Are SNAP and School Lunch Substitutes?

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Motivation

- According to USDA (2015), roughly 8% of households with children experienced food insecurity
- SNAP and the NSLP are the two largest food assistance programs
  - Evidence they ameliorate food insecurity (i.e. Hoynes and Schanzenbach 2015)
- Little research documenting the relationship between them
- Are SNAP and NSLP substitutes?
- Existing empirical work shows food consumption decreases toward the end of the SNAP month as families exhaust their benefits (i.e. Shapiro 2005)
  - Is there a parallel increase in NSLP participation?
  - To what extent does NSLP ameliorate this exhaustion of benefits?
- This paper uses newly available data (FoodAps) to answer these questions.

This paper

- Focuses on children aged 5-18 in poor households
  - Both SNAP and Non-SNAP households
- Examines Lunch Consumption on School Days
  - Both “any lunch” and “school lunch”
- Two empirical approaches
  - Regression linking school lunch and days since SNAP payment
    - Causal interpretation warranted if timing of SNAP payment conditionally random
  - Regression discontinuity design
    - Compares participation just before and after SNAP payment

Preview of results

- On average, SNAP kids are 12pp more likely to eat school lunch than others
- Among kids aged 11-16, however, participation in school lunch drops in the 2 weeks following SNAP payment (<0.07)
  - Increases again in weeks 3 and 4
- Little evidence of any relationship between SNAP and school lunch participation among kids 5-10
- RD results consistent
  - SLP drops 15 pp post SNAP payment
- No evidence that consumption of *any lunch* varies with the SNAP cycle, suggesting substitution among middle school students

National Household Food Acquisitions Survey (FoodAPS)

- National representative survey
  - Includes 4,826 households and 14,317 individuals
    - Household and individual level demographics
  - Collects information on foods acquired by all household members over 7 days (one week)
    - Nutritional information, type of food, size, amount, cost, etc.
    - Measures of food access (e.g. distance to food outlets)
- From April 2012 to mid-January 2013
- Data collection consisted:
  - Initial interview with the primary respondent (prior to day 1)
  - Data collection from day 1-7
    - Participants record food acquisitions in their food books and primary respondent completes Meals & Snack Forms
    - Children older than 11 have their own food book
  - Phone interviews on days 2,5,7
    - Primary respondent reports food acquisitions by phone
  - Final interview with primary respondent (after day 7)

We use five FoodAPS data sources

- Individual (FI)
  - One record per individual
  - Participants' demographic information, including age
- Household (FH)
  - One record per household, including household level demographics, SNAP participation and days since last SNAP payment
- Food Away From Home (FAFH)
  - Food and meals obtained and consumed away from home or prepared meals brought/delivered to the home
  - <u>Events:</u> meal level, includes meal type (e.g. lunch), place (e.g. school)
  - <u>Items:</u> component of each meal, including whether part of school meal or reimbursable meal
  - Children aged 11 or older record their own meals, primary respondent reports meals of younger children
- Meals & Snack Forms (M&SF)
  - Individual level data reporting each days' meals (breakfast, lunch, snack, and dinner)
- *Combined to create a child-day dataset with lunch participation measures, individual, and household level variables*

Constructing the dataset

- Select children in the FI dataset (4,604)
  - 3,338 age 5 to 18 yrs old
  - Mean age 11 yrs old
- Match to FH data and exclude non-poor kids
- SNAP and non-SNAP children (2,187)
  - 1,445 current SNAP
  - 742 not on SNAP
- Include only those interviewed when school is in session
  - Excludes those interviewed during summer or other breaks
- Include child-day observations with lunch data on
  - The FAFH dataset (primary or youth book) OR
  - The M&SF completed by primary respondent
  - Exclude child-day observations with no lunch records on both
- These sample restrictions result in
  - 1,196 children
  - 7,682 child-day observations
  - 5,637 child-day weekday observations

Sample Means

Demographic characteristics	SNAP	Non-SNAP
Black	20.3	15.6
Hispanic	38.0	30.5
White	34.1	46.2
Other race/ethnicity	7.6	7.7
Female	46.8	50.0
Age	10.7	11.5
Public housing	14.0	7.2
Rural	22.3	28.2
Public school	92.1	87.2
Number of children = 1,196	806	390

Key Lunch Variables:

- $LUNCH_{id}$ takes a value of one if:
  - The FAFH Data has an observation for child *i* on day *d* with lunch = 1; OR
  - The M&SF data has an observation for child *i* on day *d* with lunch =1
  - $Lunch_{id}$ = 0 otherwise
- $SLUNCH_{id}$ = 1 if
  - Child or primary respondent
    - Reported eating lunch at school (FAFH dataset) or if lunch was classified as a SCHOOL LUNCH based on items consumed (FAFH item dataset)
  - lunch was free or part of a reimbursable meal

Benchmarking model

$$lunch_{id} = \alpha + \beta SNAP_{id} + X'_{id}\theta + \delta_d + \mu_m + \varepsilon_{id}$$

- SNAP = 1 if *i* is in a SNAP household
- *X* is a vector of individual/household controls
- δ and μ are day of the week and interview month fixed effects, respectively
- Estimate for both lunch and slunch
- Estimate using household sampling weights

Does (school) lunch participation vary with the SNAP benefit cycle?

$$lunch_{id} = \alpha + \beta SNAPdays + X'_{id}\theta + \delta_d + \mu_m + \varepsilon_{id}$$

- SNAPdays = number of days since SNAP payment (1-31)
- Estimated using only SNAP kids (excludes non-SNAP kids)
- Three specifications: linear, quadratic, and cubic
- Stratified by age:
  - 11-16
  - 5-10
- Estimate using household sampling weights

Benchmarking: SNAP kids more likely to eat school lunch

	Lunch		School lunch	
DV:	(1)	(2)	(3)	(4)
SNAP	-0.040	-0.023	0.133*	0.122**
	(0.025)	(0.022)	(0.053)	(0.043)
Demographic controls	N	Y	N	Y
Day of the week FX	Y	Y	Y	Y
Interview month FX	Y	Y	Y	Y
Observations	5,637	5,637	5,637	5,637
R-squared	0.020	0.051	0.067	0.105

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** p<0.01, * p<0.05, + p<0.1

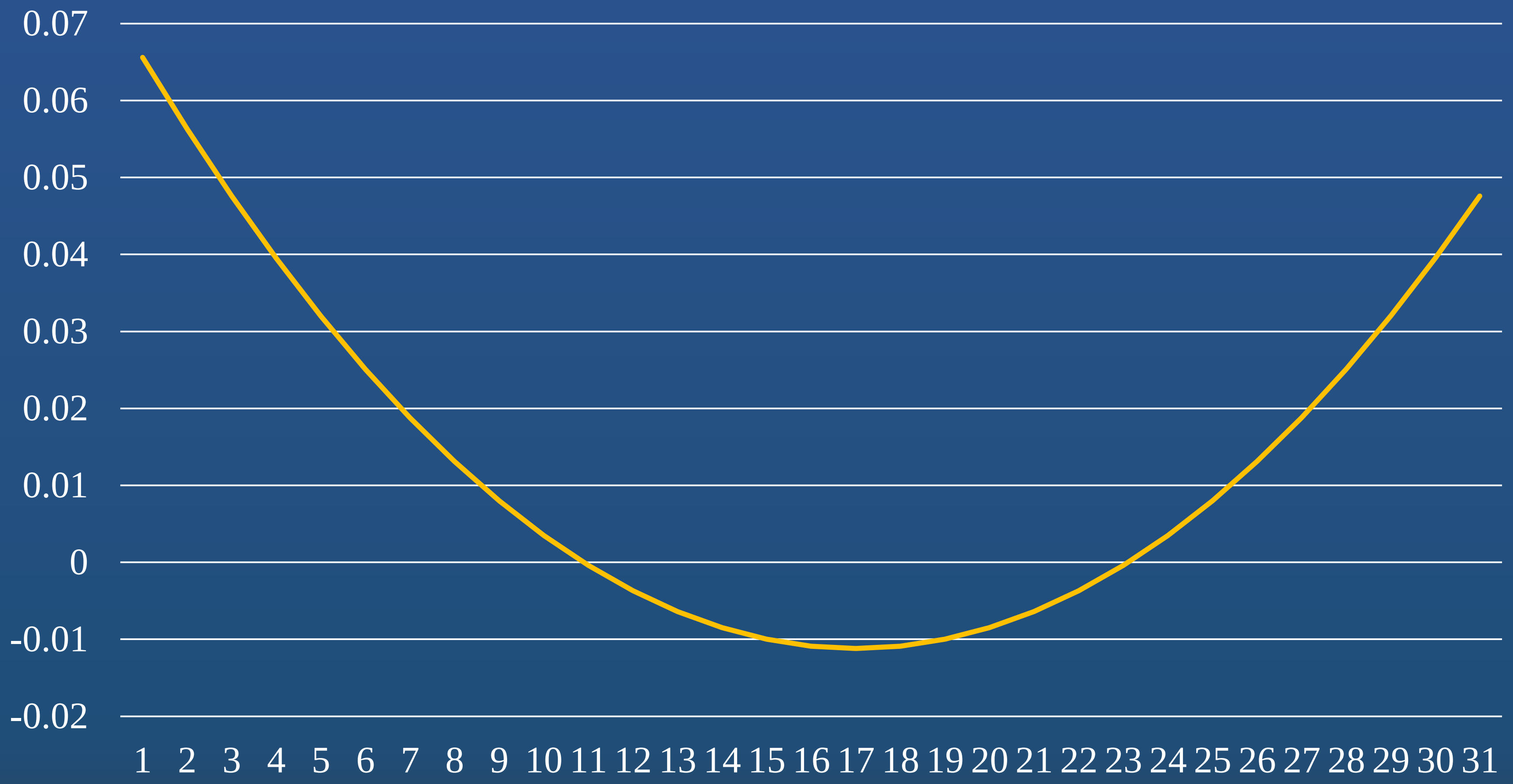
Does school lunch vary with the SNAP month? age 11-16

DV: School lunch	(1)	(2)	(3)
SNAP days	-0.0002	0.0166	0.0755**
	(0.0040)	(0.0107)	(0.0251)
SNAP days squared		-0.0005	-0.0051*
		(0.0003)	(0.0019)
SNAP days cubic			0.0001*
			(0.0000)
Demographic controls	Y	Y	Y
Day of the week FX	Y	Y	Y
Interview month FX	Y	Y	Y
Observations	1,590	1,590	1,590
R-squared	0.139	0.144	0.153

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

Marginal effects by SNAP days, age 11-16



Little difference by gender, age 11-16

DV: School lunch	(1)	(2)	(3)
SNAP days*Female	0.0047	0.0125	0.0739+
	(0.0050)	(0.0174)	(0.0423)
SNAP days squared*Female		-0.0002	-0.0050
		(0.0005)	(0.0030)
SNAP days cubic*Female			0.0001
			(0.0001)
SNAP days*Male	-0.0039	0.0199	0.0813**
	(0.0047)	(0.0138)	(0.0292)
SNAP days squared*Male		-0.0007+	-0.0056*
		(0.0004)	(0.0023)
SNAP days cubic*Male			0.0001*
			(0.0000)
Demographic controls	Y	Y	Y
Day of the week FX	Y	Y	Y
Interview month FX	Y	Y	Y
Observations	1,590	1,590	1,590
R-squared	0.145	0.151	0.161

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

No effect for younger children, age 5-10

DV: School lunch	(1)	(2)	(3)
SNAP days	-0.0017	-0.0198	0.0017
	(0.0031)	(0.0157)	(0.0226)
SNAP days squared		0.0006	-0.0011
		(0.0005)	(0.0017)
SNAP days cubic			0.0000
			(0.0000)
Demographic controls	Y	Y	Y
Day of the week FX	Y	Y	Y
Interview month FX	Y	Y	Y
Observations	1,836	1,836	1,836
R-squared	0.088	0.094	0.095

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

RD empirical strategy

- Sample of households who got SNAP benefits during data collection week
- Compare lunch participation just before and after SNAP payment
- Key assumption: timing of SNAP payments within the data collection window should be random
- Estimate short-run effect of SNAP payment on school lunch participation

Regression discontinuity sample

- 169 (out of 806 SNAP kids) in households whose families got the SNAP payment during the data collection week
- 124 got SNAP payment on days 2-6
  - All have 1-5 days prior/post SNAP
- 45 received benefits on day 1 or day 7 (excluded)
- RD sample has:
  - 795 kid-day observations
  - 584 kid-day *weekday* observations

Mean characteristics, RD sample

	SNAP payment	
Demographic characteristics	Before	After
Black	22.2	13.9
Hispanic	45.5	49.8
White	31.6	35.2
Other race/ethnicity	0.7	1.0
Female	39.4	38.3
Age	10.7	10.7
Public housing	15.8	18.5
Rural	17.2	29.3
Public school	89.6	92.7
Child-day Observations = 584	297	287

RD results

DV: School lunch	(1)	(2)
Post SNAP pay	-0.148**	-0.157**
	(0.047)	(0.051)
Demographic controls	N	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	584	584
R-squared	0.171	0.243

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

RD results, days since SNAP payment

DV: School lunch	(1)	(2)
Days Post SNAP pay		
One	-0.050	-0.074
	(0.119)	(0.102)
Two	-0.109	-0.124
	(0.103)	(0.079)
Three	-0.176*	-0.170**
	(0.084)	(0.058)
Four & Five	-0.219**	-0.234**
	(0.058)	(0.065)
Demographic controls	N	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	584	584
R-squared	0.179	0.250

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** $p<0.01$, * $p<0.05$, + $p<0.1$

RD results by age

DV: School lunch	(1)	(2)
Post*Age 5-10	-0.104	-0.096
	(0.063)	(0.060)
Post* Age 11-18	-0.192*	-0.209*
	(0.081)	(0.087)
Demographic controls	N	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	584	584
R-squared	0.177	0.247

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** p<0.01, * p<0.05, + p<0.1

RD results by gender

DV: School lunch	(1)	(2)
Post*Female	-0.227**	-0.215**
	(0.072)	(0.076)
Post*Male	-0.089	-0.111*
	(0.059)	(0.054)
Demographic controls	N	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	584	584
R-squared	0.176	0.246

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** p<0.01, * p<0.05, + p<0.1

RD results by race

DV: School lunch	(1)	(2)
Post*White	0.003	-0.016
	(0.105)	(0.095)
Post*Non-white	-0.234**	-0.204**
	(0.060)	(0.057)
Demographic controls	N	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	8,169	8,169
R-squared	0.209	0.247

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** p<0.01, * p<0.05, + p<0.1

Subgroup results Summary

- School lunch and the SNAP payment cycle
  - Significant effect on school lunch participation for older children 11-16 yrs. old, suggests some substitution.
  - No effect on younger children 5-10 yrs old
  - No large differences by gender or race
- RD results
  - Significant decrease in school lunch participation after SNAP pay overall
  - Largest for 11-18 yrs old. (.23)
  - Slightly larger drop for females (.20) compared to males (.11) and for non-white students

Robustness tests

- Estimate models with alternative weighting
- Quartic specification
- Alternative comparison groups
  - School lunch among those having lunch
- Logit regression instead of LPM

Summary of results

- SNAP children are more likely to eat *school lunch* than non-SNAP kids (12pp)
- But no difference in any lunch participation between SNAP and non-SNAP children
- School lunch participation drops in first two weeks of SNAP month and increases in weeks three and four, among kids aged 11-16
- RD results consistent
  - Show drop in SLP right after SNAP payment (15pp)
  - Larger decrease (20pp) for older students (11-18 yrs old)
- Overall, no large differences by race and gender

Further questions

- Are changes in school lunch participation matched by changes in children's out of school food consumption?
- Do we see a decrease in out of school food consumption and purchases at the end of the SNAP month?
- Does the decline in food consumption differ between school and summer months?

Appendix

Number of observations per child, full sample

Obs. per child	Freq.	Percent
One	23	1.92
Two	25	2.09
Three	29	2.42
Four	48	4.01
Five	58	4.85
Six	51	4.26
Seven	962	80.43
Total	1,196	100

Notes: Resulting number of observations per child after restricting sample to children interviewed when school was in session, and dropping child-day observations with missing lunch information.

Are SNAP participants less likely to report lunch?

DV: Lunch missing	All days (1)	Weekdays (2)
SNAP	0.017	0.019
	(0.034)	(0.033)
Demographic controls	Y	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	8,934	6,449
R-squared	0.058	0.054

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

Notes: Demographic controls include: female, black, Hispanic, other race/ethnicity, age, and age squared, public housing, rural, and public school. Sample includes children on SNAP households and in non-SNAP households with income less than 185% of poverty threshold.

Are SNAP participants less likely to report FAFH?

DV: No FAFH data	All days (1)	Weekdays (2)
SNAP	0.018	0.028
	(0.026)	(0.036)
Demographic controls	Y	Y
Day of the week FX	Y	Y
Interview month FX	Y	Y
Observations	8,934	6,449
R-squared	0.186	0.106

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

Notes: Demographic controls include: female, black, Hispanic, Other race/ethnicity, age, and age squared, public housing, rural, public school. Sample includes children on SNAP households and in non-SNAP households with income less than 185% of poverty threshold.

Predicting SNAP participation

DV: SNAP	All days (1)	Weekdays (2)
Black	0.201**	0.195**
	(0.069)	(0.067)
Hispanic	0.178**	0.171**
	(0.059)	(0.058)
Other race/ethnicity	0.155	0.135
	(0.100)	(0.098)
Female	-0.015	-0.015
	(0.043)	(0.043)
Age	-0.026	-0.026
	(0.024)	(0.0225)
Age squared	0.000	0.000
	(0.001)	(0.001)
Public school	0.088	0.084
	(0.095)	(0.095)
Public housing	0.143*	0.145*
	(0.066)	(0.064)
Rural	0.008	-0.001
	(0.068)	(0.066)
Observations	7,682	5,637
R-squared	0.119	0.118

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** $p<0.01$, * $p<0.05$, + $p<0.1$
Notes: All models include day of the week fixed effects and interview month fixed effects.

Do demographic characteristics predict SNAP payment week?

	Week 1 (1)	Week 2 (2)	Week 3 (3)	Week 4 (4)
Black	-0.039	0.048	-0.044	0.034
	(0.092)	(0.068)	(0.064)	(0.101)
Hispanic	0.126*	-0.082	-0.086+	0.042
	(0.052)	(0.058)	(0.048)	(0.054)
Other_Asian	0.174	-0.097	-0.101+	0.023
	(0.116)	(0.078)	(0.058)	(0.096)
Female	-0.029	-0.021	0.023	0.027
	(0.027)	(0.040)	(0.021)	(0.037)
Age	0.025	-0.008	-0.017	-0.000
	(0.032)	(0.021)	(0.018)	(0.029)
Age squared	-0.001	0.000	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)
Public school	0.098	-0.094	-0.069	0.065
	(0.099)	(0.057)	(0.063)	(0.061)
Public housing	0.045	-0.047	0.052	-0.049
	(0.059)	(0.046)	(0.047)	(0.051)
Rural	0.122	-0.044	-0.093	0.014
	(0.084)	(0.058)	(0.056)	(0.076)
F-stat	*1.79*	*1.95*	*0.94*	*0.92*
Prob>F	*0.126*	*0.095*	*0.508*	*0.525*
Observations	3,797	3,797	3,797	3,797
R-squared	0.116	0.064	0.091	0.059

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

Notes: Sample restricted to SNAP children interviewed on weekdays. All models have day of the week fixed effects, and interview month fixed effects.

SNAP payments by interview day, RD sample

	Got SNAP payment						
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Non-white	74.1	61.9	70.6	80.8	62.5	73.3	77.8
White	25.9	38.1	29.4	19.2	37.5	26.7	22.2
Female	51.9	47.6	38.1	26.9	50.0	40.0	33.3
Age	11.0	10.9	10.2	11.3	9.3	11.7	12.4
Public Housing	7.4	23.8	5.9	30.8	4.2	0.0	22.2
Rural	51.9	28.6	47.1	11.5	12.5	6.7	27.8
Public School	92.6	92.9	94.1	96.2	87.5	73.3	83.3
Number of kids = 169	27	42	17	26	24	15	18

RD balance test

DV: After SNAP payment	All days (1)	Weekdays (2)
Black	-0.130	-0.174
	(0.149)	(0.166)
Hispanic	-0.007	0.006
	(0.106)	(0.101)
Other race/ethnicity	-0.216	-0.293+
	(0.139)	(0.155)
Female	-0.041	-0.010
	(0.040)	(0.029)
Age	-0.005	0.008
	(0.033)	(0.036)
Age squared	0.001	-0.000
	(0.001)	(0.002)
Rural	0.141	0.172
	(0.104)	(0.110)
Public housing	0.292**	0.275*
	(0.088)	(0.087)
Public School	-0.073	-0.040
	(0.128)	(0.139)
F-stat	15.55	6.08
Prob>F	0.000	0.000
Observations	795	584
R-squared	0.223	0.270

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

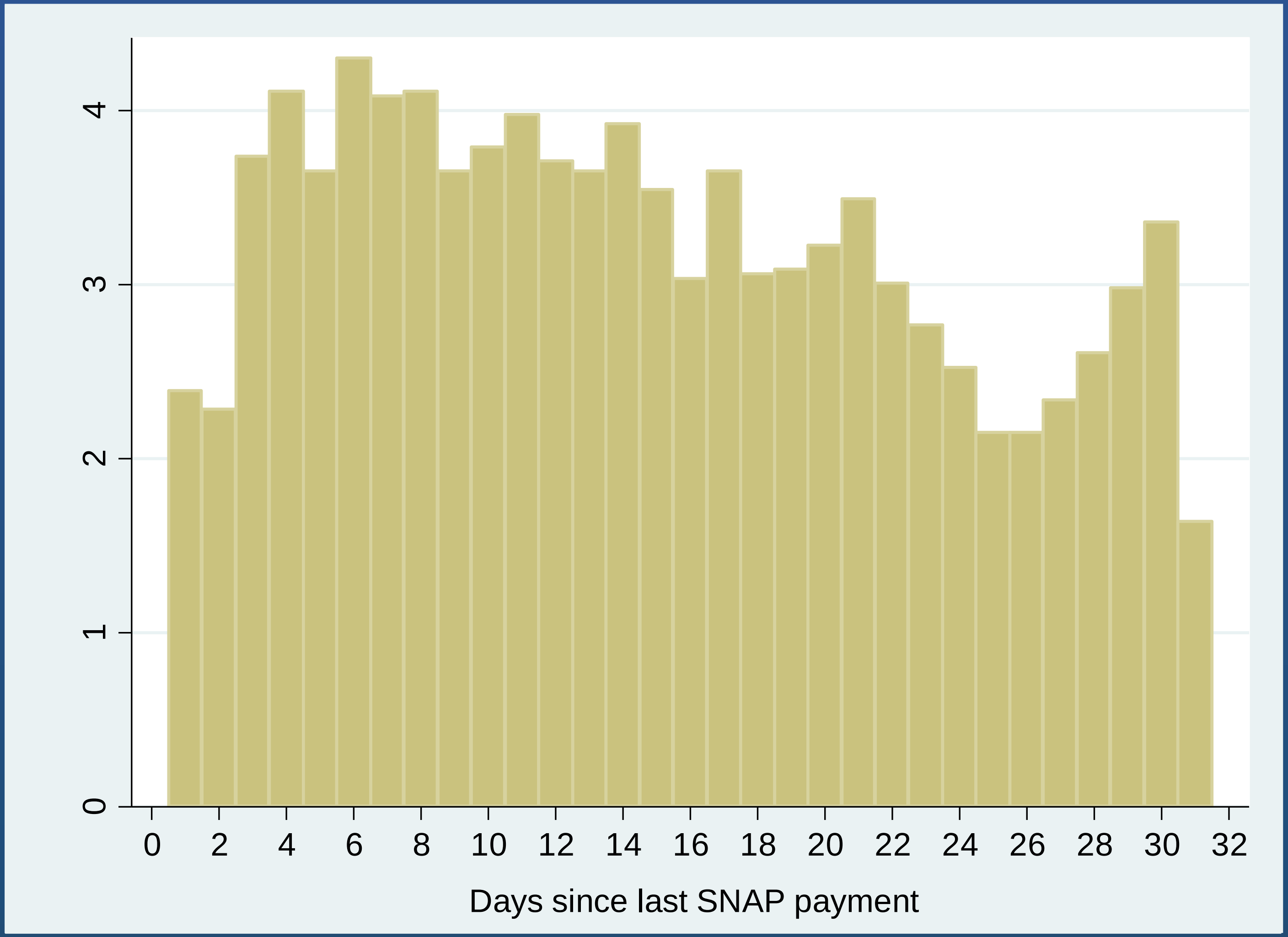
Notes: All models include day of the week and interview month fixed effects.

Alternative RD balance test

	Independent variable:	
	Post SNAP payment	
Rows are separate regressions	(1)	(2)
Dependent variables:		
Black	-0.048	-0.076
	(0.063)	(0.088)
Hispanic	-0.021	-0.011
	(0.080)	(0.091)
Other race/ethnicity	0.001	-0.004
	(0.002)	(0.004)
Female	-0.048	-0.010
	(0.056)	(0.049)
Age	0.299	-0.133
	(0.545)	(0.362)
Rural	0.101*	0.135**
	(0.049)	(0.047)
Public housing	0.117*	0.122+
	(0.054)	(0.062)
Public school	0.009	0.022
	(0.023)	(0.031)
Day of the week FX	Y	Y
Interview month FX	Y	Y
N in all regressions	795	584
Number of regressions	8	8

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)
** $p<0.01$, * $p<0.05$, + $p<0.1$

Distribution of SNAP payment days



Notes: Sample restricted to weekdays and SNAP recipients

Identifying lunch participants (all days)

Lunch out (FAFH record)	Lunch recorded on meals and snack form				
	No	Yes	Missing	Blank form	Total
Yes	**343**	**2,303**	**407**	**198**	**3,251**
	32.4	***38.3***	***59.2***	***16.9***	***36.4***
Missing	**717**	**3,714**	281	971	5,683
	67.6	***61.7***	*40.8*	*83.1*	*63.6*
Total	**1,060**	**6,017**	688	1,169	8,934
	100	***100***	*100*	*100*	*100*

Notes: Missing means that there was no data for lunch but data might have been reported for other meals and on other days. Blank forms means no data was reported on the meals and snack forms.

Identifying lunch participants (weekdays)

Lunch out (FAFH record)	Lunch recorded on meals and snack form				
	No	Yes	Missing	Blank form	Total
Yes	**330**	**2,188**	**387**	**193**	**3,098**
	43.7	***50.9***	***69.5***	***23.1***	***48.0***
Missing	**425**	**2,114**	170	642	3,351
	56.3	***49.1***	*30.5*	*76.9*	*52.0*
Total	**755**	**4,302**	557	835	6,449
	100	***100***	*100*	*100*	*100*

Notes: Missing means that there was not data for lunch but data might have been reported for other meals and other days. Blank form means no data was recorded on the meals and snack forms.

School lunch participation by SNAP payment

	School Lunch		
SNAP payment	No	Yes	Total
Before	159	138	297
	53.54	*46.46*	*100*
After	176	111	287
	61.32	*38.68*	*100*
Total	335	249	584
	57.36	42.64	100

School lunch participation by age group

	School lunch			
Age group	Never	Sometimes	Always	Total
5 to 10	234	188	122	544
	43.0	*34.6*	*22.4*	*100*
11 to 16	194	195	156	545
	35.6	*35.8*	*28.6*	*100*
17 to 18	43	37	20	100
	43.0	*37.0*	*20.0*	*100*
Total	471	420	298	1,189
	39.6	*35.3*	*25.1*	*100*

Notes: Sample restricted to children interviewed when school was in session during weekdays.

Lunch and SNAP payment cycle, SNAP kids only, all age groups

	Lunch			School lunch		
DV:	(1)	(2)	(3)	(4)	(5)	(6)
SNAP days	-0.0010	0.0003	0.0058	-0.0023	-0.0075	0.0293
	(0.0019)	(0.0083)	(0.0101)	(0.0027)	(0.0125)	(0.0207)
SNAP days squared		-0.0000	-0.0005		0.0002	-0.0027+
		(0.0002)	(0.0009)		(0.0004)	(0.0013)
SNAP days cubic			0.0000			0.0001*
			(0.0000)			(0.0000)
Demographic controls	Y	Y	Y	Y	Y	Y
Day of the week FX	Y	Y	Y	Y	Y	Y
Interview month FX	Y	Y	Y	Y	Y	Y
Observations	3,727	3,727	3,727	3,727	3,727	3,727
R-squared	0.071	0.071	0.071	0.091	0.092	0.096

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

School lunch and SNAP payment cycle, gender and race/ethnicity, overall

	Gender		Race/ethnicity	
	Females	Males	White	Non-white
DV: School lunch	(1)	(2)	(3)	(4)
SNAP days	0.0357	0.0310	0.0347	0.0225
	(0.0222)	(0.0253)	(0.0375)	(0.0242)
SNAP days squared	-0.0029+	-0.0030+	-0.0035	-0.0020
	(0.0015)	(0.0016)	(0.0024)	(0.0016)
SNAP days cubic	0.0001*	0.0001*	0.0001+	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Demographic controls	Y	Y	Y	Y
Day of the week FX	Y	Y	Y	Y
Interview month FX	Y	Y	Y	Y
Observations	1,738	1,989	1,318	2,409
R-squared	0.107	0.136	0.129	0.127

Standard errors in parentheses (computed using sampling weights and Taylor series linearization)

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

RD specification

$$slunch_{id} = \alpha + \beta POSTPAY_{id} + X'_{id}\theta + \delta_d + \mu_m + \varepsilon_{id}$$

- Slunch = 1 if *i* had school lunch on day *d*
- PostPay = 1 on days after SNAP benefit receipt
- *X'* is a vector of individuals and household demographic controls
- Model has day of the week fixed effects and interview month fixed effects
- β is the coefficient of interest capturing the short-run effect of SNAP payments on school lunch participation

SLP rate by age group: evidence from NYC, AY2012-13

			Ever Lunch Participators	
	All Students	Poor Ever	All Students	Poor Ever
Age 5-16				
mean	0.464	0.492	0.506	0.526
Students	321,860	268,438	295,505	251,105
Age 5-10				
mean	0.613	0.709	0.640	0.719
Students	93,962	66,246	90,056	65,335
Age 11-16				
mean	0.403	0.421	0.447	0.458
Students	227,898	202,192	205,449	185,770

Notes: Sample is poor ever students in schools that have POS for the entire AY. A student is poor ever if eligible for free/reduced meals in AY 2012-13. SLP rate is the share of school days a student obtained lunch. Data source: NYCDOE administrative school records.

Mean SLP and attendance rate by age, NYC, poor ever students, AY2012-13

	All Students			Ever Lunch Participators		
Age	SLP rate	Attendance rate	Students	SLP rate	Attendance Rate	Share of all students
5	0.697	0.906	10,069	0.712	0.905	0.979
6	0.729	0.922	10,693	0.742	0.922	0.982
7	0.731	0.932	10,744	0.738	0.932	0.991
8	0.715	0.935	11,425	0.722	0.935	0.990
9	0.704	0.939	11,537	0.712	0.939	0.989
10	0.683	0.942	11,778	0.692	0.942	0.986
11	0.608	0.945	22,390	0.620	0.945	0.980
12	0.579	0.941	25,897	0.595	0.942	0.975
13	0.548	0.929	26,770	0.563	0.930	0.972
14	0.363	0.921	38,542	0.401	0.923	0.905
15	0.330	0.894	43,109	0.371	0.899	0.889
16	0.300	0.865	45,484	0.347	0.875	0.865
17	0.246	0.838	44,979	0.300	0.852	0.821
18	0.239	0.733	15,018	0.290	0.769	0.825
Total	0.447	0.896	328,435	0.489	0.904	0.915