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Resource Booms, Economic Conditions, and Child Food Security

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Resource Booms, Economic Conditions, and Child Food Security

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Introduction

- Child food security is a major public policy concern with significant consequences for child well-being and human capital development.
- It remains unclear how macroeconomic conditions affect food security in general, and in particular for households with children.
- Oil and gas fracking era boom began after the early 2000s. It is a particularly interesting shock in that the employment and income gains accrued primarily to workers who are younger and less educated. Younger and less educated workers generally have lower incomes and may have households more at risk of food insecurity.

Research Question

- Does the fracking boom increase children's household income?
- Does the fracking boom improve child food security?
- Which groups are benefiting from the fracking boom?

Data

- Current Population Survey Food Security Supplement
  - Sample: Years 2001-2017 for households with children under 18
  - Food security in the prior 12 months and individual characteristics of the child and her household
- Bureau of Economic Analysis
  - Oil and gas employee compensation per capita in state s and year t

Empirical Approach

- Linear probability model

$$Y_{ist} = \theta OilGasIncomePC_{st} + \beta X_{ist} + \gamma_s + \delta_t + \varepsilon_{ist}$$

where

Y_{ist}: Dependent variable

$OilGasIncomePC_{st}$: Oil and gas employee compensation per capita in state s and year t

X_{ist}: Control variables for the individual characteristics

γ_s: State fixed effects

δ_t: Year fixed effects

ε_{ist}: Error term

Results: Does the fracking boom increase children's household income?

Outcome:	Dummy for Income >= 100% of Poverty Line	Dummy for Income >= 200% of Poverty Line	Dummy for Income >= 300% of Poverty Line	Dummy for Income >= 400% of Poverty Line
Oil & Gas Compensation Per Capita	0.091*** (0.022)	0.105*** (0.024)	0.048*** (0.018)	0.053*** (0.013)

*** Significantly different from zero at the 1% level.

- The dependent variable is an indicator equal to one if a child's household income is above a specific level.
- The results indicate that increased oil and gas employee compensation in a state statistically significantly increases children's household income and raises children out of poverty.
- The magnitudes are roughly twice as large in Columns 1 and 2 as in Columns 3 and 4, indicating that income increases from oil and gas booms are especially pronounced at the lower end of the income distribution.

Results: Does the fracking boom improve children's food security?

Outcome:	Food Secure	Not Very Low Food Secure	Child Food Security Score
A. Full Sample			
Oil & Gas Compensation Per Capita	0.051*** (0.017)	0.003 (0.003)	0.156*** (0.050)
B. Households with Income < 100% of Poverty			
Oil & Gas Compensation Per Capita	-0.011 (0.038)	0.017 (0.015)	-0.018 (0.113)
C. Households with Income < 200% of Poverty			
Oil & Gas Compensation Per Capita	0.060*** (0.021)	0.008 (0.006)	0.165** (0.068)
D. Households with Income < 300% of Poverty			
Oil & Gas Compensation Per Capita	0.069*** (0.020)	0.009* (0.005)	0.203*** (0.060)
E. Households with Income < 400% of Poverty			
Oil & Gas Compensation Per Capita	0.064*** (0.016)	0.008* (0.004)	0.201*** (0.051)
F. Households with Income >= 400% of Poverty			
Oil & Gas Compensation Per Capita	-0.009** (0.004)	-0.002 (0.001)	-0.016 (0.012)

* Significantly different from zero at the 10% level;
** Significant at 5% level;
*** Significant at 1% level.

- The first dependent variable is an indicator equal to one if the USDA defines the household as food secure; households with low or very low child security are coded as zero.
- The second dependent variable is an indicator that equals one if the household is either food secure or has low food security; very low food secure households are coded as zero.
- The third dependent variable is the child food security score measured by the number of favorable child food security responses.
- The results in Panel B indicate that children with household income below 100 percent of the poverty level have no labor market participants in the household or only persons who are very weakly attached to the labor market and thus do not reap the benefits of increased labor demand in the state due to oil and gas booms.
- The results in Panel C, D, and E suggest that a positive effect of oil and gas employee compensation on being food secure.
- The results in Panel F show that a small negative effect of oil and gas employee compensation on food security. One possible explanation is that the volatility of oil and gas may create food insecurity among high-income households during years with sudden and unexpected changes.

Results: Which groups are benefiting from the fracking boom?

Outcome:	Food Secure	Not Very Low Food Secure	Child Food Security Score
A. Parents with Only High School or Less Education			
Oil & Gas Compensation Per Capita	0.100*** (0.029)	0.009* (0.005)	0.285*** (0.087)
B. Parents with Some College or More Education			
Oil & Gas Compensation Per Capita	0.031** (0.012)	0.001 (0.003)	0.111*** (0.032)
C. Single-Mother Households			
Oil & Gas Compensation Per Capita	0.103*** (0.037)	0.014 (0.017)	0.336** (0.138)
D. Two-Parent Households			
Oil & Gas Compensation Per Capita	0.049*** (0.009)	-0.005 (0.003)	0.138*** (0.027)
E. Excluding Children with Parents Employed in Oil and Gas			
Oil & Gas Compensation Per Capita	0.053*** (0.018)	0.003 (0.003)	0.160*** (0.048)

* Significantly different from zero at the 10% level;
** Significant at 5% level;
*** Significant at 1% level.

- The effect magnitudes are larger for children with less educated parents than for children with parents with at least some college education.
- The effect magnitudes are also larger for children in single-mother households than for children in two-parent households.
- Panel E yields very similar results as the full sample indicating that the effects are not just experienced by children with parents employed in the oil and gas industry; this is consistent with previous research finding income spillovers to other industries.

Conclusion

- We examine the role of regional economic conditions in child food security by considering the fracking era oil and gas boom in the U.S. as a natural experiment.
- Increased oil and gas industry employee compensation in a state increases household income and improves child food security.
- A stronger regional economy raises household income, lifts some children out of poverty, and improves child food security.