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Perceptions of Racialized Economic Threat and Suicide among US Adults

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ASHEcon 2023 – Using Mortality Data to Assess Upstream Causes of Suicide

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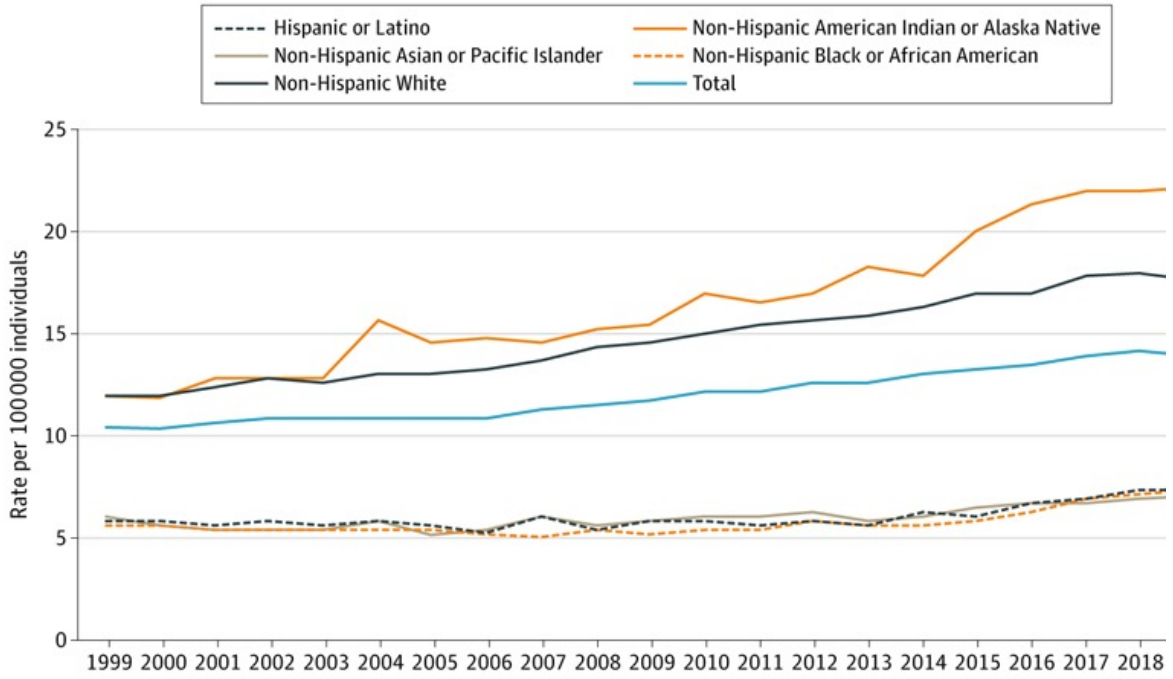
Racial and ethnic disparities in suicide

Figure 1. Age-Adjusted Suicide Rates by Race/Ethnicity, 1999 to 2019



Ramchand, R., Gordon, J. A., & Pearson, J. L. (2021). Trends in suicide rates by race and ethnicity in the United States. *JAMA network open*, *4*(5), e2111563-e2111563.

- Consistently higher rates of suicide among non-Hispanic AIAN and White populations
- “Unconventional” SES gradient
- Recent increases in suicide among NH Black, NH AIAN adults
- NH White suicide rates declining in recent years

Economic determinants of suicide

- Well-documented countercyclical relationship in suicide mortality, with notable exceptions[1-3]
- Consistent with job loss as key risk factor for suicide as well as *perceived* job insecurity, austerity measures, general economic distress[4]
- Case and Deaton 2017: "purely economic accounts are rarely successful at explaining this phenomenon"
  - Timing and magnitude
  - **Racial and ethnic disparities** – population health "paradox"
- Alternate explanations?

[1]Ruhm 2000, *Q J Econ.*; [2]Ruhm 2015, *J Health Econ.*; [3] Goldman-Mellor et al. 2010, *Int J Ment Health;* [4]Catalano et al. 2010; *Annu Rev Publ Health*

Dominant group status threat

"Those in the dominant caste who found themselves lagging behind those seen as inherently inferior potentially faced an epic existential crisis… If the lower-caste person manages actually to rise above an upper-caste person, the natural human response from someone weaned on their caste's inherent superiority is to perceive a threat to their existence, a heightened sense of unease, of displacement, of fear for their very survival."

- Isabel Wilkerson in *Caste: The Origins of Our Discontents* (2020; p. 183).

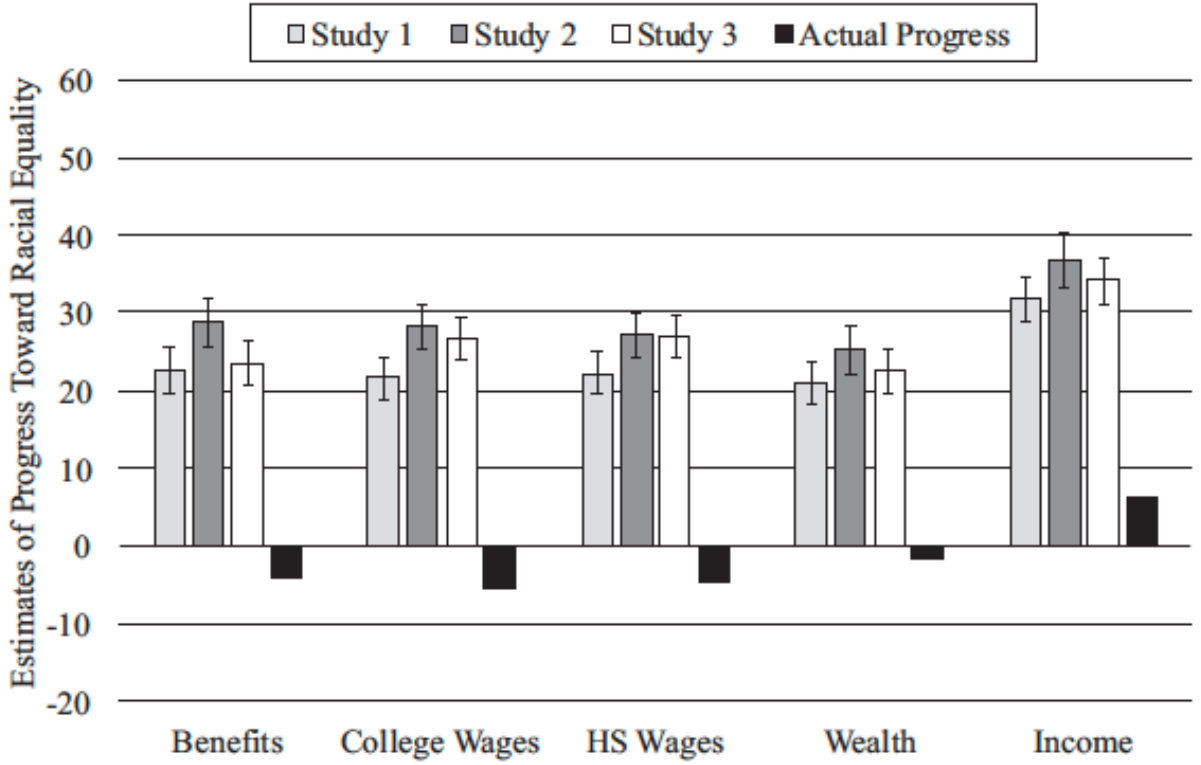
Economic status threat

- *Economic status threat* highlights (often misplaced) fear of increased economic competition between groups
  - Intensified during periods of periods of structural economic change
- Studied in the context of many forms of social control:
  - Work requirements and drug testing for welfare receipt[1]
  - Criminal justice sanctions[2]
  - Public attitudes toward immigration and related policies[3]
- Increasing interest in looking at economic status threat as a driver of deaths of despair/rising midlife mortality in US[4]

[1]Bjorkland et al. 2018, *Sociol Quart.*; [2]D'Amato et al. 2021, *Social Sciences.*; [3]Melcher 2021, *Ethnic Racial Stud.*; [4]Efrin et al. 2023, *Soc Sci Med Pop Health*

Perception vs. reality

- Americans' perceptions of racial and ethnic economic progress inconsistent with reality
- May contribute to belief among many NH White Adults that the "economic hierarchy" is eroding[1]



Kraus, Michael W., Julian M. Rucker, and Jennifer A. Richeson. "Americans misperceive racial economic equality." *Proceedings of the National Academy of Sciences* 114.39 (2017): 10324-10331.

[1]Siddiqi et al. 2019; *Soc Sci Med Pop Health*

Economic status threat and health

- Emerging work linking perceived status threat to adverse health[1]
- Durkeim's "anomic" suicide: "driven by shame and anger at real or imagined violations of social expectations that threaten one's sense of self"[2]
- **Two examples in the literature:**
  - **Siddiqi et al. 2021**: 1 ppt increase in county-level Republican vote share between 2010-2016 associated 1.5 per 100,000 increase in non-Hispanic White (all cause) mortality
  - **Rambotti 2022**: 1 ppt increase in state-level white employment-population ratio associated with 0.14 per 100,000 decrease in non-Hispanic White suicide

[1] Efird et al. 2022, *Soc Sci Med Pop Health;* [2]Abrutyn & Mueller 2014, *Sociol Theory*

Current study

1. Examine heterogenous effects of changes in *own-group* employment conditions on (method-specific) suicide by disaggregating employment rates among racial and ethnic groups
2. Expand existing literature on "despair" to test the theory of perceptions of economic threat as an underlying driver of suicide

- Suicide among non-Hispanic White males varies countercyclically in the short-term
- In the long(er) term, suicide varies *procyclically* among Hispanic and NH API women and *countercyclically* among NH White and NH Black females.
- No support for theory that increased employment among non-White groups affects White suicide rates during 2003-2017 period; in contrast, small protective effects

Empirical approach – overview

- Estimate series of yearly fixed effects and long difference models relating changes in county-level *group-specific* employment rates to suicide
- Instrument for county-level employment using a shift-share instrument to overcome endogeneity concerns
  - Labor *demand* more plausibly capture conditions leading to economic anxiety?
- Control for own group employment to estimate effect of changes in other segments of the labor market[1-3]
- Disaggregate rates into suicide by firearm[4] and intentional poisoning

[1]Page et al. 2019, *J Hum Resour*; [2]Schaller 2016, *J Hum Resour;* [3]Lindo et al. 2018, *J Pub Econ;* [4] Metzl 2014, *Dying of Whiteness*

Data and notation

- 2003-2017 county-year panel drawing on NCHS/NVSS restricted-access vital statistics and Quarterly Workforce Indicators
- Y_{ict}: overall or method-specific, age-adjusted suicide mortality rate per 100,000 among working age adults (ages 19-64) in race or ethnicity group i
- $EPOP_{ict}$: share of employed population **ages 14-99** in race or ethnicity group i in county c
- X_{ct}: vector of time-varying county-level demographic characteristics
- Subgroups defined by sex and race/ethnicity but pooled across age:
  - Non-Hispanic Black (NHB), non-Hispanic API (NH API), non-Hispanic White (NHW) and Hispanic

Two main modelling approaches

1. Yearly FE model to estimate contemporaneous effects:

$$Y_{ict} = \beta_1 EPOP_{ict} + \gamma_1 \boldsymbol{X}_{ct} + \theta_c + \delta_t + \sigma_{st} + \varepsilon_{ict}$$

2. Stacked long first difference models to estimate changes in the longer-term:

$$\Delta_{\mathrm{r}} Y_{ic} = \beta_2 \Delta_r EPOP_{ic} + \gamma_2 \Delta_{\boldsymbol{r}} \boldsymbol{X}_c + \theta_s + \delta_p + \Delta_{\mathrm{r}} \varepsilon_{ict}$$

- Where Δ_r denotes differencing operator over r years (pref. 7 yrs) and δ_p is a period fixed effect
- In Model 2, regress ΔY_{ic} on $\Delta EPOP_{ic}$ (own group) and on $\Delta EPOP_{kc}$ (cross group) for race/ethnicity groups $k \neq i$

Instrument construction & identification

- Construct shift-share instrument Z_{ic}^{r} as follows:

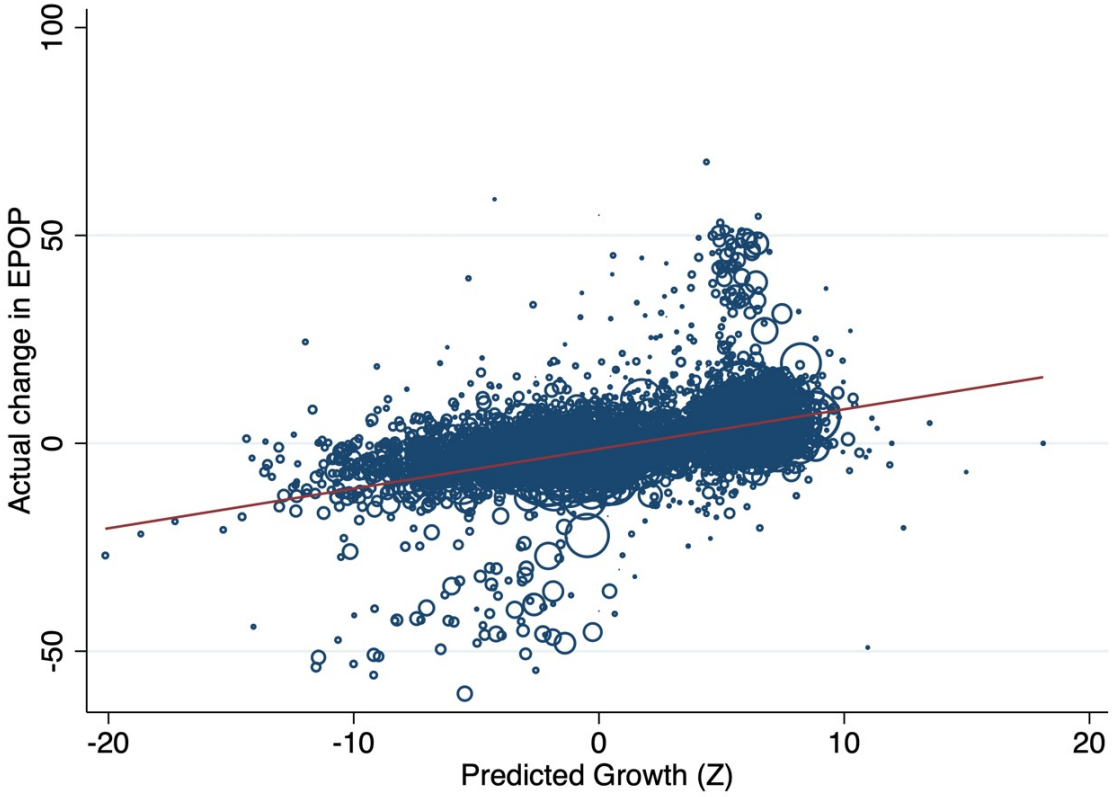
- $$Z_{ic}^{r} = \sum_{j} \left(\frac{Emp_{ijc(2002)}}{Emp_{ic(2002)}} \times \frac{\sum_{c' \in \{C \setminus c\}} Emp_{ijct} - \sum_{c' \in \{C \setminus c\}} Emp_{ijc(t-r)}}{\sum_{c' \in \{C \setminus c\}} Emp_{ijc(t-r)}} \right)$$

- Adopt "shocks" view[1] of SSIV identification as opposed to "shares" view[2], so identification rests on:
  - Quasi-random shock assignment conditional on observables
  - Many uncorrelated shock residuals

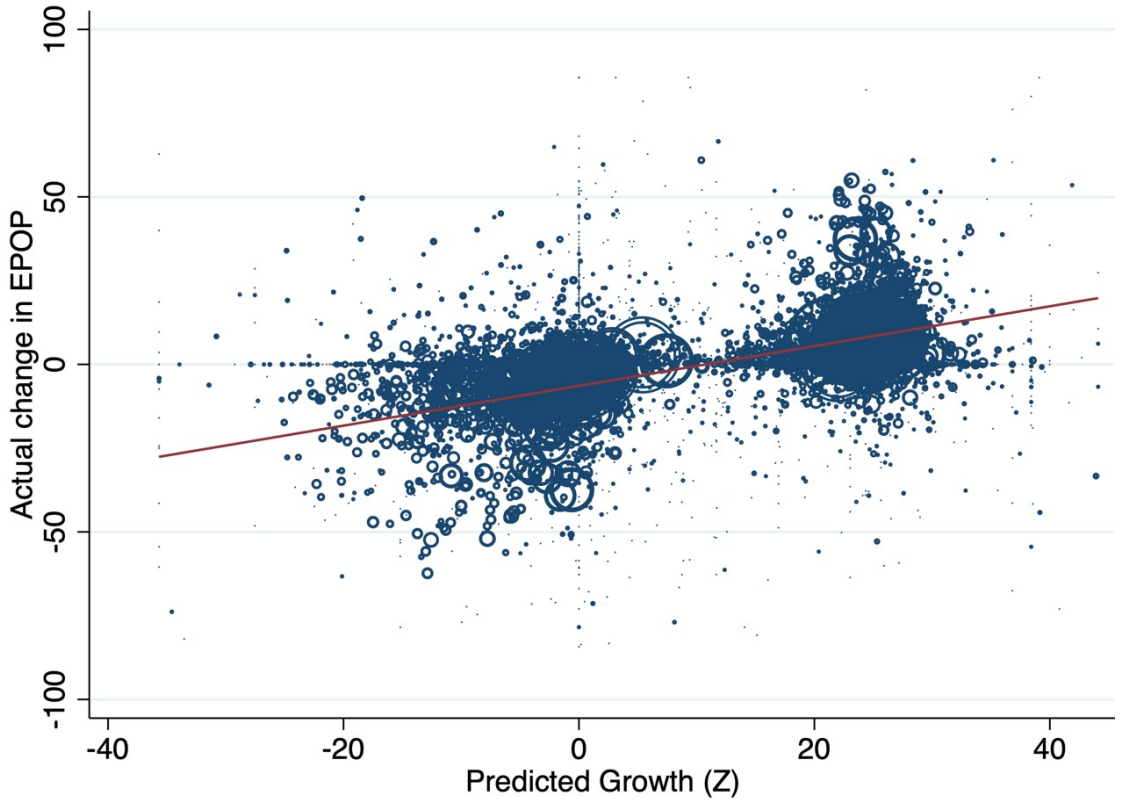
[1]Borusyak et al. 2022, *Rev Econ Stud.*; [2]Goldsmith-Pinkham et al. 2020, *Am Econ Rev.*

Relationship between actual and predicted employment change, group-specific instrument

Non-Hispanic White



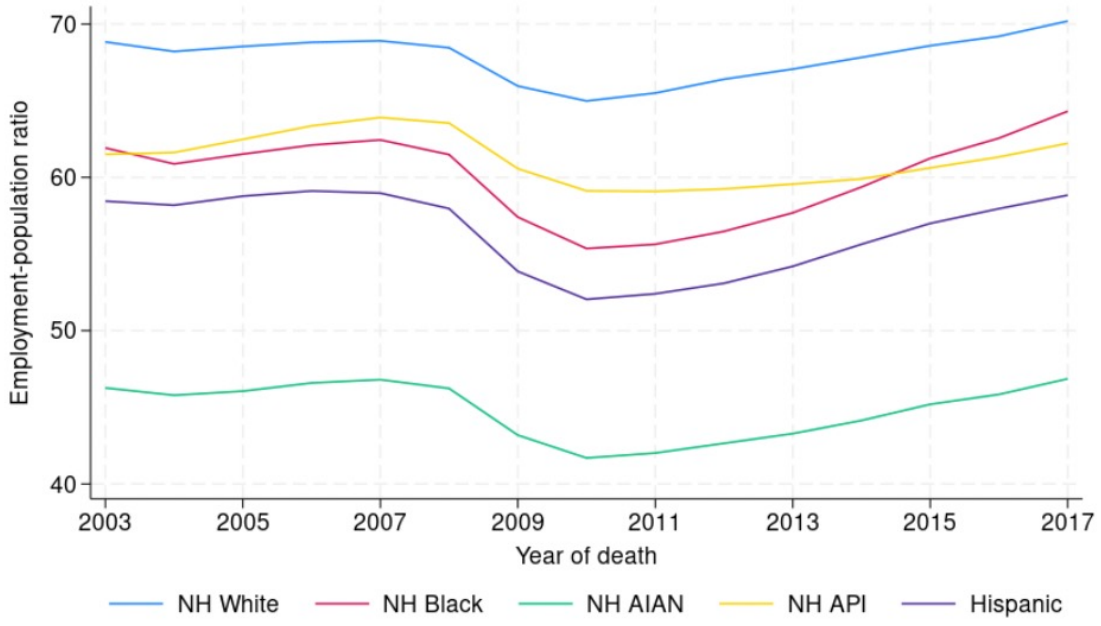
Non-Hispanic Black



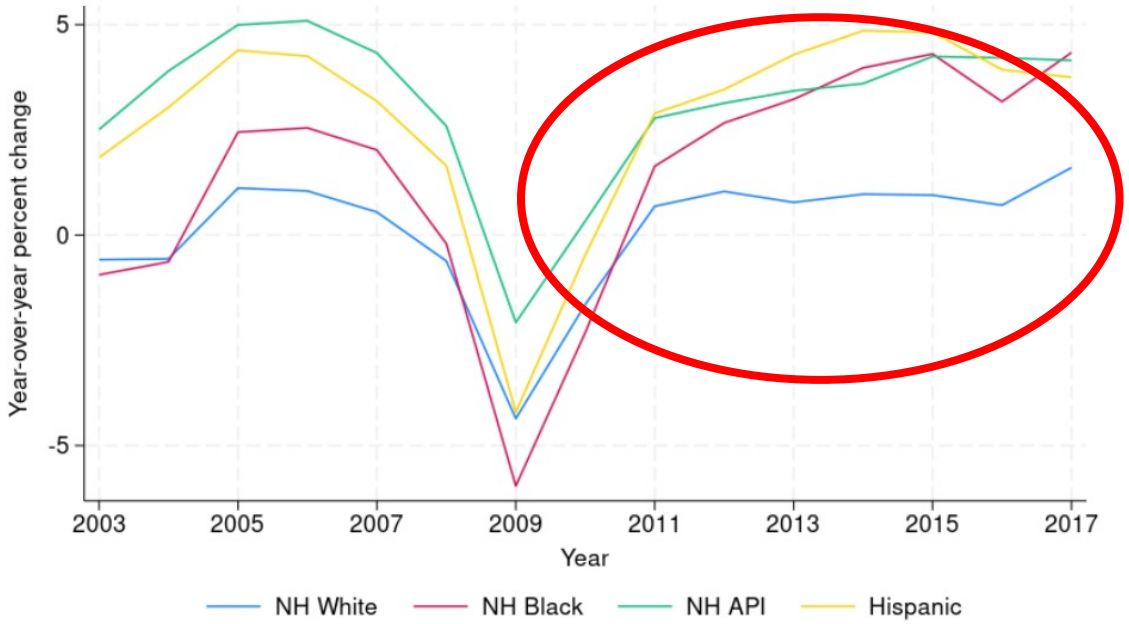
Figures show relationship between 7-year predicted growth (x-axis) and actual 7-year difference in EPOP (y-axis) for NH White and NH Black adults. Periods are 2003-2010 and 2010-2017. Dots represent county-period observations and are weighted by the size of the working age population in each group at the start of the period.

Employment trends by race and ethnicity (QWI)

Employment-population ratio, by race and ethnicity

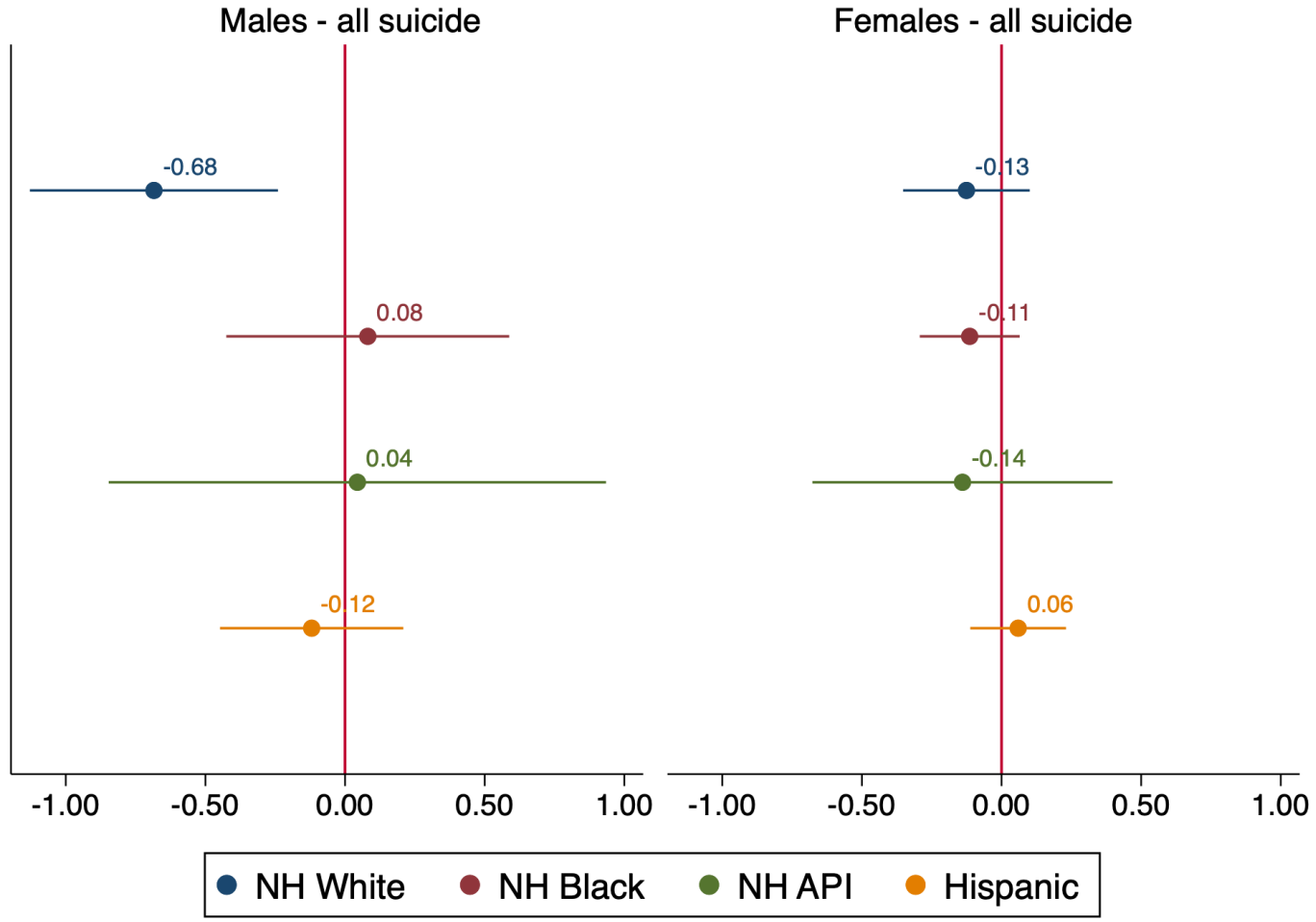


Year-over-year growth in employment, by race and ethnicity



- Despite experiencing smaller absolute changes in employment during 2008 Recession, recovery was relatively slower among NH White adults

Point estimates and 95% CIs (AKM-adjusted)[1] from IV regressions of **own-group suicide on own-group EPOP** (yearly):

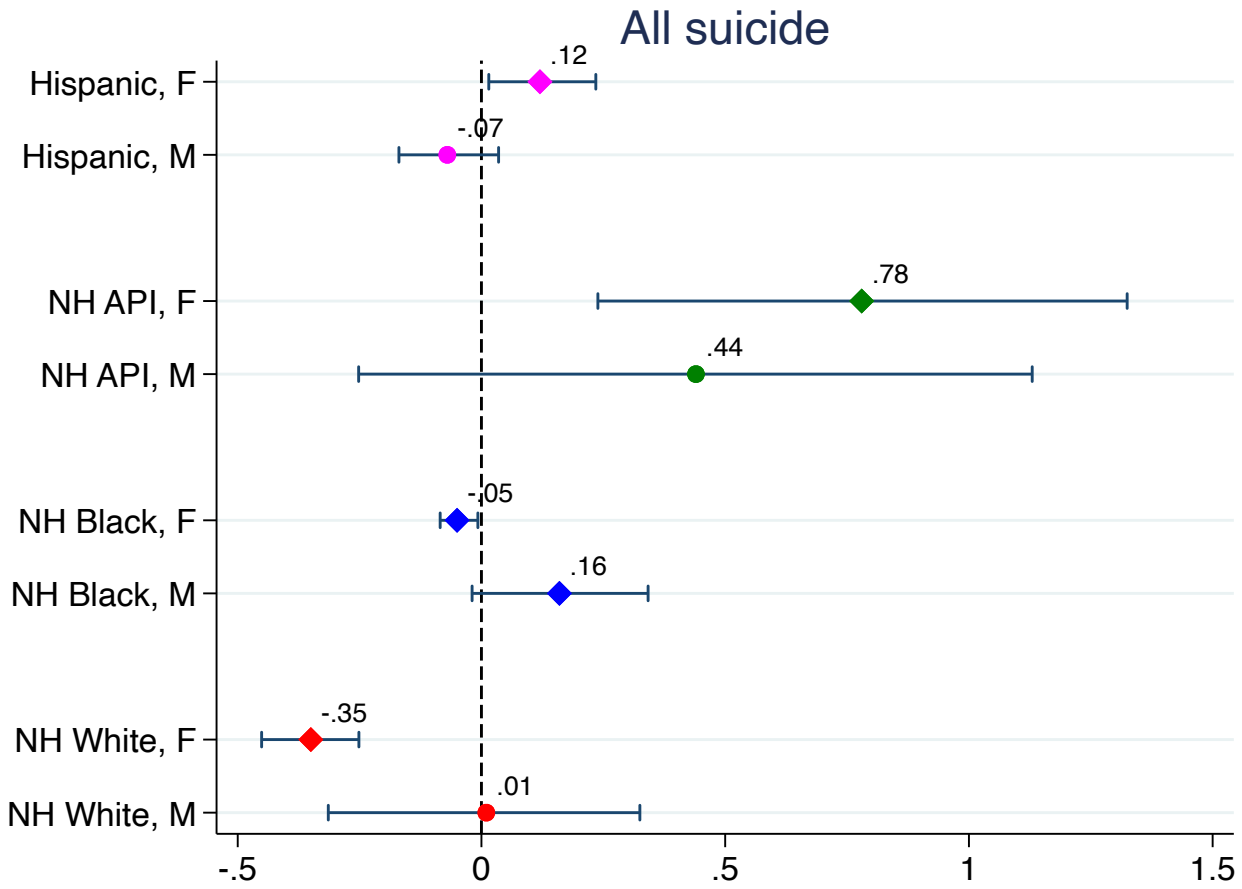


First stage F statistics: 71.6 (NH White); 31.4 (NH Black); 14.6 (NH API); 64 (Hispanic)

- No evidence of association between current year EPOP and suicide in OLS models
- 1 ppt increase in NH White EPOP estimated to decrease suicide by 0.7 per 100,000 among NH White males (2% relative to sample mean)
- No evidence of effects among other demographic groups
- No evidence of significant effects when disaggregating by method (firearm vs. poisoning)

[1] Adão et al. 2019, *Q J Econ.*

Point estimates and 95% CIs (AKM adjusted) from IV regressions of **own-group suicide on own-group employment** (stacked 7-year first difference):

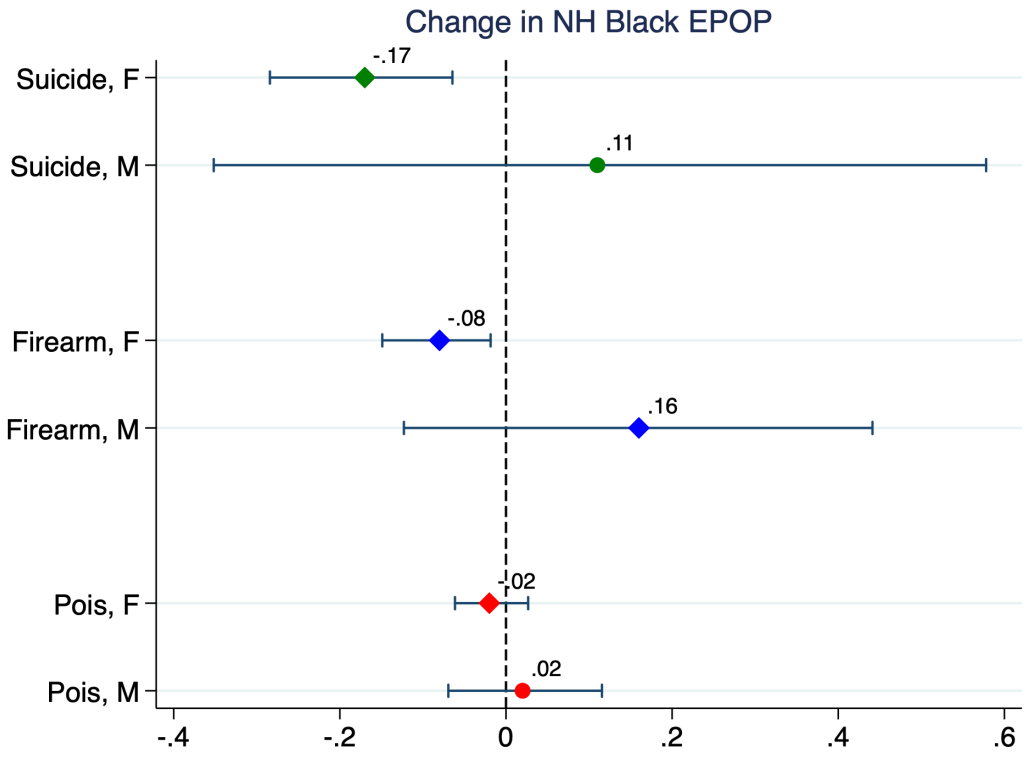


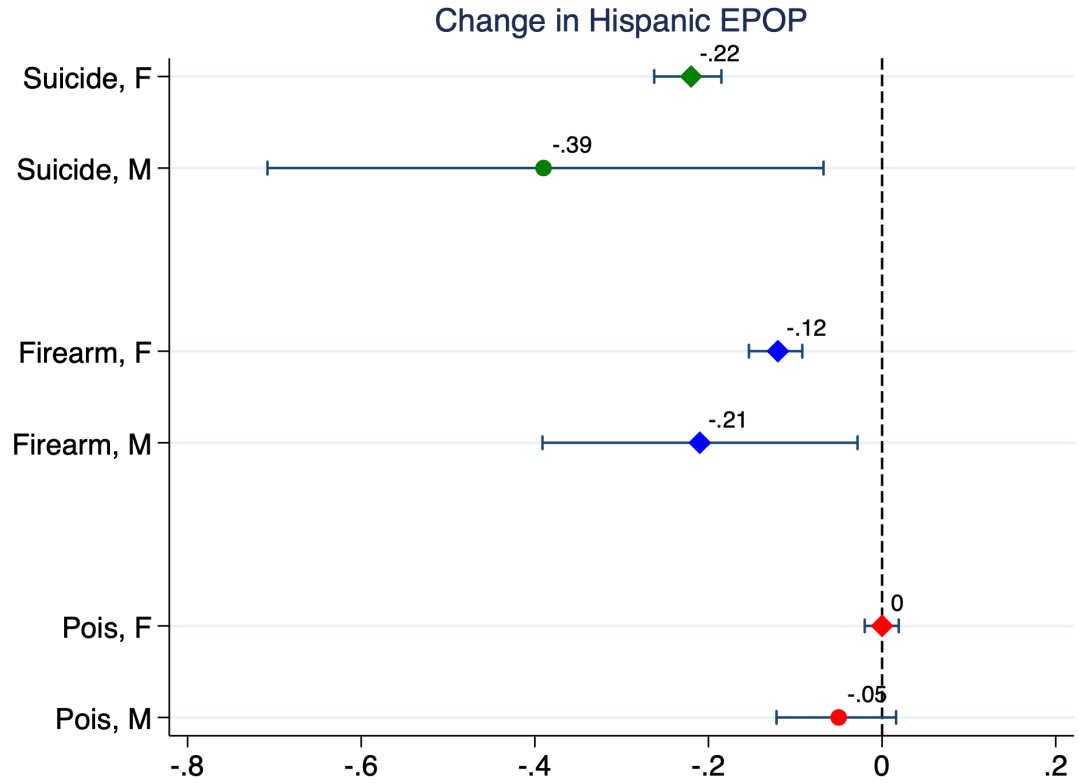
Own-group employment shocks over longer time horizons affect suicide among females:

- 4% increase among Hispanic females
- 20% increase among NH API females
- 1.6% decrease among NH Black females
- 3.7% decrease among NH White females

First stage F statistics: 133.2 (NH White); 53.1 (NH Black); 13.7 (NH API); 77.5 (Hispanic)

Point estimates and 95% CIs (AKM adjusted) from IV regressions of **NH White suicide on NH Black** (left) and **Hispanic** (right) employment rates, from stacked 7-year first difference models:





1 ppt increase in NB Black EPOP over 7-year period:

- 2.8% decrease in suicide (all) among NH White females
- 1.4% decrease in firearm suicide among NH White females

1 ppt increase in Hispanic EPOP over 7-year period:

- 2.3% decrease in suicide (all) among NH White females
- 1.3% decrease in suicide (all) among NH White males
- 4% decrease in firearm suicide among NH White females

Key takeaways

- Macroeconomic conditions (as proxied by own-group EPOP) have heterogeneous effects on suicide across racial and ethnic groups
  - *Short-term* countercyclical variation in NH White male suicide, but no association for other groups
  - *Long(er)-term* employment growth associated with increases in suicide among Hispanic and NH API women, and decreases among NH White and Black women
- Do not find evidence that NH White suicide increases as a function of changes in other racial and ethnic groups' EPOP (controlling for White EPOP)
  - Some evidence that increases in other groups' employment are *protective,* especially for NH White women
  - Widespread benefit of economic growth? Racial capitalist explanation?
- Rather than cross-group comparisons, perhaps intergenerational comparisons

Limitations & next steps

- Industry-specific productivity shocks that increase wages may violate exclusion restriction[1]
  - Current pre-trend test suggests areas with higher NH White employment growth at baseline had lower overall suicide mortality, need to re-estimate by subgroup
- Further investigation by educational attainment – key element of the "despair" hypothesis
- Given literature on trade-induced economic shocks and automation, may make sense to look at specific industries or earlier/longer time horizons
- Other ways to better operationalize "perceived economic threat":
  - Employment domain: wages, employment in high-paying/high status occupations, growth rather than level changes[2]
  - Other economic indicators: income, poverty rates[3]

[1]Goldsmith-Pinkham et al. 2020, *Am Econ Rev.*; [2]Betz & Jones 2018, *Am J Agr Econ.;* [3]Gordon & Sommers 2016*, Am J Health Econ.*

Thank you!

Comments welcome:

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Assumption 1: quasi-random shock variation

Table A1. Pre-trend test for group-specific shift share instrument

	Group-specific predicted employment growth			
	NH White	*NH Black*	*NH API*	*Hispanic*
All suicide (1999-2002 change)	-0.574*	-0.752	-0.289	-0.388
	(0.276)	(0.469)	(0.447)	(0.527)
Observations	2970	2640	2588	2870

Notes: Each cell presents the estimated coefficient from the regression of the 1999–2002 three-year difference in suicide on the value of the normalized shift-share instrument in 2003. All models control for state fixed effects and county-level baseline characteristics listed in the footnote to Table 2 and are weighted by the county-level working-age population in 2000. Significance: * $p<0.05$, ** $p<0.01$, *** $p<0.001$.

Must dos:

- Disaggregate all suicide into group specific
- Examine balance between 2003 value of the shift share and pre-determined county-level observables

Assumption 2: Uncorrelated shock-level residuals

- Examine the inverse of the shock-level Herfindahl concentration index (HHI) defined as:

$$\frac{1}{\sum s_{jt}^2}$$

Where s_{jt}^2 is the ``importance weight'' of industry j in year t in the shock-level IV regression (using *ssaggregate*[1])

- The inverse HHI for the group-specific shocks range from <u>164</u> (NH Black) to <u>187</u> (NH White)
- Largest employment share constitutes at maximum only 1.3% of the total industry-by-year weights - a good sign!

[1]Borusyak et al. 2022, *Rev Econ Stud*

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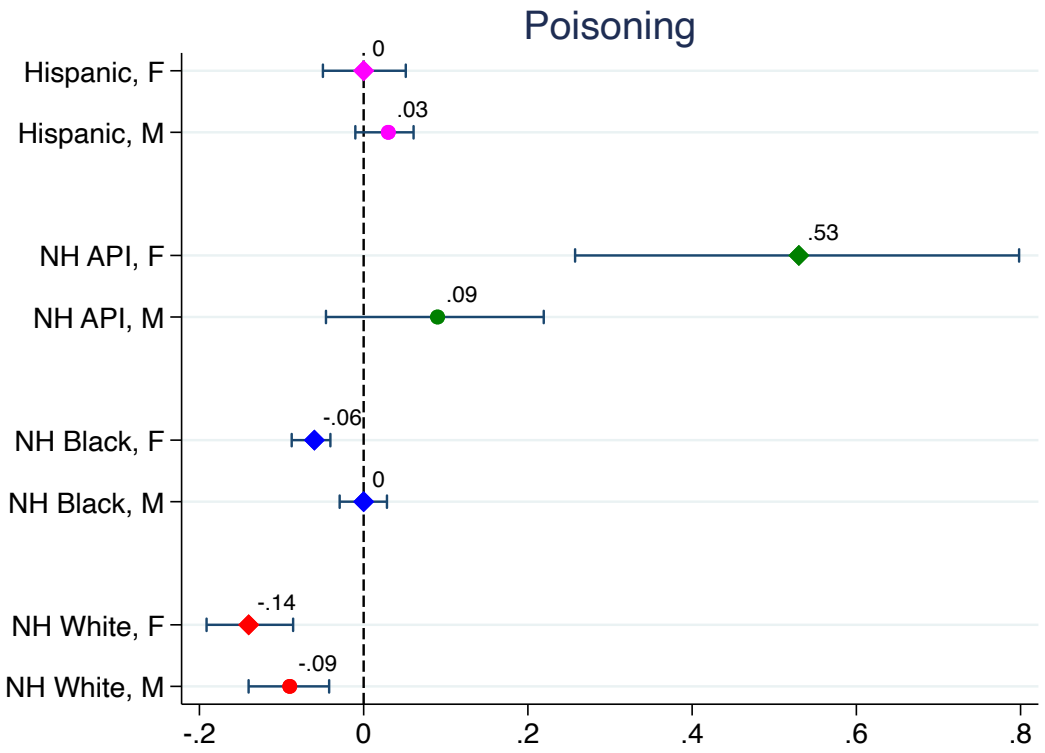

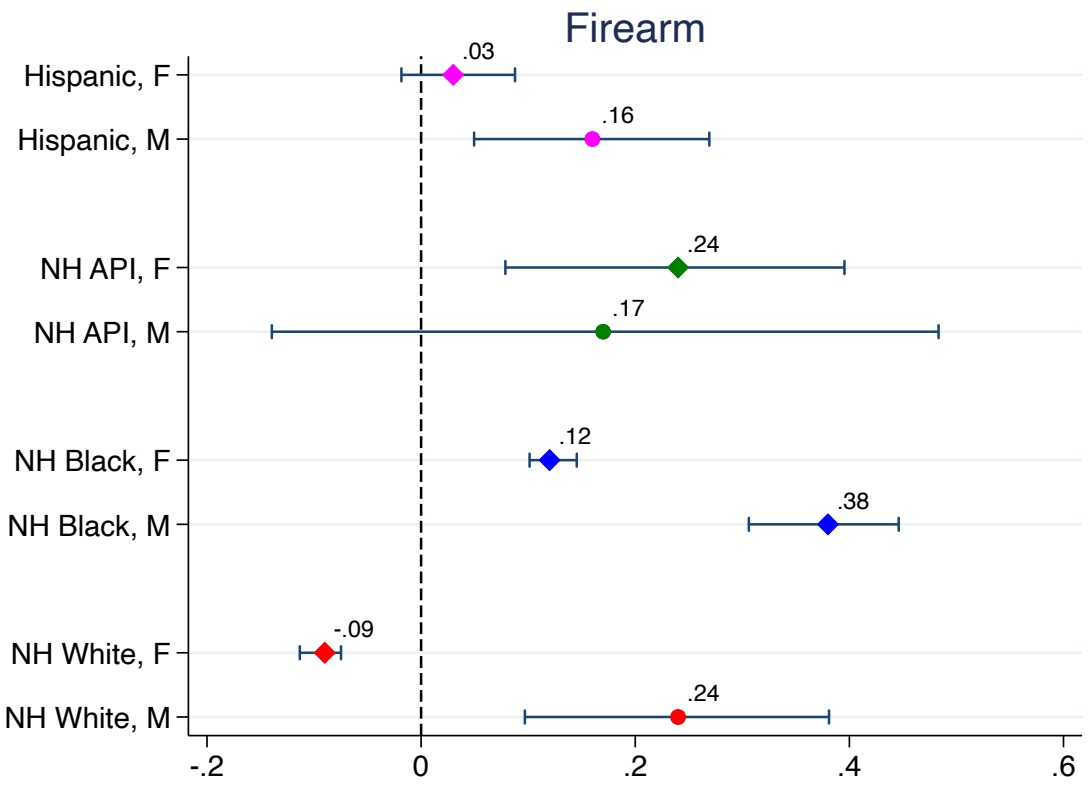

Graphical representation of first stage (yearly)