

Issue # 7: Numerator Data - Descriptive Statistics 2023-2024

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This Write-up contains tables and plots for the descriptive analysis of the Numerator data. The original user-trip-item level data is transformed to user-month level data, with variables summarized at the monthly level for each user.

1. Tables

- FAH/FAFH department codes (less granular grouping) and soda category (more granular grouping) codes
- Number of users by state-year
- Demographics by treatment status
- Spending by treatment status
- Soda spending by treatment status
- Food and soda spending percentiles

2. Figures: Distribution of ...

- proportion of food spending out of total spending
- proportion of FAH/FAFH spending out of total food spending
- proportion of FAH/FAFH on SNAP out of SNAP spending
- soda spending/winsorized spending
- Proportion of soda spending out of total food spending
- proportion of soda on SNAP out of total SNAP spending
- proportion soda at home/away from home

Major Changes: included online receipts; updated FAH and FAFH classification; relabelled outcome being plotted and updated footnotes; added summary statistics by SNAP status.

Major Observation: Even after adding online receipts that could potentially include food away from home (delivery foods), FAFH is still a very tiny portion. The proportion of total food spending on FAFH actually decreases when comparing to the one with only in-store receipts, potentially suggesting that most of online receipts are also categorized as FAH instead of FAFH.

In summary tables by SNAP treatment status, those who are on SNAP tend to spend more in total and on food.

All these could be a result of Numerator’s financial incentive for uploading receipt that varies based on receipt characteristics (grocery or restaurant) and values. According to the paper by Song, financial incentive increases with receipt values; every grocery receipt receives financial incentive but the restaurant (QSR) receipts will be put on lottery so not all food away from home receipts get financial reward. This can create selection of receipt and potentially results in missing receipts.

Table 1: Food at Home vs. Food Away from Home Categories

Food At Home (Grocery)	Food Away From Home (QSR)
Snack	LSR Sandwiches & Wraps
Canned	LSR Beverages
Produce	LSR Breakfast
Dairy	LSR Desserts
Beverages	LSR Entrees
Packaged Bakery (Bread & Alternatives)	LSR Snack & Sides
Condiments	LSR Mexican
Frozen Foods	LSR Sauces & Condiments
Shelf Stable Meals	LSR Italian
Candy (Snacks)	LSR Salads
Baking & Cooking	
Meat	
Seafood & Fish	
Beans & Grains	
Refrigerated Foods	
Breakfast	
Pasta & Noodles	
Deli & Prepared Foods	
In-Store Bakery (Bread & Alternatives)	
Herbs & Spices	
Alcohol Beverages	
Misc. Food	
Fresh Meal Kits	
Ice	

Table 2: Soda Categories

Soda At Home (Grocery Beverages)	Soda Away From Home (QSR Beverages)
Soft Drinks	LSR Bottled Soda
Tonic & Club Soda	LSR Fountain Drink
Sparkling Juice & Ciders	
Prebiotic & Probiotic Soda	

Table 3: Number of Users in Affected and Unaffected States

State	2023	2024
Household affected in Jan 2026		
FL	15783	16459
IA	2155	2237
ID	929	974
IN	4959	5176
LA	2749	2862
NE	1340	1388
OK	2116	2203
UT	1564	1642
WV	1324	1369
Subtotal	32919	34310
Household affected after Jan 2026		
AK	404	433
CO	2989	3153
TX	16884	17633
Subtotal	20277	21219
Treated States	53196	55529
Control States	148001	154561
Total	201197	210090

Notes: In static panel, each static period is defined by a 12-month window, and the panel is balanced within each static period but may not be balanced between static period. Here, we extract the purchases of households who have ever being included in the static panel.

Table 4: User-Month Panel - Demographics

	Mean (SD)			Min	Max
	Treated States	Control States	Total		
Income	84582.76 (62441.29)	90601.78 (65852.10)	89618.92 (65345.19)	10000.00	275000.00
Household Size	2.74 (1.45)	2.81 (1.48)	2.80 (1.47)	1.00	7.00
Age	50.76 (13.78)	48.94 (13.61)	49.23 (13.65)	19.00	67.50
Married	0.59 (0.49)	0.56 (0.50)	0.57 (0.50)	0.00	1.00
Education (years)	13.84 (1.32)	13.89 (1.35)	13.89 (1.34)	10.00	16.00
White	0.73 (0.44)	0.68 (0.47)	0.68 (0.46)	0.00	1.00
Black	0.09 (0.29)	0.11 (0.32)	0.11 (0.31)	0.00	1.00
Asian	0.02 (0.15)	0.07 (0.25)	0.06 (0.24)	0.00	1.00
Hispanic	0.13 (0.34)	0.12 (0.33)	0.13 (0.33)	0.00	1.00
Ever Child	0.22 (0.41)	0.24 (0.43)	0.23 (0.42)	0.00	1.00
Number of States	9	46	55		
Number of Users	34,385	176,083	210,468		
Average Number of Months per User	22.94	22.96	22.95		

Notes: Income's 'less than 20000' category is coded as 10000, and 'more than 250000' is coded as 275000. Other income buckets are coded as the mean of a bucket. Education's 'advanced' category is coded as 16, and 'less than high school' is coded as 10.

Table 5: User-Month Panel - Spending

	Treated States	Mean (SD) Control States	Total	Min	Max
Food Spending	756.63 (745.30)	720.58 (766.89)	726.47 (763.52)	0.00	48405.92
Total Spending	3387.18 (2896.66)	3351.41 (2885.78)	3357.25 (2887.59)	0.00	205789.76
Prop. of Total Spending on Food	0.24 (0.17)	0.23 (0.18)	0.23 (0.18)	0.00	1.00
Prop. of Food Spending on FAH	0.99 (0.04)	0.99 (0.05)	0.99 (0.05)	0.00	1.00
Prop. of Food Spending on FAFH	0.01 (0.04)	0.01 (0.05)	0.01 (0.05)	0.00	1.00
Prop of Food on EBT	0.35 (0.31)	0.35 (0.32)	0.35 (0.32)	0.00	1.00
Prop. of EBT Spending on FAH	1.00 (0.01)	1.00 (0.02)	1.00 (0.02)	0.00	1.00
Prop. of EBT on FAFH	0.00 (0.01)	0.00 (0.02)	0.00 (0.02)	0.00	1.00
Ever SNAP	0.15 (0.36)	0.17 (0.37)	0.16 (0.37)	0.00	1.00
Number of States	9	46	55		
Number of Users	34,385	176,083	210,468		

Notes: Prop. of food spending is calculated out of total spending. Prop. of FAH/FAFH spending and food on SNAP is calculated out of total food spending. Prop. of FAH/FAFH on SNAP is calculated out of total SNAP spending. Means are calculated by averaging users' monthly spending/proportion, pooled over time and users. No winsorization. EBT-related outcomes are conditional on households on SNAP.

Table 6: User-Month Panel - Soda Spending

		Mean (SD)		Min	Max
	Treated States	Control States	Total		
Soda Spending	30.86 (62.68)	28.57 (60.87)	28.95 (61.17)	0.00	13611.24
Prop. of Food Spending on Soda	0.04 (0.08)	0.04 (0.08)	0.04 (0.08)	0.00	1.00
Prop. of Soda Spending on Soda at Home	1.00 (0.02)	1.00 (0.02)	1.00 (0.02)	0.00	1.00
Prop. of Soda Spending on Soda Away From Home	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00	1.00
Prop of EBT Spending on Soda	0.05 (0.13)	0.05 (0.13)	0.05 (0.13)	0.00	1.00
Prop of Soda Spending on EBT	0.32 (0.39)	0.32 (0.39)	0.32 (0.39)	0.00	1.00
Number of Users	34,385	176,083	210,468		

Notes: Prop. of soda spending is calculated out of total food spending. Prop. of soda FAH/FAFH spending is calculated out of total food spending. Prop. of soda on SNAP is calculated out of total SNAP spending. Means are calculated by averaging users' monthly spending/proportion, pooled over time and users. No winsorization.

Table 7: User-Month Panel - Demographics (SNAP vs Non-SNAP)

	Mean (SD)			Min	Max
	Treated States	Control States	Total		
Income	52037.42 (54775.30)	95963.09 (64851.02)	89618.92 (65345.19)	10000.00	275000.00
Household Size	2.99 (1.70)	2.77 (1.43)	2.80 (1.47)	1.00	7.00
Age	48.62 (13.57)	49.34 (13.66)	49.23 (13.65)	19.00	67.50
Married	0.32 (0.47)	0.61 (0.49)	0.57 (0.50)	0.00	1.00
Education (years)	13.39 (1.41)	13.97 (1.31)	13.89 (1.34)	10.00	16.00
White	0.51 (0.50)	0.71 (0.45)	0.68 (0.46)	0.00	1.00
Black	0.21 (0.41)	0.09 (0.29)	0.11 (0.31)	0.00	1.00
Asian	0.05 (0.22)	0.06 (0.24)	0.06 (0.24)	0.00	1.00
Hispanic	0.21 (0.41)	0.11 (0.32)	0.13 (0.33)	0.00	1.00
Ever Child	0.29 (0.45)	0.22 (0.42)	0.23 (0.42)	0.00	1.00
Number of States	53	55	55		
Number of Users	30,217	180,251	210,468		
Average Number of Months per User	23.09	22.93	22.95		

Notes: Income's 'less than 20000' category is coded as 10000, and 'more than 250000' is coded as 275000. Other income buckets are coded as the mean of a bucket. Education's 'advanced' category is coded as 16, and 'less than high school' is coded as 10.

Table 8: User-Month Panel - Spending (SNAP vs Non-SNAP)

	Treated States	Mean (SD) Control States	Total	Min	Max
Food Spending	859.49 (878.90)	704.01 (739.92)	726.47 (763.52)	0.00	48405.92
Total Spending	3481.05 (2977.48)	3336.35 (2871.62)	3357.25 (2887.59)	0.00	205789.76
Prop. of Total Spending on Food	0.27 (0.19)	0.23 (0.17)	0.23 (0.18)	0.00	1.00
Prop. of Food Spending on FAH	0.99 (0.04)	0.99 (0.05)	0.99 (0.05)	0.00	1.00
Prop. of Food Spending on FAFH	0.01 (0.04)	0.01 (0.05)	0.01 (0.05)	0.00	1.00
Prop of Food on EBT	0.41 (0.32)	0.21 (0.27)	0.35 (0.32)	0.00	1.00
Prop. of EBT Spending on FAH	1.00 (0.02)	1.00 (0.02)	1.00 (0.02)	0.00	1.00
Prop. of EBT on FAFH	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00	1.00
Ever SNAP	0.79 (0.41)	0.06 (0.24)	0.16 (0.37)	0.00	1.00
Number of States	53	55	55		
Number of Users	30,217	180,251	210,468		

Notes: Prop. of food spending is calculated out of total spending. Prop. of FAH/FAFH spending and food on SNAP is calculated out of total food spending. Prop. of FAH/FAFH on SNAP is calculated out of total SNAP spending. Means are calculated by averaging users' monthly spending/proportion, pooled over time and users. No winsorization.

Table 9: User-Month Panel - Soda Spending (SNAP vs Non-SNAP)

	Treated States	Mean (SD) Control States	Total	Min	Max
Soda Spending	41.03 (72.09)	26.91 (58.88)	28.95 (61.17)	0.00	13611.24
Prop. of Food Spending on Soda	0.05 (0.08)	0.04 (0.08)	0.04 (0.08)	0.00	1.00
Prop. of Soda Spending on Soda at Home	1.00 (0.02)	1.00 (0.02)	1.00 (0.02)	0.00	1.00
Prop. of Soda Spending on Soda Away From Home	0.00 (0.02)	0.00 (0.02)	0.00 (0.02)	0.00	1.00
Prop of EBT Spending on Soda	0.05 (0.12)	0.05 (0.15)	0.05 (0.13)	0.00	1.00
Prop of Soda Spending on EBT	0.37 (0.40)	0.20 (0.34)	0.32 (0.39)	0.00	1.00
Number of Users	30,217	180,251	210,468		

Notes: Prop. of soda spending is calculated out of total food spending. Prop. of soda FAH/FAFH spending is calculated out of total food spending. Prop. of soda on SNAP is calculated out of total SNAP spending. Means are calculated by averaging users' monthly spending/proportion, pooled over time and users. No winsorization.

Table 10: User-Month Panel - Food Spending Percentiles

percentile	2023	2024
50%	402.18	449.12
60	524.62	594.48
70%	675.68	780.16
80%	879.70	1044.46
90%	1217.62	1519.24
95%	1555.54	2038.36
96%	1665.20	2217.00
97%	1807.34	2457.20
98%	2013.40	2809.64
99%	2392.11	3452.26
99.5%	2822.90	4147.75
100%	34672.40	47053.16

Table 11: User-Month Panel - Soda Spending Percentiles

percentile	2023	2024
50%	0.00	0.00
60%	0.00	0.00
70%	4.56	4.56
80%	13.28	14.56
90%	31.38	37.16
95%	52.94	65.52
96%	61.10	75.96
97%	71.90	90.04
98%	88.72	113.82
99%	120.64	159.40
99.5%	156.61	212.36
100%	1909.32	2890.20

Figure 1: Proportion of Food Spending

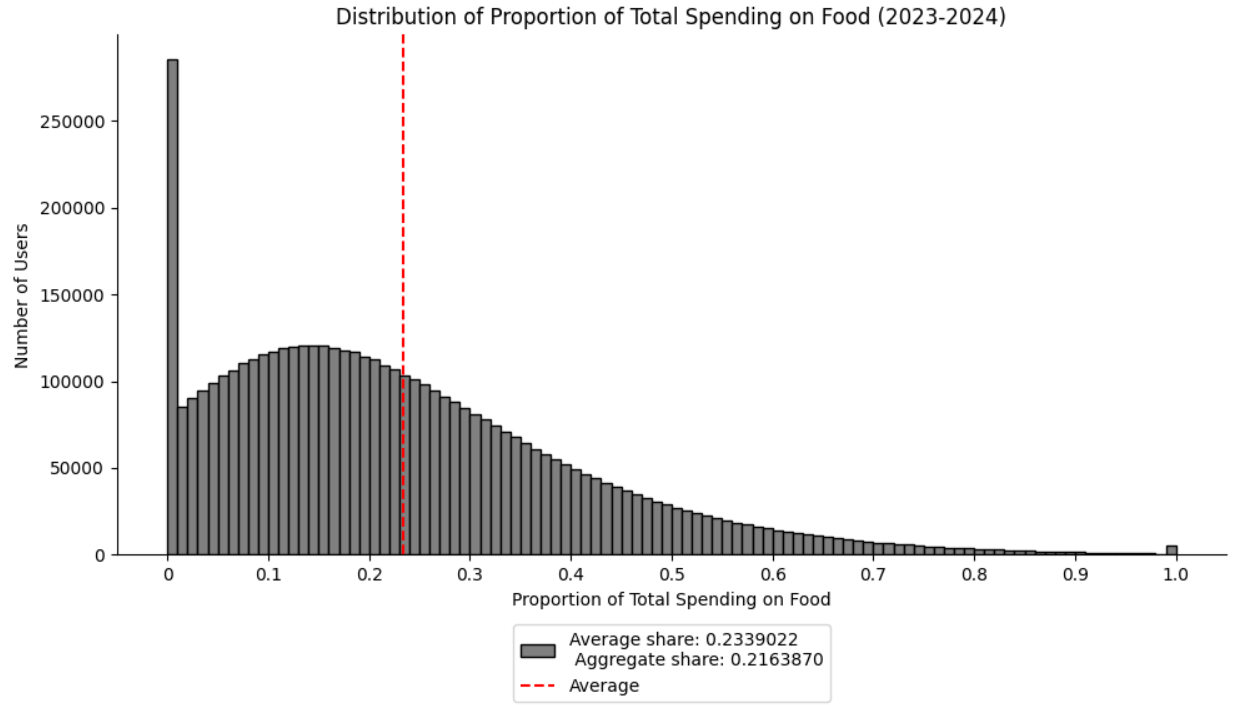


Figure 2: Proportion of FAH/FAFH Spending out of total food spending

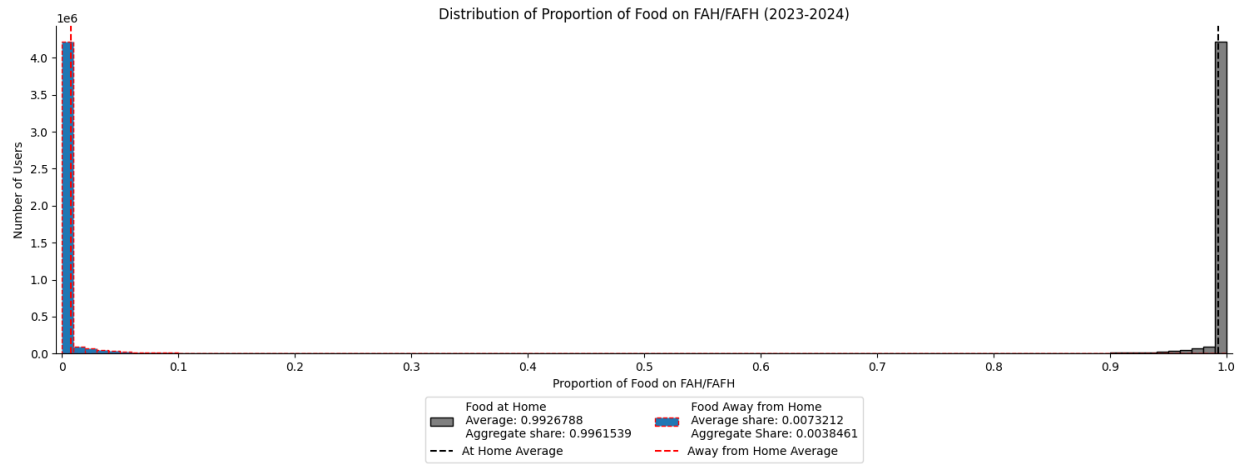
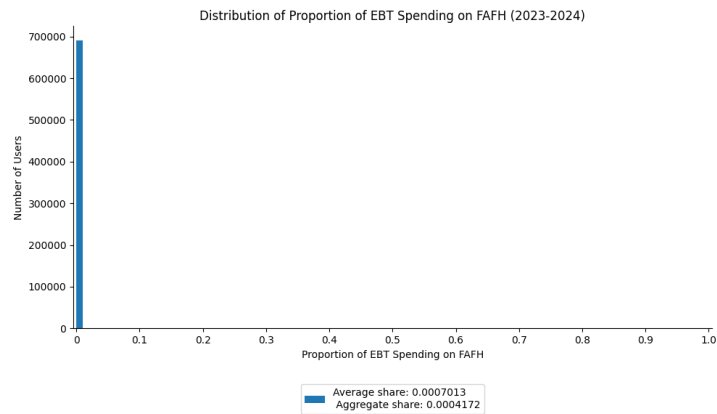


Figure 3: Proportion of FAH/FAFH SNAP Spending out of total SNAP spending

(a) Food Away



(b) Food at Home

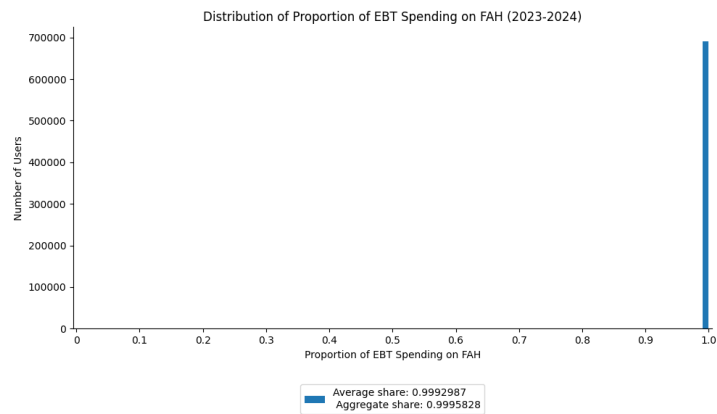
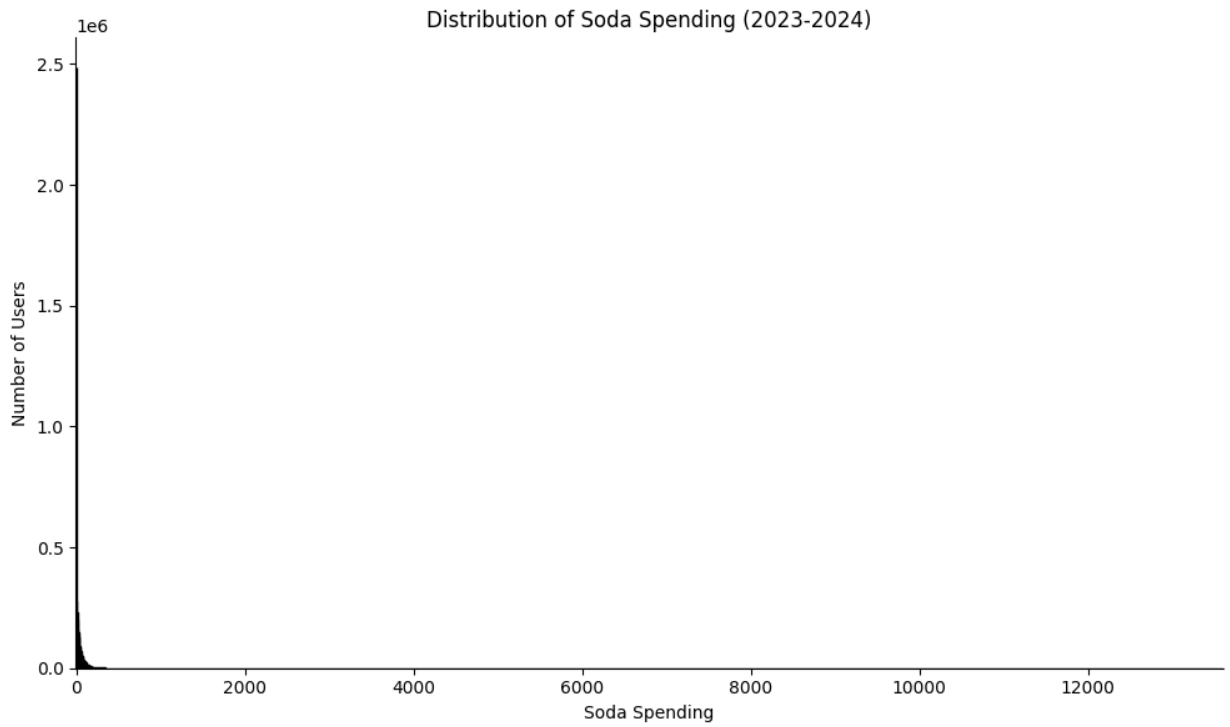


Figure 4: Soda Spending

(a) unwinsorized



(b) winsorized at 99.5%

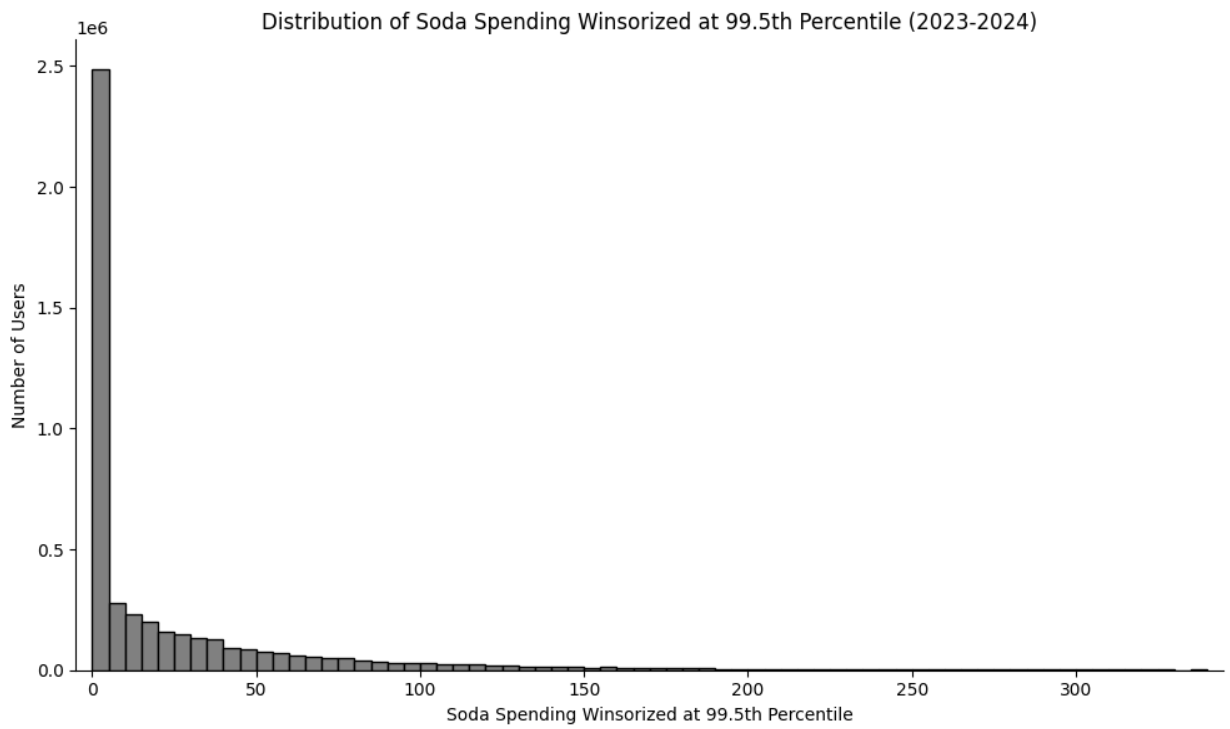


Figure 5: Proportion of Soda Spending out of total food spending

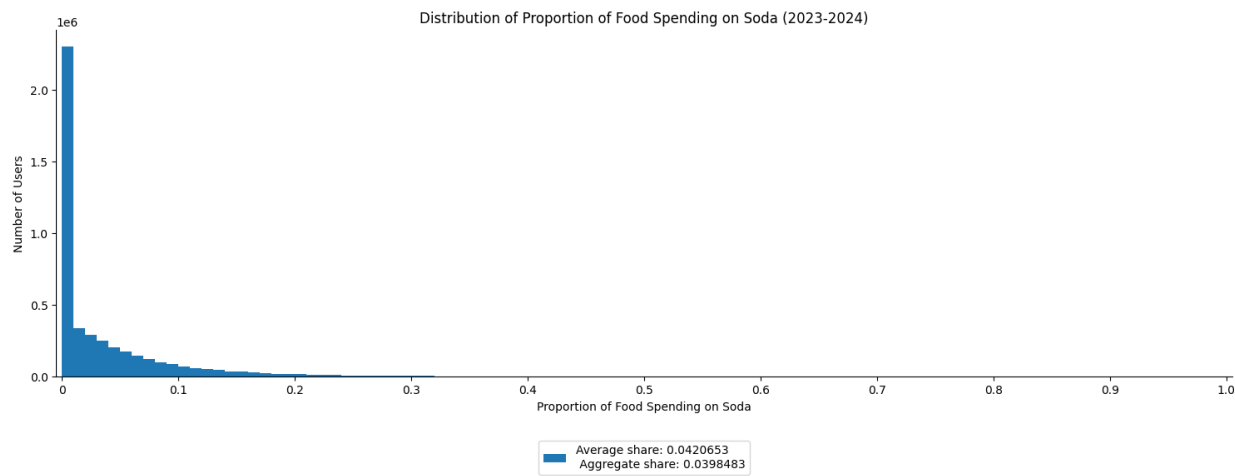


Figure 6: Proportion of Soda SNAP Spending out of total SNAP spending

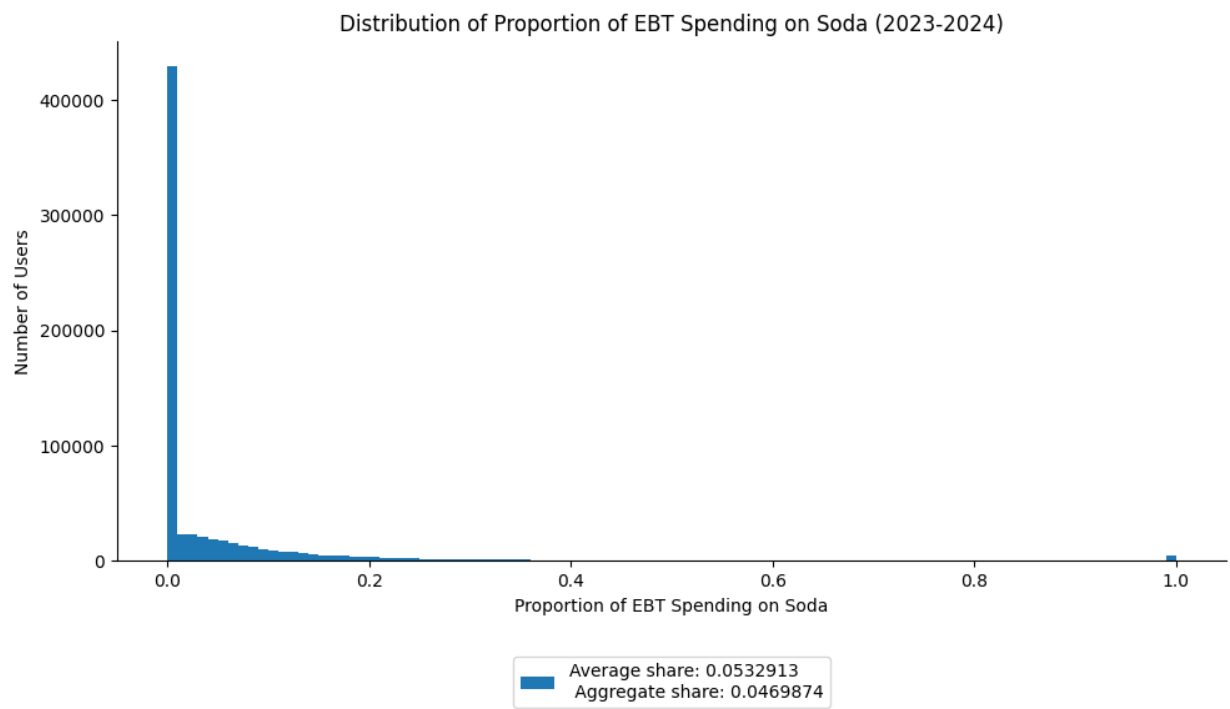


Figure 7: Proportion of Soda FAH/FAFH Spending out of total soda spending

