SOCIAL INSURANCE PROGRAMS AND LATER-LIFE MORTALITY: EVIDENCE FROM NEW DEAL RELIEF SPENDING

HAMID NOGHANIBEHAMBARI

MICHAL ENGELMAN

CENTER FOR DEMOGRAPHY OF HEALTH AND AGING
UNIVERSITY OF WISCONSIN-MADISON

BACKGROUND

- A strand of literature explores the effects of early-life economic conditions on later-life health outcomes
  - Scholte, Berg, and Lindeboom (2015): documented that those who experienced the Dutch Hunger Winter of 1944-1945 while in-utero had lower probability of being employed in adulthood and higher rates of hospitalization at older-ages

- A strand of literature documents the benefits of social spending and safety net programs on later-life health outcomes
  - Almond, Hoynes, and Schanzenbach (2011): the introduction of Food Stamp program during the 1960s-70s as an initiative to combat poverty improved infants' health outcomes
  - Hoynes, Miller, and Simon (2015): documented that tax rebates under the Earned Income Tax credit program improve birth outcomes
  - Duflo (2000): investigated the spillover effects of expansions in an Old Age Pension program in South Africa. She found that the assistance increased children's nutritional intake and improved their health outcomes.

RESEARCH QUESTION

- The evidence on longer-run effects of social spending is limited, specifically for mortality outcomes.
- While some studies show the short-run mortality gains of New Deal spending (Galofré Vilà (2020), Fishback et al. (2007)), no study explores its long-run mortality effects.
- This study fills this gap in the literature by documenting the association between in-utero and early-life exposure to the New Deal relief spending on subsequent longevity

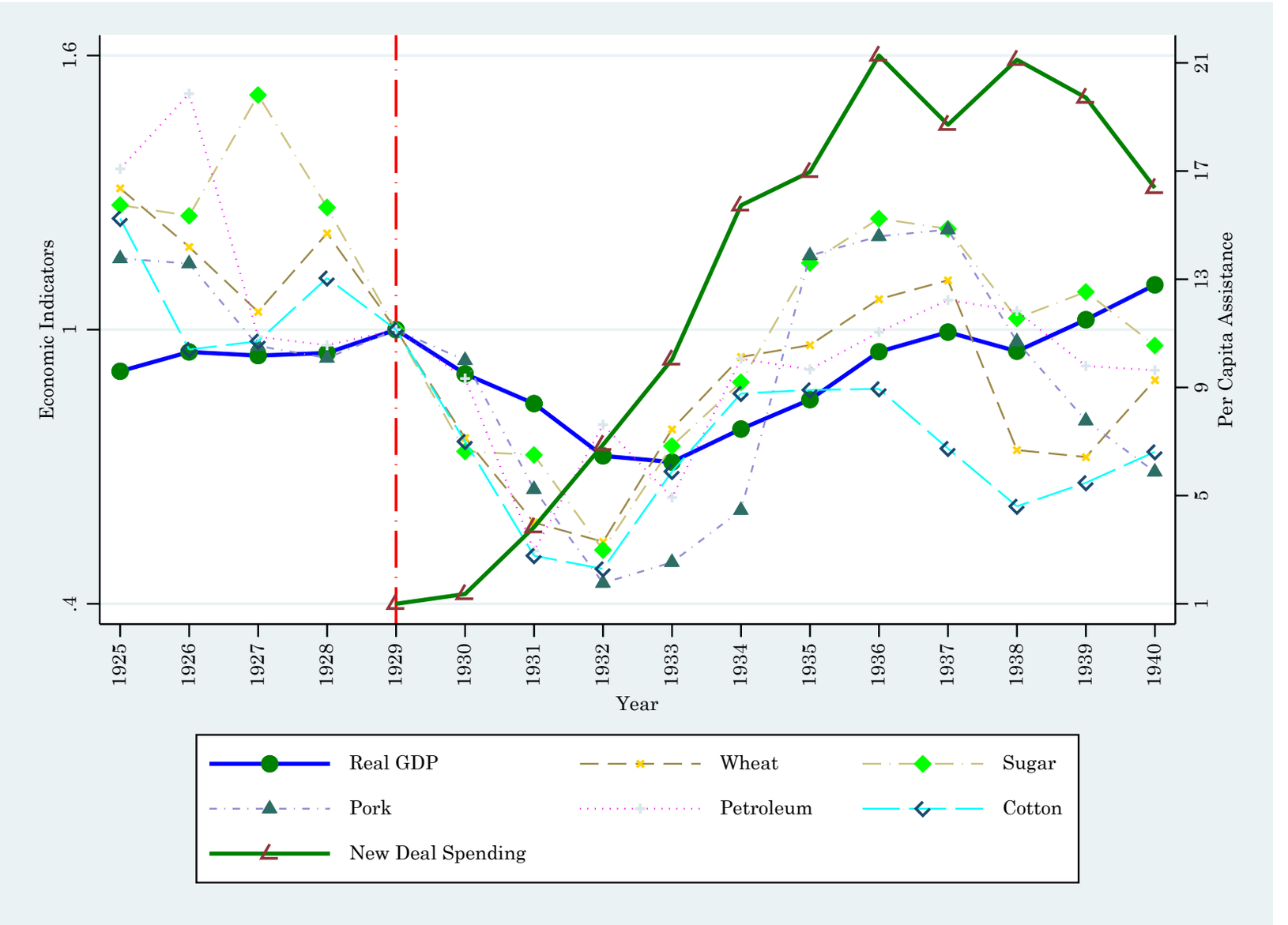
BACKGROUND ON NEW DEAL SPENDING

- The recession started in 1929. By 1933, real GDP dropped by more than 30%.
- Hoover administration responded by expanding loans and grants, e.g., the introduction of the Reconstruction Finance Corporation
- Roosevelt and the Democratic congress engineered New Deal programs
- Between 1933-1935: First New Deal era started with the Federal Emergency Relief Administration:
  - Cash assistance
  - Food stamp, food distribution, school lunch
  - Work Relief Assistance, Civil Work Administration, etc.

BACKGROUND ON NEW DEAL SPENDING

- From 1935: Second New Deal era:
  - Work Progress Administration
  - Social Security Act:
    - Aid to Dependent Children
    - Old Age Assistance
- Total spending rose from roughly $50 per capita in 1929 to a peak of about $1,000 per capita in 1938 and then declined slightly to approximately $800 in 1940 (in 2020 dollars)

BACKGROUND ON NEW DEAL SPENDING



DATA

- Data: Censoc Numident linked to 1940 census
  - Covers deaths between 1988-2005
  - Linkage is based on name, birthplace, and birth year
  - We observe a wide array of family covariates during their childhood
  - Unique in that we observe below-state geographic identifier for place of birth
- City-level spending data from Fishback et al. (2007)
  - Covers all spending discussed
  - Only 115 major cities over the years 1929-1940
- Final Sample: 442,222 observations
  - Cohorts: 1929-1940; Deaths: 1988-2005

EMPIRICAL METHODOLOGY

$$DA_{icrb} = \beta_0 + \beta_1 LogWS_{crb} + \Gamma \mathrm{X_i} + \Lambda Z_{crb} + \eta_{rb} + \zeta_c \times T_b + \varepsilon_{icrb}$$

- Index: i individual, c city, b birth cohort, r region
- DA: age at death
- $LogWS$: log of per capita welfare spending
- Matrix X includes individual race/ethnicity/gender dummies, father's socioeconomic index dummies, and maternal education dummies
- Matrix Z includes city-level demographic and socioeconomic characteristics
- Standard errors are clustered on city

MAIN RESULTS

	Outcome: Age at Death (Months)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Real per Capita Relief Spending	0.81*** (0.28)	0.82*** (0.29)	0.90*** (0.28)	0.91*** (0.28)	0.88*** (0.28)	0.81*** (0.25)	1.01*** (0.34)
Observations	442,222	442,222	442,222	442,222	442,222	442,222	442,222
R-squared	0.34	0.35	0.35	0.35	0.35	0.35	0.35
City and Birth Year FE	✓	✓	✓	✓	✓	✓	✓
Individual Controls		✓	✓	✓	✓	✓	✓
City-Level Covariates			✓	✓	✓	✓	✓
Family Controls				✓	✓	✓	✓
State-Level Covariates					✓	✓	✓
City-by-Birth-Year Trend						✓	✓
Region-by-Birth-Year FE							✓

ITT TO TOT

- An attempt for conversion into treatment-on-treated effect:
  - It is estimated that the average unemployment rate during the 1930s was between 15-19 percent.
  - non-marital fertility (eligible for ADC program) in the 1930s is estimated to account for 10 percent of all births.
  - The results suggest improvements in longevity of about 3.3 months

CONCLUSION

- Evidence linking welfare support in early life with longevity is limited
- We add to this literature by evaluating the effect of in-utero and early-life exposure to the largest increases in welfare spending in the US history under the New Deal programs
- The results suggest an intention-to-treat effect of 1 months higher longevity as a result of 100 percent rise in spending.

→ Endogeneous fertility
→ postnatal
→ Mechanisms
→ Heterogeneity
→ Balancing Tests

QUESTIONS

BALANCING TEST

	Outcomes:									
	Female	White	Black	Other Race	Hispanic	Father's SEI below Median	Father's SEI above Median	Father's SEI Missing	Mother's Years of Schooling	Mother's Education Missing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Log Real per Capita	0.00022	0.00344	-0.0035	0.00006	0.00119	0.00071	-0.00091	0.00021	-0.02912	-0.00167
Relief Spending	(0.00355)	(0.0044)	(0.00431)	(0.00046)	(0.00172)	(0.00442)	(0.00518)	(0.00328)	(0.02877)	(0.00233)
Observations	442,222	442,222	442,222	442,222	442,222	442,222	442,222	442,222	442,222	442,222
R-squared	0.00182	0.12264	0.12785	0.01911	0.16064	0.01484	0.0228	0.02385	0.09205	0.0269
Mean DV	0.633	0.887	0.111	0.003	0.024	0.433	0.450	0.117	8.897	0.064
%Change	0.035	0.388	-3.156	1.989	4.967	0.163	-0.203	0.176	-0.327	-2.605

return ↺

ENDOGENOUS FERTILITY

	Outcomes:						
	Log Births	Fertility Rate	Log Fertility Rate	Share of Births to Whites	Log Share of Births to Whites	Share of Births to Blacks	Log Share of Births to Blacks
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log Real per Capita Relief Spending	0.02296	2.72286	0.02282	-0.89939	-0.03485	-0.45161	-0.01686
	(0.0222)	(2.23462)	(0.02224)	(1.45226)	(0.04842)	(0.98515)	(0.07233)
Observations	1436	1436	1436	377	377	377	377
R-squared	0.99618	0.89628	0.93214	0.96563	0.82632	0.98297	0.96873
Mean DV	9.360	59.251	4.048	83.118	-0.203	16.712	-2.115

return ↺

ASSIGNMENT AT POSTNATAL AGES

	Outcome: Age at Death (Months)					
	Assignment of Spending at Age 10			**Assignment of Spending at Age 15**		
	(1)	(2)	(3)	(4)	(5)	(6)
Log Real per Capita Relief Spending	.09421 (.35378)	.08374 (.36997)	-.22351 (.46932)	-.23769 (.69868)	.01087 (.70606)	-.03358 (.71295)
Observations	636588	627968	627966	276854	272626	272626
R-squared	.14822	.14791	.14822	.03431	.03485	.03543
City and Birth Year FE	✓	✓	✓	✓	✓	✓
Individual Controls	✓	✓	✓	✓	✓	✓
City-Level Covariates	✓	✓	✓	✓	✓	✓
Family Controls	✓	✓	✓	✓	✓	✓
State-Level Covariates	✓	✓	✓	✓	✓	✓
City-by-Birth-Year Trend		✓	✓		✓	✓
Region-by-Birth-Year FE			✓			✓

return ↺

HETEROGENEITY ANALYSIS

	(1)	(2)	(3)	(4)
Black× Log Real per Capita Relief Spending	.68236***			
	(.24495)			
Black	-4.4731**			
	(2.11354)			
Female× Log Real per Capita Relief Spending		-.2176		
		(.16746)		
Female		5.89472***		
		(.76193)		
Mother's Education<HS× Log Real per Capita Relief Spending			.28812*	
			(.15022)	
Mother's Education<HS			-1.81598**	
			(.77945)	
Father's SEI<Median× Log Real per Capita Relief Spending				.41216**
				(.19839)
Father's SEI<Median				-1.93318**
				(.80933)
Log Real per Capita Relief Spending	.89766**	1.14765***	.92667***	.79131**
	(.34467)	(.34419)	(.34902)	(.36786)
Observations	442222	442222	442222	442222
R-Squared	.35089	.35087	.35088	.35089

return ↺

MECHANISMS

	Outcomes:								
	Education<HS	Education=HS	Education=HS Graduate	Education: Some College	Education≥4 Years of College	Socioeconomic Index	Occupational Education Score	Total Family Income	Log Total Family Income
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Log Real per Capita Relief Spending	-.0045***	-.00326***	.00501***	.00256*	.00018	.3048**	.38781***	2440.5113***	.02385***
	(.00141)	(.00117)	(.0017)	(.00142)	(.00142)	(.11854)	(.11587)	(558.33784)	(.0057)
Observations	8583383	8583383	8583383	8583383	8583383	3352229	3342866	7752463	7749960
R-squared	.05602	.02083	.02306	.01103	.03425	.03771	.04894	.04104	.03824
Mean DV	0.076	0.103	0.455	0.165	0.202	44.050	53.989	7.2e+04	10.721
%Change	-5.920	-3.165	1.101	1.554	0.091	0.692	0.718	3.390	0.223

return ↺