Dynamic Racial Wealth Inequality Accounting, 1860 – 2020

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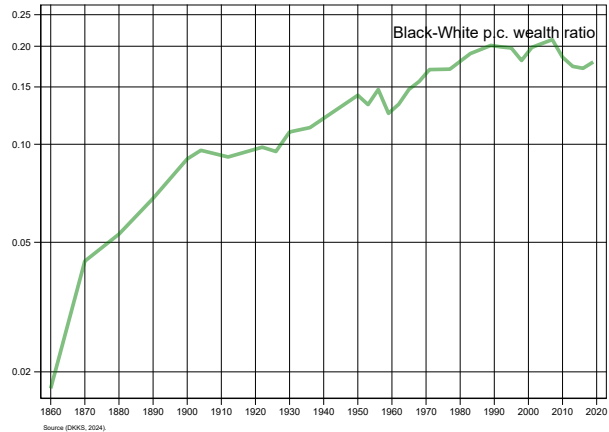
The relative mean racial wealth gap shows some progress, though tepid

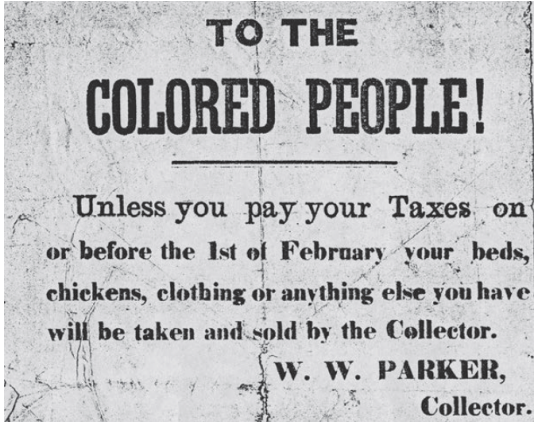
- The Black-White **(mean)** wealth ratio remains large: $\bar{a}_B < \frac{1}{5}\bar{a}_W$



- In levels, the gap has been growing even though the relative gap narrowed ...

Black-owned wealth: from exclusion to unique downside risks?

- The color of wealth taxes and the consequences of tax delinquency



Source: The Black Tax, Andrew Kahrl, 2024. Figure 3.1, Tax collection notice in Halifax County, NC, 1874, from *Documenting the American South*.

Black wealth accumulation faced unique hurdles

Labor markets

* Past and ongoing gaps in labor market returns and incomes

Capital markets

- Historical exclusions: outright exclusion, redlining, racial covenants
- Large racial differences in housing return risks (Kermani and Wong, 2024)
- Higher property tax assessments and risk of losing homes through tax sales (Kahrl, 2024; Avenancio & Howard, 2022)
- Persistent effects of past racial violence, both near and far (Albright et al., 2022 on Greenwood, Tulsa massacre in 1921)
- Incarceration exposure increases homeownership exit risk (Chiteji, 2021 & Humphries et al., 2025)

Our question

How important are racial gaps in incomes **and** financial frictions in the evolution of racial wealth gaps in the US since 1860?

A naive decomposition shows wealth disparities have multifaceted drivers

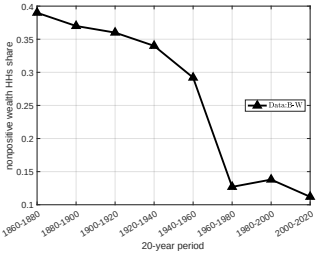
Focusing on the mean, we can rewrite the Black-White (mean) wealth ratio as

$$\underbrace{\frac{\bar{a}_B}{\bar{a}_W}}_{\frac{B}{W}\text{ mean wealth}} = \underbrace{\frac{\Pr[a^i_B > 0]}{\Pr[a^i_W > 0]}}_{\frac{B}{W}\text{ positive wealth share}} \times \underbrace{\frac{\bar{a}_{B|a>0}/\bar{y}_B}{\bar{a}_{W|a>0}/\bar{y}_W}}_{\frac{B}{W}\text{ positive wealth-to-income}} \times \underbrace{\frac{\bar{y}_B}{\bar{y}_W}}_{\frac{B}{W}\text{ mean income}}$$

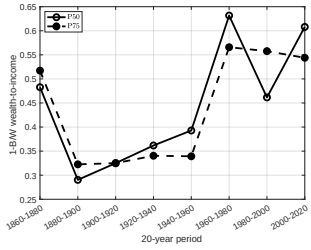
where $\bar{\cdot}$ is the mean operator, and
assuming nonpositive wealth equals zero.

Earnings alone do not trivially explain wealth gaps, esp. @ left tail

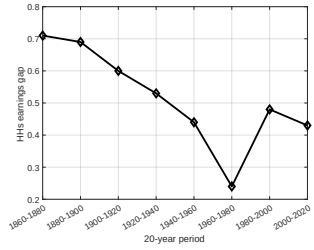
Figure: Selected Components Shaping Mean Black-White Wealth Differences



(a) Zero wealth share gap



(b) Relative wealth-to-income



(c) Relative earnings

Note: Wealth-to-income ratios use group-specific average household earnings. Wealth percentiles are among positive wealth households. The relative gap is 1 minus the Black/White ratio. Source: Authors' calculations using DKKS .

What we do

- Using DKKS (2023, 2024), we measure **from 1860 to 2020** & by race
  - percentiles of (positive) wealth distribution (p25, p50, p75, p90) by race
  - fraction of nonpositive wealth HHs

- We motivate and introduce **wealth destruction shocks** (negative tail returns) in a standard model with income fluctuations, taking incomes as given

- We invert the model to calibrate the wealth destruction process , for each **20-year period**, needed to match **changes across the wealth distribution**.

- We provide a **consistent historical decomposition** of the drivers of U.S. racial wealth inequality dynamics

The mechanisms we consider

Common preferences, but group-specific differences in

0. **Incomes** e.g., labor market differences (taken as given)
1. **Wealth taxes** e.g., systematic differences in realized returns
2. **Excess returns for wealthier households** e.g., gains correlated with wealth
3. **Wealth destruction probability** e.g., wealth loss or expenditure shocks
4. **Incidence of wealth destruction** e.g., losses correlated with wealth

Findings: Downside risks to wealth accumulation matter

- Black wealth was exposed to larger wealth destruction risks, esp. before 1940.
  - The wealth destruction gap opened up after 1960, and slowed racial wealth convergence despite the Civil Rights era's earnings gains
  - By 2020, the wealth fragility risk gap is about 5 p.p larger for Black HHs
- Downside risks explain $\approx 90\%$ of the extensive-margin racial wealth gap.
- Earnings gap explains $> 80\%$ of the intensive-margin racial gap before 1960, but $< 50\%$ since 1960 ...
- Document large racial gaps in housing wealth downside risks, using data on homeowners' insurance claims after natural hazards

a Bewley-Imrohoroglu-Huggett-Aiyagari model

with a twist: risky single asset
(from group-specific downside risks)

Model environment (for now, without **time-varying parameters**)

- Partial-equilibrium BIHA-style model
- HHs self-insure using risky asset + a natural borrowing limit

- Infinitely-lived HHs belong to a group $j =$ W(hite), B(lack)

  $=$ Common CRRA preferences
  $=$ Common idiosyncratic income shock process z s.t. $z' \sim G(z'|z)$

  $\neq$ An earnings wedge $\omega_{\ell,j}$ shifts wages to $(1-\omega_{\ell,j})z$ [note: no labor supply choice]

  $\neq$ Wealth-return correlation as an excess return $\omega_{r,j}$ for high wealth HHs
  $\neq$ Wealth destruction shocks occur w.p. χ_j
  $\neq$ Loss-wealth correlation s.t. debt $-\kappa_j\, a$ assigned upon destruction of $a > 0$

- Interest rate r is exogenous

Wealth destruction risks (χ, κ) regulate positive wealth inflows & outflows

κ helps control the exit rate from nonpositive wealth region,
while χ governs entry rate into nonpositive wealth.

With lower (wealth-loss correlation) κ,

- exit from nonpositive wealth $\uparrow$ $\Rightarrow$ destruction probability $\uparrow$
- wealth destruction probability $\uparrow$ $\Rightarrow$ positive wealth distribution $\downarrow$

- Note: This logic suggests an alternative model with wealth destruction leading to financial exclusion + probability of re-entry.

Household problem

Given wages w, and an interest rate r, a household in group $j \in \{B, W\}$ with incoming wealth a, labor productivity z, and a wealth destruction realization $d \in \{0, 1\}$ solves

$$V_j\underbrace{(a, z, d)}_{s} = \max_{a' \in \mathcal{A}_j(s)} \Bigg\{ (1-d)u\Big(\overbrace{(1-\omega_{\ell,j})\, wz\ell}^{y_j(s)} - a' + \left(1 + r + r\omega_{r,j}\mathbb{1}_{a>\bar{a}_j}\right) a\Big) \quad \text{(no destruction)}$$

$$+ du\Big((1-\omega_{\ell,j})\, wz\ell\Big) \quad \text{(wealth destruction state)}$$

$$+ \beta\mathbb{E}\Big[V_j(a', z', d')|z\Big] \Bigg\}$$

where $d \in \{0, 1\}$ s.t. $d = 1$ with probability χ_j if $a > 0$. We assume $d = 0\ \forall a \leq 0$.

Household wealth shocks and returns

- With no wealth destruction shock ($d = 1$)

$$\mathcal{A}_j(s) = \left[\underline{a}_j, (1 + r + \omega_{r,j}\mathbb{1}_{a>\bar{a}_j})a + y_j(s)\right]$$

- With wealth destruction shock ($d = 1$), HH is hand-to-mouth & thrown into debt

$$\mathcal{A}_j(s) \equiv \left\{ \max\{-\kappa_j \times a, \underline{a}_j\} \right\} \qquad \text{(for } a > 0 \text{)}$$

where $\underline{a}_j$ is the natural debt limit: $\underline{a}_j \equiv -(1 - \omega_{\ell,j})w\ell \min z/r \leq 0$

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- Note: The expected wealth tax $\tilde{\chi}$ s.t. $(1 - \tilde{\chi}_j)(1 + r)a = (1 - \chi_j)(1 + r)a + \chi_j(-\kappa_j a)$ is

$$\tilde{\chi}_j \equiv \chi_j \left(1 + \frac{\kappa_j}{1 + r}\right)$$

Calibrating a path of group-specific 'wedges'

$$\omega_{\ell,j}^{\text{window}},\ \omega_{r,j}^{\text{window}},\ \chi_j^{\text{window}},\ \text{and}\ \kappa_j^{\text{window}}$$

by recovering wealth accumulation wedges
for each 20-year window (1860–2020)

MIT shock strategy: initial conditions $\rightarrow$ 20-year ahead wealth distribution

We calibrate the "wedges" for each 20-year window and each group j **separately**

Given the initial wealth distribution (DKKS) @ the beginning of the bidecade, and

for earnings wedge $(1-\omega_{\ell,B}^{\text{bidecade}})$ = B/W non-capital income ratio (bidecade end),

we jointly choose wealth accumulation parameters to match the end of bidecade

- high wealth returns $\omega_{r,j}^{\text{bidecade}}$
- wealth destruction prob. χ_j^{bidecade}
- wealth-loss correlation $\kappa_j^{\text{bidecade}}$

$\rightarrow$

- j positive wealth p75
- j positive wealth p50
- j nonpositive wealth HH share

Externally set parameters

- A period in the model is one year
- We assume standard CRRA preferences and income process

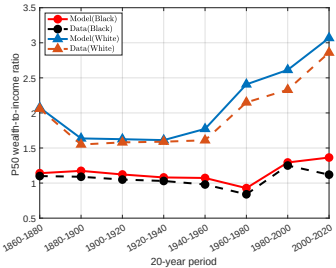
Table: Externally set parameters

	Parameter	Value	Note
Risk aversion	σ	2	Standard – Aiyagari (1994)
Discount factor	β	0.99	–
Interest rate	r	0.04	–
Income – persistence	ρ_z	0.96	Storesletten, Telmer and Yaron (2004)
Income shocks – std. dev.	σ_z	0.02	Storesletten, Telmer and Yaron (2004)
Earnings	$w\ell$	1	in units of mean W annual earnings

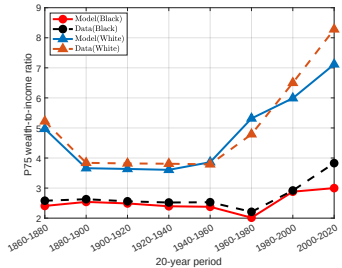
Calibrated bi-decadal frictions

Wealth distributions fit by group and over time

- The fit is pretty good; not perfect, but far from trivial



Positive wealth p50



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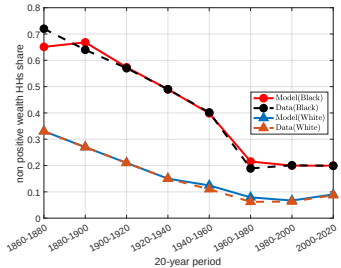
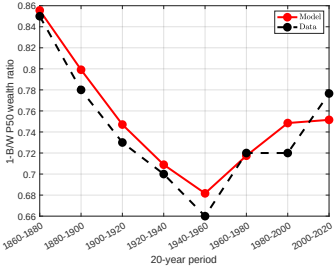


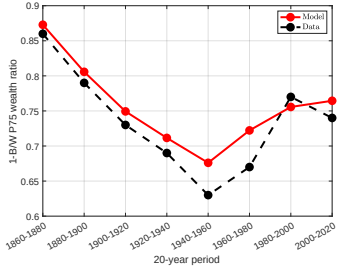
Nonpositive wealth shares

Wealth distributions fit – gaps across groups

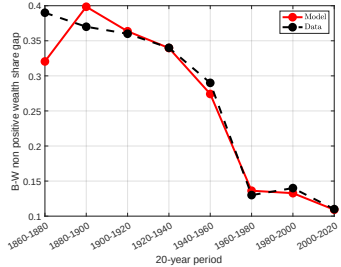
- The fit is pretty good; not perfect, but far from trivial



Positive wealth p50 ratio



Positive wealth p75 ratio

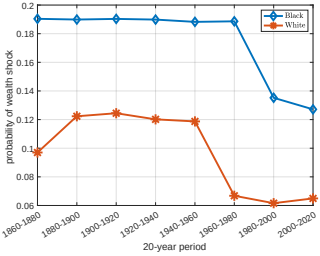


Nonpositive wealth gap

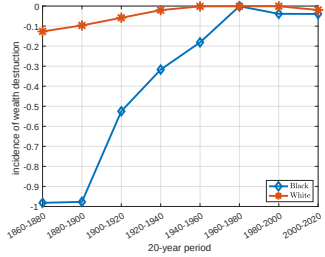
Calibrated financial wedges by group

BW wedges-table

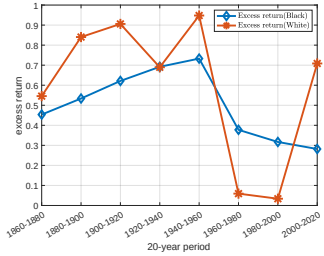
1. Both groups have significant and stable wealth destruction probabilities risk before 1940
2. Wealth destruction probability fell later for Black HHs, hence the spike in the gap
3. Wealth-loss correlation is close to zero after 1960



Wealth destruction probability



Wealth-loss correlation

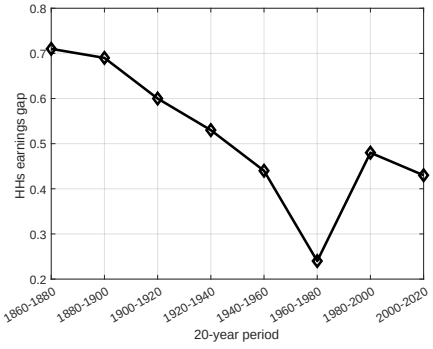


High wealth return

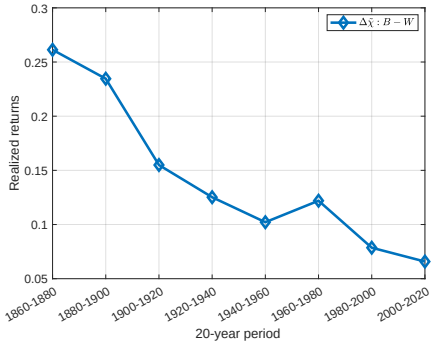
Calibrated financial wedges

Δ B-W wedge gaps

1. **1860–1940**: progress **in spite of** Jim Crow & significant gaps
2. **1940–1980**: wealth friction convergence stalls as income gaps shrink
3. **1980–2020**: wealth friction gap narrows, offsetting growing income gaps



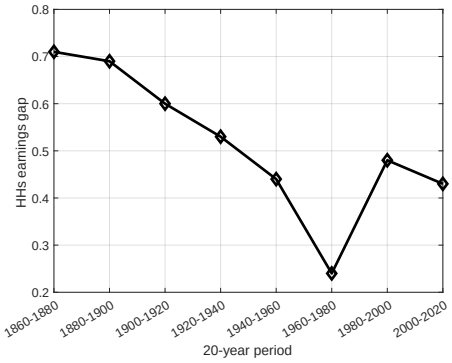
B–W rel. earnings gap



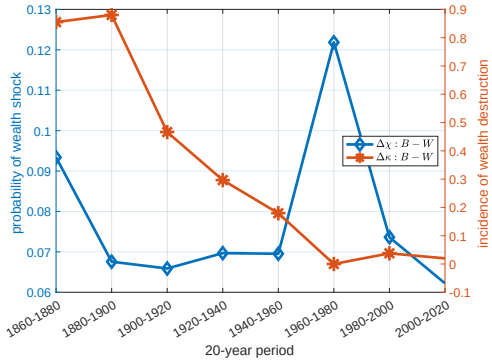
B–W downside gap $\left(\tilde{\chi} \equiv \chi\left(1+\frac{\kappa}{1+r}\right)\right)$

Wealth destruction risk offset earnings gap dynamics after 1960

1. **1860–1940**: both wealth risk gap and income gaps lower wealth disparities
2. **1940–1980**: wealth friction gap spikes to offset significant income convergence
3. **1980–2020**: wealth friction gap narrows, offsetting the reopening of income gaps



B–W earnings gap



B–W wealth destruction gaps

What are the contributions of these wedges to the evolution of racial inequalities along the wealth distribution?

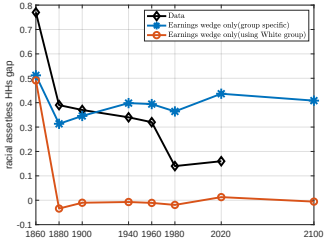
What are the contributions of these wedges to the racial wealth gap?

There are multiple counterfactual sequences. We consider two main approaches

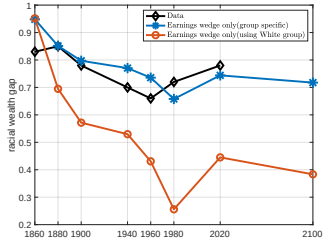
- Keep only **one wedge active** and re-simulate each bidecade with **all other frictions at zero**
  - we reset initial wealth distribution every bidecade
- Feed the **path for one wedge only** while holding **all other wedges at their initial levels**
  - we propagate forward the simulated wealth distributions

Common financial frictions + only income changes = more convergence

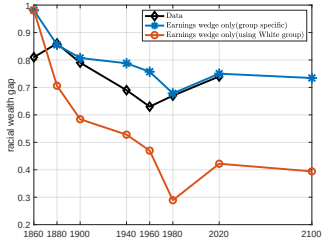
- **Emancipation**: nonpositive wealth gap shrinks early and dramatically
- **Civil Rights era**: bigger intensive margin wealth convergence!



Nonpositive wealth shares



Positive wealth p50



Positive wealth p75

Note: We set $\chi_r^{\text{bidecade}} \equiv \chi_r^{1860\text{–}1880}$, and we do not re-initialize wealth distributions. $\text{RWG}_{\text{P}i} = 1 - \frac{\text{Black hhs wealth}_{\text{P}i}}{\text{White hhs wealth}_{\text{P}i}}$, $i = \{50, 75\}$

A metric to decompose contributions to racial wealth inequalities

Following Chari, Kehoe and McGrattan (2007),
the statistic ϕ^{y}_{x,v_T} captures how closely, during a bi-decade v_T, a given wedge x is associated with a particular wealth gap metric y (e.g., the share of households with nonpositive wealth) :

$$\phi^{y}_{x,v_T} = \frac{1/(y_{v_T} - y_{x,v_T})^2}{\sum_z 1/(y_{v_T} - y_{z,v_T})^2}$$

where
y_{v_T} is the realized value for wealth gap metric y in bi-decade v_T, and
y_{x,v_T} is the counterfactual value of a gap y
when only the wedge $x \in \{\omega_\ell; \chi, \kappa; \omega_r\}$ is active in bi-decade v_T.

Earnings gap plays a key, but diminishing, role @ the intensive margin

Table: Contribution of Wedges to Racial Wealth Gap at the Median (%)

	1860 to 1880	1880 to 1900	1900 to 1920	1920 to 1940	1940 to 1960	1960 to 1980	1980 to 2000	2000 to 2020	mean
labor gap $\phi_{\omega_\ell}^{p50}$	99.8	99.4	96.7	93.8	83.3	2.9	37.7	44.9	69.8
downside risk $\phi_{\chi,\kappa}^{p50}$	0.1	0.3	1.8	4.2	10.9	96.4	60.1	46.3	27.5

Wealth fragility plays a key role @ the extensive margin

Table: Contribution of Wedges to Racial Gap at the Extensive Margin (%)

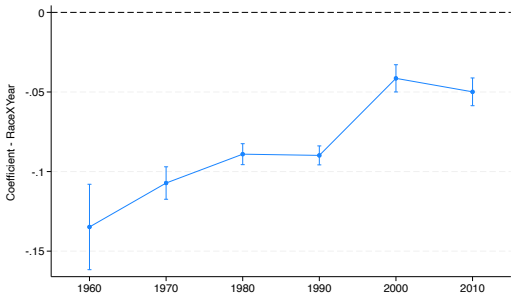
	1860 to 1880	1880 to 1900	1900 to 1920	1920 to 1940	1940 to 1960	1960 to 1980	1980 to 2000	2000 to 2020	mean
labor gap $\phi^{Shr}_{\omega_\ell,t}$	5.3	0.6	0.1	1.4	3.9	43.6	1.1	2.4	7.3
downside risk $\phi^{Shr}_{\chi,\kappa;t}$	90.5	98.8	99.7	97.4	92.6	19.8	98.0	95.4	86.5

New evidence on racial differences in housing wealth downside risks

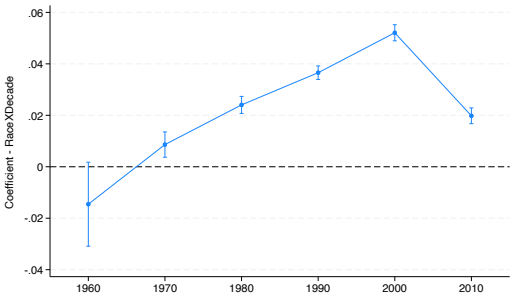
Exits from homeownership are significantly larger (2-3x) for Black HHs

Figure: Conditional Transition into and out of homeownership (PSID)

(a) Entry rates into homeownership



(b) Exit rates out of homeownership



Home insurers also pass on more losses to Black homeowners

- We leverage ZIP level home insurance data for 2018-2022 combined with property losses from natural hazards and perils
- Given home insurance claim frequencies f in county i, we estimate

$$\begin{aligned}\Delta \log y_{i,t} = \quad & \beta^{y} \, \widehat{\Delta \log f_{i,t}} \\ & + \beta^{y}_{\text{Black}} \, \widehat{\Delta \log f_{i,t}} \times \text{share } \widehat{\text{Black}}_{i,2010} \\ & + \beta^{y}_{\text{Poor}} \, \widehat{\Delta \log f_{i,t}} \times \text{share } \widehat{\text{Poor}}_{i,2010} + \mu^{y}_{i} + \delta^{y}_{t},\end{aligned}$$

where $y \in \{\ell = \text{insurer losses}, c = \text{claim severity}, p = \text{premium collected}\}$.

- instruments for $f_{i,t}$: (log) per capita property damage value and lagged value of (log) claims; shares in 2010 instrumented using the 2000 Census values
- Note: $\ell_{i,t} \equiv f_{i,t} \times c_{i,t} \div p_{i,t}$

Home insurers also pass on more losses to Black homeowners

Table: Insurer Losses and Homeowners Claims Following Natural Hazard Events

	Insurer Loss Ratio (a)$\Delta \log \ell_{i,t}$(i)		Paid Claim Severity (b)$\Delta \log c_{i,t}$(ii)		Insurance Premium (c)$\Delta \log p_{i(t)}$(iii)	
claim frequency	OLS	IV	OLS	IV	OLS	IV
$\Delta \log f_{i,t}$	0.83***	0.76***	–0.13***	–0.17***	–0.00	0.01*
	(0.036)	(0.046)	(0.037)	(0.046)	(0.007)	(0.007)
$\Delta \log f_{i,t} \times$ share Black$_{i,2010}$	–0.36***	–0.35***	–0.43***	–0.39***	–0.01	0.04**
	(0.094)	(0.115)	(0.097)	(0.116)	(0.018)	(0.017)
$\Delta \log f_{i,t} \times$ share Poor$_{i,2010}$	–0.11	0.07	0.06	0.03	0.03	–0.09**
	(0.234)	(0.294)	(0.244)	(0.297)	(0.045)	(0.044)
N (county-year)	12,136	8,684	12,136	8,684	12,136	8,684
Number of counties	3,075	2,907	3,075	2,907	3,075	2,907
R-Sq	0.415	0.427	0.048	0.049	0.006	0.009
Cragg-Donald Wald F statistic	–	534.46	–	534.46	–	534.46

Note: *** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses. Standard errors are clustered at the county level in the OLS regression.

Conclusion

- We proposed a parsimonious model to decompose the drivers of racial disparities across the distribution of wealth
- We find that a wedge akin to a larger wealth destruction risk for Black households is essential to match the persistent and large racial wealth divide
- Overall, this wealth accumulation wedge gap is large, though slowly tilting towards equality
- The model suggests racial financial gaps significantly worsened precisely when racial labor market gaps shrunk during the Civil Rights era

thank you

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Calibrated wedges

Back

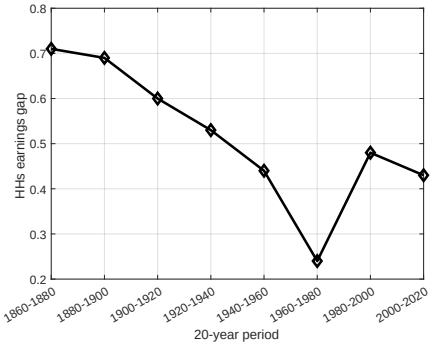
Wedge	1860	1880	1900	1920	to 1940	1960	1980	2000
(by group, in %)	1880	1900	1920	1940	1960	1980	2000	2020
				Earnings wedge				
$\omega_{B,\ell}$	71.0	69.0	60.0	53.0	44.0	24.0	48.0	43.0
$\omega_{W,\ell}$	–	–	–	–	–	–	–	–
				Downside risk wedge				
χ_B	19.0	19.0	19.0	19.0	18.8	18.9	13.5	12.7
χ_W	9.7	12.2	12.4	12.0	11.9	6.7	6.2	6.5
κ_B	98.2	97.7	52.5	31.2	18.1	0.1	3.9	3.9
κ_W	12.7	9.7	5.9	2.0	0.2	0.1	0.1	2.0
				Excess return wedge				
$\omega_{B,r}$	45.4	53.4	62.1	69.2	73.3	37.8	31.7	28.2
$\omega_{W,r}$	54.6	84.0	90.6	69.0	94.8	5.9	3.4	70.9
				Expected Wealth Tax				
$\tilde{\chi_B}$	37.0	36.8	28.6	24.8	22.1	18.9	14.0	13.2
$\tilde{\chi_W}$	10.9	13.4	13.1	12.3	11.9	6.7	6.2	6.6

Note: We normalize $\omega_{W,\ell} = 0$. All parameters are in percentage points.

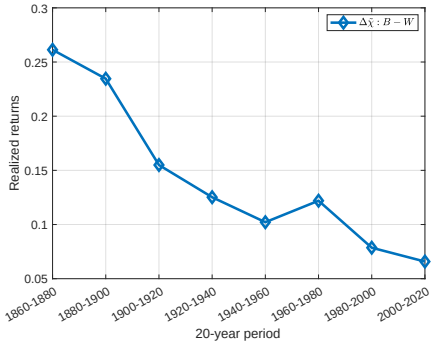
Calibrated financial wedges

Δ B-W wedge gaps

1. **1860–1940**: progress **in spite of** Jim Crow & significant gaps
2. **1940–1980**: wealth friction convergence stalls as income gaps shrink
3. **1980–2020**: wealth friction gap narrows, offsetting growing income gaps



B–W rel. earnings gap



B–W downside gap $\left(\tilde{\chi} \equiv \chi\left(1+\frac{\kappa}{1+r}\right)\right)$

Let's unpack how the targeted moments discipline our calibration

Why did we need destruction shocks?

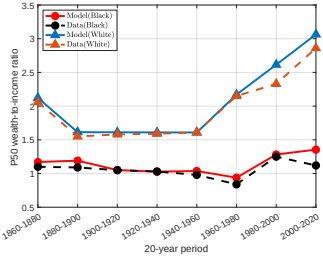
Let us unpack why using the following alternative **re-calibrated** models

1. Group-specific destruction $(\chi_j) + \omega_{r,j}$, but no wealth-loss correlation $(\kappa_j \equiv 0)$
2. Group-specific taxes $+ \omega_{r,j}$, but no destruction shocks $(\chi_j \equiv 0,\ \kappa_j \equiv 0)$

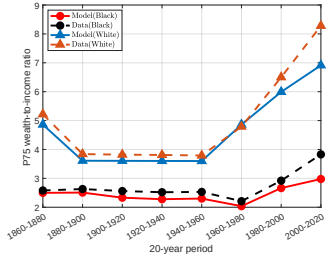
Hint: Mind the masses at or below zero wealth.

Without wealth-loss correlation, intensive margins of wealth OK

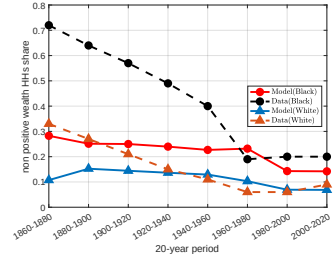
- **but** extensive margin is off and all over
- in hindsight, it seems trivial as we target p50 & p75
- when aiming for extensive margin & p75, p75 (B) is too low



Positive wealth p50



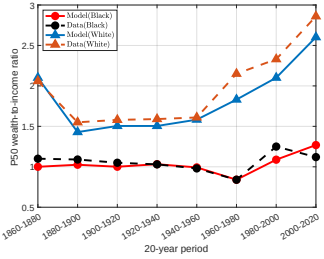
Positive wealth p75



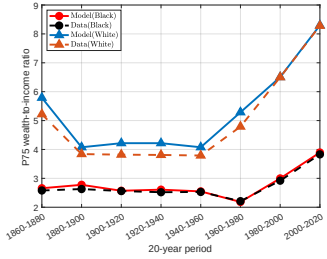
Nonpositive wealth shares

Without wealth destruction, only intensive margins of wealth still OK

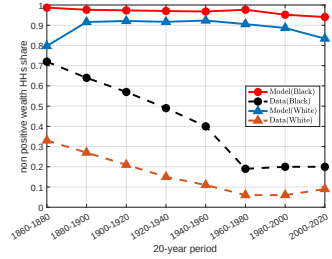
- **but** extensive margin is way off $\sim$ Aiyagari economy with very high taxes
- again, it may seem trivial as we target p50 & p75
- when aiming for extensive margin & p75, p75 (W) is too low



Positive wealth p50



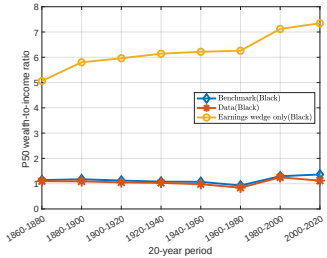
Positive wealth p75



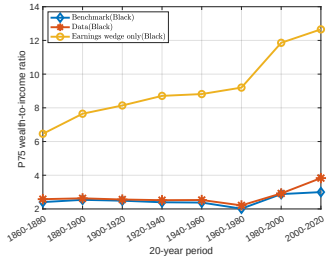
Nonpositive wealth shares

Income wedge $\omega_{\ell,j}^{\text{bidecade}}$ only – bidecadal counterfactuals

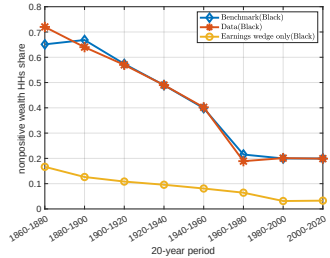
- much higher wealth distributions
- much lower nonpositive wealth shares



Positive wealth p50



Positive wealth p75

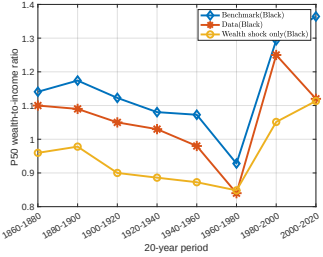


Nonpositive wealth shares

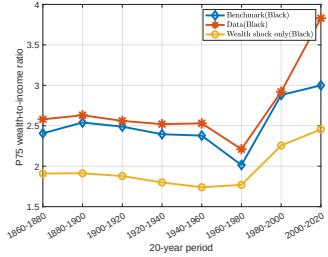
Specifically, we set $\omega_r \equiv 0$, $\chi \equiv 0$, and $\kappa \equiv 0$

Wealth destruction wedges $\chi_{\ell,j}^{\text{bidecade}}$ and $\kappa_{\ell,j}^{\text{bidecade}}$ only

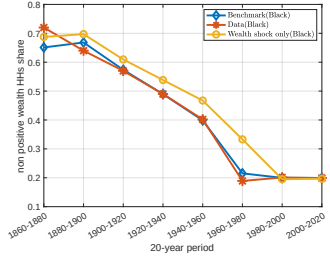
- wealth distribution magnitudes are okay, but dynamics are off
- higher nonpositive wealth shares
- note that turning off ω_ℓ and ω_r leads to offsetting effects on the extensive margin



Positive wealth p50



Positive wealth p75

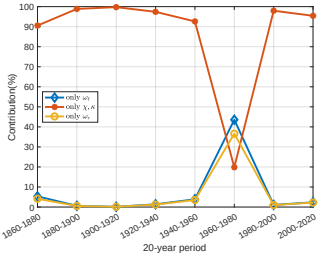


Nonpositive wealth shares

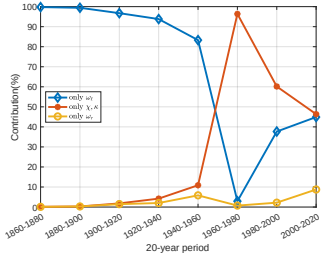
Specifically, we set $\omega_\ell \equiv 0$ and $\omega_r \equiv 0$

Frictions to wealth accumulation play a key role

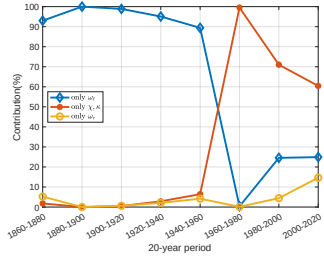
Figure: Relative contribution of calibrated wedges to racial wealth gaps (%)



(a) Nonpositive wealth gap



(b) Positive wealth p50 ratio



(c) Positive wealth p75 ratio

What if only income wedges $\omega_{\ell,j}^{\text{bidecade}}$ changed?

Table: Fixed Initial Wedges for Simulations – 1860

Parameters (%)	$\omega_{\ell,B}$	$\omega_{\ell,W}$	χ_B	χ_W	κ_B	κ_W	$\omega_{B,r}$	$\omega_{W,r}$
Group-specific wedges								
Scenario A	70	0	19.0	9.7	98.2	12.7	45.4	54.6
Common wedges								
Scenario B	0	0	9.7	9.7	12.7	12.7	54.6	54.6