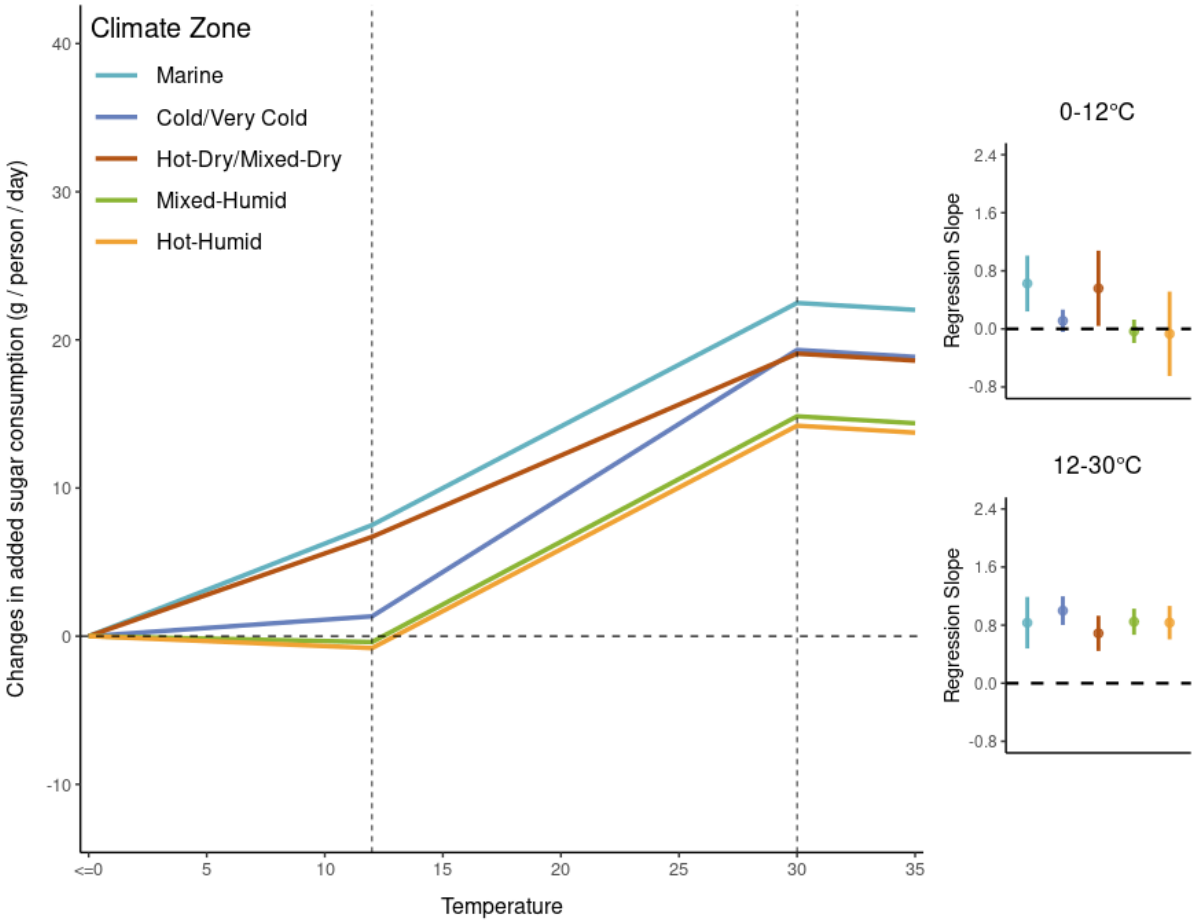

Figure S6 Heterogeneous effect of temperature (climate zone). The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S16. The two small figures on the right side show the slopes of the linear model at 0°C-12°C (n = 2736315) and 12°C-30°C (n = 4116587) respectively, and the vertical lines show the 95% confidence interval (i.e. mean ± 1.96SEM). The analysis is based on a total sample size of n = 6908936.

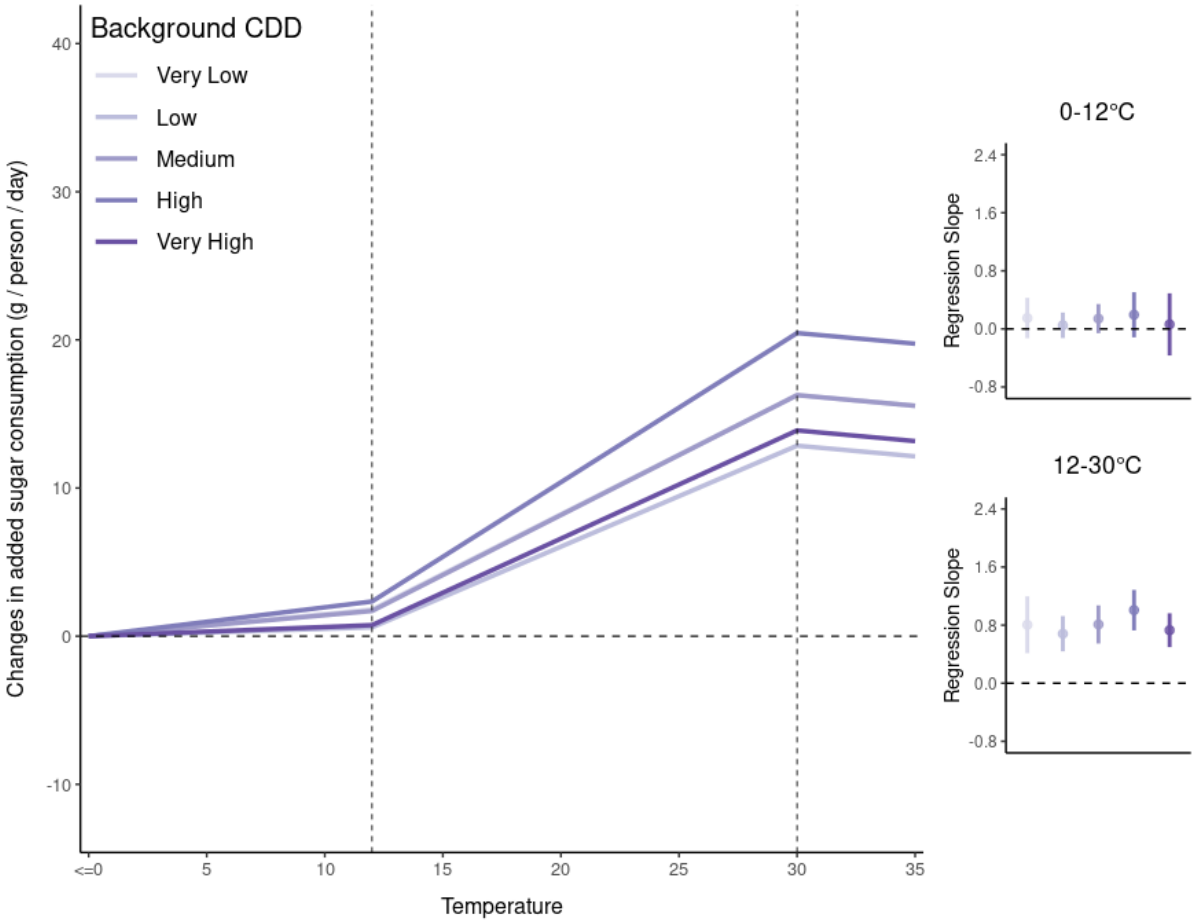

Figure S7 Heterogeneous effect of temperature (background CDD). Background CDD is categorized into five ordered groups based on county-level annual averages from 1994-2003: Very Low (0-500), Low (500-1000), Medium (1000-1500), High (1500-2000), and Very High (>2000). The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S17. The two small figures on the right side show the slopes of the linear model at 0°C-12°C (n = 2736315) and 12°C-30°C (n = 4116587) respectively, and the vertical lines show the 95% confidence interval (i.e. mean ± 1.96SEM). The analysis is based on a total sample size of n = 6908936.

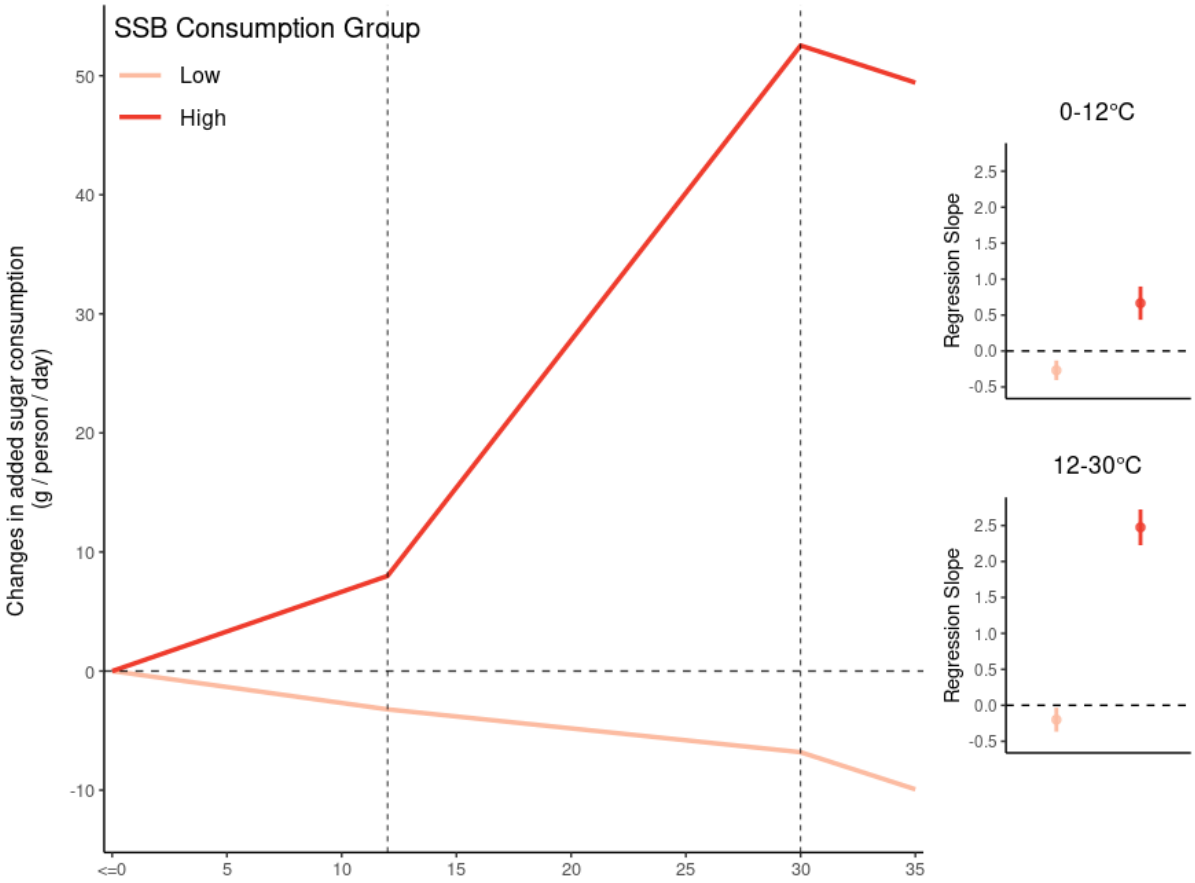

Figure S8 Heterogeneous effect of temperature (added sugar consumption from SSBs). SSB Consumption Group is categorized into two ordered groups based on household-level monthly averages from 1994-2003: Low (0-45g), High (>=45g). The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S18. The two small figures on the right side show the slopes of the linear model at 0°C-12°C (n = 2736315) and 12°C-30°C (n = 4116587) respectively, and the vertical lines show the 95% confidence interval (i.e. mean ± 1.96SEM). The analysis is based on a total sample size of n = 6908936.

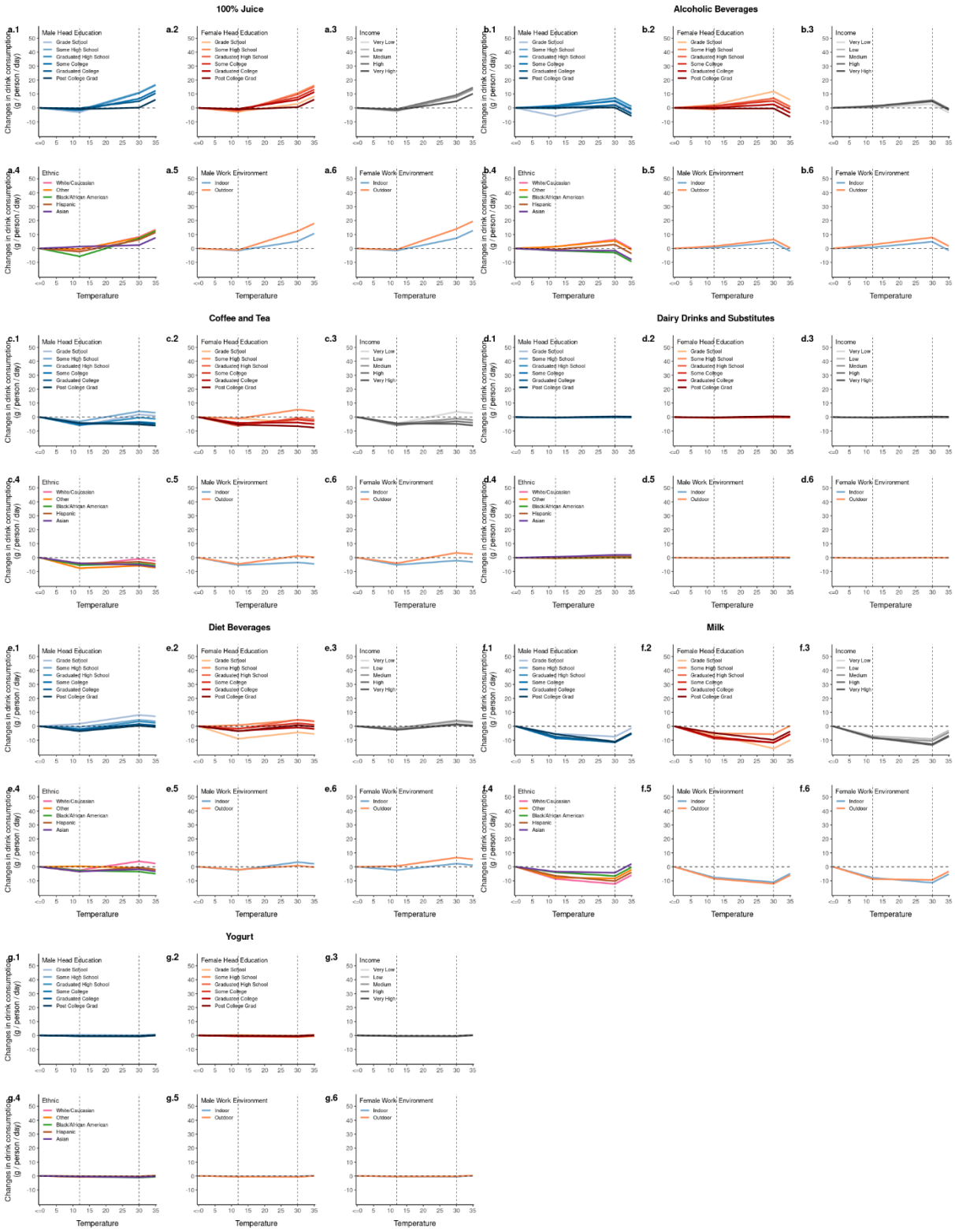

Figure S9 The heterogenous effect of temperature on drinks consumption by type. a) 100% juice (a.1 education level – male head, a.2 education level – female head, a.3 Income, a.4 ethnic groups, a.5 work environment – male head, a.6 work-environment – female head), b) alcoholic beverages (b.1 education level – male head, b.2 education level – female head, b.3 Income, b.4 ethnic groups, b.5 work environment – male head, b.6 work-environment – female head), c) coffee and tea (c.1 education level – male head, c.2 education level – female head, c.3 income, c.4 ethnic groups, c.5 work environment – male head, c.6 work environment – female head), d) diary drinks and substitutes (d.1 education level – male head, d.2 education

level – female head, d.3 income, d.4 ethnic groups, d.5 work environment – male head, d.6 work environment – female head), e) diet beverages (e.1 education level – male head, e.2 education level – female head, e.3 income, e.4 ethnic groups, e.5 work environment – male head, e.6 work environment – female head), f) milk (f.1 education level – male head, f.2 education level – female head, f.3 income, f.4 ethnic groups, f.5 work environment – male head, f.6 work environment – female head), g) yogurt (g.1 education level – male head, g.2 education level – female head, g.3 income, g.4 ethnic groups, g.5 work environment – male head, g.6 work environment – female head). The statistics are from two-sided t-tests based on regression analysis, and complete results are shown in the Supplementary Table S22.

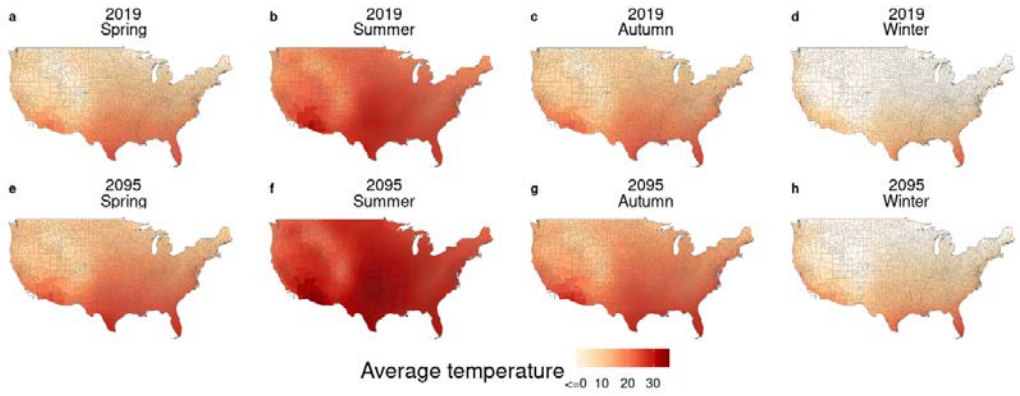

Figure S10 Average temperatures of U.S. counties by season in 2019 and 2095 (n = 25 models under the SSP5-8.5 scenario). a) Spring of 2019, b) Summer of 2019, c) Autumn of 2019, d) Winter of 2019, e) Spring of 2095, f) Summer of 2095, g) Autumn of 2095, h) Winter of 2095.

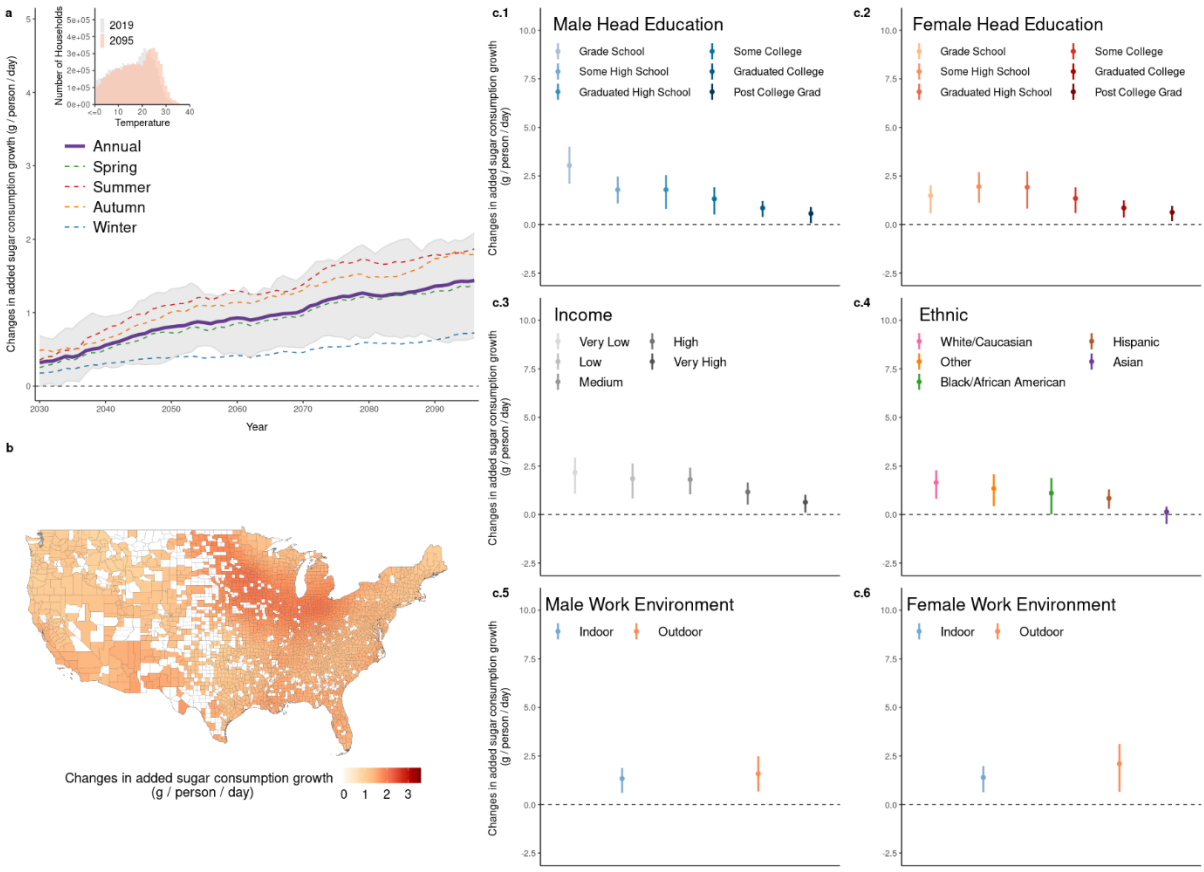

Figure S11 Projected added sugar consumption under the SSP2-4.5 scenario. a) time series of projected consumption of added sugar, b) projected added sugar consumption of counties in 2095, c) projected added sugar consumption of heterogeneous groups in 2095 (c.1 education level – male head, c.2 education level – female head, c.3 income, c.4 ethnic groups, c.5 work environment – male head, c.6 work environment – female head). The distribution in panel a shows the temperature distribution for 2019 and 2095 for all climate models, with an average temperature increase of approximately 2.3°C. The annual line and shaded area in panel a and the dots and vertical lines in panels c.1-c.6 show the annual mean *and the lowest and highest predictions of the n = 16 models* in 2095, *respectively.*

Table S1 Details for food groups identify

Food Category	WWEIA Food Categories	WWEIA Food Categories description	Nielsen Product module example
Sugar added Beverage	Sweetened Beverages	Soft drinks	SOFT DRINKS – CARBONATED; SOFT DRINKS – LOW CALORIE; SOFT DRINKS – POWDERED;
		Fruit drinks	FRUIT DRINKS – ORANGE – FROZEN; FRUIT DRINKS & MIXES – FROZEN;
Frozen Desserts	Other Desserts	Ice cream and frozen dairy desserts	FROZEN DESSERTS; ICE CREAM CONES & CUPS; ICE MILK AND SHERBET;

		Pudding	PUDDING/PIE FILLING – CANNED; MIXES – DESSERT – MISC.; PUDDING – DIET – MIX;
		Gelatins, ices, sorbets	DESSERTS – RTS SINGLE SERVINGS – CANNED; GELATIN SALADS-REFRIGERATED; GELATIN – SWEETENED – MIX; GELATIN – DIET – MIX;
Bakery, Oils and Sugar products	Sugars	Sugars and honey	SUGAR – REMAINING; SUGAR – BROWN; SUGAR – GRANULATED; SUGAR – POWDERED; HONEY;
		Sugar substitutes	SUGAR SUBSTITUTES;
		Jams, syrups, toppings	SYRUP – SORGHUM & SUGAR; SYRUP – SPECIALTY; FOUNTAIN BEVERAGE SYRUP; JAMS; PRESERVES;
	Candy	Candy containing chocolate	CANDY– CHOCOLATE – MINIATURES; CANDY– DIETETIC – CHOCOLATE;
		Candy not containing chocolate	BREATH SWEETENERS; CANDY – HARD ROLLED; CANDY – DIETETIC – NON – CHOCOLATE;
	Sweet Bakery Products	Cakes and pies	BAKERY – PIES – FROZEN; REFERENCE CARD BAKED GOODS – PIES; BAKERY – COBBLER/DUMPLINGS/STRUDEL – FROZEN; MIXES – GINGERBREAD;
		Cookies and brownies	COOKIES; REFERENCE CARD BAKED GOODS – COOKIES; CRACKERS – GRAHAM; MIXES – BROWNIES;
		Doughnuts, sweet rolls, pastries	SNACKS – PUFFED CHEESE; BAKERY – REMAINING – FROZEN; FROZEN/REFRIGERATED BREAKFASTS; BAKERY – DOUGHNUTS – FROZEN;

		TOASTER PASTRIES;
Quick Breads and Bread Products	Biscuits, muffins, quick breads	MIXES – ROLLS & BISCUITS; DOUGH PRODUCTS-BISCUITS-REFRIGERATED; MIXES – MUFFIN;
	Pancakes, waffles, French toast	FROZEN WAFFLES & PANCAKES & FRENCH TOAST; MIXES – PANCAKE;
Breads, Rolls, Tortillas	Yeast breads	DOUGH PRODUCTS – BREAD – FROZEN; RBC BREAD; MIXES – BREAD;
	Rolls and buns	BAKERY – ROLLS – FRESH; BAKERY – BUNS – FRESH;
	Bagels and English muffins	BAKERY – BAGELS – FROZEN; MIXES – MUFFIN;
	Tortillas	MEXICAN SHELLS;
Fats and Oils	Butter and animal fats	BUTTER; LARD;
	Margarine	SHORTENING; MARGARINE AND SPREADS;
	Cream cheese, sour cream, whipped cream	TOPPINGS – WHIPPED – FROZEN; DAIRY – SOUR CREAM – REFRIGERATED & CANNED; CHEESE – PROCESSED – CREAM CHEESE;
	Cream and cream substitutes	DAIRY – CREAM – REFRIGERATED; CREAMERS – LIQUID; CREAMERS – POWDERED;
	Mayonnaise	SANDWICH SPREADS – RELISH TYPE; SPREADS – REMAINING; MAYONNAISE;
	Salad dressings and vegetable oils	OLIVE OIL; SALAD DRESSING – LIQUID; SALAD DRESSING – REFRIGERATED; SALAD DRESSING – REDUCED/LOW CALORIE;

Notes: This table presents details for food groups identify. "Food Category represents" represents the food groups used in the paper, "WWEIA Food Categories" represents the WWEIA classification it follows, "WWEIA Food Categories description" represents the WWEIA sub-classification, and "Nielsen Product module example" represents the matching Nielsen Product modules listed as examples.

Table S2 Descriptive statistics of variables in regression

variable	n	mean	sd	min	max
Changes in Added Sugars consumption	6908936	86.46	154.81	0.00	54405.26
Changes in Added Sugars consumption (adult male equivalent)	6908936	106.52	189.87	0.00	64140.94
Changes in Added Sugars consumption (from Sugar added Beverages)	6908936	48.3	161.71	0.00	20919.95
Changes in Added Sugars consumption (from Frozen Desserts)	6908936	9.68	16.57	0.00	2009.21
Changes in Added Sugars consumption (from Bakery, Oils and Sugar Products)	6908936	40.2	79.67	0.00	64119.67
Household Income	6908936	7.23	4.14	0.21	17.32
Household Size	6908936	2.88	1.20	2.00	9.00
Age and Presence of Children	6908936	7.27	2.80	1.00	9.00
Age of Male Head	6908936	6.98	1.91	1.00	9.00
Age of Female Head	6908936	6.71	1.98	1.00	9.00
Education of Male Head	6908936	4.13	1.13	1.00	6.00
Education of Female Head	6908936	4.20	1.05	1.00	6.00
Male Head Occupation	6908936	6.38	4.33	1.00	12.00
Female Head Occupation	6908936	6.92	4.82	1.00	12.00
Ethnic	6908936	1.48	1.14	1.00	5.00
Marital Status	6908936	1.11	0.51	1.00	4.00
Temperature	6908936	14.01	9.34	-20.63	36.66
Range of Temperature	6908936	8.62	9	1	19
Wind Speed	6908936	3.14	0.84	0.62	7.59
Precipitation	6908936	2.01	1.51	0.00	17.67
Relative humidity	6908936	66.16	10.93	9.20	91.77
Relative humidity^2	6908936	4496.19	1269.46	84.58	8421.49
Climate Zone	6908936	3.38	1.49	1	5
Heating Degree Days /10	6908936	35.15	39.16	0	206.29
Cooling Degree Days /10	6908936	11.72	16.68	0	102.26

Notes: This table presents descriptive statistics of the variables used in the regression. "Add Sugars consumption" represents the average daily consumption per person of added sugars in the household. "Add Sugars consumption (from Sugar added Beverages; Frozen Desserts; Bakery, Oils and Sugar Products)" has been converted to adult male equivalents. "Household Income" originally represents ranges of nominal household income estimated on annual basis, with the following categories:

3 = Under $5000, 4 = $5000-$7999, 6 = $8000-$9999, 8 = $10,000-$11,999, 10 = $12,000-$14,999, 11 = $15,000-$19,999, 13 = $20,000-$24,999, 15 = $25,000-$29,999, 16 = $30,000-$34,999, 17 = $35,000-$39,999, 18 = $40,000-$44,999, 19 = $45,000-$49,999, 21 = $50,000-$59,999, 23 = $60,000-$69,999, 26 = $70,000-$99,999, 27 = $100,000 + (in 2004-2005, and again in 2010) or $100,000 - $124,999 (only in 2006-2009), 28 = $125,000 - $149,999 (only in 2006-2009), 29 = $150,000 - $199,999 (only in 2006-2009), 30 = $200,000 + (only in 2006-2009). In order to include it in the regression analysis, we convert the categorical variable "Household Income" into a continuous variable. We first replace each income range (category 3 to 26) with its corresponding middle value (such as "less than $5,000" is taken as $2,500, "5,000-7,999" is taken as $6,500), and categories 27 and higher (such as the subdivisions from 2006 to 2009) were uniformly simplified to $150,000. Subsequently, all income values were adjusted for inflation by dividing by the Consumer Price Index (CPI) of the corresponding year with 2010 as the base year to reflect the actual income. In order to avoid the regression coefficient being too small, the adjusted income value is finally divided by 10,000 so that the coefficient reflects the impact of every $10,000 increase on the dependent variable. "Household Size" represents number of individuals residing in home: 9 = Nine+ Members. "Age and Presence of Children" represents whether there are children under the age of 18 in the household, and if so, their age range(s), with the following categories: 1 = Under 6 only, 2 = 6-12 only, 3 = 13-17 only, 4 = Under 6 & 6-12, 5 = Under 6 & 13-17, 6 = 6-12 & 13-17, 7 = Under 6 & 6-12 & 13-17, 9 = No Children Under 18. "Age of Male/Female Head" represents the age range of male/female head, with the following categories: 1 = Under 25 Years, 2 = 25-29 Years, 3 = 30-34 Years, 4 = 35-39 Years, 5 = 40-44 Years, 6 = 45-49 Years, 7 = 50-54 Years, 8 = 55-64 Years, 9 = 65+ Years, 0 = No Male/Female Head. "Education of Male/Female Head" represents the highest degree earned by male/female head, with the following categories: 1 = Grade School, 2 = Some High School, 3 = Graduated High School, 4 = Some College, 5 = Graduated College, 6 = Post College Grad, 0 = No Male/Female Head or Unknown. "Male/Female Head Occupation" represents the type of employment for male/female head, with the following categories: 0 = No male/female head of household, 1 = {Economist; Mathematician; Scientist; Researcher; Accountant; Auditor; Architect; Engineer; Pilot; Artist; Entertainer; Writer; Dancer; Composer; Athlete; Business professional, non-managerial; Computer Programmer; System Analyst; Data Processor; Dentist; Doctor; Pharmacist; Physician's Assistant; Psychologist; Educator; Lecturer; Librarian; Teacher; Coach; Lawyer; Paralegal; Judge; Medical Technician; Paramedic; RN; Therapist; Social Worker; Religious; Clergy Member}, 2 = {Administrator; Company; Officer; Manager; Supervisor; Banker; Controller; Financial Analyst; Builder; Contractor; Landscaper; Owner of Business, Company, or Store; Buyer; Purchasing Agent; Public Official; Politician; Government Employee}, 3 = {Bank Teller; Bookkeeper; Cashier; Clerk; Gas Attendant; Stock; Inventory; Computer; Graphic Design; Insurance Adjuster; Underwriter; Mailroom; Messenger; Postal Worker; Receptionist; Secretary; Typist; Data Entry}, 4 = {Sales – Industrial/Wholesale; Sales – Insurance/Real Estate/Services; Sales – Retail}, 5 = {Foreman; Baker; Butcher; Seamstress; Tailor; Carpenter; Electrician; Painter; Plumber; Exterminator; Construction or Road Machine Operator; Mechanic; Repairman; Technician (except medical); Utility Lineman; Serviceman; Building Inspector}, 6 = {Factory Machine Operator; Delivery; Route man; Driver-Bus/Taxi/Truck; Factory; Transportation Worker (Airline, Railroad, Cruise)}, 7 = Member of Armed Forces, 8 = {Barber; Beautician; Nail Technician; Salon; Makeup Artist; Bartender; Chef; Food Service; Hotel Service; Child Care Worker; Housekeep; Maid; Dental Assistant; Practical Nurse; Dental Hygienist; Fire fighter; Police Officer; Sanitation; Security Officer; Janitor; Porter}, 9 = Farmer (Manager, Owner, Worker), 10 = Students Employed < 30 hours, 11 = {Construction worker; Shipping and Receiving; Fisherman; Gardener; Lumberman}, 12 = {Housewife; Retired; Unable to work; Unemployed; Laid off}. "Ethnic" represents racial identity of the household, with the following categories: 1 = White/Caucasian, 2 = Black/African American, 3 = Asian, 4 = Other, 5 = Hispanic. "Marital Status" represents marital status of household heads, with the following categories: 1 = Married, 2 = Widowed, 3 = Divorced/Separated, 4 = Single. "Temperature", "Wind Speed", "Precipitation", and "Relative humidity" represent the monthly averages in the household's county. "Range of Temperature" represents ranges of "Temperature", with each range spanning 2°C: 1 = "Temperature" equal to or below 0°C, and 19 = "Temperature" exceeding 34°C. "Relative humidity^2"

represents "Relative humidity" squared. "Climate Zone" represents the climate zone type of the household's county, with the following categories: 1 = Hot-Humid, 2 = Hot-Dry/Mixed-Dry, 3 = Mixed-Humid, 4 = Marine, 5 = Cold/Very Cold. "Heating Degree Days /10" is a metric measuring how cold the weather is, and is calculated as $[\sum_i^N max(0, 65°F - T\_avg_i)]/10$, *where* T_avg_i *is the average temperature within a day, N is the number of days in a month. "Cooling Degree Days /10" measures how hot the weather is, and is calculated as* $[\sum_i^N max(0, T\_avg_i - 65°F)]/10$.

Table S3 Details of coefficients using the binned model

	Changes in Added Sugars consumption (adult male equivalent)	Changes in Added Sugars consumption
Temperature = 0℃-2℃	0.724	0.489
	(0.643)	(0.522)
Temperature = 2℃-4℃	-0.093	-0.125
	(0.632)	(0.512)
Temperature = 4℃-6℃	-0.539	-0.538
	(0.723)	(0.584)
Temperature = 6℃-8℃	-0.051	-0.132
	(0.761)	(0.617)
Temperature = 8℃-10℃	-0.508	-0.501
	(0.853)	(0.692)
Temperature = 10℃-12℃	1.047	0.796
	(0.931)	(0.759)
Temperature = 12℃-14℃	1.932*	1.467*
	(1.023)	(0.832)
Temperature = 14℃-16℃	2.518**	1.925**
	(1.112)	(0.907)
Temperature = 16℃-18℃	3.863***	3.048***
	(1.187)	(0.968)
Temperature = 18℃-20℃	5.563***	4.423***
	(1.319)	(1.075)
Temperature = 20℃-22℃	7.246***	5.799***
	(1.479)	(1.209)
Temperature = 22℃-24℃	9.242***	7.374***
	(1.546)	(1.264)
Temperature = 24℃-26℃	11.353***	9.163***
	(1.706)	(1.399)
Temperature = 26℃-28℃	13.447***	10.927***
	(2.049)	(1.678)
Temperature = 28℃-30℃	13.582***	11.080***
	(2.088)	(1.720)

	Changes in Added Sugars consumption (adult male equivalent)	Changes in Added Sugars consumption
Temperature = 30℃-32℃	8.823***	7.317***
	(2.381)	(1.959)
Temperature = 32℃-34℃	12.209***	10.076***
	(2.674)	(2.183)
Temperature >= 34℃	21.386***	16.760***
	(4.001)	(3.315)
Wind Speed	-1.137***	-0.928***
	(0.368)	(0.300)
Precipitation	0.061	0.047
	(0.101)	(0.082)
Relative humidity	-0.176*	-0.131*
	(0.093)	(0.075)
Relative humidity^2	0.000	0.000
	(0.001)	(0.001)
Household Income	-0.458***	-0.289***
	(0.135)	(0.110)
Household Size	-24.521***	-19.736***
	(0.583)	(0.476)
Age and Presence of Children = 6-12 only	-1.370	6.142***
	(1.261)	(0.992)
Age and Presence of Children = 13-17 only	-6.543***	9.435***
	(1.493)	(1.211)
Age and Presence of Children = Under 6 & 6-12	8.503***	8.129***
	(1.296)	(0.970)
Age and Presence of Children = Under 6 & 13-17	9.199***	12.087***
	(2.439)	(1.930)
Age and Presence of Children = 6-12 & 13-17	4.273***	14.369***
	(1.565)	(1.267)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.203***	17.764***
	(2.713)	(2.143)
Age and Presence of Children = No Children Under 18	-9.426***	5.491***

	Changes in Added Sugars consumption (adult male equivalent)	Changes in Added Sugars consumption
	(1.542)	(1.285)
Age of Male Head	-2.161***	-1.619***
	(0.615)	(0.516)
Age of Female Head	-1.719***	-1.355***
	(0.598)	(0.502)
Education of Male Head	0.521	0.445
	(0.626)	(0.515)
Education of Female Head	0.548	0.490
	(0.747)	(0.606)
Ethnic = Black/African American	-12.096**	-8.991**
	(5.627)	(4.556)
Ethnic = Asian	-5.211	-3.725
	(4.488)	(3.513)
Ethnic = Other	-3.085	-2.409
	(2.734)	(2.261)
Ethnic = Hispanic	1.058	1.221
	(2.217)	(1.802)
Marital Status = Widowed	-1.017	-1.467
	(4.968)	(4.135)
Marital Status = Divorced/Separated	-2.669	-2.075
	(2.818)	(2.380)
Marital Status = Single	-1.641	-1.263
	(2.498)	(2.109)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Std.Errors	by: county	by: county
Num.Obs.	6908919	6908919
R^2	0.292	0.296

* p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients using the binned model. The model includes 4 categorical variables: "Range of Temperature", "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Range of Temperature" = 1 (Temperature <= 0°C), "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S4 Details of coefficients using the spline model

	Changes in Added Sugars consumption (adult male equivalent)
Temperature = 0℃-12℃	0.060
	(0.075)
Temperature = 12℃-30℃	0.814***
	(0.099)
Temperature >= 30℃	-0.473
	(0.543)
Wind Speed	-1.125***
	(0.369)
Precipitation	0.067
	(0.101)
Relative humidity	-0.158*
	(0.095)
Relative humidity^2	0.000
	(0.001)
Household Income	-0.458***
	(0.135)
Household Size	-24.518***
	(0.583)
Age and Presence of Children = 6-12 only	-1.370
	(1.260)
Age and Presence of Children = 13-17 only	-6.541***
	(1.492)
Age and Presence of Children = Under 6 & 6-12	8.497***
	(1.295)
Age and Presence of Children = Under 6 & 13-17	9.188***
	(2.440)
Age and Presence of Children = 6-12 & 13-17	4.274***
	(1.565)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.202***
	(2.712)
Age and Presence of Children =	-9.425***

	Changes in Added Sugars consumption (adult male equivalent)
No Children Under 18	
	(1.542)
Age of Male Head	-2.161***
	(0.615)
Age of Female Head	-1.721***
	(0.598)
Education of Male Head	0.523
	(0.626)
Education of Female Head	0.546
	(0.747)
Ethnic = Black/African American	-12.098**
	(5.627)
Ethnic = Asian	-5.219
	(4.488)
Ethnic = Other	-3.089
	(2.734)
Ethnic = Hispanic	1.067
	(2.217)
Marital Status = Widowed	-1.031
	(4.969)
Marital Status = Divorced/Separated	-2.667
	(2.818)
Marital Status = Single	-1.631
	(2.498)
FE: year^zone	Yes
FE: month^zone	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.292

* p < 0.1, ** p < 0.05, *** p < 0.01

Note: This table presents details of coefficients using the spline model. The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 3 categorical variables: "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S5 Details of coefficients using the HDD&CDD model

	Changes in Added Sugars consumption (adult male equivalent)	Changes in Added Sugars consumption
Heating Degree Days /10	-0.037***	-0.029***
	(0.012)	(0.010)
Cooling Degree Days /10	0.173***	0.143***
	(0.029)	(0.024)
Wind Speed	-1.149***	-0.940***
	(0.368)	(0.300)
Precipitation	-0.009	-0.009
	(0.104)	(0.084)
Relative humidity	-0.154	-0.114
	(0.096)	(0.077)
Relative humidity^2	0.000	0.000
	(0.001)	(0.001)
Household Income	-0.459***	-0.289***
	(0.135)	(0.110)
Household Size	-24.517***	-19.733***
	(0.583)	(0.476)
Age and Presence of Children = 6-12 only	-1.369	6.143***
	(1.260)	(0.992)
Age and Presence of Children = 13-17 only	-6.540***	9.438***
	(1.492)	(1.211)
Age and Presence of Children = Under 6 & 6-12	8.498***	8.125***
	(1.295)	(0.970)
Age and Presence of Children = Under 6 & 13-17	9.196***	12.085***
	(2.439)	(1.930)
Age and Presence of Children = 6-12 & 13-17	4.274***	14.370***
	(1.565)	(1.267)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.205***	17.765***
	(2.713)	(2.143)
Age and Presence of Children = No Children Under 18	-9.423***	5.493***

	Changes in Added Sugars consumption (adult male equivalent)	Changes in Added Sugars consumption
	(1.542)	(1.285)
Age of Male Head	-2.161***	-1.619***
	(0.615)	(0.516)
Age of Female Head	-1.721***	-1.357***
	(0.598)	(0.502)
Education of Male Head	0.524	0.448
	(0.626)	(0.515)
Education of Female Head	0.548	0.489
	(0.747)	(0.607)
Ethnic = Black/African American	-12.087**	-8.984**
	(5.627)	(4.556)
Ethnic = Asian	-5.221	-3.733
	(4.488)	(3.513)
Ethnic = Other	-3.083	-2.406
	(2.735)	(2.261)
Ethnic = Hispanic	1.071	1.231
	(2.216)	(1.802)
Marital Status = Widowed	-1.027	-1.475
	(4.969)	(4.136)
Marital Status = Divorced/Separated	-2.660	-2.068
	(2.818)	(2.380)
Marital Status = Single	-1.629	-1.255
	(2.499)	(2.109)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Std.Errors	by: county	by: county
Num.Obs.	6908919	6908919
R^2	0.292	0.296

* p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients using the HDD&CDD model. The model includes 3 categorical variables: "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S6 Details of coefficients using the interactions of SES variable model (male head education)

	Changes in Added Sugars consumption (adult male equivalent)
Temperature = 0℃-2℃	1.548**
	(0.618)
Temperature = 2℃-4℃	1.004*
	(0.557)
Temperature = 4℃-6℃	0.638
	(0.634)
Temperature = 6℃-8℃	1.378**
	(0.678)
Temperature = 8℃-10℃	0.880
	(0.736)
Temperature = 10℃-12℃	2.426***
	(0.807)
Temperature = 12℃-14℃	3.625***
	(0.905)
Temperature = 14℃-16℃	4.564***
	(0.995)
Temperature = 16℃-18℃	5.584***
	(1.066)
Temperature = 18℃-20℃	7.279***
	(1.219)
Temperature = 20℃-22℃	8.828***
	(1.337)
Temperature = 22℃-24℃	10.422***
	(1.408)
Temperature = 24℃-26℃	12.172***
	(1.530)
Temperature = 26℃-28℃	14.095***
	(1.799)
Temperature = 28℃-30℃	15.212***
	(1.897)
Temperature = 30℃-32℃	10.024***
	(2.225)
Temperature = 32℃-34℃	13.351***
	(2.371)
Temperature >= 34℃	20.974***
	(4.105)

Wind Speed	-1.619***
	(0.332)
Precipitation	0.323***
	(0.104)
Relative humidity	-0.092
	(0.087)
Relative humidity^2	-0.001*
	(0.001)
Household Income	-0.449***
	(0.137)
Household Size	-24.580***
	(0.578)
Age and Presence of Children = 6-12 only	-1.554
	(1.252)
Age and Presence of Children = 13-17 only	-6.856***
	(1.485)
Age and Presence of Children = Under 6 & 6-12	8.418***
	(1.295)
Age and Presence of Children = Under 6 & 13-17	9.098***
	(2.467)
Age and Presence of Children = 6-12 & 13-17	3.962**
	(1.562)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.232***
	(2.686)
Age and Presence of Children = No Children Under 18	-9.625***
	(1.540)
Age of Male Head	-2.271***
	(0.615)
Age of Female Head	-1.779***
	(0.597)
Education of Female Head	0.476
	(0.749)
Ethnic = Black/African American	-12.291**

	(5.624)
Ethnic = Asian	-5.226
	(4.481)
Ethnic = Other	-3.094
	(2.728)
Ethnic = Hispanic	1.124
	(2.197)
Marital Status = Widowed	-1.171
	(4.957)
Marital Status = Divorced/Separated	-2.617
	(2.814)
Marital Status = Single	-1.653
	(2.515)
FE: year^Education of Male Head	Yes
FE: month^Education of Male Head	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients using the interactions of SES variable model (male head education). The model includes 4 categorical variables: "Range of Temperature", "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Range of Temperature" = 1 (Temperature <= 0°C), "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^male head education, month^male head education, and household levels, with standard errors clustered at the county level.

Table S7 Details of coefficients using the interactions of SES variable model (female head education)

	Changes in Added Sugars consumption (adult male equivalent)
Temperature = 0℃-2℃	1.555**
	(0.619)
Temperature = 2℃-4℃	0.988*
	(0.558)
Temperature = 4℃-6℃	0.616
	(0.636)
Temperature = 6℃-8℃	1.353**
	(0.681)
Temperature = 8℃-10℃	0.857

	(0.739)
Temperature = 10℃-12℃	2.396***
	(0.808)
Temperature = 12℃-14℃	3.588***
	(0.910)
Temperature = 14℃-16℃	4.533***
	(1.005)
Temperature = 16℃-18℃	5.576***
	(1.069)
Temperature = 18℃-20℃	7.281***
	(1.222)
Temperature = 20℃-22℃	8.832***
	(1.344)
Temperature = 22℃-24℃	10.456***
	(1.409)
Temperature = 24℃-26℃	12.219***
	(1.536)
Temperature = 26℃-28℃	14.156***
	(1.804)
Temperature = 28℃-30℃	15.275***
	(1.901)
Temperature = 30℃-32℃	10.140***
	(2.232)
Temperature = 32℃-34℃	13.296***
	(2.415)
Temperature >= 34℃	20.537***
	(4.158)
Wind Speed	-1.647***
	(0.332)
Precipitation	0.332***
	(0.104)
Relative humidity	-0.086
	(0.088)
Relative humidity^2	-0.001*
	(0.001)
Household Income	-0.462***
	(0.137)
Household Size	-24.586***
	(0.578)
Age and Presence of Children =	-1.667

6-12 only	
	(1.248)
Age and Presence of Children = 13-17 only	-7.009***
	(1.483)
Age and Presence of Children = Under 6 & 6-12	8.281***
	(1.298)
Age and Presence of Children = Under 6 & 13-17	9.016***
	(2.436)
Age and Presence of Children = 6-12 & 13-17	3.832**
	(1.574)
Age and Presence of Children = Under 6 & 6-12 & 13-17	15.879***
	(2.712)
Age and Presence of Children = No Children Under 18	-9.698***
	(1.551)
Age of Male Head	-2.324***
	(0.616)
Age of Female Head	-1.873***
	(0.598)
Education of Male Head	0.464
	(0.619)
Ethnic = Black/African American	-12.373**
	(5.647)
Ethnic = Asian	-5.040
	(4.508)
Ethnic = Other	-3.135
	(2.727)
Ethnic = Hispanic	1.002
	(2.197)
Marital Status = Widowed	-1.548
	(5.058)
Marital Status = Divorced/Separated	-2.603
	(2.814)
Marital Status = Single	-1.589
	(2.505)

FE: year^Education of Female Head	Yes
FE: month^Education of Female Head	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients using the interactions of SES variable model (Female head education). The model includes 4 categorical variables: "Range of Temperature", "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Range of Temperature" = 1 (Temperature <= 0°C), "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^female head education, month^female head education, and household levels, with standard errors clustered at the county level.

Table S8 Details of coefficients using the monthly peak highs model

	Changes in Added Sugars consumption (adult male equivalent) (2℃ cut-off)	Changes in Added Sugars consumption (adult male equivalent) (5℃ cut-off)
Number of days Temperature = 0℃-2℃	0.164**	
	(0.072)	
Number of days Temperature = 2℃-4℃	0.074	
	(0.066)	
Number of days Temperature = 4℃-6℃	-0.094	
	(0.063)	
Number of days Temperature = 6℃-8℃	-0.045	
	(0.065)	
Number of days Temperature = 8℃-10℃	0.119*	
	(0.062)	
Number of days Temperature = 10℃-12℃	0.042	
	(0.064)	
Number of days Temperature = 12℃-14℃	0.116*	
	(0.064)	
Number of days	0.185***	

Temperature = 14℃-16℃		
	(0.060)	
Number of days Temperature = 16℃-18℃	0.114	
	(0.071)	
Number of days Temperature = 18℃-20℃	0.174***	
	(0.066)	
Number of days Temperature = 20℃-22℃	0.345***	
	(0.068)	
Number of days Temperature = 22℃-24℃	0.323***	
	(0.069)	
Number of days Temperature = 24℃-26℃	0.522***	
	(0.073)	
Number of days Temperature = 26℃-28℃	0.558***	
	(0.084)	
Number of days Temperature = 28℃-30℃	0.512***	
	(0.094)	
Number of days Temperature = 0℃-5℃		0.059
		(0.042)
Number of days Temperature = 5℃-10℃		-0.023
		(0.040)
Number of days Temperature = 10℃-15℃		0.097**
		(0.042)
Number of days Temperature = 15℃-20℃		0.132**
		(0.052)
Number of days Temperature = 20℃-25℃		0.352***
		(0.058)
Number of days Temperature = 25℃-30℃		0.515***
		(0.073)

Number of days Temperature > 30°C	0.450***	0.423***
	(0.082)	(0.082)
Wind Speed	-1.117***	-1.139***
	(0.365)	(0.367)
Precipitation	0.048	0.047
	(0.101)	(0.101)
Relative humidity	-0.140	-0.154*
	(0.093)	(0.093)
Relative humidity^2	-0.001	0.000
	(0.001)	(0.001)
Household Income	-0.458***	-0.458***
	(0.135)	(0.135)
Household Size	-24.520***	-24.519***
	(0.583)	(0.583)
Age and Presence of Children = 6-12 only	-1.365	-1.368
	(1.260)	(1.260)
Age and Presence of Children = 13-17 only	-6.539***	-6.540***
	(1.492)	(1.492)
Age and Presence of Children = Under 6 & 6-12	8.500***	8.501***
	(1.296)	(1.296)
Age and Presence of Children = Under 6 & 13-17	9.191***	9.196***
	(2.440)	(2.439)
Age and Presence of Children = 6-12 & 13-17	4.276***	4.276***
	(1.565)	(1.565)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.205***	16.202***
	(2.712)	(2.712)
Age and Presence of Children = No Children Under 18	-9.425***	-9.426***

	(1.542)	(1.542)
Age of Male Head	-2.162***	-2.163***
	(0.615)	(0.615)
Age of Female Head	-1.719***	-1.718***
	(0.598)	(0.598)
Education of Male Head	0.522	0.523
	(0.626)	(0.626)
Education of Female Head	0.546	0.545
	(0.747)	(0.747)
Ethnic = Black/African American	-12.090**	-12.088**
	(5.629)	(5.628)
Ethnic = Asian	-5.202	-5.213
	(4.488)	(4.489)
Ethnic = Other	-3.083	-3.081
	(2.735)	(2.734)
Ethnic = Hispanic	1.071	1.062
	(2.217)	(2.217)
Marital Status = Widowed	-1.031	-1.033
	(4.970)	(4.970)
Marital Status = Divorced/Separated	-2.674	-2.669
	(2.818)	(2.818)
Marital Status = Single	-1.629	-1.634
	(2.499)	(2.498)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Std.Errors	by: county	by: county
Num.Obs.	6908919	6908919
R^2	0.292	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients using the monthly peak highs model. The model includes 3 categorical variables: "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S9 Details of coefficients by food groups using the binned model

	Changes in Added Sugars consumption (from Sugar added Beverages)	Changes in Added Sugars consumption (from Frozen Desserts)	Changes in Added Sugars consumption (from Bakery, Oils and Sugar Products)
Temperature = 0℃-2℃	1.097**	0.011	-0.331
	(0.547)	(0.046)	(0.296)
Temperature = 2℃-4℃	0.994*	0.018	-0.963***
	(0.532)	(0.052)	(0.281)
Temperature = 4℃-6℃	1.050*	0.004	-1.463***
	(0.612)	(0.057)	(0.302)
Temperature = 6℃-8℃	1.515**	0.032	-1.432***
	(0.675)	(0.064)	(0.328)
Temperature = 8℃-10℃	1.541**	0.128*	-1.948***
	(0.746)	(0.072)	(0.383)
Temperature = 10℃-12℃	2.813***	0.182**	-1.777***
	(0.819)	(0.077)	(0.407)
Temperature = 12℃-14℃	3.965***	0.324***	-2.192***
	(0.893)	(0.087)	(0.407)
Temperature = 14℃-16℃	4.572***	0.495***	-2.340***
	(0.964)	(0.099)	(0.474)
Temperature = 16℃-18℃	6.573***	0.678***	-3.151***
	(1.043)	(0.110)	(0.468)
Temperature = 18℃-20℃	8.255***	0.816***	-3.209***
	(1.139)	(0.121)	(0.511)
Temperature = 20℃-22℃	10.164***	1.071***	-3.716***
	(1.290)	(0.131)	(0.541)
Temperature = 22℃-24℃	11.916***	1.283***	-3.701***
	(1.367)	(0.150)	(0.553)
Temperature = 24℃-26℃	14.213***	1.341***	-3.953***
	(1.481)	(0.156)	(0.628)
Temperature = 26℃-28℃	16.003***	1.341***	-3.682***
	(1.804)	(0.171)	(0.657)
Temperature = 28℃-30℃	15.988***	1.342***	-3.576***
	(1.817)	(0.182)	(0.659)
Temperature = 30℃-32℃	12.810***	1.504***	-5.316***
	(1.998)	(0.249)	(1.085)
Temperature = 32℃-34℃	15.503***	1.042***	-4.091***

	Changes in Added Sugars consumption (from Sugar added Beverages)	Changes in Added Sugars consumption (from Frozen Desserts)	Changes in Added Sugars consumption (from Bakery, Oils and Sugar Products)
	(2.340)	(0.243)	(0.805)
Temperature >= 34°C	23.821***	2.292***	-4.624***
	(3.481)	(0.794)	(0.848)
Wind Speed	-0.877***	-0.097***	-0.142
	(0.297)	(0.030)	(0.150)
Precipitation	0.060	-0.028***	0.025
	(0.091)	(0.009)	(0.040)
Relative humidity	-0.102	-0.026***	-0.040
	(0.082)	(0.010)	(0.036)
Relative humidity^2	-0.001	0.000	0.000
	(0.001)	(0.000)	(0.000)
Household Income	-0.246**	-0.036***	-0.166***
	(0.121)	(0.010)	(0.038)
Household Size	-11.419***	-2.122***	-9.118***
	(0.474)	(0.045)	(0.183)
Age and Presence of Children = 6-12 only	-0.286	-0.201*	-0.658
	(1.112)	(0.104)	(0.401)
Age and Presence of Children = 13-17 only	-2.323*	-1.141***	-2.465***
	(1.340)	(0.117)	(0.410)
Age and Presence of Children = Under 6 & 6-12	4.447***	0.625***	2.956***
	(1.147)	(0.105)	(0.378)
Age and Presence of Children = Under 6 & 13-17	4.861**	0.700***	3.265***
	(2.046)	(0.218)	(0.771)
Age and Presence of Children = 6-12 & 13-17	3.093**	0.090	1.093**
	(1.351)	(0.122)	(0.457)
Age and Presence of Children = Under 6 & 6-12 & 13-17	8.160***	1.285***	6.002***
	(2.325)	(0.168)	(0.740)
Age and Presence of Children = No Children Under 18	-3.710***	-1.417***	-3.706***

	Changes in Added Sugars consumption (from Sugar added Beverages)	Changes in Added Sugars consumption (from Frozen Desserts)	Changes in Added Sugars consumption (from Bakery, Oils and Sugar Products)
	(1.405)	(0.121)	(0.434)
Age of Male Head	-1.621***	-0.153***	-0.301
	(0.532)	(0.050)	(0.218)
Age of Female Head	-1.363***	-0.062	-0.230
	(0.528)	(0.048)	(0.176)
Education of Male Head	0.540	0.033	-0.029
	(0.543)	(0.057)	(0.220)
Education of Female Head	0.530	-0.141**	0.190
	(0.646)	(0.057)	(0.249)
Ethnic = Black/African American	-9.726**	0.297	-2.632**
	(4.779)	(0.284)	(1.333)
Ethnic = Asian	-5.765	-0.177	0.908
	(3.835)	(0.277)	(1.168)
Ethnic = Other	-3.311	-0.033	0.159
	(2.409)	(0.221)	(0.758)
Ethnic = Hispanic	0.534	0.129	0.253
	(1.970)	(0.228)	(0.723)
Marital Status = Widowed	2.546	-1.017***	-2.215*
	(4.252)	(0.343)	(1.313)
Marital Status = Divorced/Separated	0.107	0.231	-2.864**
	(2.422)	(0.233)	(1.181)
Marital Status = Single	-0.433	0.062	-1.182*
	(2.132)	(0.172)	(0.609)
FE: year^zone	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes
FE: household	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county
Num.Obs.	6908919	6908919	6908919
R^2	0.269	0.350	0.208

* p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients by food groups using the binned model. The model includes 4 categorical variables: "Range of Temperature", "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Range of Temperature" = 1 (Temperature <= 0°C), "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S10 Details of coefficients including price control variables using binned model

	Changes in Added Sugars consumption (adult male equivalent) (drop top 5% price)	Changes in Added Sugars consumption (adult male equivalent) (drop top and bottom 5% price)
Temperature = 0℃-2℃	0.621	0.653
	(0.652)	(0.650)
Temperature = 2℃-4℃	-0.093	-0.089
	(0.633)	(0.636)
Temperature = 4℃-6℃	-0.586	-0.556
	(0.719)	(0.724)
Temperature = 6℃-8℃	-0.232	-0.145
	(0.760)	(0.764)
Temperature = 8℃-10℃	-0.526	-0.411
	(0.850)	(0.853)
Temperature = 10℃-12℃	0.939	1.080
	(0.933)	(0.936)
Temperature = 12℃-14℃	1.768*	1.976*
	(1.021)	(1.026)
Temperature = 14℃-16℃	2.227**	2.510**
	(1.121)	(1.123)
Temperature = 16℃-18℃	3.539***	3.894***
	(1.193)	(1.197)
Temperature = 18℃-20℃	5.155***	5.576***
	(1.321)	(1.326)
Temperature = 20℃-22℃	6.831***	7.296***
	(1.478)	(1.481)
Temperature = 22℃-24℃	8.717***	9.222***
	(1.548)	(1.551)
Temperature = 24℃-26℃	10.854***	11.339***
	(1.697)	(1.703)
Temperature = 26℃-28℃	12.869***	13.377***
	(2.036)	(2.040)
Temperature = 28℃-30℃	12.989***	13.467***
	(2.058)	(2.068)
Temperature = 30℃-32℃	7.869***	8.385***
	(2.368)	(2.383)
Temperature = 32℃-34℃	11.111***	11.751***
	(2.729)	(2.716)

Temperature >= 34°C	20.468***	21.135***
	(3.929)	(3.982)
Wind Speed	-0.992***	-1.022***
	(0.363)	(0.365)
Precipitation	0.050	0.058
	(0.101)	(0.101)
Relative humidity	-0.164*	-0.165*
	(0.093)	(0.093)
Relative humidity^2	0.000	0.000
	(0.001)	(0.001)
100% Juice	17.734**	10.595
	(7.237)	(7.060)
Alcoholic Beverages	1.262	0.580
	(1.088)	(1.066)
Breads, Rolls, Tortillas	13.266***	15.752***
	(4.419)	(4.245)
Candy	-7.191***	-3.582***
	(1.118)	(1.095)
Cheese	2.195	0.424
	(1.659)	(1.715)
Coffee and Tea	0.626	0.925
	(0.684)	(0.650)
Condiments and Sauces	-0.164	-0.344
	(0.869)	(0.844)
Cooked Cereals	-6.143***	-4.642***
	(1.477)	(1.493)
Cooked Grains	0.509	-0.520
	(1.809)	(1.793)
Crackers	2.397	1.086
	(1.469)	(1.410)
Cured Meats/Poultry	-3.335**	-2.108
	(1.498)	(1.510)
Dairy Drinks and Substitutes	-0.172	-1.688
	(3.908)	(4.554)
Diet Beverages	32.643***	25.476**
	(9.976)	(10.131)
Eggs	-21.683	-35.398**
	(15.931)	(16.772)
Fats and Oils	-0.675	0.921
	(3.459)	(3.407)

Fruits	6.186***	5.113***
	(1.506)	(1.454)
Meats	0.752*	0.452
	(0.414)	(0.409)
Milk	27.926***	24.431**
	(9.248)	(9.565)
Mixed Dishes - Soups	-1.673***	-1.824***
	(0.589)	(0.588)
Mixed Dishes – Bean/Vegetable-based	-0.157	3.027
	(3.951)	(4.287)
Mixed Dishes – Grain-based	-1.985	-2.127
	(1.489)	(1.505)
Mixed Dishes – Meat, Poultry, Seafood	0.433	-0.939
	(1.834)	(1.810)
Mixed Dishes – Mexican	1.233	1.177
	(0.878)	(0.909)
Mixed Dishes – Pizza	-2.725**	-2.963**
	(1.352)	(1.350)
Mixed Dishes – Sandwiches (single code)	-0.005	-0.760
	(1.012)	(1.071)
Other	0.415	0.618
	(0.531)	(0.515)
Frozen Desserts	-3.749*	0.458
	(2.184)	(2.180)
Plain Water	6.288	4.619
	(6.255)	(6.073)
Plant-based Protein Foods	-3.338**	-4.000***
	(1.374)	(1.411)
Poultry	-0.416	-0.371
	(1.161)	(1.181)
Quick Breads and Bread Products	-3.626*	-3.748*
	(2.054)	(2.158)
Ready-to-Eat Cereals	-5.312**	-9.021***
	(2.562)	(2.679)
Savory Snacks	-0.149	-1.738
	(1.841)	(1.955)
Seafood	0.008	0.306

	(0.639)	(0.664)
Snack/Meal Bars	-1.034*	-1.362**
	(0.589)	(0.606)
Sugars	-22.003***	-25.960***
	(1.787)	(1.812)
Sweet Bakery Products	-14.730***	-13.862***
	(2.211)	(2.268)
Sugar added Beverages	-282.690***	-192.094***
	(5.754)	(4.989)
Vegetables, excluding Potatoes	-10.232***	-10.645***
	(2.741)	(2.815)
White Potatoes	1.743	1.133
	(2.179)	(2.119)
Yogurt	1.993	4.485
	(3.035)	(3.423)
Household Income	-0.436***	-0.442***
	(0.135)	(0.135)
Household Size	-24.536***	-24.532***
	(0.583)	(0.583)
Age and Presence of Children = 6-12 only	-1.422	-1.439
	(1.261)	(1.260)
Age and Presence of Children = 13-17 only	-6.579***	-6.593***
	(1.491)	(1.491)
Age and Presence of Children = Under 6 & 6-12	8.397***	8.431***
	(1.300)	(1.299)
Age and Presence of Children = Under 6 & 13-17	9.236***	9.207***
	(2.443)	(2.438)
Age and Presence of Children = 6-12 & 13-17	4.173***	4.174***
	(1.563)	(1.564)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.215***	16.148***
	(2.691)	(2.710)
Age and Presence of Children = No Children Under 18	-9.388***	-9.411***
	(1.547)	(1.545)

Age of Male Head	-2.133***	-2.152***
	(0.614)	(0.615)
Age of Female Head	-1.780***	-1.770***
	(0.591)	(0.595)
Education of Male Head	0.567	0.561
	(0.625)	(0.625)
Education of Female Head	0.617	0.592
	(0.747)	(0.747)
Ethnic = Black/African American	-11.896**	-12.128**
	(5.584)	(5.600)
Ethnic = Asian	-5.519	-5.461
	(4.518)	(4.506)
Ethnic = Other	-3.239	-3.200
	(2.718)	(2.726)
Ethnic = Hispanic	1.211	1.199
	(2.213)	(2.212)
Marital Status = Widowed	-0.757	-0.848
	(4.984)	(4.978)
Marital Status = Divorced/Separated	-2.305	-2.350
	(2.819)	(2.819)
Marital Status = Single	-1.323	-1.428
	(2.458)	(2.478)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Std.Errors	by: county	by: county
Num.Obs.	6908919	6908919
R^2	0.294	0.293

* p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients including price control variables using the binned model. To mitigate the impact of food price changes, the model includes a range of prices of food categories (given by WWEIA) as control variables: "Other" including Protein/nutritional powders and something not included in a food category. Price represents the absolute price of the food per 100 grams, that is, the logarithm is not taken. The model includes 4 categorical variables: "Range of Temperature", "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Range of Temperature" = 1 (Temperature <= 0°C), "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S11 VIF test of the binned model including price control

	GVIF	Df	GVIF^(1/(2*Df))
Range of Temperature	2.400843706	18	1.024626688
Wind Speed	1.347537041	1	1.160834631
Precipitation	1.465421279	1	1.21054586
Relative humidity	41.96357528	1	6.477929861
Relative humidity^2	41.89966845	1	6.472995323
100% Juice	1.187609918	1	1.089775169
Alcoholic Beverages	1.286604524	1	1.134285909
Breads, Rolls, Tortillas	1.861874938	1	1.364505382
Candy	1.278290396	1	1.130615052
Cheese	1.926401503	1	1.387948667
Coffee and Tea	1.10573833	1	1.051540931
Condiments and Sauces	1.241183145	1	1.114083994
Cooked Cereals	1.195755814	1	1.093506202
Cooked Grains	1.095631412	1	1.046724134
Crackers	1.522570808	1	1.23392496
Cured Meats/Poultry	1.832940868	1	1.353861466
Dairy Drinks and Substitutes	1.066566006	1	1.032746826
Diet Beverages	1.051489101	1	1.025421426
Eggs	1.456848311	1	1.206999715
Fats and Oils	1.875598665	1	1.369524978
Fruits	1.403142072	1	1.18454298
Meats	1.698501778	1	1.303265813
Milk	1.733799342	1	1.316738145
Mixed Dishes - Soups	1.287565451	1	1.134709413
Mixed Dishes – Bean/Vegetable-based	1.082628484	1	1.040494346
Mixed Dishes – Grain-based	1.14058151	1	1.067980108
Mixed Dishes – Meat, Poultry, Seafood	1.253493201	1	1.119595106
Mixed Dishes – Mexican	1.037490302	1	1.018572679
Mixed Dishes – Pizza	1.321082283	1	1.149383436
Mixed Dishes – Sandwiches (single code)	1.201215259	1	1.095999662
Other	1.03579095	1	1.017738154
Other Desserts	1.222736618	1	1.105774217
Plain Water	1.255651353	1	1.1205585
Plant-based Protein Foods	1.359237899	1	1.165863585
Poultry	1.384049888	1	1.176456497
Quick Breads and Bread Products	1.379861787	1	1.174675184
Ready-to-Eat Cereals	1.366911551	1	1.169149927

Savory Snacks	1.361828489	1	1.166974074
Seafood	1.496773143	1	1.223426803
Snack/Meal Bars	1.197833444	1	1.094455775
Sugars	1.488936456	1	1.220219839
Sweet Bakery Products	1.841207031	1	1.356910841
Sweetened Beverages	1.357047189	1	1.164923684
Vegetables, excluding Potatoes	1.68859743	1	1.299460438
White Potatoes	1.232526993	1	1.110192323
Yogurt	1.406631411	1	1.186014929
Household Income	1.285641888	1	1.133861494
Household Size	2.576119741	1	1.605029514
Age and Presence of Children	3.486166127	7	1.093299497
Age of Male Head	4.59054056	1	2.142554681
Age of Female Head	4.879570827	1	2.208975062
Education of Male Head	1.33557467	1	1.155670658
Education of Female Head	1.361848003	1	1.166982435
Ethnic	1.152200677	4	1.017866956
Marital Status	1.079954532	3	1.01290235

Notes: This table presents the variance inflation factor (VIF) test results for the binned model incorporating price control variables. The tests were conducted using a simple multiple regression model, without including year^zone, month^zone, and household fixed effects, and without applying county-level cluster standard errors.

Table S12 Details of coefficients of how the prices change with temperature (county level)

	Sweetened Beverages	Other Desserts	Sugars	Candy	Sweet Bakery Products	Quick Breads and Bread Products	Breads, Rolls, Tortillas	Fats and Oils
Temperature = 0℃-2℃	-0.003	0.000	0.015***	0.011***	0.002	0.006*	-0.001	0.005*
	(0.006)	(0.004)	(0.005)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Temperature = 2℃-4℃	-0.006	-0.001	0.007	0.012***	0.004	0.002	-0.004	-0.002
	(0.007)	(0.005)	(0.006)	(0.005)	(0.003)	(0.004)	(0.003)	(0.003)
Temperature = 4℃-6℃	-0.013*	-0.005	-0.005	0.009*	0.003	0.003	-0.002	-0.006*
	(0.008)	(0.005)	(0.007)	(0.005)	(0.004)	(0.005)	(0.004)	(0.004)
Temperature = 6℃-8℃	-0.014	-0.007	-0.022**	0.008	0.003	0.006	-0.002	-0.007
	(0.009)	(0.006)	(0.008)	(0.006)	(0.004)	(0.006)	(0.005)	(0.004)
Temperature = 8℃-10℃	-0.016	-0.008	-0.018*	0.003	0.008	0.013*	0.000	-0.004
	(0.010)	(0.007)	(0.010)	(0.007)	(0.005)	(0.007)	(0.005)	(0.005)
Temperature = 10℃-12℃	-0.027**	-0.009	-0.028**	0.003	0.011*	0.016**	0.001	-0.004
	(0.012)	(0.008)	(0.011)	(0.008)	(0.006)	(0.008)	(0.006)	(0.006)
Temperature = 12℃-14℃	-0.034**	-0.015	-0.027**	0.001	0.008	0.019**	0.000	-0.008

	(0.013)	(0.009)	(0.013)	(0.009)	(0.007)	(0.009)	(0.007)	(0.007)
Temperature = 14℃-16℃	-0.044***	-0.022**	-0.025*	0.001	0.010	0.022**	0.003	-0.006
	(0.015)	(0.010)	(0.015)	(0.010)	(0.008)	(0.010)	(0.008)	(0.007)
Temperature = 16℃-18℃	-0.059***	-0.027**	-0.030*	0.000	0.012	0.030***	0.000	-0.011
	(0.017)	(0.012)	(0.017)	(0.011)	(0.009)	(0.011)	(0.009)	(0.009)
Temperature = 18℃-20℃	-0.071***	-0.028**	-0.025	0.000	0.013	0.033**	0.004	-0.014
	(0.019)	(0.013)	(0.020)	(0.013)	(0.010)	(0.013)	(0.011)	(0.010)
Temperature = 20℃-22℃	-0.091***	-0.037**	-0.038*	-0.011	0.009	0.031**	-0.005	-0.020*
	(0.021)	(0.014)	(0.022)	(0.014)	(0.011)	(0.015)	(0.012)	(0.011)
Temperature = 22℃-24℃	-0.107***	-0.046***	-0.057**	-0.023	0.004	0.022	-0.018	-0.033***
	(0.023)	(0.016)	(0.024)	(0.016)	(0.012)	(0.016)	(0.013)	(0.012)
Temperature = 24℃-26℃	-0.107***	-0.044**	-0.084***	-0.033*	0.003	0.019	-0.024*	-0.042***
	(0.025)	(0.018)	(0.027)	(0.018)	(0.013)	(0.018)	(0.015)	(0.014)
Temperature = 26℃-28℃	-0.124***	-0.047**	-0.097***	-0.039**	0.001	0.011	-0.027*	-0.048***
	(0.028)	(0.020)	(0.031)	(0.020)	(0.015)	(0.019)	(0.016)	(0.015)
Temperature = 28℃-30℃	-0.133***	-0.041*	-0.091***	-0.033	-0.003	-0.003	-0.049***	-0.053***
	(0.030)	(0.021)	(0.034)	(0.022)	(0.016)	(0.021)	(0.017)	(0.016)
Temperature = 30℃-32℃	-0.156***	-0.048**	-0.109***	-0.046	-0.019	-0.004	-0.059***	-0.062***
	(0.034)	(0.024)	(0.040)	(0.028)	(0.017)	(0.023)	(0.020)	(0.019)
Temperature = 32℃-34℃	-0.209***	-0.057	-0.099*	-0.054	-0.027	0.003	-0.037	-0.050*
	(0.059)	(0.035)	(0.056)	(0.043)	(0.024)	(0.031)	(0.025)	(0.027)
Temperature >= 34℃	-0.299**	-0.203***	-0.193	-0.033	-0.073**	-0.027	-0.033	-0.126**
	(0.117)	(0.073)	(0.207)	(0.033)	(0.035)	(0.066)	(0.024)	(0.049)
Wind Speed	0.005	0.011***	-0.002	-0.009***	-0.006***	-0.004*	-0.015***	0.000
	(0.004)	(0.003)	(0.004)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
Precipitation	-0.006***	-0.005***	-0.005***	0.000	-0.002***	-0.003***	-0.001*	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Relative humidity	-0.003*	0.000	-0.005***	-0.001	-0.001*	0.000	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Relative humidity^2	0.000	0.000	0.000**	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FE: year^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county	by: county	by: county	by: county	by: county	by: county
Num.Obs.	572980	573047	573180	573097	573196	573059	573220	573260
R^2	0.256	0.207	0.143	0.258	0.476	0.312	0.411	0.429

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of how the prices change with temperature (county level). Price represents the log price of each food category per 100 grams. The model includes 1 categorical variables: "Range of Temperature". Its baseline category

is as follows: "Range of Temperature" = 1 (Temperature <= 0°C). And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S13 Details of coefficients of how the prices change with temperature by income groups (household level)

	Breads, Rolls, Tortillas	Candy	Fats and Oils	Other Desserts	Quick Breads and Bread Products	Sugars	Sweet Bakery Products	Sweetened Beverages
Temperature = 0℃-12℃	0.000	0.001*	0.001	-0.004***	0.001**	0.000	0.000	0.002***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Income = High	0.003	0.133**	0.029	-0.013	-0.003	0.121*	0.011	0.116**
	(0.025)	(0.063)	(0.025)	(0.040)	(0.044)	(0.069)	(0.028)	(0.048)
Income = Low	-0.042	0.161**	0.008	-0.015	-0.044	0.050	-0.020	0.027
	(0.028)	(0.065)	(0.022)	(0.037)	(0.040)	(0.066)	(0.022)	(0.061)
Income = Medium	-0.058*	0.143**	0.037	-0.047	-0.059	0.051	-0.034	0.153***
	(0.032)	(0.064)	(0.025)	(0.042)	(0.039)	(0.073)	(0.028)	(0.059)
Income = Very High	-0.018	0.227***	-0.005	-0.047	-0.059	-0.005	0.005	0.132**
	(0.032)	(0.067)	(0.027)	(0.044)	(0.049)	(0.064)	(0.028)	(0.062)
Temperature = 12℃-30℃	-0.001***	0.003***	-0.001***	-0.005***	0.001	-0.001*	-0.001*	0.000
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Temperature >= 30℃	0.000	0.005	0.001	0.003	0.005*	0.001	0.001	0.001
	(0.003)	(0.005)	(0.001)	(0.003)	(0.003)	(0.003)	(0.001)	(0.003)
Wind Speed	-0.002	0.013***	0.003	0.002	0.000	0.004	-0.004**	0.010***
	(0.002)	(0.005)	(0.002)	(0.004)	(0.003)	(0.005)	(0.002)	(0.004)
Precipitation	0.001	-0.002	-0.001	0.000	-0.001	-0.002	0.001	0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Relative humidity	0.000	0.004***	0.000	-0.002**	-0.001	0.000	0.000	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Relative humidity^2	0.000	0.000**	0.000	0.000**	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Household Size	-0.002**	-0.004*	-0.001	0.000	-0.001	-0.002	-0.002***	-0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Age and Presence of Children = 6-12 only	-0.013***	-0.053***	0.010***	-0.003	0.014***	0.025***	-0.003	-0.009
	(0.004)	(0.007)	(0.003)	(0.006)	(0.005)	(0.006)	(0.003)	(0.009)
Age and Presence of Children = 13-17 only	-0.011***	-0.122***	0.011***	0.004	0.008	-0.004	-0.015***	-0.005
	(0.004)	(0.009)	(0.004)	(0.006)	(0.005)	(0.007)	(0.003)	(0.009)
Age and Presence of Children = Under 6 & 6-12	-0.010**	-0.028***	-0.002	-0.014**	0.003	0.016**	-0.005	-0.009
	(0.005)	(0.007)	(0.003)	(0.006)	(0.005)	(0.007)	(0.004)	(0.009)
Age and Presence of Children = Under 6 & 13-17	-0.009	-0.038**	0.008	-0.023**	-0.003	0.004	0.000	-0.001
	(0.007)	(0.016)	(0.006)	(0.010)	(0.010)	(0.012)	(0.006)	(0.013)
Age and Presence of Children = 6-12 & 13-17	-0.017***	-0.083***	0.010***	-0.009	0.004	0.018**	-0.012***	-0.016
	(0.004)	(0.008)	(0.004)	(0.006)	(0.005)	(0.007)	(0.004)	(0.010)

Age and Presence of Children = Under 6 & 6-12 & 13-17	-0.006	-0.056***	0.009	-0.027***	-0.009	0.022*	-0.006	-0.032**
	(0.008)	(0.011)	(0.006)	(0.010)	(0.009)	(0.012)	(0.006)	(0.016)
Age and Presence of Children = No Children Under 18	-0.005	-0.078***	0.012***	0.015***	0.005	-0.010	-0.004	0.004
	(0.004)	(0.009)	(0.004)	(0.006)	(0.006)	(0.007)	(0.004)	(0.008)
Age of Male Head	0.003**	-0.001	0.004***	0.007***	0.000	-0.005*	0.001	0.000
	(0.001)	(0.003)	(0.001)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)
Age of Female Head	0.002	0.000	0.001	0.001	-0.001	-0.001	0.001	0.004
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)
Education of Male Head	-0.001	-0.004	0.001	0.001	-0.001	0.004	0.002	0.003
	(0.002)	(0.004)	(0.002)	(0.002)	(0.002)	(0.003)	(0.001)	(0.003)
Education of Female Head	0.000	0.001	-0.001	0.001	0.002	-0.006*	0.002	0.001
	(0.002)	(0.004)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.004)
Ethnic = Black/African American	-0.005	-0.010	0.000	0.000	0.004	0.027	-0.011	-0.010
	(0.013)	(0.030)	(0.011)	(0.021)	(0.019)	(0.026)	(0.011)	(0.027)
Ethnic = Asian	0.008	0.007	0.010	-0.002	0.030**	-0.010	-0.002	-0.020
	(0.009)	(0.024)	(0.012)	(0.016)	(0.015)	(0.024)	(0.011)	(0.026)
Ethnic = Other	-0.004	-0.008	0.003	0.012	-0.005	0.025	-0.008	-0.032**
	(0.006)	(0.016)	(0.006)	(0.010)	(0.011)	(0.015)	(0.007)	(0.015)
Ethnic = Hispanic	0.004	0.004	0.002	-0.019**	-0.005	0.008	-0.002	-0.013
	(0.006)	(0.017)	(0.006)	(0.009)	(0.008)	(0.014)	(0.006)	(0.016)
Marital Status = Widowed	0.015	-0.051**	0.022**	0.022	0.041***	0.013	0.022*	0.003
	(0.011)	(0.022)	(0.011)	(0.017)	(0.016)	(0.027)	(0.011)	(0.027)
Marital Status = Divorced/Separated	0.002	-0.026*	0.003	-0.004	0.006	0.001	0.004	0.008
	(0.006)	(0.016)	(0.006)	(0.010)	(0.009)	(0.014)	(0.006)	(0.012)
Marital Status = Single	0.015***	-0.012	0.000	0.000	-0.007	0.002	-0.004	0.024*
	(0.005)	(0.014)	(0.006)	(0.011)	(0.008)	(0.012)	(0.007)	(0.014)
Temperature = 0°C-12°C × Income = Low	0.000	-0.002**	0.000	0.001*	0.000	0.000	0.000	-0.002***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Temperature = 0°C-12°C × Income = Medium	0.000	-0.002***	0.000	0.001*	0.000	-0.001	0.000	-0.002***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Temperature = 0°C-12°C × Income = High	0.000	-0.002**	0.001	0.001	0.000	0.000	0.001	-0.002**
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Temperature = 0°C-12°C × Income = Very High	0.000	-0.003***	0.000	0.002**	0.000	-0.001	0.000	-0.002**
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)
Income = Low × Temperature = 12°C-30°C	0.000	-0.005***	0.001***	0.001*	0.001***	0.000	0.001**	-0.001**

	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Income = Medium × Temperature = 12℃-30℃	0.000	-0.002**	0.000	0.000	0.000	-0.001	0.000	-0.001*
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Income = High × Temperature = 12℃-30℃	0.000	-0.004***	0.000	0.000	0.001*	0.000	0.000	-0.002***
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
Income = Very High × Temperature = 12℃-30℃	0.001**	-0.004***	0.001***	0.002***	0.001***	0.002**	0.001***	-0.001**
	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.001)
Income = Low × Wind Speed	0.001	-0.011**	-0.001	-0.003	0.002	-0.007	0.005**	-0.011**
	(0.002)	(0.005)	(0.003)	(0.004)	(0.004)	(0.006)	(0.002)	(0.005)
Income = Medium × Wind Speed	0.004	-0.007	-0.001	0.000	0.001	-0.007	0.004**	-0.008
	(0.003)	(0.005)	(0.002)	(0.004)	(0.003)	(0.005)	(0.002)	(0.005)
Income = High × Wind Speed	0.003	-0.009*	-0.002	-0.007*	0.003	-0.002	0.005**	-0.014***
	(0.002)	(0.006)	(0.002)	(0.004)	(0.003)	(0.005)	(0.002)	(0.005)
Income = Very High × Wind Speed	0.004	-0.008	0.001	0.002	0.006*	-0.001	0.006***	-0.010**
	(0.003)	(0.006)	(0.002)	(0.004)	(0.004)	(0.005)	(0.002)	(0.005)
Income = Low × Precipitation	-0.001	0.004	0.001	0.001	0.002	0.004**	-0.001	-0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Income = Medium × Precipitation	-0.001	0.004*	0.001	0.000	0.001	0.000	-0.001*	-0.001
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Income = High × Precipitation	-0.002**	0.007***	0.000	-0.001	0.000	0.002	0.000	-0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Income = Very High × Precipitation	-0.001	0.002	0.001	0.001	0.003**	0.003	0.000	0.000
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Income = Low × Relative humidity	0.000	-0.002	0.000	0.000	0.001	-0.003	0.000	-0.002
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.001)
Income = Medium × Relative humidity	0.001	-0.003*	0.000	0.000	0.002	-0.001	0.000	0.000
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Income = High × Relative humidity	0.002*	-0.002	-0.001	0.002**	0.001	-0.001	0.000	-0.002
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Income = Very High × Relative humidity	0.000	-0.005***	0.001	0.002	0.002	0.001	0.000	-0.003
	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Income = Low × Relative humidity^2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Income = Medium × Relative humidity^2	0.000	0.000	0.000	0.000	0.000*	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income = High × Relative humidity^2	0.000	0.000	0.000	0.000*	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Income = Very High × Relative humidity^2	0.000	0.000***	0.000	0.000	0.000*	0.000	0.000	0.000**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FE: year^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE: household	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county	by: county	by: county	by: county	by: county	by: county
Num.Obs.	5806184	4974800	5877176	4458232	3071661	3951459	5557229	3886463
R^2	0.370	0.218	0.323	0.258	0.352	0.265	0.291	0.369

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of how the prices change with temperature by income groups (household level). Price represents the log price of each food category per 100 grams. The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 4 categorical variables totally: "Ethnic", "Income", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Ethnic" = White/Caucasian, Income = "Very Low", "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S14 Details of coefficients of the Heterogeneity test (Education, Income and Ethnic)

	Education of Male Head	Education of Female Head	Income	Ethnic
Temperature = 0℃-12℃	0.226	0.832	0.235	0.133*
	(0.460)	(0.621)	(0.146)	(0.075)
Education of Male Head = Some High School	17.776			
	(28.487)			
Education of Male Head = Graduated High School	19.496			
	(27.118)			
Education of Male Head = Some College	17.459			
	(26.967)			
Education of Male Head = Graduated College	37.231			
	(25.588)			

	Education of Male Head	Education of Female Head	Income	Ethnic
Education of Male Head = Post College Grad	38.232			
	(26.907)			
Temperature = 12℃-30℃	1.835***	1.118***	1.404***	0.915***
	(0.294)	(0.322)	(0.138)	(0.099)
Temperature >= 30℃	-0.389	-0.446	-0.461	-0.591
	(0.539)	(0.542)	(0.540)	(0.535)
Wind Speed	-2.377	2.946	-0.138	-1.239***
	(2.557)	(3.079)	(0.879)	(0.367)
Precipitation	-0.098	-1.377	-0.348	0.094
	(0.876)	(0.995)	(0.331)	(0.109)
Relative humidity	0.289	-1.058**	0.065	-0.030
	(0.707)	(0.535)	(0.275)	(0.116)
Relative humidity^2	-0.002	0.012**	-0.002	-0.001
	(0.006)	(0.005)	(0.002)	(0.001)
Household Income	-0.458***	-0.460***		-0.458***
	(0.135)	(0.135)		(0.135)
Household Size	-24.520***	-24.516***	-24.525***	-24.520***
	(0.582)	(0.582)	(0.583)	(0.583)
Age and Presence of Children = 6-12 only	-1.375	-1.386	-1.366	-1.363
	(1.260)	(1.261)	(1.261)	(1.260)
Age and Presence of Children = 13-17 only	-6.573***	-6.553***	-6.491***	-6.529***
	(1.493)	(1.494)	(1.493)	(1.492)
Age and Presence of Children = Under 6 & 6-12	8.489***	8.498***	8.528***	8.499***
	(1.296)	(1.295)	(1.297)	(1.295)
Age and Presence of Children = Under 6 & 13-17	9.132***	9.149***	9.152***	9.195***
	(2.443)	(2.443)	(2.445)	(2.438)
Age and Presence of Children = 6-12 & 13-17	4.254***	4.246***	4.310***	4.287***
	(1.564)	(1.564)	(1.567)	(1.564)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.200***	16.214***	16.273***	16.199***
	(2.710)	(2.713)	(2.705)	(2.713)
Age and Presence of Children =	-9.446***	-9.423***	-9.401***	-9.401***

	Education of Male Head	Education of Female Head	Income	Ethnic
No Children Under 18				
	(1.541)	(1.543)	(1.537)	(1.542)
Age of Male Head	-2.154***	-2.162***	-2.160***	-2.154***
	(0.616)	(0.614)	(0.614)	(0.615)
Age of Female Head	-1.726***	-1.736***	-1.733***	-1.717***
	(0.598)	(0.599)	(0.599)	(0.598)
Education of Female Head	0.570		0.522	0.551
	(0.747)		(0.745)	(0.746)
Ethnic = Black/African American	-12.106**	-12.131**	-12.055**	-11.328
	(5.631)	(5.624)	(5.610)	(13.356)
Ethnic = Asian	-5.291	-5.233	-5.176	3.762
	(4.487)	(4.497)	(4.493)	(10.119)
Ethnic = Other	-3.088	-3.102	-3.143	30.193
	(2.735)	(2.735)	(2.729)	(19.928)
Ethnic = Hispanic	1.047	1.081	1.036	15.012*
	(2.213)	(2.214)	(2.221)	(8.403)
Marital Status = Widowed	-0.836	-1.150	-0.810	-1.071
	(4.961)	(4.979)	(4.952)	(4.970)
Marital Status = Divorced/Separated	-2.662	-2.641	-2.671	-2.656
	(2.817)	(2.816)	(2.819)	(2.819)
Marital Status = Single	-1.640	-1.667	-1.588	-1.623
	(2.501)	(2.501)	(2.493)	(2.498)
Temperature = 0℃-12℃ × Education of Male Head = Some High School	0.011			
	(0.486)			
Temperature = 0℃-12℃ × Education of Male Head = Graduated High School	-0.106			
	(0.460)			
Temperature = 0℃-12℃ × Education of Male Head = Some College	-0.148			
	(0.460)			
Temperature = 0℃-12℃ × Education of Male Head = Graduated College	-0.213			
	(0.461)			

	Education of Male Head	Education of Female Head	Income	Ethnic
Temperature = 0℃-12℃ × Education of Male Head = Post College Grad	-0.470			
	(0.460)			
Education of Male Head = Some High School × Temperature = 12℃-30℃	-0.625**			
	(0.293)			
Education of Male Head = Graduated High School × Temperature = 12℃-30℃	-0.826***			
	(0.286)			
Education of Male Head = Some College × Temperature = 12℃-30℃	-1.080***			
	(0.285)			
Education of Male Head = Graduated College × Temperature = 12℃-30℃	-1.366***			
	(0.283)			
Education of Male Head = Post College Grad × Temperature = 12℃-30℃	-1.616***			
	(0.294)			
Education of Male Head = Some High School × Wind Speed	2.947			
	(2.776)			
Education of Male Head = Graduated High School × Wind Speed	1.520			
	(2.615)			
Education of Male Head = Some College × Wind Speed	1.435			
	(2.602)			
Education of Male Head = Graduated College × Wind Speed	0.979			

	Education of Male Head	Education of Female Head	Income	Ethnic
	(2.531)			
Education of Male Head = Post College Grad × Wind Speed	-0.183			
	(2.675)			
Education of Male Head = Some High School × Precipitation	-0.054			
	(0.940)			
Education of Male Head = Graduated High School × Precipitation	0.390			
	(0.876)			
Education of Male Head = Some College × Precipitation	0.078			
	(0.894)			
Education of Male Head = Graduated College × Precipitation	-0.138			
	(0.882)			
Education of Male Head = Post College Grad × Precipitation	0.250			
	(0.920)			
Education of Male Head = Some High School × Relative humidity	-0.705			
	(0.767)			
Education of Male Head = Graduated High School × Relative humidity	-0.357			
	(0.753)			
Education of Male Head = Some College × Relative humidity	-0.249			
	(0.721)			
Education of Male Head = Graduated College ×	-0.861			

	Education of Male Head	Education of Female Head	Income	Ethnic
Relative humidity				
	(0.659)			
Education of Male Head = Post College Grad × Relative humidity	-0.679			
	(0.757)			
Education of Male Head = Some High School × Relative humidity^2	0.004			
	(0.006)			
Education of Male Head = Graduated High School × Relative humidity^2	0.000			
	(0.006)			
Education of Male Head = Some College × Relative humidity^2	0.000			
	(0.006)			
Education of Male Head = Graduated College × Relative humidity^2	0.006			
	(0.005)			
Education of Male Head = Post College Grad × Relative humidity^2	0.004			
	(0.006)			
Education of Female Head = Some High School		2.976		
		(30.457)		
Education of Female Head = Graduated High School		12.335		
		(23.575)		
Education of Female Head = Some College		10.555		
		(23.074)		
Education of Female Head = Graduated College		13.396		
		(23.594)		
Education of Female Head =		12.071		

	Education of Male Head	Education of Female Head	Income	Ethnic
Post College Grad				
		(24.967)		
Education of Male Head		0.529	0.509	0.524
		(0.623)	(0.625)	(0.625)
Temperature = 0℃-12℃ × Education of Female Head = Some High School		-0.561		
		(0.673)		
Temperature = 0℃-12℃ × Education of Female Head = Graduated High School		-0.689		
		(0.631)		
Temperature = 0℃-12℃ × Education of Female Head = Some College		-0.808		
		(0.637)		
Temperature = 0℃-12℃ × Education of Female Head = Graduated College		-0.801		
		(0.628)		
Temperature = 0℃-12℃ × Education of Female Head = Post College Grad		-0.968		
		(0.631)		
Education of Female Head = Some High School × Temperature = 12℃-30℃		0.262		
		(0.354)		
Education of Female Head = Graduated High School × Temperature = 12℃-30℃		-0.175		
		(0.315)		
Education of Female Head = Some College × Temperature = 12℃-30℃		-0.245		
		(0.315)		
Education of Female Head = Graduated College × Temperature = 12℃-30℃		-0.587*		

	Education of Male Head	Education of Female Head	Income	Ethnic
		(0.319)		
Education of Female Head = Post College Grad × Temperature = 12℃-30℃		-0.792**		
		(0.322)		
Education of Female Head = Some High School × Wind Speed		-1.715		
		(3.481)		
Education of Female Head = Graduated High School × Wind Speed		-4.969		
		(3.128)		
Education of Female Head = Some College × Wind Speed		-3.423		
		(3.115)		
Education of Female Head = Graduated College × Wind Speed		-3.551		
		(3.149)		
Education of Female Head = Post College Grad × Wind Speed		-4.372		
		(3.239)		
Education of Female Head = Some High School × Precipitation		1.066		
		(1.158)		
Education of Female Head = Graduated High School × Precipitation		1.800*		
		(1.008)		
Education of Female Head = Some College × Precipitation		1.243		
		(1.011)		
Education of Female Head = Graduated College ×		1.169		

	Education of Male Head	Education of Female Head	Income	Ethnic
Precipitation				
		(1.009)		
Education of Female Head = Post College Grad × Precipitation		1.535		
		(1.041)		
Education of Female Head = Some High School × Relative humidity		0.652		
		(0.826)		
Education of Female Head = Graduated High School × Relative humidity		0.993*		
		(0.566)		
Education of Female Head = Some College × Relative humidity		0.904*		
		(0.549)		
Education of Female Head = Graduated College × Relative humidity		0.795		
		(0.566)		
Education of Female Head = Post College Grad × Relative humidity		1.025*		
		(0.597)		
Education of Female Head = Some High School × Relative humidity^2		-0.009		
		(0.007)		
Education of Female Head = Graduated High School × Relative humidity^2		-0.013**		
		(0.005)		
Education of Female Head = Some College × Relative humidity^2		-0.012**		
		(0.005)		
Education of Female Head =		-0.010**		

	Education of Male Head	Education of Female Head	Income	Ethnic
Graduated College × Relative humidity^2				
		(0.005)		
Education of Female Head = Post College Grad × Relative humidity^2		-0.012**		
		(0.005)		
Income = Low			-1.281	
			(10.313)	
Income = Medium			10.567	
			(9.887)	
Income = High			-0.742	
			(12.646)	
Income = Very High			28.134*	
			(16.082)	
Temperature = 0℃-12℃ × Income = Low			-0.177	
			(0.152)	
Temperature = 0℃-12℃ × Income = Medium			-0.004	
			(0.150)	
Temperature = 0℃-12℃ × Income = High			-0.025	
			(0.156)	
Temperature = 0℃-12℃ × Income = Very High			-0.404***	
			(0.144)	
Income = Low × Temperature = 12℃-30℃			-0.795***	
			(0.114)	
Income = Medium × Temperature = 12℃-30℃			-0.300***	
			(0.109)	
Income = High × Temperature = 12℃-30℃			-0.379***	
			(0.126)	
Income = Very High × Temperature = 12℃-30℃			-1.109***	

	Education of Male Head	Education of Female Head	Income	Ethnic
			(0.110)	
Income = Low × Wind Speed			-1.019	
			(0.961)	
Income = Medium × Wind Speed			-0.133	
			(0.988)	
Income = High × Wind Speed			-0.578	
			(1.016)	
Income = Very High × Wind Speed			-1.987**	
			(0.924)	
Income = Low × Precipitation			0.585	
			(0.371)	
Income = Medium × Precipitation			0.314	
			(0.357)	
Income = High × Precipitation			0.693*	
			(0.397)	
Income = Very High × Precipitation			0.313	
			(0.362)	
Income = Low × Relative humidity			0.065	
			(0.281)	
Income = Medium × Relative humidity			-0.244	
			(0.271)	
Income = High × Relative humidity			-0.015	
			(0.363)	
Income = Very High × Relative humidity			-0.648	
			(0.453)	
Income = Low ×			0.000	

	Education of Male Head	Education of Female Head	Income	Ethnic
Relative humidity^2				
			(0.002)	
Income = Medium × Relative humidity^2			0.001	
			(0.002)	
Income = High × Relative humidity^2			0.000	
			(0.003)	
Income = Very High × Relative humidity^2			0.005	
			(0.004)	
Temperature = 0℃-12℃ × Ethnic = Black/African American				-0.640***
				(0.147)
Temperature = 0℃-12℃ × Ethnic = Asian				-0.070
				(0.125)
Temperature = 0℃-12℃ × Ethnic = Other				-0.160
				(0.253)
Temperature = 0℃-12℃ × Ethnic = Hispanic				-0.218*
				(0.119)
Ethnic = Black/African American × Temperature = 12℃-30℃				-0.069
				(0.126)
Ethnic = Asian × Temperature = 12℃-30℃				-0.983***
				(0.093)
Ethnic = Other × Temperature = 12℃-30℃				-0.187
				(0.208)
Ethnic = Hispanic × Temperature = 12℃-30℃				-0.333***
				(0.086)
Ethnic = Black/African American × Wind Speed				1.513
				(1.066)

	Education of Male Head	Education of Female Head	Income	Ethnic
Ethnic = Asian × Wind Speed				-1.738**
				(0.710)
Ethnic = Other × Wind Speed				-0.177
				(2.028)
Ethnic = Hispanic × Wind Speed				1.129
				(0.736)
Ethnic = Black/African American × Precipitation				0.593
				(0.393)
Ethnic = Asian × Precipitation				-0.808**
				(0.327)
Ethnic = Other × Precipitation				0.312
				(0.645)
Ethnic = Hispanic × Precipitation				-0.412
				(0.260)
Ethnic = Black/African American × Relative humidity				0.216
				(0.329)
Ethnic = Asian × Relative humidity				-0.138
				(0.278)
Ethnic = Other × Relative humidity				-0.860
				(0.545)
Ethnic = Hispanic × Relative humidity				-0.407*
				(0.226)
Ethnic = Black/African American × Relative humidity^2				-0.003
				(0.003)
Ethnic = Asian × Relative humidity^2				0.003
				(0.002)

	Education of Male Head	Education of Female Head	Income	Ethnic
Ethnic = Other × Relative humidity^2				0.006
				(0.004)
Ethnic = Hispanic × Relative humidity^2				0.003
				(0.002)
FE: year^zone	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes
FE: household	Yes	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county	by: county
Num.Obs.	6908919	6908919	6908919	6908919
R^2	0.292	0.292	0.293	0.292

* p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of the Heterogeneity test (Education, Income and Ethnic). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 6 categorical variables totally: "Education of Male Head", "Education of Female Head", "Ethnic", "Income", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Education of Male/Female Head" = Grade School, "Ethnic" = White/Caucasian, Income = "Very Low", "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S15 Details of coefficients of the Heterogeneity test (Work Environment)

	Male Head Work Environment	Female Head Work Environment
Temperature = 0℃-12℃	0.049	0.063
	(0.078)	(0.076)
Environment = Outdoor	-14.693*	-23.284
	(7.728)	(18.097)
Temperature = 12℃-30℃	0.701***	0.803***
	(0.100)	(0.099)
Temperature >= 30℃	-0.454	-0.477
	(0.537)	(0.544)
Wind Speed	-1.842***	-1.071***
	(0.413)	(0.374)
Precipitation	-0.010	0.029
	(0.115)	(0.102)
Relative humidity	-0.248**	-0.201**

	Male Head Work Environment	Female Head Work Environment
	(0.122)	(0.096)
Relative humidity^2	0.001	0.000
	(0.001)	(0.001)
Household Income	-0.453***	-0.458***
	(0.135)	(0.135)
Household Size	-24.508***	-24.515***
	(0.582)	(0.582)
Age and Presence of Children = 6-12 only	-1.381	-1.363
	(1.258)	(1.260)
Age and Presence of Children = 13-17 only	-6.548***	-6.537***
	(1.492)	(1.492)
Age and Presence of Children = Under 6 & 6-12	8.479***	8.499***
	(1.294)	(1.296)
Age and Presence of Children = Under 6 & 13-17	9.138***	9.189***
	(2.437)	(2.439)
Age and Presence of Children = 6-12 & 13-17	4.254***	4.275***
	(1.564)	(1.565)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.167***	16.205***
	(2.711)	(2.713)
Age and Presence of Children = No Children Under 18	-9.412***	-9.414***
	(1.542)	(1.543)
Age of Male Head	-2.151***	-2.162***
	(0.614)	(0.615)
Age of Female Head	-1.714***	-1.719***
	(0.599)	(0.598)
Education of Male Head	0.516	0.526
	(0.626)	(0.626)
Education of Female Head	0.550	0.545
	(0.748)	(0.748)
Ethnic = Black/African American	-12.153**	-12.030**
	(5.615)	(5.624)
Ethnic = Asian	-5.189	-5.198

	Male Head Work Environment	Female Head Work Environment
	(4.485)	(4.488)
Ethnic = Other	-3.091	-3.061
	(2.736)	(2.734)
Ethnic = Hispanic	1.073	1.076
	(2.216)	(2.218)
Marital Status = Widowed	-1.075	-1.033
	(4.954)	(4.967)
Marital Status = Divorced/Separated	-2.662	-2.674
	(2.817)	(2.817)
Marital Status = Single	-1.673	-1.632
	(2.497)	(2.497)
Temperature = 0℃-12℃ × Environment = Outdoor	0.016	-0.108
	(0.074)	(0.184)
Environment = Outdoor × Temperature = 12℃-30℃	0.338***	0.200
	(0.065)	(0.157)
Environment = Outdoor × Wind Speed	2.343***	-1.180
	(0.566)	(1.209)
Environment = Outdoor × Precipitation	0.242	0.877
	(0.203)	(0.557)
Environment = Outdoor × Relative humidity	0.275	1.058*
	(0.226)	(0.564)
Environment = Outdoor × Relative humidity^2	-0.003*	-0.010**
	(0.002)	(0.005)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Std.Errors	by: county	by: county
Num.Obs.	6908919	6908919
R^2	0.292	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of the Heterogeneity test (Work Environment). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 4 categorical variables totally: "Environment (refer to the work environment of male or female head)", "Ethnic", "Age and Presence of Children", and

"Marital Status". Their baseline categories are as follows: "Environment" = Indoor, "Ethnic" = White/Caucasian, "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S16 Details of coefficients of the Heterogeneity test (Climate Zone)

	Climate Zone
Temperature = 0℃-12℃	-0.067
	(0.297)
Zone = Hot-Dry & Mixed-Dry	-1.991
	(15.851)
Zone = Mixed-Humid	7.463
	(22.250)
Zone = Marine	35.562
	(22.369)
Zone = Cold & Very Cold	7.141
	(16.230)
Temperature = 12℃-30℃	0.834***
	(0.118)
Temperature >= 30℃	-0.094
	(0.461)
Wind Speed	-2.224***
	(0.748)
Precipitation	-0.086
	(0.189)
Relative humidity	0.153
	(0.462)
Relative humidity^2	-0.002
	(0.003)
Household Income	-0.460***
	(0.137)
Household Size	-24.505***
	(0.581)
Age and Presence of Children = 6-12 only	-1.319
	(1.256)
Age and Presence of Children = 13-17 only	-6.519***
	(1.483)
Age and Presence of Children =	8.525***

Under 6 & 6-12	
	(1.297)
Age and Presence of Children = Under 6 & 13-17	9.310***
	(2.445)
Age and Presence of Children = 6-12 & 13-17	4.291***
	(1.573)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.309***
	(2.714)
Age and Presence of Children = No Children Under 18	-9.411***
	(1.541)
Age of Male Head	-2.151***
	(0.616)
Age of Female Head	-1.676***
	(0.599)
Education of Male Head	0.512
	(0.623)
Education of Female Head	0.530
	(0.750)
Ethnic = Black/African American	-12.085**
	(5.628)
Ethnic = Asian	-5.365
	(4.479)
Ethnic = Other	-3.088
	(2.728)
Ethnic = Hispanic	1.212
	(2.211)
Marital Status = Widowed	-1.220
	(4.965)
Marital Status = Divorced/Separated	-2.607
	(2.814)
Marital Status = Single	-1.676
	(2.504)
Temperature = 0°C-12°C × Zone = Hot-Dry & Mixed-Dry	0.626
	(0.391)
Temperature = 0°C-12°C ×	0.034

Zone = Mixed-Humid	
	(0.301)
Temperature = 0℃-12℃ × Zone = Marine	0.692*
	(0.356)
Temperature = 0℃-12℃ × Zone = Cold & Very Cold	0.179
	(0.305)
Zone = Hot-Dry & Mixed-Dry × Temperature = 12℃-30℃	-0.147
	(0.121)
Zone = Mixed-Humid × Temperature = 12℃-30℃	0.012
	(0.110)
Zone = Marine × Temperature = 12℃-30℃	-0.001
	(0.179)
Zone = Cold & Very Cold × Temperature = 12℃-30℃	0.165
	(0.124)
Zone = Hot-Dry & Mixed-Dry × Wind Speed	0.339
	(1.093)
Zone = Mixed-Humid × Wind Speed	0.755
	(0.967)
Zone = Marine × Wind Speed	-1.342
	(0.981)
Zone = Cold & Very Cold × Wind Speed	1.572*
	(0.869)
Zone = Hot-Dry & Mixed-Dry × Precipitation	0.999
	(0.641)
Zone = Mixed-Humid × Precipitation	0.087
	(0.257)
Zone = Marine × Precipitation	0.318
	(0.460)

Zone = Cold & Very Cold × Precipitation	0.740***
	(0.275)
Zone = Hot-Dry & Mixed-Dry × Relative humidity	-0.127
	(0.480)
Zone = Mixed-Humid × Relative humidity	-0.118
	(0.660)
Zone = Marine × Relative humidity	-1.248*
	(0.655)
Zone = Cold & Very Cold × Relative humidity	-0.168
	(0.495)
Zone = Hot-Dry & Mixed-Dry × Relative humidity2	-0.001
	(0.004)
Zone = Mixed-Humid × Relative humidity2	0.000
	(0.005)
Zone = Marine × Relative humidity2	0.010**
	(0.005)
Zone = Cold & Very Cold × Relative humidity2	0.000
	(0.004)
FE: year	Yes
FE: month	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of the Heterogeneity test (Climate Zone). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 4 categorical variables totally: "Zone", "Ethnic", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Zone" = Hot-Humid, "Ethnic" = White/Caucasian, "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year, month (to avoid collinearity, don't use the interaction with climate zone), and household levels, with standard errors clustered at the county level.

Table S17 Details of coefficients of the Heterogeneity test (Background CDD)

	Background Cooling Degree Days
Temperature = 0℃-12℃	0.150
	(0.142)
Background CDD = High	-12.915
	(19.378)
Background CDD = Low	6.525
	(13.011)
Background CDD = Medium	2.717
	(14.131)
Background CDD = Very High	5.548
	(13.155)
Temperature = 12℃-30℃	0.804***
	(0.199)
Temperature >= 30℃	-0.144
	(0.560)
Wind Speed	-1.350*
	(0.785)
Precipitation	0.271
	(0.376)
Relative humidity	-0.135
	(0.334)
Relative humidity^2	0.000
	(0.003)
Household Income	-0.459***
	(0.135)
Household Size	-24.520***
	(0.583)
Age and Presence of Children = 6-12 only	-1.358
	(1.260)
Age and Presence of Children = 13-17 only	-6.528***
	(1.492)
Age and Presence of Children = Under 6 & 6-12	8.520***
	(1.296)
Age and Presence of Children = Under 6 & 13-17	9.196***

	(2.440)
Age and Presence of Children = 6-12 & 13-17	4.283***
	(1.566)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.192***
	(2.713)
Age and Presence of Children = No Children Under 18	-9.410***
	(1.541)
Age of Male Head	-2.157***
	(0.615)
Age of Female Head	-1.719***
	(0.598)
Education of Male Head	0.527
	(0.627)
Education of Female Head	0.547
	(0.748)
Ethnic = Black/African American	-12.081**
	(5.629)
Ethnic = Asian	-5.185
	(4.487)
Ethnic = Other	-3.052
	(2.727)
Ethnic = Hispanic	1.041
	(2.219)
Marital Status = Widowed	-1.066
	(4.971)
Marital Status = Divorced/Separated	-2.686
	(2.819)
Marital Status = Single	-1.655
	(2.499)
Temperature = 0℃-12℃ × Background CDD = High	0.045
	(0.202)
Temperature = 0℃-12℃ × Background CDD = Low	-0.100
	(0.131)
Temperature = 0℃-12℃ × Background CDD = Medium	-0.008

	(0.153)
Temperature = 0℃-12℃ × Background CDD = Very High	-0.088
	(0.254)
Background CDD = High × Temperature = 12℃-30℃	0.202
	(0.214)
Background CDD = Low × Temperature = 12℃-30℃	-0.123
	(0.185)
Background CDD = Medium × Temperature = 12℃-30℃	0.005
	(0.199)
Background CDD = Very High × Temperature = 12℃-30℃	-0.074
	(0.207)
Background CDD = High × Wind Speed	0.192
	(1.461)
Background CDD = Low × Wind Speed	0.154
	(0.926)
Background CDD = Medium × Wind Speed	-0.178
	(0.991)
Background CDD = Very High × Wind Speed	0.380
	(1.039)
Background CDD = High × Precipitation	0.171
	(0.494)
Background CDD = Low × Precipitation	-0.266
	(0.444)
Background CDD = Medium × Precipitation	0.085
	(0.453)
Background CDD = Very High × Precipitation	-0.663
	(0.417)
Background CDD = High ×	0.626

Relative humidity	
	(0.549)
Background CDD = Low × Relative humidity	0.096
	(0.388)
Background CDD = Medium × Relative humidity	0.091
	(0.427)
Background CDD = Very High × Relative humidity	-0.289
	(0.362)
Background CDD = High × Relative humidity^2	-0.006
	(0.004)
Background CDD = Low × Relative humidity^2	-0.002
	(0.003)
Background CDD = Medium × Relative humidity^2	-0.001
	(0.003)
Background CDD = Very High × Relative humidity^2	0.003
	(0.003)
FE: year^zone	Yes
FE: month^zone	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.292

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of the Heterogeneity test (Background CDD). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 4 categorical variables totally: "Background CDD", "Ethnic", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Background CDD" = Very Low, "Ethnic" = White/Caucasian, "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. Background CDD is categorized into five ordered groups based on county-level annual averages from 1994-2003: Very Low (0-500), Low (500-1000), Medium (1000-1500), High (1500-2000), and Very High (>2000). "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S18 Details of coefficients of the Heterogeneity test (added sugar consumption from SSBs)

	SSB Consumption Group

Temperature = 0℃-12℃	-0.268***
	(0.069)
SSB Consumption Group = High	13.551
	(49286.743)
Temperature = 12℃-30℃	-0.200**
	(0.085)
Temperature >= 30℃	-0.624
	(0.512)
Wind Speed	-2.612***
	(0.332)
Precipitation	-0.447***
	(0.081)
Relative humidity	-0.503***
	(0.113)
Relative humidity^2	0.005***
	(0.001)
Household Income	-0.454***
	(0.135)
Household Size	-24.516***
	(0.582)
Age and Presence of Children = 6-12 only	-1.418
	(1.257)
Age and Presence of Children = 13-17 only	-6.600***
	(1.489)
Age and Presence of Children = Under 6 & 6-12	8.493***
	(1.296)
Age and Presence of Children = Under 6 & 13-17	9.183***
	(2.437)
Age and Presence of Children = 6-12 & 13-17	4.186***
	(1.562)
Age and Presence of Children = Under 6 & 6-12 & 13-17	16.191***
	(2.718)
Age and Presence of Children = No Children Under 18	-9.429***

	(1.541)
Age of Male Head	-2.130***
	(0.614)
Age of Female Head	-1.722***
	(0.598)
Education of Male Head	0.525
	(0.627)
Education of Female Head	0.563
	(0.747)
Ethnic = Black/African American	-12.046**
	(5.645)
Ethnic = Asian	-5.400
	(4.497)
Ethnic = Other	-3.164
	(2.740)
Ethnic = Hispanic	1.054
	(2.212)
Marital Status = Widowed	-1.164
	(4.981)
Marital Status = Divorced/Separated	-2.662
	(2.821)
Marital Status = Single	-1.613
	(2.507)
Temperature = 0℃-12℃ × SSB Consumption Group = High	0.934***
	(0.108)
SSB Consumption Group = High × Temperature = 12℃-30℃	2.675***
	(0.095)
SSB Consumption Group = High × Wind Speed	5.569***
	(0.791)
SSB Consumption Group = High × Precipitation	1.500***
	(0.283)
SSB Consumption Group = High × Relative humidity	0.905**
	(0.358)
SSB Consumption Group = High × Relative humidity^2	-0.014***

	(0.003)
FE: year^zone	Yes
FE: month^zone	Yes
FE: household	Yes
Std.Errors	by: county
Num.Obs.	6908919
R^2	0.294

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients of the Heterogeneity test (added sugar consumption from SSBs). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 4 categorical variables totally: "SSB Consumption Group", "Ethnic", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "SSB Consumption Group" = Low, "Ethnic" = White/Caucasian, "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. SSB Consumption Group is categorized into two ordered groups based on household-level monthly averages from 1994-2003: Low (0-45g), High (>=45g). "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S19 Details of coefficients by drinks consumption using the spline model (part1)

	Coffee and Tea	100% Juice	Sugar added Beverages	Plain Water	Milk
Temperature = 0℃-12℃	-0.429***	-0.123**	-0.053	-0.140	-0.660***
	(0.068)	(0.048)	(0.095)	(0.102)	(0.054)
Temperature = 12℃-30℃	0.181***	0.503***	1.195***	1.085***	-0.189***
	(0.070)	(0.060)	(0.114)	(0.128)	(0.061)
Temperature >= 30℃	-0.213	1.084***	-1.697**	-0.916	1.221***
	(0.530)	(0.335)	(0.778)	(0.990)	(0.289)
Wind Speed	-1.050***	-0.326*	-0.839*	0.303	0.113
	(0.255)	(0.186)	(0.448)	(0.436)	(0.238)
Precipitation	0.232***	-0.077	-0.066	-0.068	-0.015
	(0.082)	(0.059)	(0.133)	(0.148)	(0.065)
Relative humidity	-0.056	-0.312***	-0.325***	-0.368**	-0.316***
	(0.083)	(0.085)	(0.112)	(0.146)	(0.062)
Relative humidity^2	-0.001	0.002**	0.000	0.002	0.002***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.000)
Household Income	-0.172	-0.002	-0.383**	-0.035	-0.594***
	(0.120)	(0.096)	(0.189)	(0.215)	(0.115)
Household Size	-16.465***	-17.232***	-34.089***	-27.597***	-29.459***
	(0.572)	(0.435)	(0.879)	(1.157)	(0.611)
Age and Presence of Children = 6-12 only	-4.425***	-10.817***	-7.393***	-5.276**	-34.225***

	Coffee and Tea	100% Juice	Sugar added Beverages	Plain Water	Milk
	(1.187)	(1.351)	(1.969)	(2.287)	(1.608)
Age and Presence of Children = 13-17 only	-7.890***	-12.458***	-3.533	-4.231	-38.460***
	(1.289)	(1.354)	(2.431)	(3.023)	(1.737)
Age and Presence of Children = Under 6 & 6-12	3.829***	0.528	5.946***	1.455	-14.402***
	(1.016)	(1.313)	(1.983)	(2.354)	(1.574)
Age and Presence of Children = Under 6 & 13-17	4.118**	0.980	14.048***	1.800	-7.351**
	(1.697)	(2.553)	(4.294)	(3.919)	(2.980)
Age and Presence of Children = 6-12 & 13-17	-2.635**	-8.275***	1.746	-1.760	-27.777***
	(1.221)	(1.398)	(2.275)	(2.598)	(1.778)
Age and Presence of Children = Under 6 & 6-12 & 13-17	8.552***	2.747	16.368***	14.992***	-11.220***
	(1.749)	(2.147)	(4.010)	(3.250)	(2.432)
Age and Presence of Children = No Children Under 18	-7.079***	-15.426***	-8.157***	-3.254	-41.678***
	(1.335)	(1.336)	(2.496)	(3.156)	(1.911)
Age of Male Head	0.281	-2.297***	-3.770***	-2.447**	-2.264***
	(0.442)	(0.392)	(0.933)	(0.955)	(0.507)
Age of Female Head	-0.244	-1.904***	-3.651***	-1.930**	-2.359***
	(0.443)	(0.364)	(0.844)	(0.843)	(0.509)
Education of Male Head	-0.757	-1.386***	0.150	-0.015	-0.082
	(0.580)	(0.476)	(0.993)	(1.290)	(0.547)
Education of Female Head	-0.008	-1.364**	-0.039	0.275	-0.139
	(0.624)	(0.557)	(1.118)	(1.150)	(0.622)
Ethnic = Black/African American	-16.921***	-6.073	-14.963	-12.324	-4.840
	(6.071)	(3.966)	(12.085)	(14.334)	(3.668)
Ethnic = Asian	3.174	-1.962	-0.616	8.675	0.681
	(4.962)	(2.866)	(6.498)	(7.289)	(4.356)
Ethnic = Other	1.591	1.009	-1.794	9.682*	-1.189
	(2.592)	(2.286)	(4.176)	(5.429)	(2.800)
Ethnic = Hispanic	-3.106	-1.355	0.357	7.998	-1.329
	(2.164)	(1.812)	(3.849)	(5.344)	(2.420)
Marital Status = Widowed	-7.227	-10.049***	11.704	4.602	-2.248
	(5.199)	(3.648)	(9.142)	(7.700)	(4.224)
Marital Status = Divorced/Separated	-0.271	-3.607*	1.246	-0.292	-4.314*
	(2.283)	(2.017)	(4.973)	(4.938)	(2.374)
Marital Status = Single	6.076***	-1.565	0.507	0.558	-4.581**

	Coffee and Tea	100% Juice	Sugar added Beverages	Plain Water	Milk
	(2.141)	(2.137)	(3.994)	(4.681)	(2.197)
FE: year^zone	Yes	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes	Yes
FE: household	Yes	Yes	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county	by: county	by: county
Num.Obs.	6908919	6908919	6908919	6908919	6908919
R^2	0.302	0.399	0.438	0.477	0.597

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients by drinks consumption using the spline model (part1). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 3 categorical variables: "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S20 Details of coefficients by drinks consumption using the spline model (part2)

	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Temperature = 0℃-12℃	0.073	-0.185***	-0.034***	-0.031***
	(0.053)	(0.063)	(0.009)	(0.006)
Temperature = 12℃-30℃	0.225***	0.260***	-0.004	0.022***
	(0.060)	(0.074)	(0.010)	(0.006)
Temperature >= 30℃	-1.233***	-0.218	0.132	-0.027
	(0.348)	(0.673)	(0.083)	(0.031)
Wind Speed	-0.347	-0.217	-0.006	-0.030
	(0.240)	(0.281)	(0.041)	(0.023)
Precipitation	-0.100	-0.351***	-0.016	0.016***
	(0.075)	(0.094)	(0.013)	(0.006)
Relative humidity	-0.153**	0.051	-0.018	0.037***
	(0.073)	(0.069)	(0.011)	(0.008)
Relative humidity^2	0.001	-0.001*	0.000	0.000***
	(0.001)	(0.001)	(0.000)	(0.000)
Household Income	0.135	-0.050	0.024	0.000
	(0.145)	(0.171)	(0.022)	(0.002)
Household Size	-13.069***	-18.952***	-2.938***	-0.171***
	(0.519)	(0.786)	(0.089)	(0.010)
Age and Presence of Children = 6-12 only	-4.675***	-2.211	-1.737***	0.002
	(1.171)	(1.440)	(0.228)	(0.021)

	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Age and Presence of Children = 13-17 only	-9.149***	-6.945***	-3.628***	-0.024
	(1.504)	(1.781)	(0.276)	(0.025)
Age and Presence of Children = Under 6 & 6-12	1.964**	4.638***	0.447*	0.026
	(0.989)	(1.366)	(0.250)	(0.022)
Age and Presence of Children = Under 6 & 13-17	-1.039	6.998***	-0.239	0.043
	(2.204)	(2.641)	(0.429)	(0.040)
Age and Presence of Children = 6-12 & 13-17	-4.594***	1.149	-2.230***	0.015
	(1.340)	(1.699)	(0.257)	(0.025)
Age and Presence of Children = Under 6 & 6-12 & 13-17	4.833***	11.396***	0.120	0.055
	(1.468)	(2.323)	(0.342)	(0.040)
Age and Presence of Children = No Children Under 18	-2.371	-2.483	-2.734***	-0.054**
	(1.577)	(1.844)	(0.306)	(0.026)
Age of Male Head	0.556	2.636***	-0.291***	-0.005
	(0.621)	(0.652)	(0.103)	(0.009)
Age of Female Head	1.306**	1.223*	-0.072	-0.026***
	(0.538)	(0.684)	(0.092)	(0.009)
Education of Male Head	0.073	1.605**	0.018	-0.015
	(0.734)	(0.718)	(0.120)	(0.013)
Education of Female Head	0.353	0.100	-0.044	0.002
	(0.742)	(0.772)	(0.112)	(0.012)
Ethnic = Black/African American	-6.028	0.696	0.670	0.083
	(8.276)	(4.928)	(0.921)	(0.095)
Ethnic = Asian	-0.093	-5.139	0.147	0.077
	(2.678)	(5.052)	(0.815)	(0.102)
Ethnic = Other	-0.289	-1.057	0.425	0.077
	(2.559)	(3.775)	(0.521)	(0.061)
Ethnic = Hispanic	0.789	-0.922	-0.638	0.045
	(4.016)	(3.204)	(0.515)	(0.060)
Marital Status = Widowed	-1.691	-12.085**	0.725	-0.052
	(4.768)	(6.141)	(1.126)	(0.081)
Marital Status = Divorced/Separated	1.184	-5.998*	-0.400	-0.024
	(3.225)	(3.092)	(0.509)	(0.070)
Marital Status = Single	-1.671	-1.623	-0.393	0.026
	(2.392)	(2.797)	(0.508)	(0.049)

	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
FE: year^zone	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes
FE: household	Yes	Yes	Yes	Yes
Std.Errors	by: county	by: county	by: county	by: county
Num.Obs.	6908919	6908919	6908919	6908919
R^2	0.658	0.592	0.427	0.135

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients by drinks consumption using the spline model (part2). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 3 categorical variables: "Age and Presence of Children", "Ethnic" and "Marital Status". Their baseline categories are as follows: "Age and Presence of Children" = Under 6 only, "Ethnic" = White/Caucasian, "Marital Status" = Married. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S21 Details of coefficients by drinks consumption of socio-economic groups (part1)

	Sugar added Beverage	Plain Water
Temperature = 0℃-12℃	0.668	-1.254**
	(0.532)	(0.583)
Temperature = 12℃-30℃	2.516***	2.178***
	(0.360)	(0.521)
Temperature >= 30℃	-1.575**	-0.754
	(0.792)	(0.896)
Temperature = 0℃-12℃ × Education of Male Head = Some High School	-0.731	1.358**
	(0.576)	(0.623)
Temperature = 0℃-12℃ × Education of Male Head = Graduated High School	-0.632	1.122**
	(0.530)	(0.570)
Temperature = 0℃-12℃ × Education of Male Head = Some College	-0.724	1.121*
	(0.535)	(0.583)
Temperature = 0℃-12℃ × Education of Male Head = Graduated College	-0.784	1.213**

	Sugar added Beverage	Plain Water
	(0.532)	(0.578)
Temperature = 0℃-12℃ × Education of Male Head = Post College Grad	-1.030*	1.002*
	(0.532)	(0.578)
Education of Male Head = Some High School × Temperature = 12℃-30℃	-0.508	-0.437
	(0.372)	(0.536)
Education of Male Head = Graduated High School × Temperature = 12℃-30℃	-1.018***	-0.726
	(0.358)	(0.513)
Education of Male Head = Some College × Temperature = 12℃-30℃	-1.569***	-1.265**
	(0.358)	(0.514)
Education of Male Head = Graduated College× Temperature = 12℃-30℃	-1.782***	-1.636***
	(0.359)	(0.539)
Education of Male Head = Post College Grad × Temperature = 12℃-30℃	-2.014***	-1.891***
	(0.359)	(0.537)
Temperature = 0℃-12℃	0.077	0.012
	(0.871)	(0.759)
Temperature = 12℃-30℃	1.822***	1.546***
	(0.443)	(0.597)
Temperature >= 30℃	-1.634**	-0.852
	(0.792)	(0.949)
Temperature = 0℃-12℃ × Education of Female Head = Some High School	0.189	-0.093
	(0.887)	(0.809)
Temperature = 0℃-12℃ × Education of Female Head = Graduated High School	-0.021	-0.075
	(0.881)	(0.765)

	Sugar added Beverage	Plain Water
Temperature = 0℃-12℃ × Education of Female Head = Some College	-0.210	-0.221
	(0.883)	(0.758)
Temperature = 0℃-12℃ × Education of Female Head = Graduated College	-0.140	-0.157
	(0.869)	(0.761)
Temperature = 0℃-12℃ × Education of Female Head = Post College Grad	-0.377	-0.155
	(0.861)	(0.745)
Education of Female Head = Some High School × Temperature = 12℃-30℃	0.534	-0.040
	(0.457)	(0.632)
Education of Female Head = Graduated High School × Temperature = 12℃-30℃	-0.369	-0.053
	(0.455)	(0.627)
Education of FemaleHead = Some College × Temperature = 12℃-30℃	-0.634	-0.456
	(0.452)	(0.613)
Education of Female Head = Graduated College× Temperature = 12℃-30℃	-1.079**	-1.033*
	(0.461)	(0.609)
Education of Female Head = Post College Grad × Temperature = 12℃-30℃	-1.376***	-1.219*
	(0.462)	(0.656)
Temperature = 0℃-12℃	-0.039	-0.299*
	(0.197)	(0.167)
Temperature = 12℃-30℃	2.229***	1.416***
	(0.171)	(0.191)
Temperature >= 30℃	-1.688**	-0.923
	(0.778)	(0.967)
Temperature = 0℃-12℃ ×	0.011	0.253

	Sugar added Beverage	Plain Water
Income = High		
	(0.206)	(0.173)
Temperature = 0℃-12℃ × Income = Low	0.103	-0.024
	(0.204)	(0.177)
Temperature = 0℃-12℃ × Income = Medium	0.157	0.243
	(0.211)	(0.179)
Temperature = 0℃-12℃ × Income = Very High	-0.222	0.261
	(0.194)	(0.167)
Income = High × Temperature = 12℃-30℃	-1.325***	-0.249
	(0.160)	(0.162)
Income = Low × Temperature = 12℃-30℃	-0.660***	-0.136
	(0.149)	(0.183)
Income = Medium × Temperature = 12℃-30℃	-0.902***	-0.459**
	(0.168)	(0.180)
Income = Very High × Temperature = 12℃-30℃	-1.742***	-0.677***
	(0.156)	(0.174)
Temperature = 0℃-12℃	0.036	-0.072
	(0.094)	(0.104)
Temperature = 12℃-30℃	1.366***	1.120***
	(0.119)	(0.131)
Temperature >= 30℃	-1.886**	-0.980
	(0.765)	(1.019)
Temperature = 0℃-12℃ × Ethnic = Black/African American	-0.708***	-0.604***
	(0.184)	(0.178)
Temperature = 0℃-12℃ × Ethnic = Asian	-0.149	0.284
	(0.175)	(0.243)
Temperature = 0℃-12℃ × Ethnic = Other	-0.100	-0.984**
	(0.396)	(0.385)

	Sugar added Beverage	Plain Water
Temperature = 0℃-12℃ × Ethnic = Hispanic	-0.381**	-0.125
	(0.169)	(0.128)
Ethnic = Black/African American × Temperature = 12℃-30℃	-0.391***	-0.203
	(0.140)	(0.166)
Ethnic = Asian × Temperature = 12℃-30℃	-1.154***	-1.097***
	(0.129)	(0.236)
Ethnic = Other × Temperature = 12℃-30℃	-0.206	-0.208
	(0.264)	(0.274)
Ethnic = Hispanic × Temperature = 12℃-30℃	-0.525***	0.110
	(0.123)	(0.123)
Temperature = 0℃-12℃	-0.062	-0.158
	(0.099)	(0.107)
Temperature = 12℃-30℃	1.057***	0.960***
	(0.116)	(0.135)
Temperature >= 30℃	-1.672**	-0.896
	(0.777)	(0.982)
Temperature = 0℃-12℃ × Male Head Work Environment = Outdoor	0.001	0.072
	(0.099)	(0.112)
Male Head Work Environment = Outdoor × Temperature = 12℃-30℃	0.410***	0.362***
	(0.088)	(0.119)
Temperature = 0℃-12℃	-0.041	-0.153
	(0.096)	(0.103)
Temperature = 12℃-30℃	1.173***	1.060***
	(0.114)	(0.128)
Temperature >= 30℃	-1.700**	-0.918
	(0.781)	(0.979)
Temperature = 0℃-12℃ × Female Work Environment = Outdoor	-0.304	0.320
	(0.248)	(0.219)
Female Work Environment = Outdoor × Temperature = 12℃-30℃	0.451**	0.590***

	Sugar added Beverage	Plain Water
	(0.211)	(0.211)
FE: year^zone	Yes	Yes
FE: month^zone	Yes	Yes
FE: household	Yes	Yes
Num.Obs.	6908919	6908919
Std.Errors	by: county	by: county

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients by drinks consumption of socio-economic groups (part1). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 8 categorical variables totally: "Education of Male Head", "Education of Female Head", "Ethnic", "Income", "Male Head Work Environment", "Female Head Work Environment", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Education of Male/Female Head" = Grade School, "Ethnic" = White/Caucasian, Income = "Very Low", "Male Work Environment" = "Indoor", "Female Work Environment" = "Indoor", "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S22 Details of coefficients by drinks consumption of socio-economic groups (part2)

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Temperature = 0°C-12°C	-0.497*	-0.266	-0.444*	-0.492	0.152	0.047	-0.018
	(0.258)	(0.273)	(0.228)	(0.378)	(0.260)	(0.046)	(0.014)
Temperature = 12°C-30°C	0.431**	0.772***	-0.116	0.486**	0.349*	-0.026	0.046***
	(0.193)	(0.209)	(0.211)	(0.225)	(0.207)	(0.024)	(0.010)
Temperature >= 30°C	-0.175	1.144***	1.222***	-1.212***	-0.201	0.130	-0.027
	(0.491)	(0.323)	(0.293)	(0.335)	(0.665)	(0.081)	(0.031)
Temperature = 0°C-12°C × Education of Male Head = Some High School	0.238	0.148	-0.275	0.480	-0.200	-0.079	0.000
	(0.270)	(0.282)	(0.245)	(0.393)	(0.280)	(0.049)	(0.015)
Temperature = 0°C-12°C × Education of Male Head = Graduated High School	0.011	0.121	-0.237	0.634*	-0.339	-0.089**	-0.018
	(0.247)	(0.272)	(0.221)	(0.376)	(0.259)	(0.045)	(0.014)
Temperature = 0°C-12°C × Education of Male Head = Some College	0.043	0.121	-0.273	0.593	-0.322	-0.070	-0.013
	(0.247)	(0.272)	(0.224)	(0.375)	(0.262)	(0.046)	(0.013)
Temperature = 0°C-12°C ×	0.136	0.247	-0.171	0.474	-0.381	-0.081*	-0.011

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Education of Male Head = Graduated College							
	(0.251)	(0.273)	(0.221)	(0.376)	(0.266)	(0.047)	(0.013)
Temperature = 0°C-12°C × Education of Male Head = Post College Grad	0.136	0.193	-0.025	0.506	-0.448*	-0.086*	0.000
	(0.260)	(0.278)	(0.229)	(0.377)	(0.262)	(0.051)	(0.014)
Education of Male Head = Some High School × Temperature = 12°C-30°C	-0.033	-0.082	-0.036	-0.174	-0.062	0.017	-0.016
	(0.190)	(0.234)	(0.219)	(0.236)	(0.210)	(0.026)	(0.011)
Education of Male Head = Graduated High School × Temperature = 12°C-30°C	-0.128	-0.085	-0.075	-0.184	-0.033	0.019	-0.025***
	(0.183)	(0.213)	(0.198)	(0.218)	(0.207)	(0.023)	(0.010)
Education of Male Head = Some College × Temperature = 12°C-30°C	-0.321*	-0.308	-0.022	-0.287	-0.157	0.026	-0.031***
	(0.182)	(0.209)	(0.194)	(0.219)	(0.205)	(0.023)	(0.009)
Education of Male Head = Graduated College× Temperature = 12°C-30°C	-0.419**	-0.494**	-0.116	-0.367*	-0.110	0.031	-0.018*
	(0.180)	(0.211)	(0.198)	(0.217)	(0.215)	(0.024)	(0.009)
Education of Male Head = Post College Grad × Temperature = 12°C-30°C	-0.482**	-0.715***	-0.183	-0.483**	-0.127	0.013	-0.016
	(0.190)	(0.213)	(0.214)	(0.219)	(0.210)	(0.028)	(0.012)
Temperature = 0°C-12°C	-0.074	-0.223	-0.517	0.197	-0.744*	0.036	-0.057**
	(0.443)	(0.329)	(0.337)	(0.216)	(0.399)	(0.059)	(0.027)
Temperature = 12°C-30°C	-0.171	0.307	-0.542**	0.525**	0.251	-0.045	0.055***
	(0.279)	(0.209)	(0.236)	(0.231)	(0.321)	(0.042)	(0.014)
Temperature >= 30°C	-0.207	1.093***	1.208***	-1.207***	-0.208	0.128	-0.027
	(0.506)	(0.326)	(0.296)	(0.342)	(0.664)	(0.084)	(0.032)
Temperature = 0°C-12°C × Education of Female Head = Some High School	-0.015	-0.010	0.102	-0.295	0.809*	-0.075	0.019
	(0.476)	(0.327)	(0.382)	(0.260)	(0.438)	(0.065)	(0.029)
Temperature = 0°C-12°C × Education of Female Head = Graduated High School	-0.458	0.067	-0.184	-0.085	0.591	-0.069	0.022
	(0.434)	(0.328)	(0.326)	(0.217)	(0.401)	(0.060)	(0.026)
Temperature = 0°C-12°C ×	-0.316	0.111	-0.214	-0.080	0.601	-0.069	0.023

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Education of Female Head = Some College							
	(0.435)	(0.326)	(0.331)	(0.218)	(0.400)	(0.061)	(0.028)
Temperature = 0℃-12℃ × Education of Female Head = Graduated College	-0.278	0.169	-0.128	-0.183	0.465	-0.083	0.035
	(0.439)	(0.324)	(0.329)	(0.210)	(0.398)	(0.060)	(0.027)
Temperature = 0℃-12℃ × Education of Female Head = Post College Grad	-0.380	0.127	0.113	-0.231	0.453	-0.049	0.044
	(0.443)	(0.333)	(0.334)	(0.216)	(0.403)	(0.061)	(0.027)
Education of Female Head = Some High School × Temperature = 12℃-30℃	0.528*	0.442**	0.504*	-0.068	-0.045	0.005	-0.023
	(0.304)	(0.225)	(0.268)	(0.250)	(0.329)	(0.043)	(0.017)
Education of Female Head = Graduated High School × Temperature = 12℃-30℃	0.494*	0.336	0.364	-0.221	0.114	0.043	-0.042***
	(0.276)	(0.206)	(0.229)	(0.223)	(0.315)	(0.042)	(0.014)
Education of FemaleHead = Some College × Temperature = 12℃-30℃	0.333	0.194	0.378	-0.325	-0.034	0.052	-0.035**
	(0.277)	(0.203)	(0.230)	(0.229)	(0.317)	(0.041)	(0.014)
Education of Female Head = Graduated College× Temperature = 12℃-30℃	0.187	0.056	0.320	-0.395*	-0.112	0.034	-0.022
	(0.274)	(0.205)	(0.237)	(0.231)	(0.314)	(0.041)	(0.013)
Education of Female Head = Post College Grad × Temperature = 12℃-30℃	0.112	-0.214	0.270	-0.522**	-0.014	0.032	-0.020
	(0.286)	(0.212)	(0.243)	(0.224)	(0.321)	(0.043)	(0.014)
Temperature = 0℃-12℃	-0.379***	-0.216***	-0.741***	0.004	-0.222**	-0.023	-0.040***
	(0.121)	(0.077)	(0.092)	(0.100)	(0.113)	(0.016)	(0.008)
Temperature = 12℃-30℃	0.464***	0.636***	-0.084	0.149*	0.311***	-0.003	0.019***
	(0.097)	(0.084)	(0.077)	(0.088)	(0.109)	(0.014)	(0.007)
Temperature >= 30℃	-0.215	1.086***	1.226***	-1.237***	-0.208	0.132	-0.026
	(0.505)	(0.330)	(0.293)	(0.346)	(0.668)	(0.083)	(0.031)
Temperature = 0℃-12℃ × Income = High	-0.082	0.144*	0.061	0.083	0.019	-0.006	0.007
	(0.124)	(0.083)	(0.096)	(0.108)	(0.117)	(0.018)	(0.007)
Temperature = 0℃-12℃ × Income = Low	-0.127	0.095	0.157	0.014	0.099	-0.009	0.005

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
	(0.122)	(0.079)	(0.096)	(0.107)	(0.114)	(0.017)	(0.006)
Temperature = 0°C-12°C × Income = Medium	-0.006	0.069	0.035	0.046	0.112	-0.007	0.004
	(0.122)	(0.082)	(0.099)	(0.104)	(0.127)	(0.017)	(0.007)
Temperature = 0°C-12°C × Income = Very High	0.005	0.085	0.077	0.106	0.009	-0.018	0.020***
	(0.123)	(0.074)	(0.094)	(0.096)	(0.122)	(0.017)	(0.006)
Income = High × Temperature = 12°C-30°C	-0.323***	-0.078	-0.214***	0.102	-0.089	0.000	-0.002
	(0.088)	(0.077)	(0.062)	(0.091)	(0.090)	(0.012)	(0.006)
Income = Low × Temperature = 12°C-30°C	-0.180**	-0.125*	-0.032	0.093	0.003	0.003	-0.002
	(0.086)	(0.069)	(0.075)	(0.081)	(0.092)	(0.011)	(0.005)
Income = Medium × Temperature = 12°C-30°C	-0.272***	-0.092	-0.029	0.105	-0.024	-0.002	0.004
	(0.089)	(0.075)	(0.074)	(0.097)	(0.094)	(0.013)	(0.005)
Income = Very High × Temperature = 12°C-30°C	-0.486***	-0.286***	-0.189***	0.043	-0.105	-0.004	0.014**
	(0.090)	(0.072)	(0.073)	(0.083)	(0.095)	(0.012)	(0.006)
Temperature = 0°C-12°C	-0.448***	-0.078	-0.722***	0.103*	-0.198***	-0.041***	-0.033***
	(0.073)	(0.047)	(0.055)	(0.053)	(0.066)	(0.009)	(0.006)
Temperature = 12°C-30°C	0.248***	0.510***	-0.201***	0.285***	0.351***	0.003	0.012**
	(0.072)	(0.061)	(0.066)	(0.066)	(0.080)	(0.010)	(0.006)
Temperature >= 30°C	-0.281	1.055***	1.262***	-1.301***	-0.307	0.128	-0.010
	(0.545)	(0.330)	(0.294)	(0.349)	(0.691)	(0.082)	(0.026)
Temperature = 0°C-12°C × Ethnic = Black/African American	-0.004	-0.396***	0.393***	-0.232***	-0.026	0.014	0.005
	(0.110)	(0.094)	(0.076)	(0.081)	(0.070)	(0.013)	(0.006)
Temperature = 0°C-12°C × Ethnic = Asian	0.103	0.186*	0.429***	-0.218***	-0.080	0.004	0.080***
	(0.183)	(0.113)	(0.124)	(0.083)	(0.148)	(0.025)	(0.008)
Temperature = 0°C-12°C × Ethnic = Other	-0.186	0.035	0.070	0.005	0.231	-0.018	-0.017
	(0.223)	(0.155)	(0.157)	(0.144)	(0.210)	(0.034)	(0.017)
Temperature = 0°C-12°C × Ethnic = Hispanic	0.092	-0.116	0.180**	-0.164*	-0.089	0.026*	0.022***
	(0.088)	(0.071)	(0.073)	(0.093)	(0.084)	(0.015)	(0.008)
Ethnic = Black/African American × Temperature = 12°C-30°C	-0.187***	0.210***	0.054	-0.363***	-0.394***	-0.052***	0.023***
	(0.065)	(0.073)	(0.046)	(0.064)	(0.054)	(0.010)	(0.006)

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Ethnic = Asian × Temperature = 12°C-30°C	-0.306***	-0.449***	0.163	-0.293***	-0.262***	-0.028	0.066***
	(0.093)	(0.080)	(0.105)	(0.068)	(0.087)	(0.020)	(0.007)
Ethnic = Other × Temperature = 12°C-30°C	-0.148	-0.052	0.171	-0.048	-0.415***	0.006	0.021**
	(0.141)	(0.111)	(0.109)	(0.140)	(0.147)	(0.023)	(0.009)
Ethnic = Hispanic × Temperature = 12°C-30°C	-0.178***	-0.034	-0.008	-0.090	-0.183***	-0.014	0.036***
	(0.058)	(0.061)	(0.051)	(0.060)	(0.051)	(0.010)	(0.005)
Temperature = 0°C-12°C	-0.448***	-0.128**	-0.639***	0.046	-0.191***	-0.031***	-0.035***
	(0.073)	(0.051)	(0.056)	(0.058)	(0.065)	(0.009)	(0.006)
Temperature = 12°C-30°C	0.106	0.374***	-0.184***	0.204***	0.313***	-0.001	0.018***
	(0.073)	(0.062)	(0.063)	(0.068)	(0.076)	(0.010)	(0.006)
Temperature >= 30°C	-0.200	1.106***	1.217***	-1.230***	-0.228	0.131	-0.027
	(0.522)	(0.328)	(0.289)	(0.346)	(0.677)	(0.083)	(0.030)
Temperature = 0°C-12°C × Male Work Environment = Outdoor	0.065	0.029	-0.072	0.089	0.023	-0.010	0.016***
	(0.064)	(0.049)	(0.051)	(0.066)	(0.062)	(0.010)	(0.005)
Male Work Environment = Outdoor × Temperature = 12°C-30°C	0.219***	0.382***	-0.015	0.064	-0.154***	-0.007	0.012***
	(0.047)	(0.043)	(0.038)	(0.082)	(0.049)	(0.007)	(0.004)
Temperature = 0°C-12°C	-0.433***	-0.126***	-0.657***	0.067	-0.196***	-0.035***	-0.030***
	(0.068)	(0.049)	(0.054)	(0.054)	(0.063)	(0.009)	(0.006)
Temperature = 12°C-30°C	0.172**	0.490***	-0.195***	0.222***	0.257***	-0.004	0.022***
	(0.070)	(0.059)	(0.061)	(0.061)	(0.075)	(0.010)	(0.006)
Temperature >= 30°C	-0.203	1.097***	1.222***	-1.239***	-0.226	0.131	-0.027
	(0.526)	(0.334)	(0.290)	(0.349)	(0.672)	(0.084)	(0.031)
Temperature = 0°C-12°C × Female Work Environment = Outdoor	0.099	0.059	-0.076	0.162	0.243	0.005	-0.011
	(0.159)	(0.127)	(0.116)	(0.146)	(0.181)	(0.024)	(0.010)
Female Work Environment = Outdoor × Temperature = 12°C-30°C	0.242**	0.331***	0.160*	0.063	0.078	0.009	0.010**
	(0.109)	(0.104)	(0.096)	(0.104)	(0.147)	(0.022)	(0.005)
FE: year^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE: month^zone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
FE: household	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num.Obs.	6908919	6908919	6908919	6908919	6908919	6908919	6908919

	Coffee and Tea	100% Juice	Milk	Alcoholic Beverages	Diet Beverages	Yogurt	Dairy Drinks and Substitutes
Std.Errors	by: county	by: county	by: county	by: county	by: county	by: county	by: county

p < 0.1, ** p < 0.05, *** p < 0.01

Notes: This table presents details of coefficients by drinks consumption of socio-economic groups (part2). The model divides the temperature into three segments: 0-12°C, 12-30°C, and above 30°C. It also includes 8 categorical variables totally: "Education of Male Head", "Education of Female Head", "Ethnic", "Income", "Male Work Environment", "Female Work Environment", "Age and Presence of Children", and "Marital Status". Their baseline categories are as follows: "Education of Male/Female Head" = Grade School, "Ethnic" = White/Caucasian, Income = "Very Low", "Male Work Environment" = "Indoor", "Female Work Environment" = "Indoor", "Age and Presence of Children" = Under 6 only, "Marital Status" = Married. "×" represents the interaction term between two variables. And the model controls for fixed effects at the year^climate zone, month^climate zone, and household levels, with standard errors clustered at the county level.

Table S23 Descriptive statistics of the meteorological data used in projection of 2019 and 2095 (SSP5-8.5)

	variable		n	mean	sd	min	max
2019	Temperature	Annual	935160	13.68	9.72	-31.28	39.24
		Spring	233790	13.07	6.77	-24.49	30.62
		Summer	233790	23.79	3.85	-0.13	39.24
		Autumn	233790	14.53	7.27	-18.33	32.95
		Winter	233790	3.3	7.32	-31.28	29.95
	Wind Speed		935160	3.22	1.16	0.30	11.70
	Precipitation		935160	1.91	1.34	-2.30	15.98
	Relative Humidity		935160	67.44	10.46	8.49	144.25
2095	Temperature	Annual	935160	18.69	9.73	-25.37	43.23
		Spring	233790	17.65	6.61	-20.04	36.43
		Summer	233790	29.11	3.85	4.14	43.23
		Autumn	233790	19.96	7.27	-10.86	38.1
		Winter	233790	8.07	6.59	-25.37	33.59
	Wind Speed		935160	3.09	1.16	0.19	11.87
	Precipitation		935160	2.08	1.52	-2.33	18.35
	Relative Humidity		935160	65.27	11.52	6.24	119.81

Notes: This table presents descriptive statistics of the meteorological data used in projection of 2019 and 2095 (SSP5-8.5). The temperature data are presented for the entire year and each season. "n" represents the number of counties included in all 25 CMIP6 models, indicating that each meteorological data is the monthly average at the county level.

Table S24 Descriptive statistics of the projected results of 2095 from all the models (SSP5-8.5)

variable	n	mean	sd	min	max

Monthly average	All the models	300	2.99	1.57	-0.18	7.51
County average	ACCESS-CM2	2537	3.92	0.64	1.67	5.42
	ACCESS-ESM1-5	2537	3.02	0.52	1.21	4.39
	AWI-CM-1-1-MR	2537	2.86	0.75	0.99	4.4
	CanESM5	1697	4.13	0.54	2.53	5.38
	CanESM5-1	1697	4.07	0.58	2.22	6.2
	CAS-ESM2-0	2537	2.81	0.55	0.54	4.4
	CESM2-WACCM	2537	3.34	0.55	1.68	5.09
	CMCC-CM2-SR5	2537	2.87	0.67	1.62	5.13
	CMCC-ESM2	2537	2.94	0.52	1.27	4.47
	EC-Earth3	2537	3.3	0.56	1.68	5
	EC-Earth3-CC	2537	3.26	0.58	1.53	5.05
	EC-Earth3-Veg	2537	3.36	0.57	1.63	5.03
	EC-Earth3-Veg-LR	2537	3.5	0.6	1.72	5.27
	FGOALS-f3-L	2537	2.68	0.28	1.62	3.76
	FGOALS-g3	2460	1.84	0.35	0.89	2.8
	FIO-ESM-2-0	2537	2.92	0.54	1.06	3.8
	INM-CM4-8	2534	1.9	0.54	0.88	3.67
	INM-CM5-0	2534	1.26	0.53	0.32	2.58
	IPSL-CM6A-LR	2515	4.91	0.62	1.39	6.06
	MIROC6	2537	2.65	0.42	1.39	4.43
	MPI-ESM1-2-HR	2537	3.08	0.72	1.04	4.61
	MPI-ESM1-2-LR	2515	3.54	0.61	1.54	5.04
	MRI-ESM2-0	2537	2.1	0.38	1.1	3.57
	NorESM2-LM	2379	2.76	0.58	1.35	3.95
	NorESM2-MM	2537	2.86	0.42	1.01	3.86
Male Head Education	Grade School	25	6.2	1.45	3.93	9.33
	Some High School	25	4.12	0.88	2.41	5.93
	Graduated High School	25	3.83	0.94	1.71	6.06
	Some College	25	2.8	0.69	1.24	4.38
	Graduated College	25	1.72	0.47	0.9	2.66
	Post College Grad	25	0.85	0.38	0.19	1.69
Female Head Education	Grade School	25	3.48	0.8	2.26	4.79
	Some High School	25	4.53	0.94	2.81	6.26
	Graduated High School	25	3.85	0.99	1.68	6.07
	Some College	25	2.98	0.71	1.42	4.61
	Graduated College	25	1.84	0.46	0.88	2.87

	Post College Grad	25	1.14	0.36	0.37	1.85
Income	Very Low	25	4.85	1.09	2.4	7.2
	Low	25	4.1	0.97	1.9	6.4
	Medium	25	3.78	0.84	2.04	5.53
	High	25	2.3	0.56	1.04	3.5
	Very High	25	1.12	0.41	0.36	1.97
Ethnic	White/Caucasian	25	3.38	0.81	1.64	5.12
	Other	25	2.87	0.78	1.31	4.89
	Black/African American	25	2.66	0.94	0.35	5
	Hispanic	25	1.92	0.51	0.83	3.07
	Asian	25	0	0.25	-0.64	0.43
Male Head Work Environment	Indoor	25	2.65	0.68	1.29	4.01
	Outdoor	25	3.65	0.88	1.59	5.89
Female Head Work Environment	Indoor	25	2.93	0.72	1.4	4.52
	Outdoor	25	4.1	1.16	1.29	6.76

Notes: This table presents descriptive statistics of the projected results of 2095 from 25 models of SSP5-8.5. It includes descriptions of the average results for each month nationwide as predicted by the 25 models, the annual average results predicted by each model for each county, and the annual average results for each socio-economic group.

Table S25 Descriptive statistics of the meteorological data used in projection of 2019 and 2095 (SSP2-4.5)

	variable		n	mean	sd	min	max
2019	Temperature	Annual	588132	13.65	9.79	-28.27	38.73
		Spring	147033	13.05	6.9	-22.08	32
		Summer	147033	23.78	3.98	-0.53	38.73
		Autumn	147033	14.51	7.33	-18.23	33.03
		Winter	147033	3.27	7.41	-28.27	31.36
	Wind Speed		588132	3.22	1.2	0.25	10.99
	Precipitation		588132	1.91	1.37	-2.17	18.61
	Relative Humidity		588132	67.41	10.44	8.79	139.6
2095	Temperature	Annual	588132	16.01	9.56	-21.89	41.2
		Spring	147033	15.22	6.68	-16.65	33.62
		Summer	147033	26.03	3.84	2.83	41.2
		Autumn	147033	16.96	7.2	-15.35	35.6
		Winter	147033	5.82	6.96	-21.89	33.2
	Wind Speed		588132	3.05	1.19	0.22	11.47
	Precipitation		588132	2.07	1.49	-2.16	17.88
	Relative Humidity		588132	66.78	10.65	8.86	120.71

Notes: This table presents descriptive statistics of the meteorological data used in projection of 2019 and 2095 (SSP2-4.5). The temperature data are presented for the entire year and each season. "n" represents the number of counties included in all 16 CMIP6 models, indicating that each meteorological data is the monthly average at the county level.

Table S26 Descriptive statistics of the projected results of 2095 from all the models (SSP2-4.5)

variable		n	mean	sd	min	max
Monthly average	All the models	192	1.42	0.75	0.01	3.26
County average	ACCESS-CM2	2537	2.01	0.52	1.09	3.84
	ACCESS-ESM1-5	2537	0.99	0.37	-0.1	2.24
	CanESM5	1697	1.76	0.4	0.66	2.73
	CanESM5-1	1697	1.66	0.41	0.46	2.98
	EC-Earth3	2537	1.9	0.6	0.16	3.46
	EC-Earth3-CC	2537	1.81	0.67	0.47	3.3
	EC-Earth3-Veg	2537	1.36	0.42	0.05	3.09
	EC-Earth3-Veg-LR	2537	1.26	0.49	-0.25	2.74
	FGOALS-f3-L	2537	0.94	0.4	-0.6	1.81
	FGOALS-g3	2460	1.05	0.32	-0.04	1.6
	IPSL-CM6A-LR	2515	2.11	0.36	0.91	2.92
	KACE-1-0-G	2537	1.44	0.4	0.07	2.2
	MIROC6	2537	1.53	0.48	0.33	3.15
	MRI-ESM2-0	2537	0.52	0.38	-1.03	1.91
	NorESM2-LM	2379	1.5	0.58	-0.06	2.6
	NorESM2-MM	2537	1.51	0.3	0.43	2.29
Male Head Education	Grade School	16	3.04	0.6	2.1	4.01
	Some High School	16	1.79	0.43	1.08	2.47
	Graduated High School	16	1.79	0.48	0.8	2.54
	Some College	16	1.32	0.36	0.51	1.92
	Graduated College	16	0.85	0.23	0.38	1.21
	Post College Grad	16	0.56	0.22	0.06	0.9
Female Head Education	Grade School	16	1.48	0.36	0.58	2.01
	Some High School	16	1.95	0.49	1.12	2.69
	Graduated High School	16	1.92	0.49	0.81	2.73
	Some College	16	1.34	0.37	0.59	1.92
	Graduated College	16	0.85	0.24	0.36	1.24
	Post College Grad	16	0.63	0.18	0.17	0.95
Income	Very Low	16	2.16	0.55	1.07	2.93
	Low	16	1.84	0.51	0.83	2.63

	Medium	16	1.8	0.4	1.04	2.41
	High	16	1.16	0.29	0.51	1.65
	Very High	16	0.63	0.23	0.1	1.02
Ethnic	White/Caucasian	16	1.64	0.39	0.8	2.27
	Other	16	1.34	0.43	0.43	2.07
	Black/African American	16	1.1	0.47	0.01	1.87
	Hispanic	16	0.83	0.34	0.3	1.29
	Asian	16	0.13	0.26	-0.48	0.4
Male Head Work Environment	Indoor	16	1.33	0.33	0.6	1.88
	Outdoor	16	1.58	0.49	0.66	2.49
Female Head Work Environment	Indoor	16	1.39	0.36	0.63	1.97
	Outdoor	16	2.1	0.58	0.65	3.11

Notes: This table presents descriptive statistics of the projected results of 2095 from 16 models of SSP2-4.5. It includes descriptions of the average results for each month nationwide as predicted by the 16 models, the annual average results predicted by each model for each county, and the annual average results for each socio-economic group.