Refined by Fire
The Great Depression and Entrepreneurship

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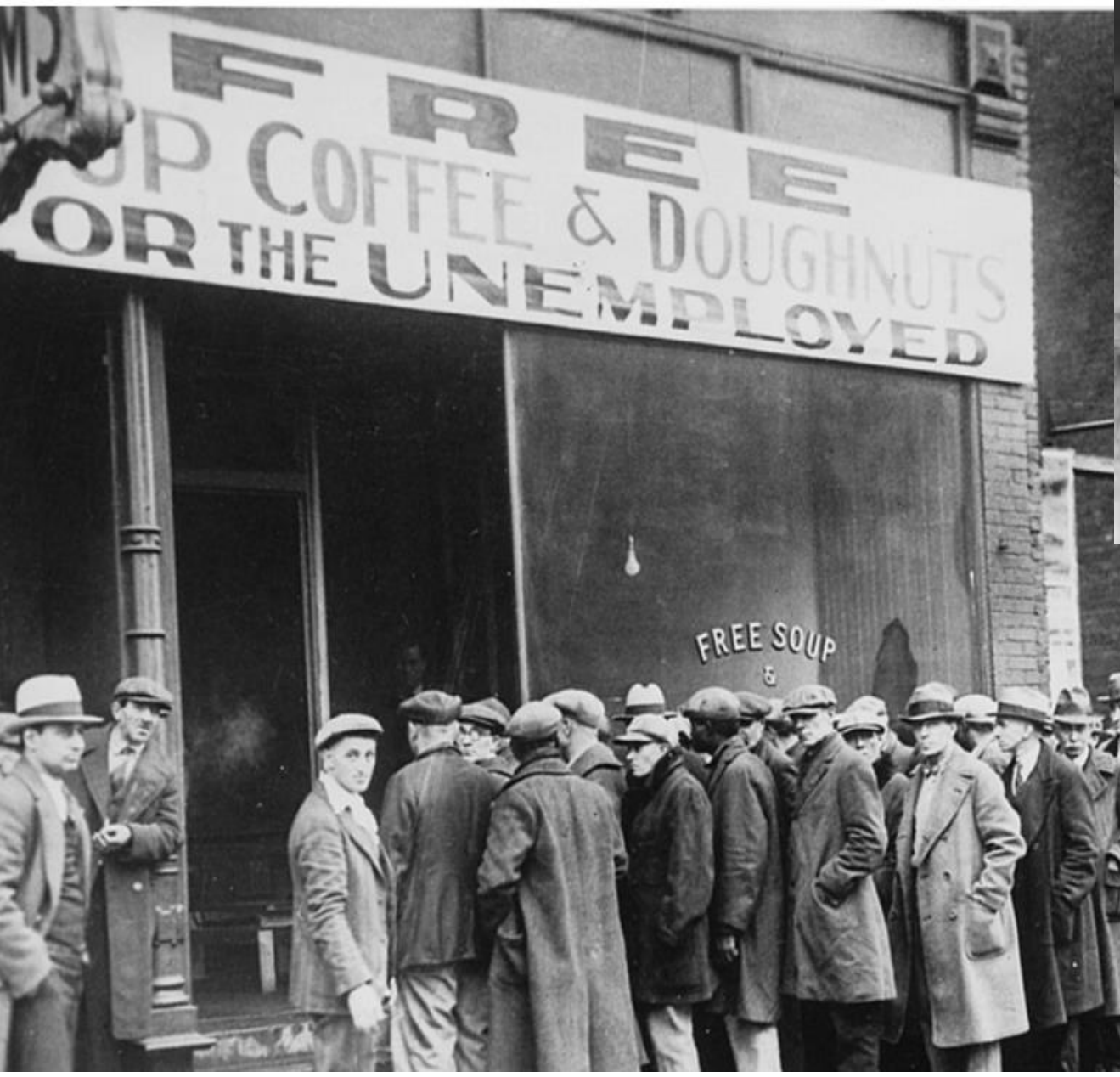
NBER Entrepreneurship, 2020

The Severity of the Great Depression

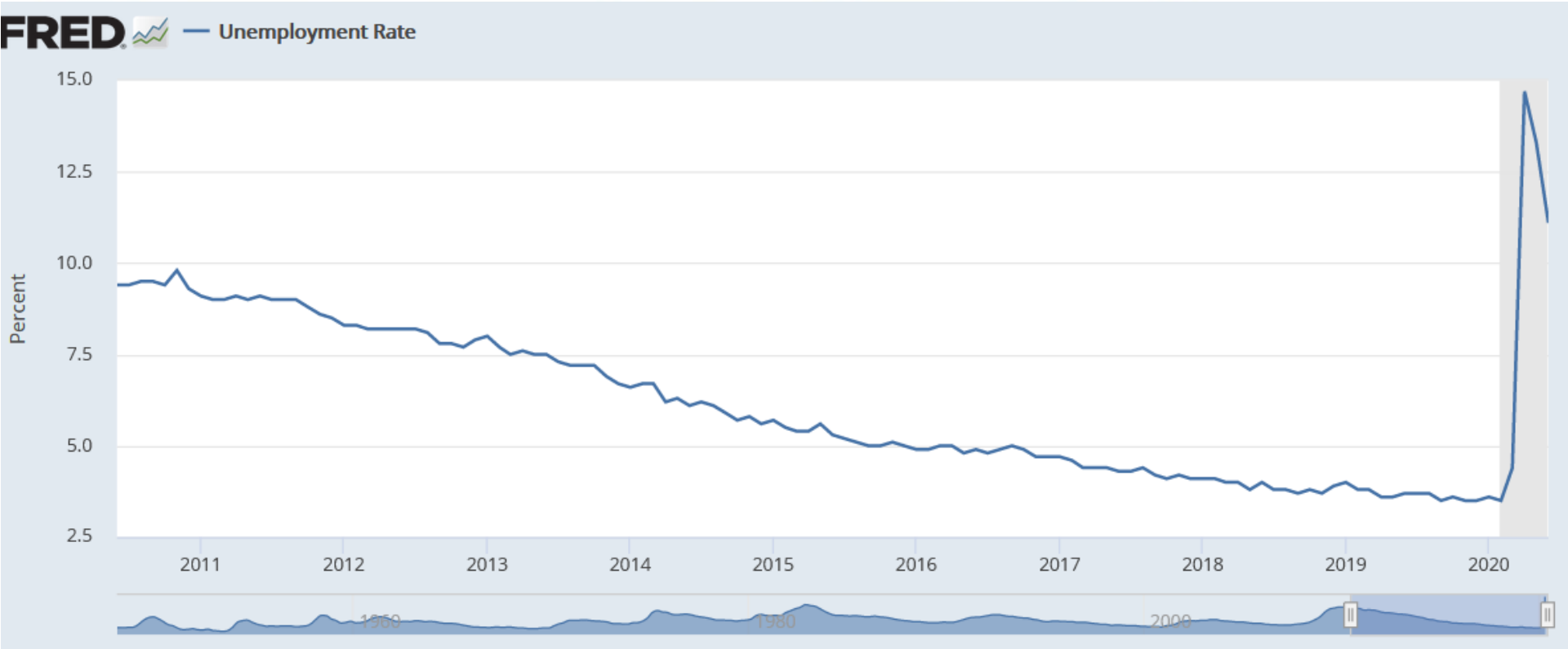


Possible scarring from COVID-19?

COVID-19 Pandemic

US Sets Another Daily Record COVID-19 Infections

By VOA News
Updated July 09, 2020 03:09 PM



Motivation

"My early life was relatively comfortable given that I grew up in the midst of the Great Depression and then World War II. By good fortune, my hometown of Teaneck, New Jersey was growing rapidly. I was too young to serve in the war. But, as I look back, there is no doubt that my father's prominent position in local government had a huge impact on the way I view life and the world." – Paul Volcker

While there is a large literature on entrepreneurship and economic growth, we still do not know much about the factors that spur entry into entrepreneurship. We focus on the role of personal experience moderated by the Great Depression.

Our contribution:

1. Causal evidence on the long-lived effects of historical shocks on entrepreneurship
2. Suggestive evidence on the role of personal experience and family upbringing

Overview

Data and Measurement

Main Results: Entrepreneurship

Understanding the Mechanisms

Conclusion

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Data and Measurement

Part 1: Combine data on entrepreneurship and historical depression shocks

- Business Dynamic Statistics on establishment entry as an entrepreneurship proxy.
- Fishback et al. (2005) CBSA retail sales growth between 1929 and 1933.
- Census Bureau unemployment rate growth between 1930 and 1940.
- Fishback and Thomasson (2014) state personal income from 1918 onward.
- Temperature and drought severity leading up to the Great Depression.

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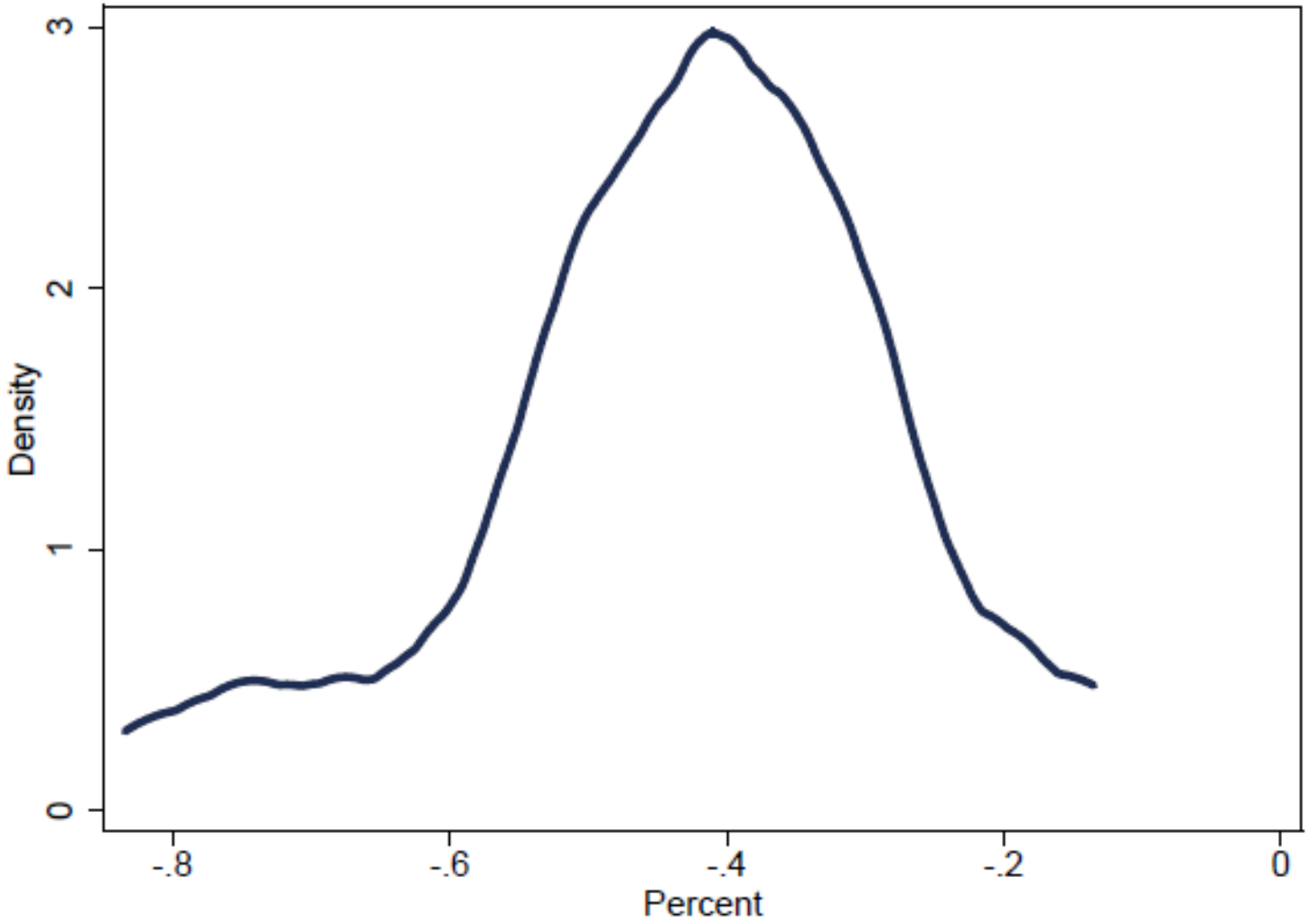
Part 2: Combine data on personal finances, childhood investment, and state income

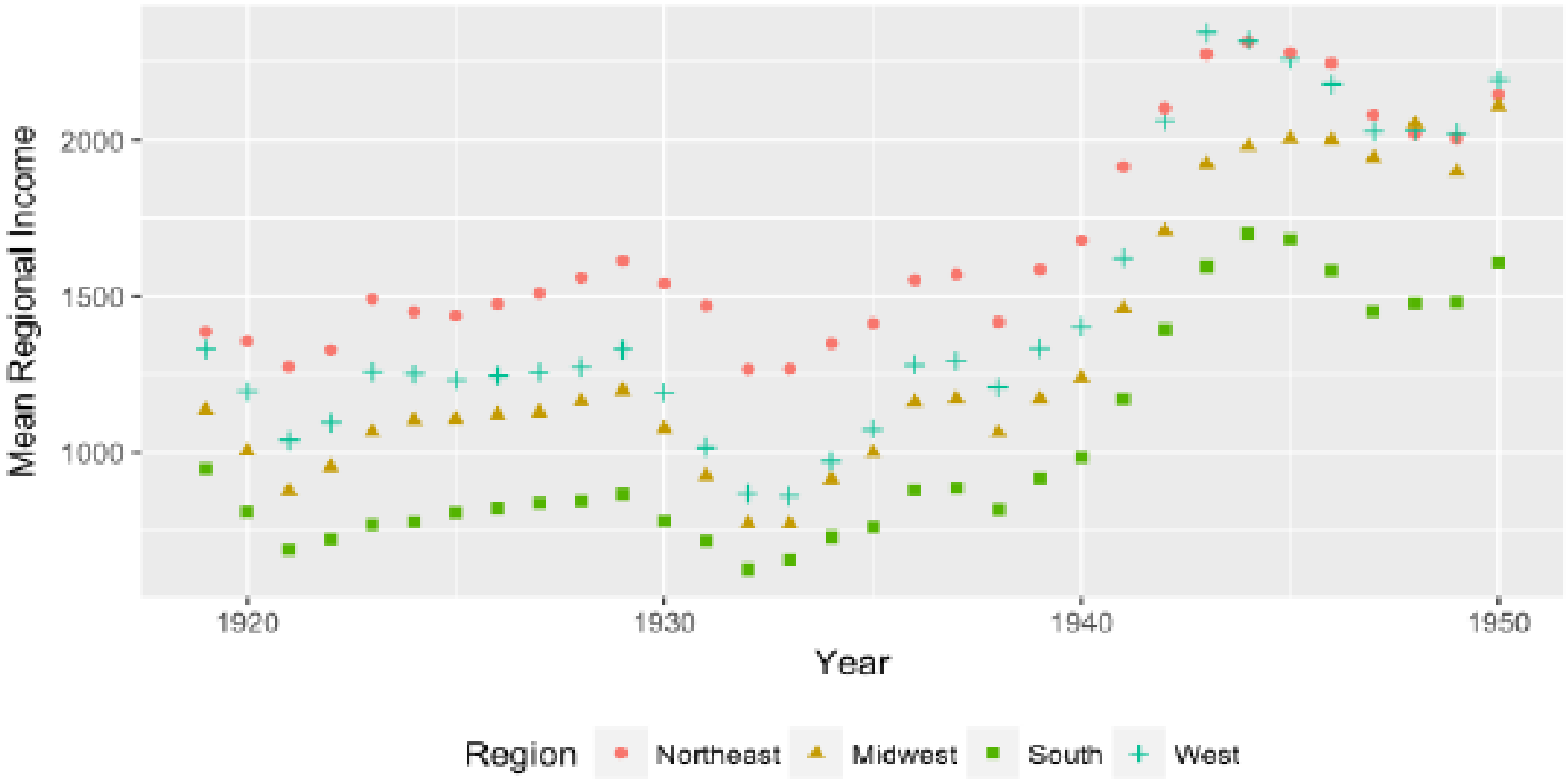
- We focus on individuals who were between ages 13-19 during the Great Depression since those are the most formative years of self-development.
- We clean the PSID sample as Blundell, Pistaferri, and Preston (2008) and draw on the Child Development Supplement (CDS), covering information on asset holdings, demographics, savings, and family upbringing.

Example of Variation of Retail Sales

Notes.—Source: Fishback et al. (2005). The figure plots the distribution of growth rates in retail sales per capita using real 1967 dollars across core business statistical areas (CBSAs), which were obtained by using a crosswalk between counties and CBSAs from Missouri Geocorr on the county data from Fishback et al. (2005).



Regional Income Dynamics During Great Depression



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Identification Strategy (1/2)

Our baseline specification relates contemporaneous entrepreneurship rates with the severity of the Great Depression, conditional on controls:

$$ENTREP_{lt} = \gamma \Delta y_l^0 + \beta X_{it} + \xi D_l^0 + \epsilon_{lt}$$

- We control for potential contemporaneous determinants of entrepreneurship, X_{lt}, such as demographics and the labor force, that could be persistent.
- We control for factors correlated with the Great Depression shock that occurred around the same time, D_l^0, such as industry composition.

Our identifying assumption is that unobserved shocks to contemporaneous CBSA entrepreneurship are uncorrelated with whether the CBSA experienced a larger versus smaller shock during the Great Depression, conditional on controls.

Identification Strategy (2/2)

However, **endogeneity concerns exist**: areas that experience larger retail services declines might also vary in other ways that affect future entrepreneurship.

- Industry composition
- Employment declines

We exploit plausibly **exogenous variation year-to-year growth in climate conditions** leading up to the Great Depression, which generates variation in agricultural yields that help cushion or amplify areas and their relative declines in retail consumption.

- Standardized Precipitation-Evapotranspiration Index (SPEI) between 1924-1926
- Close connections between weather and agriculture (Bleakley and Hong, 2017)

Identification Strategy (2/2)

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- Industry composition differences
- Banking sector shocks

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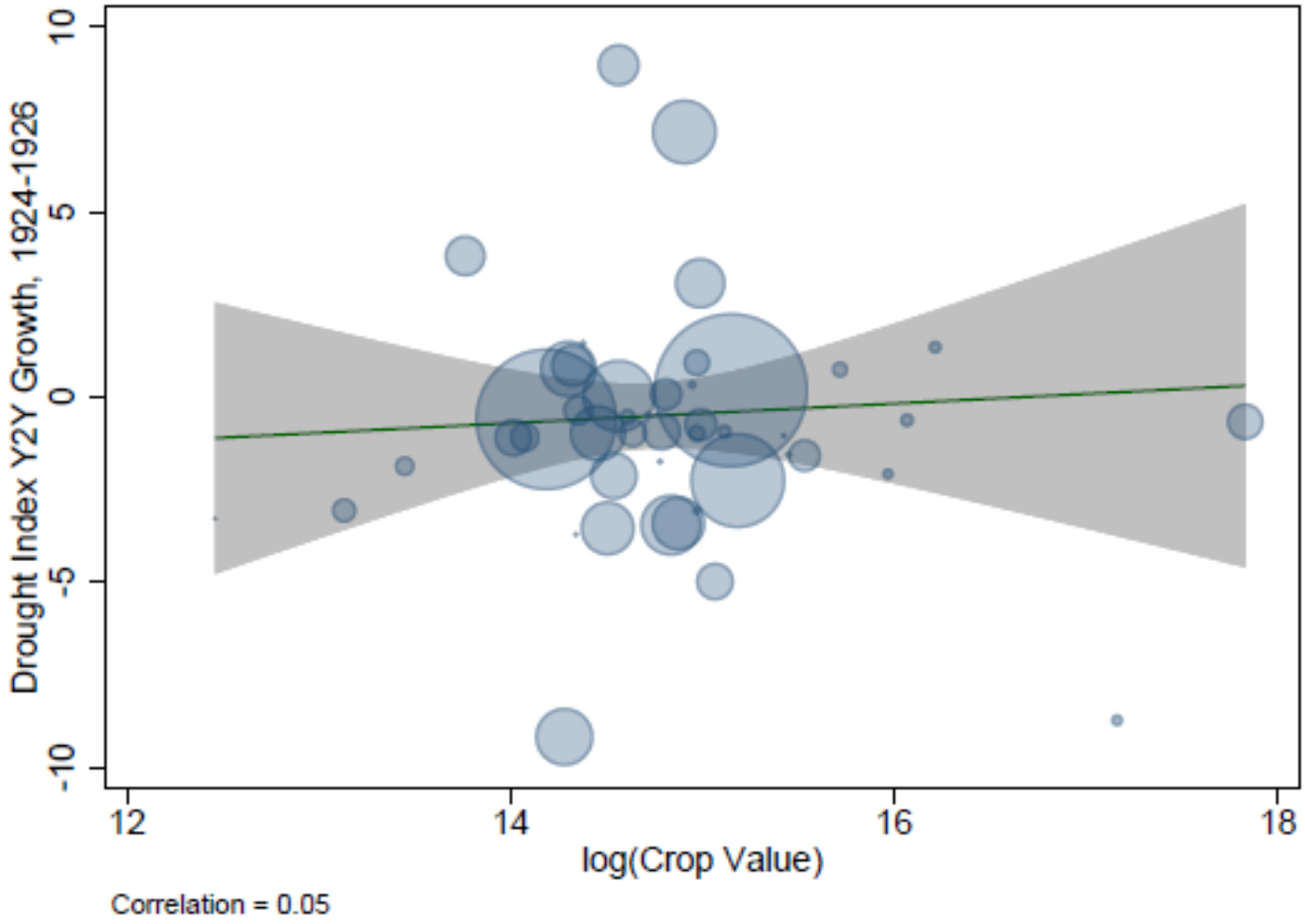
- Standardized Precipitation-Evapotranspiration Index (SPEI) between 1924-1926
- Close connections between weather and agriculture (Bleakley and Hong, 2017)

We are not using variation in areas that tend to have greater droughts compared to those that do not. Rather, we exploit changes in the years leading up.

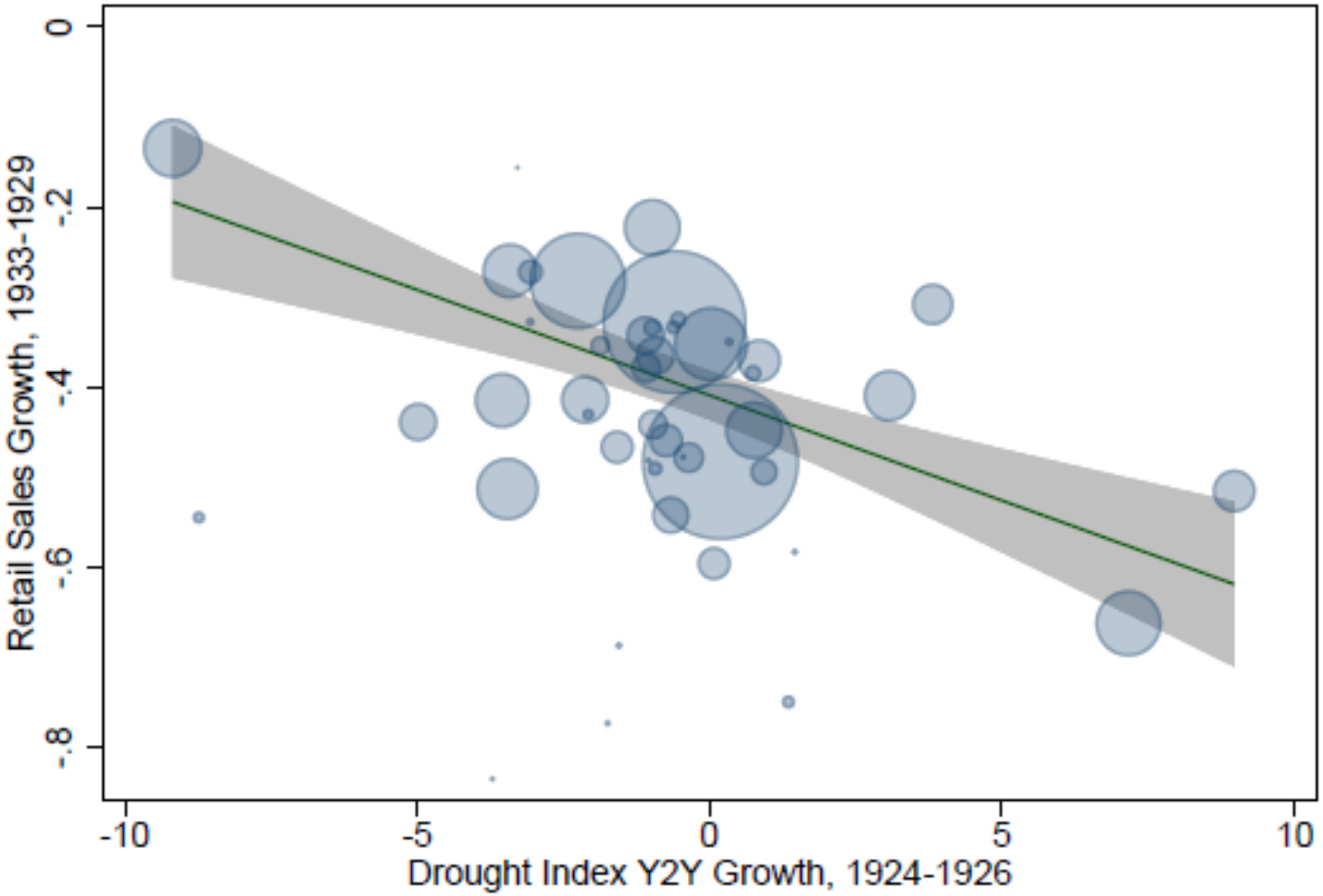
Do Areas w/ Greater Drought Growth Have Lower Yields?

Notes.—Source: 1930 Census Bureau and NOAA. The figure plots the correlation between the year-to-year growth in the Standardised Precipitation-Evapotranspiration Index (SPEI) drought index between 1924 and 1926 and the logged crop value in 1930 across CBSAs.



First-Stage: Greater Drought = Lower Retail Sales

Notes.—Fishback et al. (2005), 1930 Census Bureau and NOAA. The figure plots the relationship between retail sales growth and the year-to-year annual Standardised Precipitation-Evapotranspiration Index (SPEI) drought index. County data on retail sales growth is crosswalked into CBSAs using the 2000 Census delineation. Observations are weighted by 1920 psuedo-CBSA population.



Harder Hit Areas Have Higher Entrepreneurship Today

Dep. var. =	establishment entry rate					reallocation rate				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
retail sales growth, 1933-1929	-.04**	-.02	-.02	-.01	-.04**	-.06**	-.04**	-.04**	-.04*	-.04**
	[.02]	[.01]	[.01]	[.01]	[.02]	[.03]	[.02]	[.02]	[.02]	[.02]
× 1[1974 < t < 1991]				-.02***					-.01	
				[.01]					[.02]	
R-squared	.29	.38	.81	.81	.74	.16	.28	.68	.68	.74
Sample Size	1634	1634	1634	1634	1292	1634	1634	1634	1634	1292
F-statistic					8.64					8.64
Historical Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Contemporaneous Controls	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes	No
Year FE	No	No	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Instrument	No	No	No	No	Yes	No	No	No	No	Yes

Notes.—Source: Fishback et al. (2005), Business Dynamics Statistics, Census Bureau, 1977-2014. The table reports the coefficients associated with regressions of the establishment entry and reallocation rates between 1977 and 2014 on the growth rate of retail sales between 1933 and 1929 (and in certain specifications its interaction with an indicator for whether the year is between 1974-1991), conditional on controls. Historical controls include the population of a CBSA in 1940, share of males, the age distribution (under 20, 20-34, 35-49, 50-64, 65+), and the education distribution (none, some elementary, some high school, some college). Contemporaneous controls include the population in 1990, share of males, age distribution (under 18, 18-24, 25-34, 35-44, 45-64, and 65+), share of whites and blacks, share of married individuals, and the education distribution (less than high school, high school, and some college). The establishment entry rate is measured as the ratio of establishment entry in year t and the average of establishment entry in year t and t-1. The reallocation rate is the sum of job creation and job destruction net of the absolute value of the net job creation rate. The "drought IV" instrumental variables in columns 5 and 10 are the year-to-year average growth in the Standardised Precipitation-Evapotranspiration Index (SPEI) drought index between 1924 and 1926. The instruments include a quadratic in average annual SPEI growth, as well as the average SPEI growth for each month within the year. All county data (e.g., retail sales growth and drought) is crosswalked into CBSAs using the 2000 Census delineation. Standard errors are clustered at the CBSA-level.

Interpreting The Results

Malmendier and Nagel (2011) show that individuals who experienced low stock returns during the Great Depression are less likely to take financial risk.

Is what we're finding at odds given the riskiness of entrepreneurial ventures?

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Is what we're finding at odds given the riskiness of entrepreneurial ventures?

There is a difference between being directly exposed to a shock versus growing up during a time where a prevailing shock was felt—we focus on location-specific variation in the shock and we'll control for other confounding effects shortly.

We also will provide some evidence that exposed individuals accumulate greater liquid savings, which could have emerged from scarring from the Great Depression.

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Main Results: Entrepreneurship

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Conclusion

Intergenerational Transmission of Economic Experience

Why is the impact of economic shocks on entrepreneurship rates so long lasting?

Parents pass their experience with economic fluctuations down to their children.

While there is evidence in Cunha et al. (2010) – among many others, e.g. Guryan et al. (2008) – that parental investments are important for child development, there is not yet evidence on how parental investments affect children's long-run financial literacy.

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What are the possible reason that exposure to the Great Depression could matter?

- Parents who are laid off during the Great Depression have more time to allocate towards childcare and home production.
- Parents who are experiencing financial distress learn and convey the importance of frugality and "making every dollar count."

Parental Endowments and Transmission of Habits

We model the influence of economic conditions and parental investment in adulthood:

$$FS_{ist} = \gamma PINV_{ist} + \phi SINC_s + \xi(PINV_{ist} \times SINC_s) + \beta X_{ist} + \epsilon_{ist}$$

where FS = financial sophistication, $PINV$ = parental investment, and $SINC$ = state per capita income during the child's formative years (age 13-19).

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Our identifying assumption is that state per capita income affects children's financial sophistication only through its effect on parents' allocation of time to children.

Possible violations to the exclusion restriction involve differences in the educational content of available in schools, influenced by funding—we are examining.

Parental Endowments of Wealth

Another possibility that we cannot rule out is that parents that grew up in harder hit areas want to leave more money to their children through higher ednwoments.

$$INH_{ist} = \gamma FINC_{is} + \beta X_{ist} + \lambda_s + \epsilon_{ist}$$

where *INH* denotes the total inheritance received by an individual *i* in state *s* and year *t*, *FINC* denotes logged per capita personal income in the father's state during his impressionable years, and *X* denotes the usual individual controls.

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Our identifying variation comes from state economic conditions during the father's impressionable years—not variation purely from different states. **We isolate variation among people who have fathers born in the same state, but in different years (i.e., exposed to different state economic conditions).**

More Time with Children = More Savings Later in Life

Outcome Variable:	*Percent Liquid Assets in Savings*			
	(1)	(2)	(3)	(4)
ln(Time Reading)	0.402*	0.383*	0.389*	0.372*
	(0.171)	(0.166)	(0.167)	(0.165)
ln(State Income 13-19)	0.124	0.119	0.140	0.144
	(0.111)	(0.110)	(0.115)	(0.113)
x ln(Time Reading)	-0.242**	-0.229*	-0.228**	-0.218*
	(0.097)	(0.094)	(0.092)	(0.092)
Married		-0.014	-0.003	0.008
		(0.026)	(0.022)	(0.021)
# Children		0.015*	0.005	0.004
		(0.006)	(0.004)	(0.005)
Education			0.027	0.022
			(0.046)	(0.044)
Education^2			-0.001	-0.001
			(0.002)	(0.002)
ln(Income)				-0.025**
				(0.010)
R-squared	.014	.016	.021	.025
N	1197	1197	1197	1192

The inclusion of additional individual controls does not alter our coefficient on time parents allocate towards reading and the proxy for long-run financial behavior.

Worse Parental Conditions = Higher Endowments

Outcome Variable:	*ln(Total Inheritance)*		
	(1)	(2)	(3)
ln(Father State Income 13-19)	-0.352***	-0.347**	-0.304**
	(0.126)	(0.130)	(0.141)
Black		0.336	0.506
		(0.784)	(0.803)
White		-0.087	-0.014
		(0.338)	(0.348)
Female			-0.427**
			(0.159)
Married			-0.039
			(0.165)
# Children			-0.086
			(0.053)
R-squared	.007	.008	.017
N	1041	1041	1041

Individual characteristics are only weakly correlated with endowments from parents, but income in the father's state remains robust.

The Great Depression and Financial Sophistication

While we do not observe whether an individual is an entrepreneur, we use measures of financial behavior that are consistent with empirical measures of entrepreneurship:

- Wealth (Gentry and Hubbard, 2004)
- Home equity (Schmalz et al., 2017)

$$y_{ist} = \gamma FINC_{is} + \phi GD_i + \xi(FINC_{is} \times GD_i) + \beta X_{ist} + \alpha_s + \epsilon_{ist}$$

where y = financial behavior, $FINC$ = state per capita income for the father averaged during the time between age 13-19, GD = indicator for whether an individual's father was between ages 13-19 during the Great Depression, and α_s = state fixed effects.

Because of the variation from birth cohorts, children who grew up in the same state do not necessarily have the same state income, **state fixed effects exploit variation among children with parents who were differentially exposed to GD**.

Greater Depression Exposure = More Self Employment, Lower % in Stocks, Higher % in Savings

Outcome Variable:	1[Self-Employed]		% Liquid Assets in Stocks		% Liquid Assets in Savings	
	(1)	(2)	(3)	(4)	(5)	(6)
ln(Father State Income 13-19)	-0.008	-0.010	-0.088***	-0.098***	0.060***	0.151***
	(0.016)	(0.016)	(0.013)	(0.012)	(0.010)	(0.011)
Father Born 1910-1920	-0.064***	-0.060***	0.046**	0.039*	-0.021*	-0.014
	(0.017)	(0.019)	(0.019)	(0.020)	(0.012)	(0.025)
x State Income 13-19	-0.057*	-0.059*	0.095***	0.089**	-0.106***	-0.114**
	(0.030)	(0.030)	(0.036)	(0.036)	(0.020)	(0.051)
Education		0.002		0.015***		-0.012***
		(0.002)		(0.003)		(0.004)
Education^2		-0.000		-0.000***		0.000***
		(0.000)		(0.000)		(0.000)
ln(Household Income)		0.022***		0.074***		-0.086***
		(0.009)		(0.006)		(0.009)
R-squared	.033	.034	0.066	0.116	0.042	0.098
N	21566	21566	21566	21566	21566	21566
Birth State Fixed Effects	x	x	x	x	x	x

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While there is a large literature on the determinants of entrepreneurship over the business cycle, we show that historical factors can play a major role.

We present evidence that recessions have a long-run influence on entrepreneurship rates—concentrated among those growing up during the Great Depression.

- Lower retail sales in a CBSA during Great Depression is associated with higher establishment entry rates two generations later.
- Robust to instrumenting for drought conditions leading up to the Depression.

We suggest a possible mechanism: personal experience and family upbringing.

- Recessions change the way parents raise their children.
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Especially important to understand the potentially scarring effects of macro shocks and how this affects childhood development—COVID-19 and children!