EARLY-LIFE ECONOMIC CONDITIONS AND OLD-AGE MORTALITY

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BACKGROUND

- A strand of literature explores the effects of early-life economic conditions on later-life health outcomes:
- Van Den Berg et al. (2006) uses data from Netherland and shows being born in Boom (VS recession) is associated with an 8 percent reduction in age-specific mortality rate.
- Myrskylä (2010) employs data from several developed European countries and finds weak and modest effects of early-life conditions on adult mortality.
- Montez & Hayward (2011) uses Health and Retirement Study to explore early-life family socioeconomic status on later-life mortality. They find significant positive correlations between risks of mortality during adulthood and a series of early-life adversities
- Cutler et al. (2007) fail to find any evidence that fetal exposure to the Dust Bowl is associated with disability and chronic disease later in life.
- Arthi (2018) explore the effects of in-utero and childhood exposure to the Dust Bowl on later-life human capital and health. She finds long-lasting effects on income, disability, and college completion.

RESEARCH QUESTION

- The literature is mixed and inconclusive.
- Previous research lack below-state geographic granularity to explore local economic conditions.
- This study fills this gap in the literature:
  - We re-evaluating the importance of local economic conditions during in-utero and early-life on later-life old-age mortality.

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
- Bank deposit data from Manson et al. (2017)
  - Reports total bank deposits in each county over the years 1920-1936
- Final Sample: 1,853,082 observations
  - Cohorts: 1925-1940; Deaths: 1988-2005

EMPIRICAL METHODOLOGY

$$DA_{icsb} = \beta_0 + \beta_1 PCBD_{csb} + \Gamma \mathrm{X}_{icsb} + \Lambda Z_{csb} + \eta_c + \zeta_{sb} + \varepsilon_{icsb}$$

- Index: i individual, c county, s state, b birth cohort
- DA: age at death
- $PCBD$: per capita bank deposit
- Matrix X includes individual race/ethnicity/gender dummies, father's socioeconomic index dummies, and maternal education dummies
- Matrix Z includes county-level demographic and socioeconomic characteristics
- Standard errors are clustered on county

MAIN RESULTS

	Outcome: Death Age (Months)			
	(1)	(2)	(3)	(4)
Deposits per Capita (STD)	0.36***	0.35***	0.35***	0.36***
	(0.09)	(0.09)	(0.09)	(0.11)
Observations	1853081	1853081	1853081	1853081
R-squared	0.21	0.21	0.21	0.21
Mean DV	827.37	827.37	827.37	827.30
%Change	0.04	0.04	0.04	0.04
County FE	Yes	Yes	Yes	Yes
Birth-State-by-Birth-Year FE	Yes	Yes	Yes	Yes
Individual Controls	No	Yes	Yes	Yes
Family Controls	No	No	Yes	Yes
County Controls	No	No	No	Yes

AGGREGATION LEVEL

	Outcome: Age at Death (Months)						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
State-Level Income Per Capita	11.39***	-0.33					
	(1.83)	(0.58)					
State-Level Deposits per Capita			2.03*	-0.54			
			(1.18)	(0.47)			
County-Level Deposits per Capita					0.54	-0.09***	0.50***
					(0.60)	(0.01)	(0.17)
Observations	1082223	1082223	1082223	1082223	1082223	1082223	1082222
R-Squared	0.04	0.13	0.003	0.13	0.0002	0.13	0.13
Mean DV	809.67	809.67	809.67	809.67	809.67	809.67	809.67
%Change	1.40	-0.04	0.25	-0.06	0.06	-0.01	0.06
State FE	No	Yes	No	Yes	No	Yes	No
County FE	No	No	No	No	No	No	Yes
Birth Year FE	No	Yes	No	Yes	No	Yes	Yes
State-Birth-Year FE	No	No	No	No	No	No	Yes

CORELATION WITH OTHER ECONOMIC INDICATORS

	State-Level Outcome		
	Per Capita Income (STD)		
	(1)	(2)	(3)
Deposits per Capita (STD)	0.72***	0.38***	0.41***
	(0.17)	(0.07)	(0.07)
Observations	376	376	376
R-squared	0.50	0.96	0.98
Mean DV	0.00	0.00	0.00
State FE	No	Yes	Yes
Year FE	No	Yes	Yes
State-by-Year FE	No	No	No
Region-by-Year FE	No	No	Yes

Interpretation

- An attempt for conversion into treatment-on-treated effect:
  - Between the years 1929 and 1933 (peak to trough), the income per capita decreased from $611 to $326, a decrease of about 1.5 times its SD
  - This suggest reductions in longevity of about 1.3 months

CONCLUSION

- We explored how the local banking deposits, as a proxy for economic conditions and credit market, during in-utero and year of birth can influence old-age longevity
- The results suggest an intention-to-treat effect of 0.37 months higher longevity as a result of one SD change in bank deposits per capita

→ Endogeneous fertility
→ Mechanism
→ Other economic indicators
→ Alternative measures
→ Maps
→ Balancing Test

QUESTIONS

BALANCING TEST

	Outcomes:							
	Female	White	Mother's Schooling	Mother's Education Missing	Father's Schooling	Father's Education Missing	Father's SEI	Father's SEI Missing
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Deposits per Capita	0.00052	0.00301***	-0.00035	0.00136***	-0.01035	-0.00275***	-0.18621***	-0.00179**
(STD)	(0.00136)	(0.00058)	(0.00723)	(0.0004)	(0.00877)	(0.00063)	(0.04987)	(0.00088)
Observations	1853081	1853081	1717753	1853081	1610617	1853081	1566432	1853081
R-squared	0.00122	0.07009	0.06247	0.01385	0.04929	0.01266	0.02733	0.01274
Mean DV	0.424	0.933	8.240	0.062	8.190	0.130	32.471	0.159
%Change	0.121	0.323	-0.004	2.190	-0.126	-2.117	-0.573	-1.125

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CORELATION WITH OTHER ECONOMIC INDICATORS

	County-Level Outcome: Per Capita Retail Sale (STD)		
	(1)	(2)	(3)
Deposits per Capita (STD)	0.86484***	0.18034***	0.21392***
	(0.2771)	(0.06852)	(0.07033)
Observations	20237	20236	20236
R-squared	0.31861	0.97957	0.98058
Mean DV	0.000	0.000	0.000
County FE	No	Yes	Yes
State FE	No	No	No
Year FE	No	Yes	Yes
State-by-Year FE	No	No	Yes
Region-by-Year FE	No	No	No

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ALTERNATIVE MEASURES

	Outcome: Death Age (Months)		
	(1)	(2)	(3)
Total Deposits (STD)	.54004*** (.07084)		
Drop in Deposits>5%		-.44409** (.18444)	
Drop in Deposits>15%			-.06176 (.29905)
Observations	1853081	1853081	1853081
R-squared	.21564	.21564	.21564
Mean DV	827.370	827.370	827.370
%Change	0.065	-0.054	-0.007

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ENDOGENOUS FERTILITY

	Outcomes:		
	Births per 1000 Women	Share of Births to Whites	Share of Births to Blacks
	(2)	(3)	(4)
Deposits per Capita (STD)	-1.16655***	-.00248***	.00227***
	(.1741)	(.00083)	(.00077)
Observations	10849	10849	10848
R-squared	.90627	.96787	.97922
Mean DV	38.240	0.712	0.285
%Change	-3.051	-0.348	0.796
County FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
State-Year FE	Yes	Yes	Yes

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MECHANISMS

	Outcomes:									
	Years of Schooling	Education≥ 1 year of College	Education≥ 2 years of College	Education≥ 3 years of College	Education≥ 4 years of College	Wage Income	Total personal Income	Socioeconomic Index	Occupational Prestigious Score	Occupational Prestigious Score
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Deposits per Capita	.04625*	.00745***	.00611***	.00509***	.00535***	33.41144***	36.79843***	.2463*	.10841**	.24141**
(STD)	(.02418)	(.00226)	(.00213)	(.00188)	(.00168)	(7.85013)	(10.0962)	(.12566)	(.05296)	(.10141)
Observations	439636	439636	439636	439636	439636	439636	439636	375119	373679	373620
R-squared	.14398	.0434	.03775	.03085	.02848	.37795	.42298	.1143	.09465	.0453
Mean DV	7.726	0.173	0.134	0.099	0.079	1837.129	2166.927	35.068	36.135	18.907
%Change	0.599	4.309	4.561	5.140	6.778	1.819	1.698	0.702	0.300	1.277

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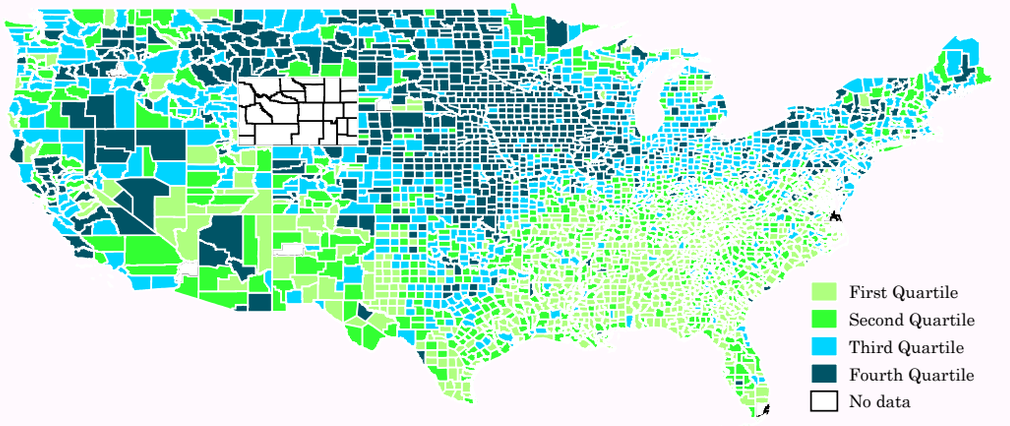
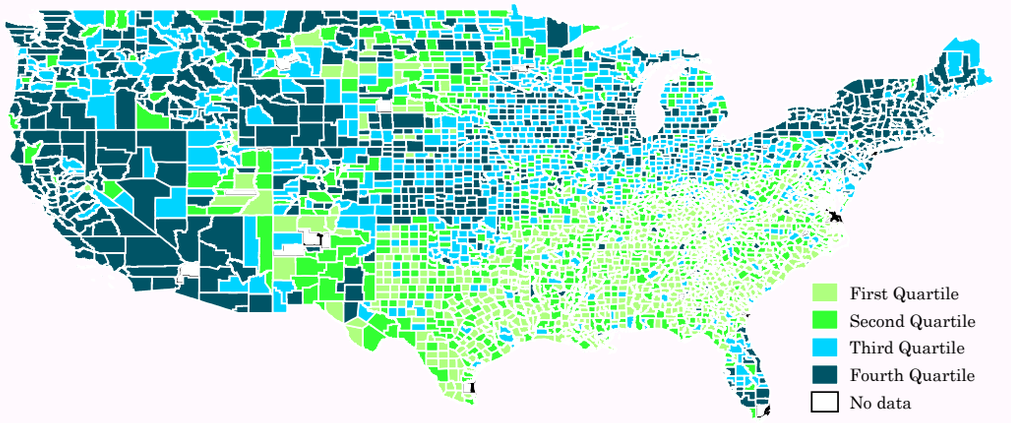
GEOGRAPHIC DISTRIBUTIONS

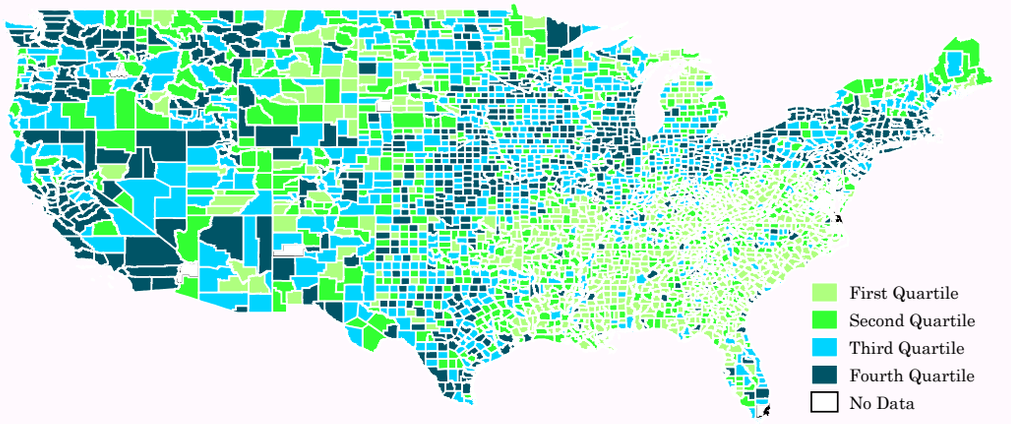
Bank Deposits per Capita 1930



Retail Sale per Capita 1930



Quartiles of Death Age by County of Birth



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