Explaining Racial Disparities in Personal Bankruptcy Outcomes

Bronson Argyle
BYU

Sasha Indarte
Wharton, UPenn

Ben Iverson
BYU

Christopher Palmer
MIT & NBER

August 2022

Motivation

- Bankruptcy is a major source of debt relief in the US
  - ▸ 1 in 10 Americans have filed at some point in their life (Keys, 2018)
  - ▸ Average $149k per filer ⇔ $832/adult/year discharged annually (US Courts, 2019)

- There are significant racial disparities in financial outcomes in the US
  - ▸ Median wealth of white households is 10x Black and Hispanic wealth: ($171k vs. $17k) (2016 SCF)
  - ▸ Minorities pay higher interest rates than whites with the same credit score (Ghent Hernández-Murillo Owyang, 2014; Bayer Ferreira Ross, 2017, Butler Mayer Weston 2021)
  - ▸ Black household consumption falls 50% more in response to the same income shock (Ganong Jones Noel Farrell Greig Wheat, 2020)

- **Question:** What racial disparities exist in personal bankruptcy? And why?

- **Approach:**
  - What observable filer characteristics explain disparities in bankruptcy outcomes?
  - Quantify racial homophily between filers and judges/trustees
  - Develop framework to formalize how homophily can detect and quantify racial bias

This Paper

- **Question:** What racial disparities exist in personal bankruptcy? And why?

- **Approach:**
  - ▸ What observable filer characteristics explain disparities in bankruptcy outcomes?
  - ▸ Quantify racial homophily between filers and judges/trustees
  - ▸ Develop framework to formalize how homophily can detect and quantify racial bias

- **Main findings:**
  - ▸ Black filers' cases are more likely to be dismissed (without debt discharge) on average
    - Chapter 7: 3 pps more often (167% higher) than non-Black filers
    - Chapter 13: 21 pps more often (41% higher) than non-Black filers
  - ▸ Observable variables reduce disparities to 0.6 and 11 pps for Chapters 7 and 13
  - ▸ Random assignment to white trustees $\Rightarrow$ Ch 13 dismissal rate $\uparrow$ 10 pps for Black filers

Contributions to Related Literature

- **Racial disparities in household finance:** Munnell, Browne, McEneaney, and Tootel (1996); Braucher et al. (2012); Reid Bocian, Li, and Quercia (2017); Bayer et al. (2018); Barlett, Morse, Wallace, and Stanton (2019); Fuster et al. (2020); Morse and Pence (2020); Blattner and Nelson (2021); Begley and Purnanandam (2021); Goldsmith-Pinkham, Scott, and Wang (2021)
  - ▸ New focus on racial disparities in bankruptcy and drivers

- **Impact of legal decision-makers:** Anwar et al. (2012, 2019a, 2019b); Arnold, Dobbie, and Yang (2018); Arnold, Dobbie, and Hull (2020); Iverson (2020); Iverson, Madsen, Wang, and Xu (2020)
  - ▸ Highlight role of bias and importance of bankruptcy **trustees**

- **Methods for detecting and quantifying bias:** Becker (1957, 1993); Knowles, Persico, and Todd (2001); Anwar and Fang (2006); Arnold, Dobbie, and Yang (2018); Arnold, Dobbie, and Hull (2020); Canay, Mogstad, and Mountjoy (2020); Bohren, Hull, and Imas (2022)
  - ▸ Formalize link between homophily and bias

Background and Data

What is Personal Bankruptcy?

- Discharge unsec. debt (credit card, medical, etc.); make partial payments to creditors

- Households file under one of two Chapters:
    - **Chapter 7:** discharge received upon initial legal ruling (~3 month process)
    - **Chapter 13:** discharge received after completing 5 year repayment plan

- Three important legal decision makers (**DMs**):
    - **Judge:** ultimately decides case outcomes (e.g., dimissal)
    - **Trustee:** evaluates filer's accuracy and honesty; facilitates payments to creditors
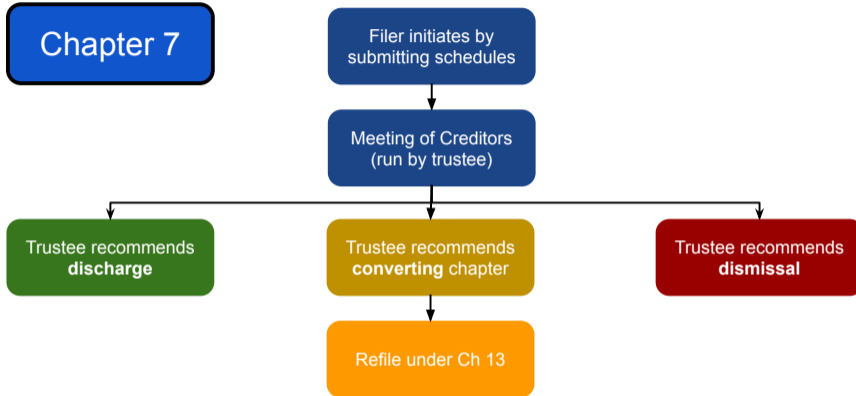   - **Attorney:** advises filer on Chapter choice and reporting
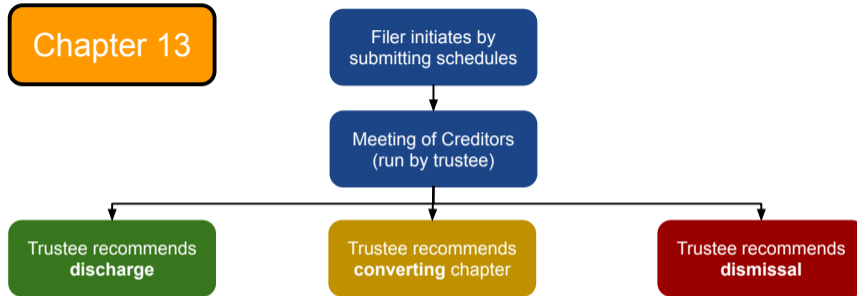
Chapter 7

Filer initiates by
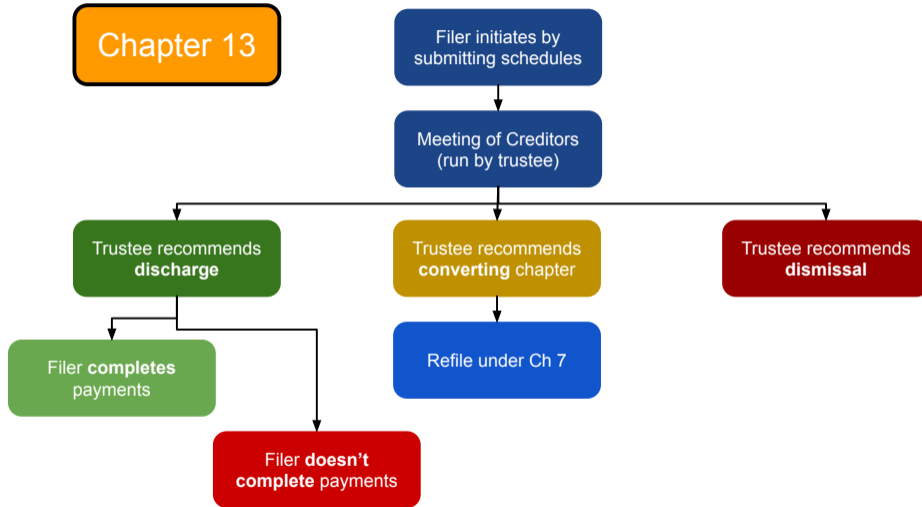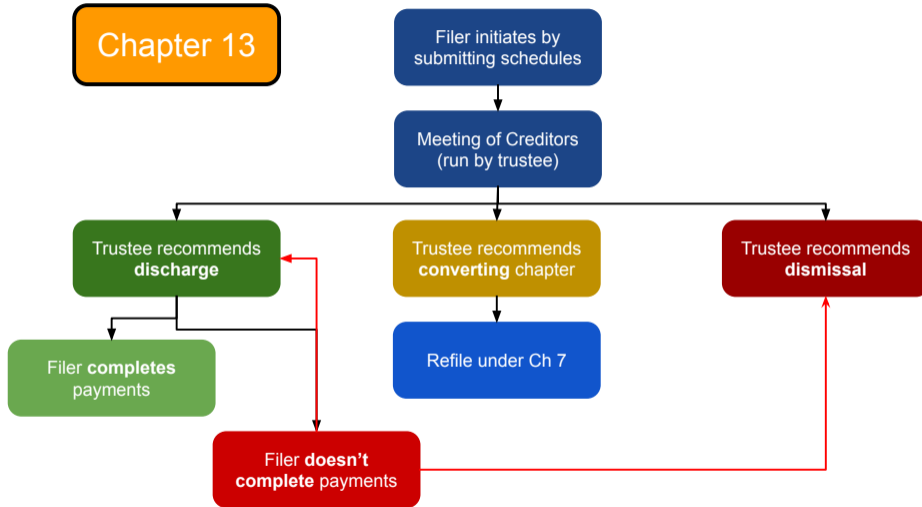submitting schedules

Meeting of Creditors
(run by trustee)

The Bankruptcy Process

The Bankruptcy Process

The Bankruptcy Process

Bankruptcy Outcomes

- Possible case outcomes: **discharge**, **conversion** of chapter, and **dismissal**

- What are the main reasons for **dismissal**?
  - Fraudulent reporting by filer (e.g., concealing property)
  - Failure to make promised payments in Chapter 13 over 5-year period

- **Trustees** and **judges** make **subjective** evaluations of filers
  - Procedural error vs. intentional fraud?
  - Did Chapter 13 payments stop due to severe hardship beyond filer's control?
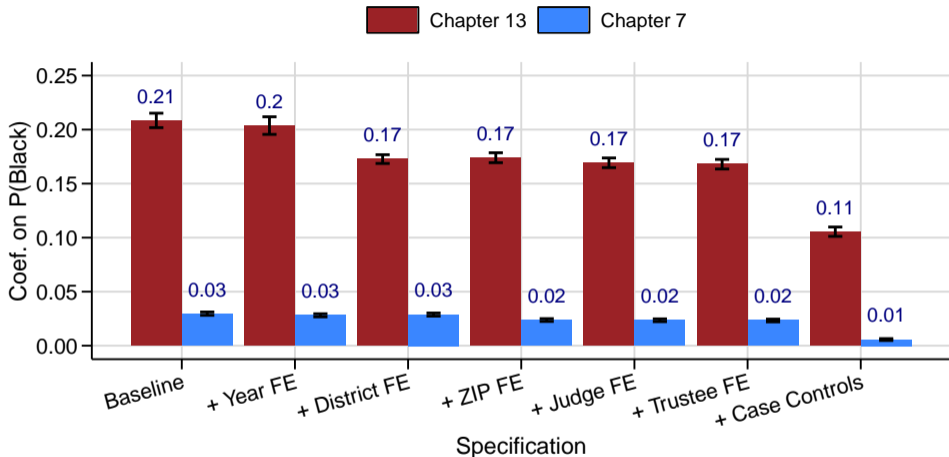 - Assessment of feasibility of filer's Chapter 13 repayment plan

Bankruptcy Data

- **Lexis Nexis** bankruptcy case data
  - Filer names and addresses, chapter, events during case, case outcomes, and DM names
  - Near universe of US bankruptcy cases: > 63 million cases
  - Full coverage of US Jan. 2010 - Jun. 2022

- **Federal Judicial Center (FJC)** case data
  - Additional case info for 2008+
  - Includes filer assets, liabilities, and income

Race Data

- **Limitation:** bankruptcy records do not record filer nor DM race

- **Solution:** impute race via supervised deep-learning model based on Kotova (2022)

- Model predicts race from *full* name and address
  - **Names:** split names into bigrams (e.g., "sa", "as", "sh", "ha")
  - **Filer location:** relate to census tract's race composition (ACS data)
  - **DM location:** for now we're using their office location's city
  - *In progress:* collecting DM addresses via WhitePages

- Train on model on Florida Voter Registration Data (> 20 mil. obs.)

Racial Disparities in Bankruptcy Dismissals

Racial Disparities in Dismissal Rates

Legend: Chapter 13 (dark red) | Chapter 7 (blue)

Chart: Coef. on P(Black) vs Specification

| Specification	Chapter 13	Chapter 7
Baseline	0.21	0.03
+ Year FE	0.2	0.03
+ District FE	0.17	0.03
+ ZIP FE	0.17	0.02
+ Judge FE	0.17	0.02
+ Trustee FE	0.17	0.02
+ Case Controls	0.11	0.01

Obs: 39M–12M (Ch. 7), 14M–4M (Ch. 13); **Clustering:** ZIP (95% confidence interval shown); **Case controls:** 1[pro se], 1[prior filing], 1[nonexempt assets], 1[homeowners], 1[joint filing], ln(assets), debt/assets, % secured debt, ln(income), and income - expense gap

▸ Table   ▸ Controls

Ch. 13 Dismissal Hazard Rate (cumulative)

Filer Race: ▬ Black ▬ White
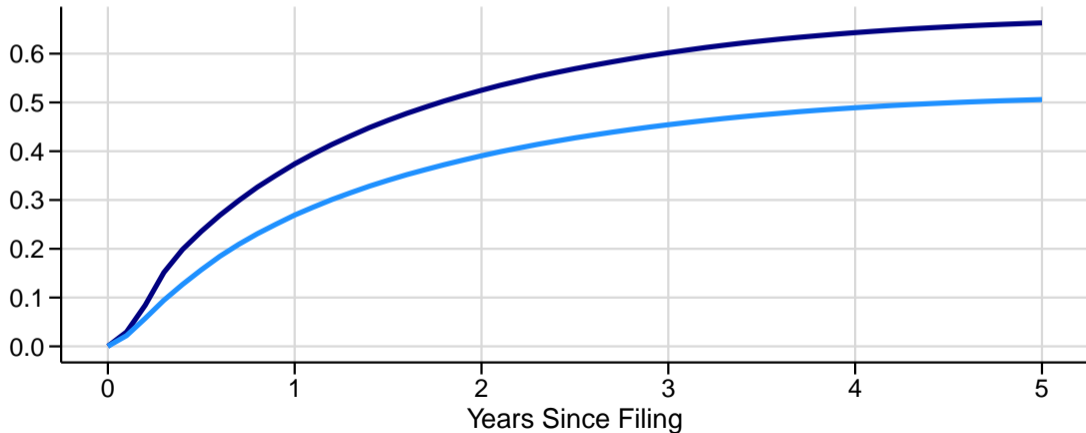
Racial Homophily in Bankruptcy

Estimating DM Homophily

- To investigate the scope for bias, we examine **homophily**

  - **Homophily:** how filer outcomes vary when facing same vs. different race DMs

  - Today, we focus on Black-white homophily between filers and trustees

- Using case-level data, we estimate

$$1[Dismissed_i] = \beta_1 Pr(BlackFiler_i) + \beta_2 Pr(WhiteTrustee_i)$$
$$+ \beta_3 \left[Pr(BlackFiler_i) \times Pr(WhiteTrustee_i) \right] + X_i \gamma + \varepsilon_i$$

- **Fixed effects:** disposition year, district, filer ZIP, judge, and trustee

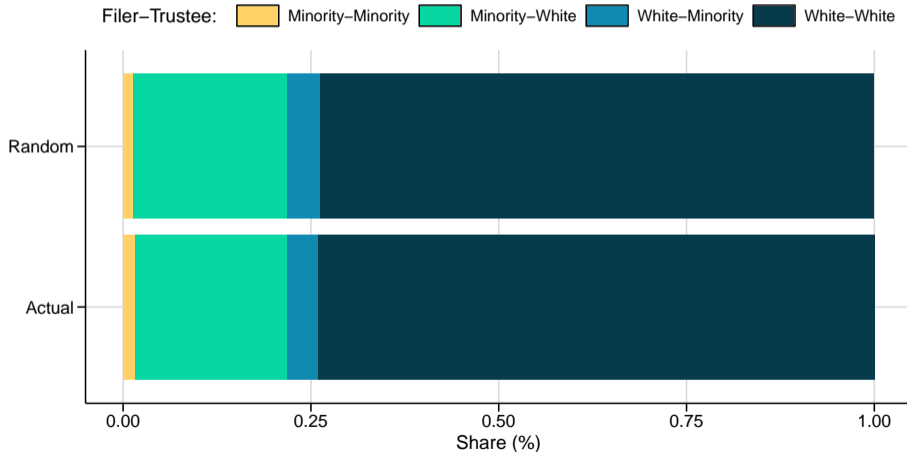# Identification: Random and Quasi-Random Assignment of Trustees

- Chapter 7 trustees are assigned to cases via a blind rotation system
  - ▸ Morrison, Pang, and Zytnick (2019): evidence attorneys manip. Ch 7 trustee assignment
  - ▸ Trustee fixed effect mitigates this concern, accounting for typical trustee behavior

Identification: Random and Quasi-Random Assignment of Trustees

- Chapter 7 trustees are assigned to cases via a blind rotation system
  - ▶ Morrison, Pang, and Zytnick (2019): evidence attorneys manip. Ch 7 trustee assignment
  - ▶ Trustee fixed effect mitigates this concern, accounting for typical trustee behavior

- Chapter 13 Standing Trustees hired by local US Trustees Office
  - ▶ Each court has at most *several* Ch. 13 trustees at a given time; seem rotated
  - ▶ Time variation in local trustee race distribution ⇒ quasi-random assignment to filers
  - ▶ E.g., assume Florida is not more likely to have a Black Chapter 13 trustee at times when unobserved factors make dismissal less likely for Black filers
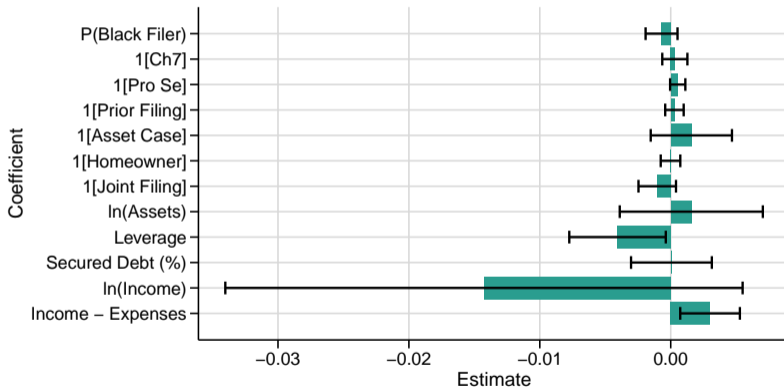
Plausibility of Random Assignment

❶ Pairing of filer-trustee by race consistent with random assignment
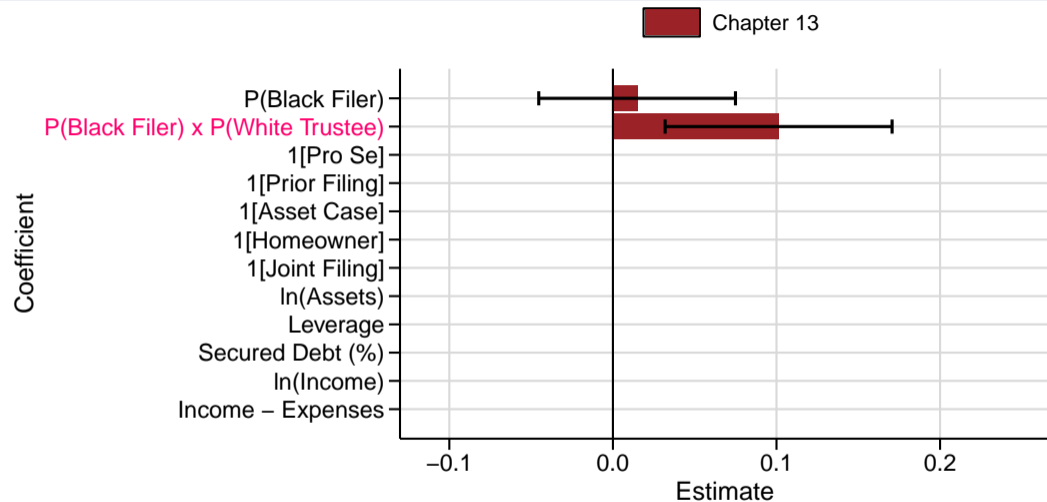
Plausibility of Random Assignment

1. Pairing of filer-trustee by race consistent with random assignment

2. **Balance Test:** filer characteristics do not predict trustee race

`▶ Table`

Fixed Effects: disposition year, district, filer ZIP, judge and trustee; **Obs:** 13.6M; **Clustering:** ZIP & Trustee (two-way, 95% confidence interval shown)

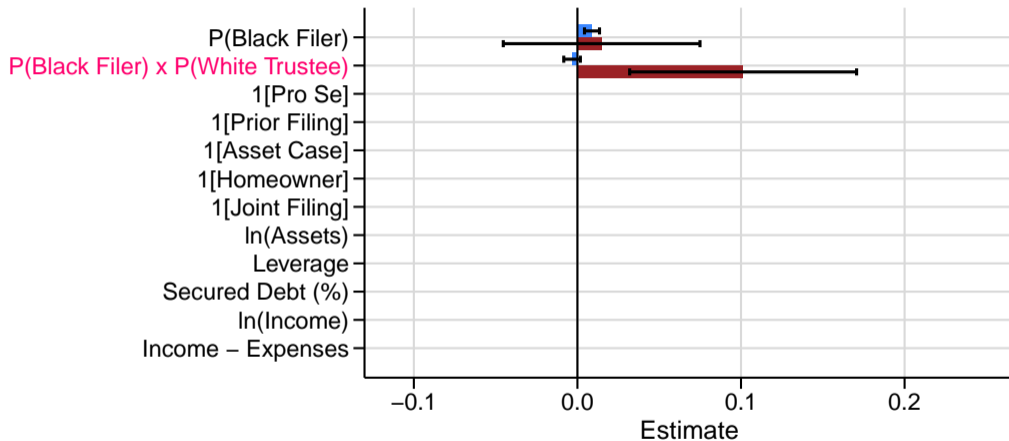# Homophily Estimation Results

Fixed Effects: disposition year, district, filer ZIP, judge and trustee; **Obs:** 9.8M(Ch. 7), 3.6M (Ch. 13);
Clustering: ZIP & Trustee (two-way, 95% confidence interval shown)

▸ Table   ▸ Add'l Interactions

Homophily Estimation Results

Fixed Effects: disposition year, district, filer ZIP, judge and trustee; **Obs:** 9.8M(Ch. 7), 3.6M (Ch. 13); **Clustering:** ZIP & Trustee (two-way, 95% confidence interval shown)

▶ Table   ▶ Add'l Interactions
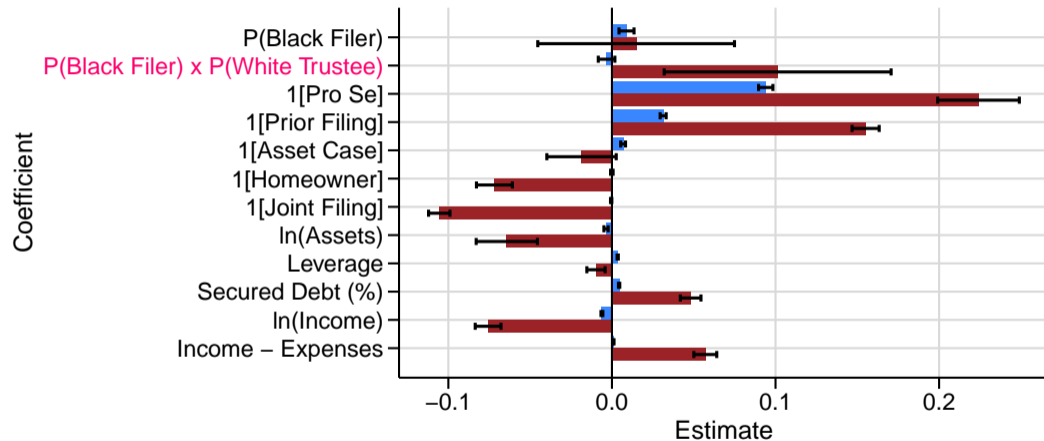
Homophily Estimation Results

Fixed Effects: disposition year, district, filer ZIP, judge and trustee; **Obs:** 9.8M(Ch. 7), 3.6M (Ch. 13);
Clustering: ZIP & Trustee (two-way, 95% confidence interval shown)

▸ Table   ▸ Add'l Interactions

Homophily and Bias: Econometric Theory

Notion of Bias

- Let $Y(B, X)$ and $Y(NB, X)$ denote potential outcomes (e.g., = 1 if dismissed) if a filer with characteristic X is Black or non-Black (respectively)

- **Definition:** A filer's outcome is due to bias if $Y(B, X) \neq Y(NB, X)$
  - I.e., their outcome changes when only their race changes

- Let $Y(B, X)$ and $Y(NB, X)$ denote potential outcomes (e.g., = 1 if dismissed) if a filer with characteristic X is Black or non-Black (respectively)

- **Definition:** A filer's outcome is due to bias if $Y(B, X) \neq Y(NB, X)$
  - ▶ I.e., their outcome changes when only their race changes

- **Identification challenge:** the avg. disparity is the sum of avg. bias and selection effects (similar to notions of direct vs. indirect/systemic bias in Bohren, Hull, and Imas, 2022)

$$E[Y|B] - E[Y|NB] = \underbrace{E[Y(B) - Y(NB)|B]}_{\text{ATT (avg. disparity due to bias)}} + \underbrace{E[Y(NB)|B] - E[Y(NB)|NB]}_{\text{selection effects}}$$

Notion of Bias

- Let $Y(B, X)$ and $Y(NB, X)$ denote potential outcomes (e.g., = 1 if dismissed) if a filer with characteristic X is Black or non-Black (respectively)

- **Definition:** A filer's outcome is due to bias if $Y(B, X) \neq Y(NB, X)$
    - I.e., their outcome changes when only their race changes

- **Identification challenge:** the avg. disparity is the sum of avg. bias and selection effects (similar to notions of direct vs. indirect/systemic bias in Bohren, Hull, and Imas, 2022)

$$E[Y|B] - E[Y|NB] = \underbrace{E[Y(B) - Y(NB)|B]}_{\text{ATT (avg. disparity due to bias)}} + \underbrace{E[Y(NB)|B] - E[Y(NB)|NB]}_{\text{selection effects}}$$

- What can homophily tell us about the role of bias? I.e., the ATT?

- The homophily estimand τ is the difference in outcomes when assigned to white (Y_W) and non-white (Y_{NW}) DMs across Black and non-Black filers

$$\tau = E[Y_W - Y_{NW}|B] - E[Y_W - Y_{NW}|NB]$$

- The homophily estimand τ is the difference in outcomes when assigned to white (Y_W) and non-white (Y_{NW}) DMs across Black and non-Black filers

$$\tau = E[Y_W - Y_{NW}|B] - E[Y_W - Y_{NW}|NB]$$

- **Assumption 1 (Parallel Disparities):**

$$E[Y_W(NB) - Y_{NW}(NB)|B] = E[Y_W(NB) - Y_{NW}(NB)|NB]$$

I.e., the change in outcomes when moving from non-white to white DMs would be the same for Black and non-Black filers *if they were all non-Black*

  - ▶ Weaker than random assignment of DMs (e.g., allows harsher white DMs on average)
  - ▶ Violated if impact of non-race filer/case characteristics on decision corr. with DM race (i.e., if systemic bias, in the sense of Bohren, Hull, and Imas, 2022, varies with DM race)

- **Proposition 1:** If parallel disparities (Assumption 1) holds, the homophily estimand identifies the average difference in DM bias:

$$\tau = \beta^W - \beta^{NW}$$

where

$$\beta^W = E[Y_W(B) - Y_W(NW)|B] \quad \text{(ATT for white trustees)}$$
$$\beta^{NW} = E[Y_{NW}(B) - Y_{NW}(NB)|B] \quad \text{(ATT for non-white trustees)}$$

- **Remark 1:** Non-zero homophily ($\tau \neq 0$) implies that at least one DM exhibits bias

Quantifying Anti-Black Bias

- **Assumption 2:** non-white DMs are weakly biased against Black filers on average

- How plausible is Assumption 2?
  - ▸ Psychology research documents pro-white implicit bias among US minorities
    Nosek et al. (2002); Livingston (2002); Ashburn-Nardo et al. (2005)

  - ▸ Black patients exhibit higher WTP for white doctors vs. Black doctors (Chan, 2022)

Quantifying Anti-Black Bias

- **Assumption 2:** non-white DMs are weakly biased against Black filers on average

- How plausible is Assumption 2?
  - Psychology research documents pro-white implicit bias among US minorities
    Nosek et al. (2002); Livingston (2002); Ashburn-Nardo et al. (2005)

  - Black patients exhibit higher WTP for white doctors vs. Black doctors (Chan, 2022)

- **Result 2:** Under Assumption 2, homophily identifies a lower bound for the amount of a disparity due to bias:

$$\beta \in [(1-p)\tau, 1 - \tau p]$$

where $p = Pr(R^{DM} = NW)$ (the proportion of non-white DMs).

Quantifying Anti-Black Bias

- **Assumption 2:** non-white DMs are weakly biased against Black filers on average

- How plausible is Assumption 2?
  - ▶ Psychology research documents pro-white implicit bias among US minorities
    Nosek et al. (2002); Livingston (2002); Ashburn-Nardo et al. (2005)

  - ▶ Black patients exhibit higher WTP for white doctors vs. Black doctors (Chan, 2022)

- **Result 2:** Under Assumption 2, homophily identifies a lower bound for the amount of a disparity due to bias:

$$\beta \in [(1-p)\tau, 1 - \tau p]$$

where $p = Pr(R^{DM} = NW)$ (the proportion of non-white DMs).

- For Chapter 13: $\tau = 0.10$ and $1 - p = 0.83$ imply $\beta > 0.08$
  $\Rightarrow$ > 40% of the 21 percentage point Chapter 13 dismissal disparity is due to bias

Black-White Dismissal Gap Correlates with Measure of Implicit Bias

Dismissal Rate vs Average IAT Score (County–Year Level)
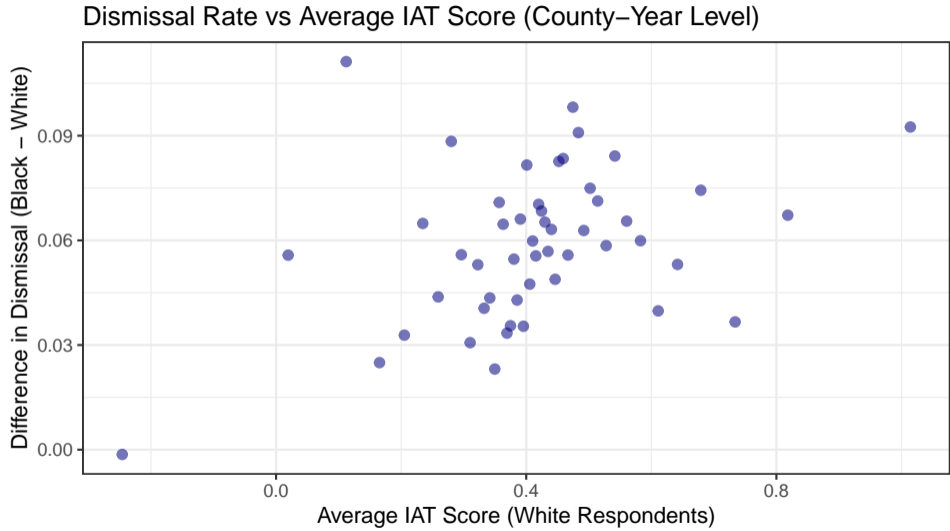
Conclusion

Conclusion

- Black filers' experience significantly higher bankruptcy dismissal rates

- Observables explain most Ch 7 disparities, but only ~50% for Ch 13

- Black filers assigned to white trustees see significantly higher dismissal rates

- Formalize link between homophily and bias

- Bias among bankruptcy DMs may limit Black households' access to debt relief

Thanks!

Racial Disparities in Dismissal Rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Chapter 7 ($\mu = 0.023$)							
Pr(Black Filer)	0.030***	0.028***	0.029***	0.024***	0.024***	0.023***	0.006***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(5e-04)
Num.Obs.	39,002,506	38,985,463	38,985,463	38,985,463	38,985,463	38,985,463	11,977,436
R2	0.002	0.004	0.008	0.280	0.283	0.289	0.055
Chapter 13 ($\mu = 0.559$)							
Pr(Black Filer)	0.209***	0.204***	0.173***	0.174***	0.169***	0.168***	0.106***
	(0.003)	(0.004)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Num.Obs.	14,122,752	14,114,534	14,114,534	14,114,534	14,114,534	14,114,534	4,487,022
R2	0.019	0.064	0.097	0.406	0.417	0.424	0.305
Disp. Year FE		✓	✓	✓	✓	✓	✓
District FE			✓	✓	✓	✓	✓
Filer ZIP FE				✓	✓	✓	✓
Judge FE					✓	✓	✓
Trustee FE						✓	✓
FJC Controls							✓

Clustering: ZIP; **Statistical significance:** 10%*, 5%**, 1%***

Dismissal Rate Disparities
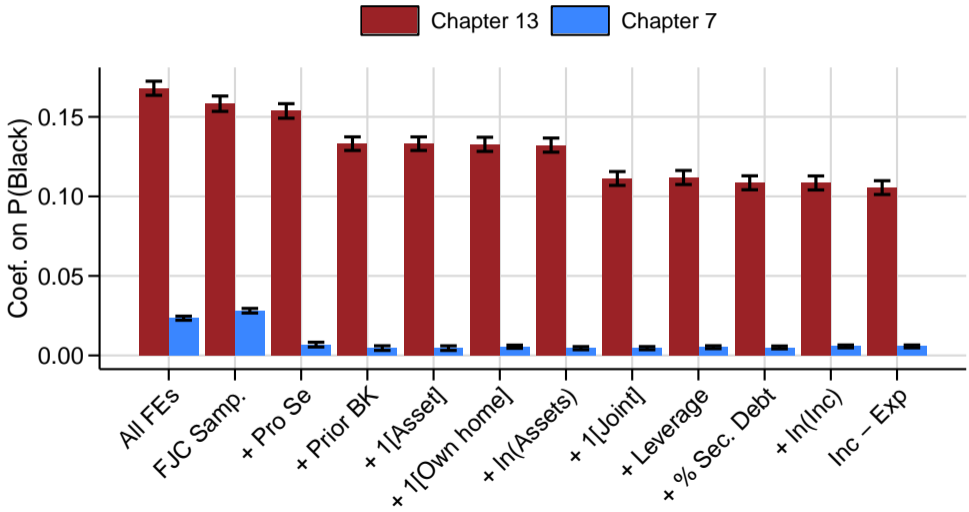
Racial Disparities in Dismissal Rates

	Full Sample (1)	Chapter 7 (2)	Chapter 13 (3)
Pr(Black Filer)	0.044	0.009***	0.015
	(0.043)	(0.002)	(0.031)
1[Chapter 7]	-0.562***		
	(0.070)		
Pr(Black Filer) x Pr(White Trustee)	0.128***	-0.003	0.101***
	(0.049)	(0.003)	(0.035)
Pr(Black Filer) x 1[Chapter 7]	-0.043		
	(0.044)		
Pr(White Trustee) x 1[Chapter 7]	0.111		
	(0.079)		
Pr(Black Filer) x Pr(White Trustee) x 1[Chapter 7]	-0.130***		
	(0.049)		
Observations	13,373,013	9,815,556	3,557,457
R2	0.460	0.052	0.306

Fixed Effects: disposition year, district, filer, ZIP, judge, and trustee; **Case controls:** 1[pro se], 1[prior filing], 1[nonexempt assets], 1[homeowners], 1[joint filing], ln(assets), debt/assets, % secured debt, ln(income), and income - expense gap; **Clustering:** ZIP and Trustee (two-way); **Statistical significance:** 10%*, 5%**, 1%***