

Free School Meals and the Demand for Community Food Resources

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Motivation: Charitable sector and governments provide similar services



Open questions

- When government resources expand, how are charitable/community organizations affected?
- **In-kind resources:** To what extent are government and charitable services substitutes?
- Does crowd-out vary w/ local characteristics, and how?

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- When government resources expand, how are charitable/community organizations affected?
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This project: **Focus on nutritional assistance.**

Does greater access to free school meals affect the amount of food consumed through food banks?

Government and charitable sectors in the US:

Nutritional assistance

- Community food programs are large: Food pantries serve 12 mil children/year.
- School meals are largest form of nutritional assistance to school-aged children:
 - $> 50\%$ students consume a school meal each day.
 - School-aged children consume $\approx 1/2$ daily calories at school.
 - Recent shift to *schoolwide* free meals. (*Not income-contingent*)
- Imperfect eligibility overlap: 20% food pantry clients with children have income $>$ limit for government programs.

Policy setting

- **Government assistance expansion:** Schoolwide free meals through Community Eligibility Provision (CEP).
 - Began as pilot 2011-12 school year.
 - All states eligible 2014-15.
 - Participation ↑ over time: 2019, ≈25% students attended CEP school
- **Food bank utilization:**
 - Amount of food received, distributed by US's largest food bank network (Feeding America).
 - Tax returns from food assistance non-profit organizations.

Preview: Expansions in free school meals reduce food bank utilization.

- Driven by areas where few students qualified based on income.
- Imperfect crowd-out: 10% increase in school meals reduces food bank use 1.7%.
- Some seasonality, but consistent with smoothing consumption into summer months.
- Greater crowd-out in areas with a robust charitable sector (urban areas, areas w/ low black populations).
- Cost savings to charities offset 10% government costs.

Roadmap

Policy background

Data and empirical framework

Results

Policy implications

Policy background

School meals in the US

Historically: Access to US free school meals is based on families' incomes.

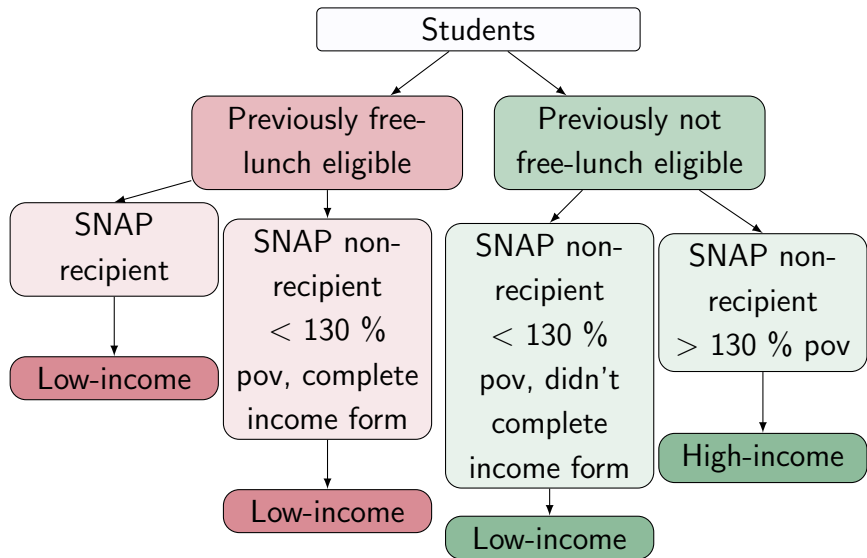
- $< 130\%$ poverty: \$0
- $130 - 185\%$ poverty: \leq \$0.40/meal
- $> 185\%$ poverty: Locally-determined (average \$7/day).

Universal school meal reform: Community Eligibility Provision (CEP)

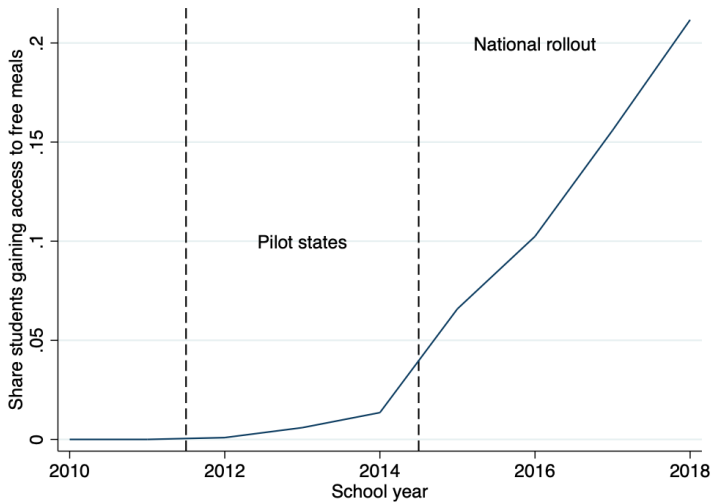
Community Eligibility Provision:

- Schools could offer free meals to all students, regardless of family income (*voluntary program*).
- Program eligibility: $\geq 40\%$ students received another form of income assistance (SNAP – “food stamps”).
- Rolled out across states: 2011-12 through 2014-15.
- Increased participation within states over time: 25% students attended CEP school in 2019.
- More students newly qualified in *low-poverty* schools.

Who benefits under schoolwide free meals?

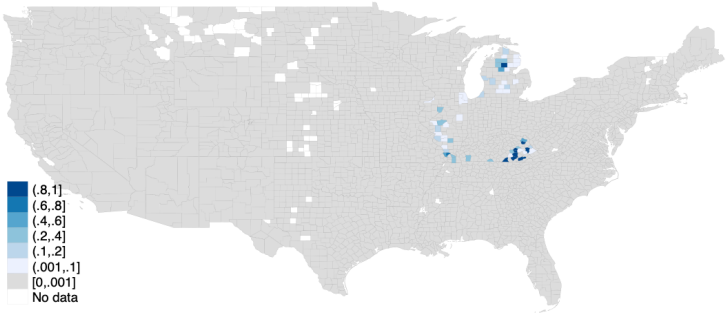


CEP participation



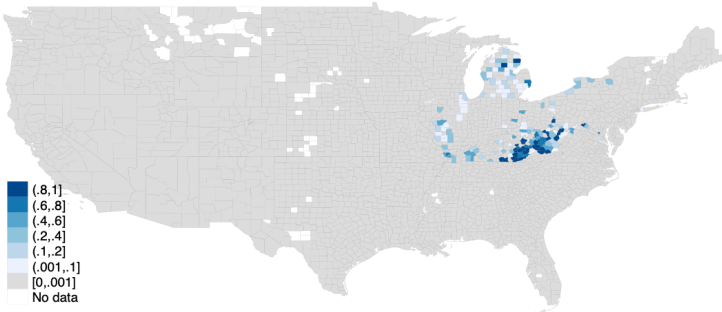
CEP participation 2011-12

% students in CEP school, school year 2011-12



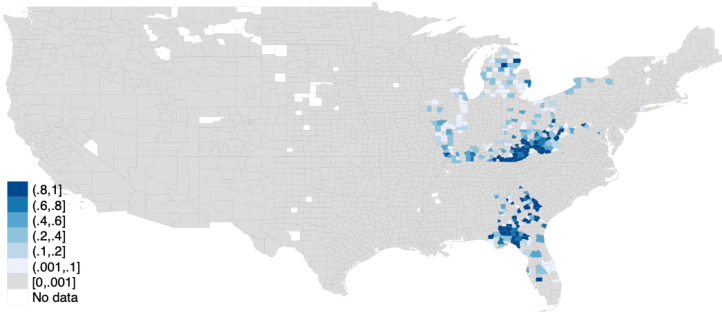
CEP participation 2012-13

% students in CEP school, school year 2012-13



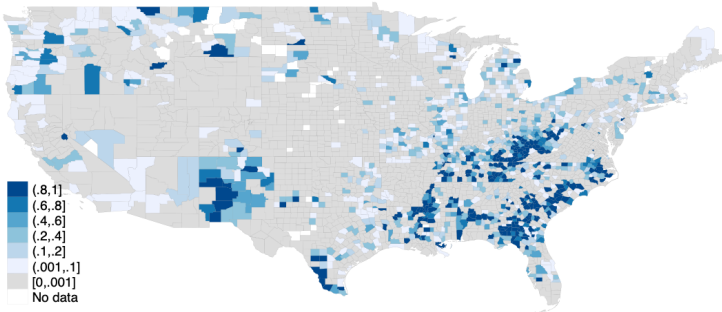
CEP participation 2013-14

% students in CEP school, school year 2013-14



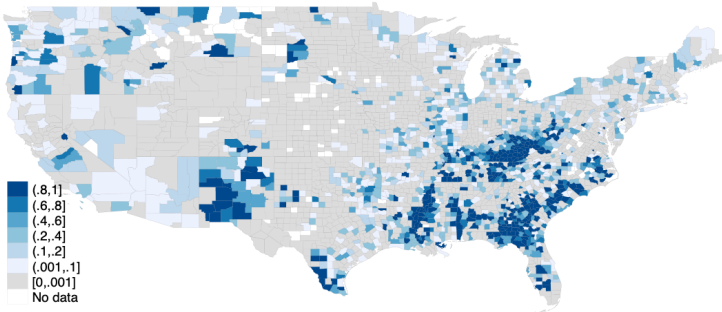
CEP participation 2014-15

% students in CEP school, school year 2014-15



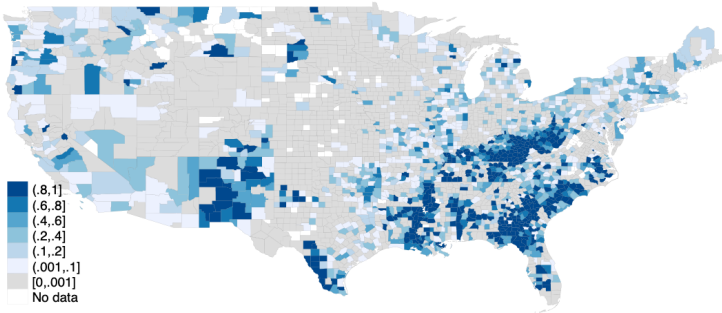
CEP participation 2015-16

% students in CEP school, school year 2015-16



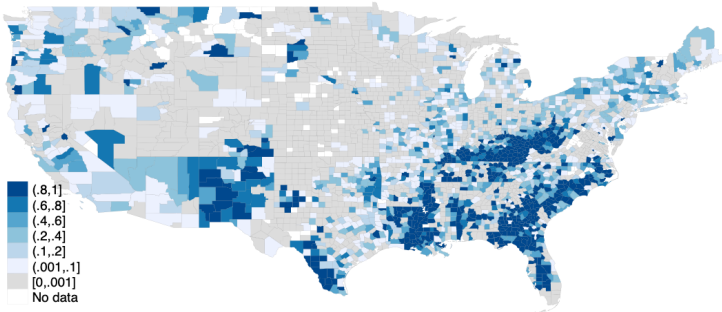
CEP participation 2016-17

% students in CEP school, school year 2016-17



CEP participation 2017-18

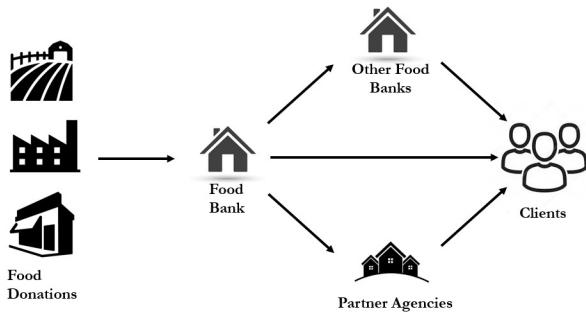
% students in CEP school, school year 2017-18



Community food resources: Feeding America

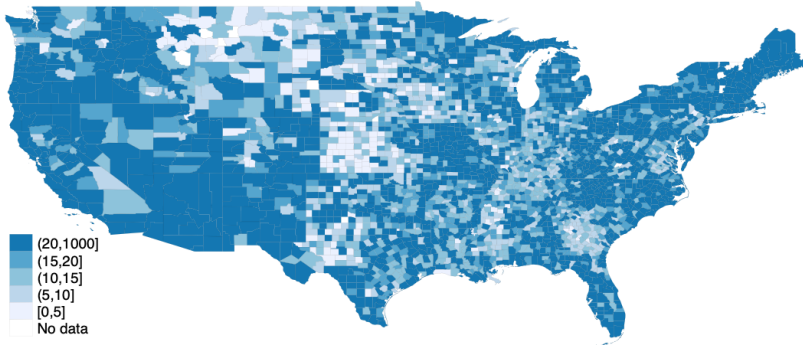
- Largest food bank network in the US
 - 70% of all food banks.
 - 2019: Served 4.2 billion meals to > 40 million clients.
- 200 FA food banks collect and distribute food to 60,000 + food pantries and community organizations.
- Food comes from:
 - Donations (70%)
 - Purchases (13%)
 - Federal commodities (17%)
- Receipt is not conditional on income, other eligibility criteria.

Feeding America food distribution



Feeding America community assistance

Average quarterly food bank pounds per elementary student
2010-2018



Imperfect substitutes?

	School meals	Food banks
Where consumed	At school	Grocery or meal-distribution
Type of food	Set menu	Grocery items
Target population	School-age children	All in need

Data and empirical framework

Data: CEP participation

- School-level CEP participation between 2011-12 through 2017-18 (Gordon and Ruffini 2021, Ruffini 2022).
- Assign each Census tract to closest elementary, middle, high school.
- Aggregate to the county level: % students gaining access to free school meals.

Measuring change in government services

Change in share of students with access to free school meals

$$\% \Delta access_{sy} = \begin{cases} \frac{enroll_{s,2010} - FRP_{s,2010}}{FRP_{s,2010}} & \text{if } CEP_{sy} = 1 \\ 0 & \text{if } CEP_{sy} = 0 \end{cases}$$

Aggregate to county level $\rightarrow \% \Delta access_{cy}$

Data: Feeding America food bank utilization

- Quarterly # pounds distributed by FA in each county 2010-2018.
 - Includes purchases, donations, commodities.
 - *Does not include within-network transfers.*
- Quarterly # pounds received by FA in each service area 2010-2016.
 - *Does not include within-network transfers.*
- Drop 3rd quarter to focus on school year.

Data: All nutritional charities

- Tax returns for food assistance non-profits 2010-2018 calendar years (NCCS).
- Aggregate to county.
- # organizations, revenue, expenses, net income.

Empirical framework: TWFE

$$y_{ct} = \beta(\% \Delta access_{cy(t)}) + X'_{ct} \Phi + \gamma_c + \gamma_t + \varepsilon_{ct}$$

Results

Results: Amount of food distributed by FA

	(1) All counties	(2) Low poverty counties	(3) High poverty counties
% Δ access	-0.0873** (0.0365)	-0.1401*** (0.0405)	0.1008 (0.0691)
Observations	78464	55413	22886
DV mean	2.6494	2.5460	2.8993
Average % gain	0.2317	0.2136	0.2547

ITT \rightarrow TOT: Take-up \approx 53%.

Results: Amount of food distributed by FA over time

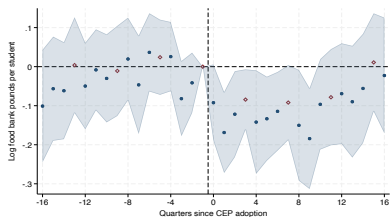


Figure 1: Low-poverty counties

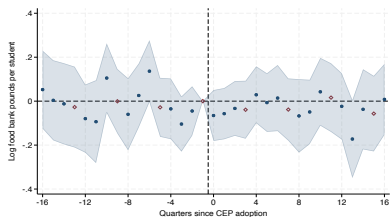
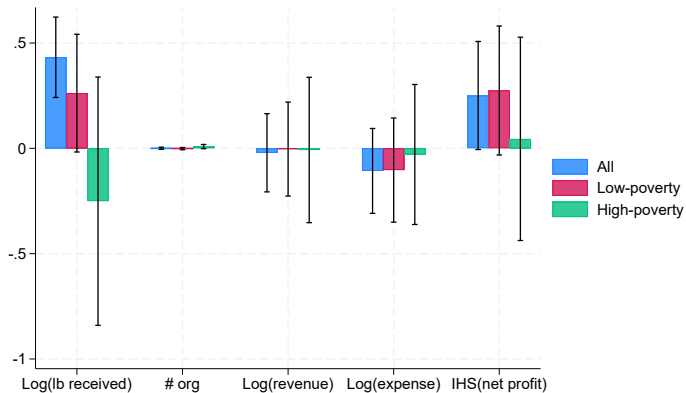


Figure 2: High-poverty counties

Results: Heterogeneity in food distributed by local conditions

	(1)	(2)	(3)	(4)	(5)
	Food desert	High base meal cost	Urban	% black (2010)	% white (2010)
% β_1 : Δ access	-0.1034** (0.0488)	-0.1581*** (0.0419)	-0.0276 (0.0495)	-0.0931** (0.0408)	0.0615 (0.0975)
% β_2 : Δ access X char	0.0534 (0.1408)	0.1360** (0.0690)	-0.1923** (0.0980)	0.0458 (0.1717)	-0.2092* (0.1195)
Observations	78464	75806	78464	78303	78303
p-value $\beta_1 + \beta_2$	0.6587	0.7181	0.0028	0.7636	0.0012
Policy controls	X	X	X	X	X

Results: Food bank supply



All

Low-poverty

High-poverty

Government spending and costs to the charitable sector

- 10% increase in free school meal access increases total government spending 1.0% (**\$225 million**)
 - Federal: 2.9% increase
 - State: 0.7% increase
 - Local: 12.4% decrease
- FA total operational costs: \$2.8 billion
 - 10% increase in free school meal access reduces demand by 0.9% (**\$24 million**)
- Every \$1,000 spent by government reduces FA costs by \approx \$107.

Policy implications

Conclusions

- Availability of government assistance reduces use of similar charitable resources (crowd-out 9-14%).
- **Gaps in the safety net:** Reductions larger in areas previously under-served by government programs.
- **Imperfect altruism:** Results not due to changes in local resources available.
- **Heterogeneity:** Larger crowd-out in areas with robust charitable sector/homogeneous populations. (Also consistent with excess demand in less-served areas).

Thank you!

Results: Food bank supply (all counties)

	(1)	(2)	(3)	(4)	(5)
	Log(lbs. received/ student)	# of org/ student (X1000)	IHS(Revenue/ student)	IHS(Expenses/ student)	IHS(Net income/ student)
Panel a: All counties					
% Δ access	0.4324*** (0.0973)	0.0005 (0.0026)	-0.0211 (0.0947)	-0.1071 (0.1028)	0.2509* (0.1309)
Observations	3893	7937	7937	7937	7937
DV mean (level)	14.1110	0.0411	16.9624	16.0855	0.8769
Average % gain	0.0502	0.1812	0.1812	0.1812	0.1812

Back

Results: Food bank supply (low-poverty counties)

	(1)	(2)	(3)	(4)	(5)
	Log(lbs. received/ student)	# of org/ student (X1000)	IHS(Revenue/ student)	IHS(Expenses/ student)	IHS(Net income/ student)
Panel b: Bottom half FRP					
% Δ access	0.2621* (0.1426)	-0.0012 (0.0027)	-0.0035 (0.1138)	-0.1033 (0.1261)	0.2746* (0.1562)
Observations	2189	6247	6247	6247	6247
DV mean (level)	14.0465	0.0411	17.5343	16.5921	0.9422
Average % gain	0.0550	0.1640	0.1640	0.1640	0.1640

[Back](#)

Results: Food bank supply (high-poverty counties)

	(1)	(2)	(3)	(4)	(5)
	Log(lbs. received/ student)	# of org/ student (X1000)	IHS(Revenue/ student)	IHS(Expenses/ student)	IHS(Net income/ student)
Panel c: Top half FRP					
% Δ access	-0.2508* (0.3007)	0.0084 (0.0051)	-0.0078 (0.1761)	-0.0291 (0.1696)	0.0450 (0.2462)
Observations	1657	1678	1678	1678	1678
DV mean (level)	13.8996	0.0407	14.8892	14.2521	0.6371
Average % gain	0.0449	0.2243	0.2243	0.2243	0.2243

[Back](#)