# The Consequences of Debt and the Tradeoff of Bankruptcy

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**Abstract**

Bankruptcy is designed as a race-neutral financial fresh start, yet significant racial disparities persist in debt relief outcomes. Black households are more likely to file for bankruptcy. Among filers, they are more likely to file the harder and less successful Chapter 13, a 3-to-5 year repayment plan, over the quicker and highly successful Chapter 7, and less likely to complete their plans, even at the same income, assets, and debt. Even when their case is successful, Black filers leave with more debt, since they owe more nondischargeable debt, mostly student loans. Black households are also sued more for unpaid debt, which can lead to wage garnishment and drive bankruptcy filings. This paper asks: how does bankruptcy law translate racial gaps in household finances and debt collection into disparities in debt relief? Using a new dataset of detailed bankruptcy case records, I develop a structural life-cycle model with endogenous bankruptcy chapter choice, default, and repayment with plan dismissal and wage garnishment risk. The model incorporates institutional features including fee structure, repayment plan design, dischargeability rules, and wage garnishment exposure. These features interact with racial differences in household finances, including differences in liquidity, assets, debt composition, and income. Without targeting any racial moment, the model reproduces the direction of most racial gaps, including default, filing, and chapter choice, with more Black households filing Chapter 13 even though they are more likely to be eligible for Chapter 7, because of the upfront Chapter 7 fee. Removing the upfront Chapter 7 fee requirement reverses the racial gap in chapter choice, a 12 percentage point swing that is about 40% of the gap in the data. Fewer Chapter 13 plans fail, and the share of cases that end in a discharge rises from 76% to 83%, and from 73% to 85% for Black filers. Making student loans dischargeable nearly closes the racial gap in how much debt Chapter 7 discharges, but the upfront fee may still limit how many Black households can take advantage of it.

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# 1 Introduction

Debt allows people to buy houses, pursue an education, and weather many kinds of shocks, such as divorce, job loss, and bad health. Yet, once accumulated, debt can threaten one's financial stability and personal wellbeing. This, in turn, can increase entanglements with the legal system and generate barriers to employment, healthcare, and future borrowing. When debt overwhelms available resources, including income, savings, welfare, and family support, personal bankruptcy offers a structured, though complex, legal process for debt relief through partial repayment to creditors.

Bankruptcy is a key safety net for households in financial distress, and it is not a rare event, with about 1 in 10 Americans filing at some point in their lives.[22] Black households are overrepresented among filers, filing for bankruptcy at about twice their population share. A main driver of this gap is that Black households are more financially distressed, with lower incomes and much less wealth to fall back on.[1] But the gap is not only about poverty. Black households are additionally sued more for unpaid debt. Even with the same median income, credit scores, and default rates, majority-Black neighborhoods see about 40% more debt-collection judgments than other neighborhoods (LaVoice and Vamossy 2024). With a collection judgment, creditors can garnish a potentially painful portion of the debtor's wages. Bankruptcy provides protection, halting all collection activity, from collection harassment to wage garnishment orders.

Even when they do file, Black households get less debt relief. Households filing for personal bankruptcy generally have two options: Chapter 7, a relatively quick (4–6 month) and successful (95%) process that liquidates nonexempt assets, and Chapter 13, a 3–5 year, less successful (46%) repayment plan (Section 1.1). In either chapter, a successful case ends in a discharge, which relieves the filer of their remaining unpaid dischargeable debt but leaves them still owing their nondischargeable debt. In my data, Black filers are almost twice as likely as white filers to file Chapter 13 (65% against 37%) and less likely to complete it (37% against 50%), and both gaps remain at the same income, assets, and debt (Section 2).

Several features of bankruptcy law can explain why Black filers sort into Chapter 13 and receive

[1] In addition to less inherited wealth, lower income levels, and constrained access to mainstream financial products and services, Black households are disproportionally targets of predatory lending, the criminal justice system, and aggressive collection practices. In 2021, 24% of Black households had zero or negative wealth compared to 11% of US households.[31]

less relief. Some filers choose Chapter 13 to save their house from foreclosure, since only Chapter 13 lets them keep home equity above the exemption and catch up on missed mortgage payments. But another reason filers sort into Chapter 13 is the higher upfront fee for Chapter 7, which Black households, with less income and wealth, are less able to pay (Kiel and Fresques 2017). The same lack of income and savings then makes the plan harder to finish. Chapter 13 is rigid, requiring filers to commit all of their disposable income for three to five years, so a household with little to fall back on can lose its plan after a single shock. Even when their case is successful, Black filers leave with more debt, since they owe more nondischargeable debt, mostly student loans, even at the same income, assets, and debt. Some of this debt, such as child support and recent taxes, survives Chapter 7 but can be paid over time in Chapter 13, which can additionally push filers toward the harder chapter. My paper asks: how does bankruptcy law translate racial gaps in household finances and debt collection into disparities in debt relief? I specifically consider differences in income, assets, and debt composition, including priority and nondischargeable nonpriority debt, and how these differences interact with fee and debt treatment by chapter.

To answer this, I first build a new dataset from PDF bankruptcy court records accessed through PACER. While past studies have mostly relied on case-level totals from the Federal Judicial Center, my dataset includes means-test forms, fee disclosures, detailed debt and asset categories, and trustee reports. In addition, while empirical work on race and bankruptcy has largely assigned race using zip code, I am able to impute race more reliably using each debtor's name and address (Section 2). This level of detail makes it possible to assess the racial gaps in liquidity and debt composition that may influence filing behavior. I find that the racial gaps are not only poverty gaps. At the same income, assets, and debt, Black filers are 26 percentage points more likely to file Chapter 13 and 10 points less likely to complete it. They also hold less cash when they file, and 7 to 8 percentage points more of their unsecured debt is nondischargeable, mostly student loans.

Court records show a household only at its petition, not before or after it. They cannot show why a household chose a chapter, why its plan ended, or how the outcome would change under different rules. Since the finances observed at filing are themselves shaped by prior institutional exposure, cross-sectional and event-study methods also struggle to separate the role of household finances from the role of the rules. A life-cycle model, on the other hand, reveals more about household choices and can measure how much of each racial gap household finances alone produce. It additionally allows me to run policy experiments that show how outcomes would change under

different rules.

Using this data, I build a life-cycle model with bankruptcy chapter choice, borrowing, and default with wage garnishment risk. The model captures four features of bankruptcy law and debt collection. Debt is split into the categories the statute treats differently, so the value of a discharge depends on what a household owes. The two chapters differ in when their fees are paid, so cash on hand affects which chapter a household can use. Chapter 13 plans can fail after an income or expense shock, which sends the household back to collection. Households who informally default risk a collection judgment and wage garnishment, which can push them into bankruptcy.

The model is not calibrated to any racial gap. Households differ by race in their finances at age 30, their income and job risk, their debt composition, and their risk of a collection judgment. With these differences alone, the model reproduces the direction of most racial gaps, including default, filing, and the sorting of who files Chapter 13. Black filers are more likely to file Chapter 13, by 6 percentage points in the model against 28 in the data, and among Chapter 13 filers, more of them were eligible for Chapter 7, by 20 points against 17 in the data. In the model, the reason is the upfront Chapter 7 fee. At most 54% of Black and 41% of white Chapter 13 filers could not have paid it. The model also produces a racial gap in relief. Since Black filers owe more nondischargeable debt, mostly student loans, Chapter 7 discharges 79% of what Black filers owe against 85% for white filers.

I then use the model to run two policy experiments (Section 6). In the first, letting filers pay the Chapter 7 fee over time, and waiving the court fee for those eligible, reverses the racial gap in chapter choice. Black filers' Chapter 13 share falls from 42% to 20%, and white filers' from 35% to 26%. The fee rule alone moves the racial gap in chapter choice by 12 percentage points, about 40% of the gap in the data. Filing rises, mostly among Black households, but fewer Chapter 13 plans fail. The share of bankruptcy cases that end in a discharge rises from 76% to 83%, and from 73% to 85% for Black filers, reversing the racial gap in this share. This matters beyond race. For any household with little cash, when the fee is due, and not only how much it is, decides which chapter it can use and whether it gets relief. In the second, making student loans dischargeable nearly closes the racial gap in how much debt Chapter 7 discharges, from 6 to 1.5 percentage points.

The rest of the paper is organized as follows. In Sections 1.1 and 1.2, I describe the bankruptcy rules the model captures and review the literature. In Section 2, I describe my court-record data

and the racial gaps in filing, completion, and debt composition. Section 3 presents the model, and Section 4 its calibration. Section 5 compares the model to the data and shows the racial gaps it produces. Section 6 presents two policy experiments, the upfront Chapter 7 fee rule and the dischargeability of student loans, and Section 7 concludes.

## 1.1 Institutional Rules

Although bankruptcy offers immediate debt relief or a structured path to debt repayment, and critically places an automatic stay on all collection activity while the case is pending, the process is complicated, time-consuming, and costly. Filing requires providing detailed documentation on all creditors and outstanding balances, income sources, property holdings and their claimed exemption status, and monthly expenses. In addition to court fees, debtors must pay for and complete a credit counseling course within 180 days before filing and a financial management course before receiving a discharge (about \$30–50 for both). It is possible to file without an attorney, but fewer than 10% of filers choose to do so. Filers without an attorney from 2008–2015 had lower discharge rates, approximately 72% for Chapter 7 and just 2% for Chapter 13, compared to 98% and 41% with attorney representation, making legal representation effectively necessary and adding substantially to the cost.[28] Much of this complexity comes from the rules for different debts and assets and from the mechanics of the two filing options, Chapter 7 and Chapter 13. I focus on the rules the model captures and leave other details to Appendix A.1.

**Debts and assets.** The treatment of debt in bankruptcy depends on its classification. Secured debt, which primarily consists of mortgage obligations, is backed by a specific asset the creditor may claim upon default. A debtor who keeps a house or car must keep paying its secured debt, but if the debtor surrenders it, any shortfall is discharged. Unsecured debt has no collateral and is sorted into priority and nonpriority. Priority debt is debt that is paid first, ahead of all other unsecured debt. Nonpriority debt is the majority of unsecured debt owed and includes credit card balances, medical bills, and student loans. Total debt is sorted into dischargeable and nondischargeable. Dischargeable debt is eliminated upon a successful completion of bankruptcy, while nondischargeable debt not paid during the case survives. Nondischargeable debts either stem from the debtor's misconduct, such as fraud, or are considered "important to society." Most priority debt is nondischargeable, including child support and recent taxes, while unpaid wages a debtor owes to former employees are dischargeable. Government-owed debt is considered "important to

society," but discharge rules favor debt types more frequently held by white filers. Small business loans from the Small Business Administration and older income taxes, more commonly held by white filers, are government debts that are dischargeable, while student loans, child support, and criminal fines and fees, more commonly held by Black filers, are nondischargeable (Langston 2023).[2] As a result, Black filers may be left with more debt than white filers even after a successful discharge (Section 2).

Similarly, how a filer's assets are classified determines which ones the filer can protect. Assets are either exempt or nonexempt. Exempt assets are shielded from liquidation in Chapter 7 and from the best-interest-of-creditors test in Chapter 13. Most states require debtors to use the state exemption schedule, while the rest let them choose between the state and federal schedules. The federal schedule protects home equity up to a homestead cap, full retirement accounts, and a small wildcard amount that can be applied to any property.

**The two chapters.** There are two personal bankruptcy filing options, Chapter 7 and Chapter 13. **Chapter 7** is a means-tested liquidation process, meaning that household income must be below the state median for the household's size. A household above the median can still qualify under a second step, if its projected disposable income after IRS-standard expenses is too low to repay a meaningful share of its unsecured debt. A trustee is assigned to each case and decides whether or not the filer has enough nonexempt assets to liquidate. In most cases, it is a no-asset case, meaning that all assets are protected by exemptions, or nonexempt assets are not worth liquidating, so the filer pays nothing and unsecured debt is discharged.[3] They are left with their full nondischargeable priority and nonpriority debt. In an asset case, the trustee sells the nonexempt assets and keeps a percentage of what it distributes as its fee (§326). The rest goes first to priority debt and then to other unsecured debt. They are left with whatever priority debt is unpaid and the nondischargeable nonpriority debt. A homeowner with nonexempt equity must either buy out that equity in cash to keep the house or surrender it to the trustee. Since most are no-asset cases, the whole process is short, around 4-6 months, and highly successful, around 95%.

**Chapter 13** is a repayment plan, eligible to those with regular income. Working with a trustee, the filer must commit their disposable income, their income minus allowed expenses, each month

[2]Student loans can be discharged only by showing "undue hardship," a standard courts have interpreted unevenly and that is rarely met.

[3]American Bankruptcy Institute, based on cases closed 2015–2025.

for 3 to 5 years (§1325(b)), with a shorter three-year plan available to those with income below the state median. Above-median filers use the IRS standards to calculate their monthly expenses, while below-median filers can choose to use either the IRS standards or their actual expenses if the trustee finds them reasonable. Throughout, below-median and above-median refer to income relative to the state median, which sets the Chapter 13 plan length and expense standard; passing the second step affects only eligibility for Chapter 7. The plan must pay all priority debt and mortgage arrears and satisfy the best interest rule (§1325(a)(4)), meaning that what is paid to unsecured debt must be as much as what would have been paid in Chapter 7. The plan must meet these requirements for it to be confirmed; otherwise, the plan is rejected, or not confirmed.

Chapter 13 plans are rigid. A filer whose income falls or whose expenses rise can ask the court to modify the plan (§1329), but this requires a motion, notice to creditors, court approval, and often more attorney fees, and the court may deny it. Many filers instead fall behind on their payments and have their case dismissed. Only 46% of Chapter 13 cases end in a discharge, against 95% of Chapter 7 cases. Most of the remaining cases are **dismissed**. Although some filers voluntarily choose to have their Chapter 13 cases dismissed, a majority of dismissals are due to a failure to make plan payments. If a Chapter 13 case is dismissed, either from non-confirmation, missed plan payments, or voluntarily, the consequences are immediate. The automatic stay is lifted, meaning creditors may resume collection activities, including wage garnishment and foreclosure proceedings, and the filer is responsible for all unpaid debt including any interest that accrued during the plan and potentially unpaid or additional attorney fees. All trustee fees, filing fees, and attorney fees are sunk costs. Together, the filer from a dismissed case might be in a worse position than when they started. Filers can also convert to Chapter 7 or ask for a hardship discharge, but both are uncommon (Appendix A.1).

**Why file Chapter 13.** A key difference is the treatment of secured assets, which creates two motives for Chapter 13: the cure motive and the keep-asset motive. An owner who has fallen behind on their mortgage can keep their house by curing the arrears through a Chapter 13 payment plan. An owner who would otherwise be forced to liquidate their house in Chapter 7, because their equity exceeds the homestead exemption and they cannot buy it out in cash, can keep their house and use their plan payment to pay back creditors instead of using the equity in their house.[4] Other

[4] 11 U.S.C. §1322(b)(5) (cure of defaults) and §1322(b)(2) (no modification of a claim secured only by the debtor's principal residence).

differences include the treatment of priority debt, which survives a Chapter 7 discharge but can be paid over time in a Chapter 13 plan, and Chapter 13's broader discharge categories (Appendix A.1). Both can push filers toward Chapter 13.

**When the fees are due.** The two chapters also differ in how much a filer must pay up front. Both require a court filing fee and a credit counseling fee, but they differ in when the attorney is paid. Since an unpaid attorney fee is dischargeable debt, Chapter 7 attorneys usually require it upfront.[5] In Chapter 13, the attorney fee is often structured as "no money down" at filing and paid in installments through the plan.[6] While the housing decision may impact chapter choice, the difference in upfront cost acts as a barrier rather than a choice. Gross, Notowidigdo, and Wang (2014) show that Chapter 7 filings rise when tax rebates relax this constraint, finding little change in Chapter 13 filings. This difference in timing is at the center of my results. Table 1 compares the two chapters, and Appendix Table 17 lists how each treats the main categories of unsecured debt.

Table 1: Personal Bankruptcy Filing Options

| | **Chapter 7** liquidate nonexempt | **Chapter 13** repayment plan |
|---|---|---|
| Eligibility | Pass means test | Regular income |
| Successful Discharge Rate | 95% | 46% |
| Case Duration (automatic stay) | 4-6 months | 3-5 years |
| Upfront cost[1] | $1,400–2,400 | $345 |
| Total cost | $1,400–2,400 | $3,300–5,300 |
| Bankruptcy Filing Flag | 10 years | 7 years |
| Refile Wait (Ch. 7 / Ch. 13) | 8 / 4 years | 6 / 2 years |
| Nondischargeable priority | Survives[2] | Paid in plan |
| Nondischargeable nonpriority | Survives | Survives |

[1]Court fee ($335 for Chapter 7, $310 for Chapter 13), credit counseling ($35), and the part of the attorney fee paid before filing.
[2]Paid from liquidated assets in asset cases ($\sim 5\%$).

**Filing again.** Bankruptcy has consequences for credit, with Chapter 7 being more punishing. Filing Chapter 7 leaves a bankruptcy flag on the filer's credit report for 10 years, compared to 7 years for Chapter 13. For Chapter 13, the flag applies at filing and stays on the credit report

[5]*Lamie v. United States Trustee*, 540 U.S. 526 (2004). Court fee from 28 U.S.C. §1930; credit counseling and debtor education required by 11 U.S.C. §109(h) and §727(a)(11); attorney fees from Lupica (2012) and the Form 2030 fee disclosures in my PACER sample (median Chapter 7 fee $1,147, of which $959 is paid before filing).

[6]Lupica (2012); in my PACER sample the median Chapter 13 filer pays $100 of the attorney fee before filing, with the rest paid through the plan.

regardless of whether the case leads to a successful discharge. Similarly, after a Chapter 7 discharge a filer must wait 8 years to file Chapter 7 again and 4 years to file Chapter 13, compared to 6 and 2 years after a Chapter 13 discharge.[7] These waiting periods protect creditors from repeated filing, and two further rules protect them from strategic filing. First, to limit taking on new debt in anticipation of filing, consumer debts above $725 for luxury goods incurred within 90 days of filing, and cash advances above $1,000 taken within 70 days, are presumed nondischargeable (§523(a)(2)(C), 2019 amounts). Second, courts can dismiss cases that have been filed in bad faith (§707(b)(3) in Chapter 7, §1307(c) in Chapter 13).

**Default and collection.** **Defaulting** on a loan damages a debtor's credit score and can trigger both late fees and penalty interest rates. If a debtor stops paying long enough, the lender **charges off** the account. The lender records the debt as a loss and usually stops adding interest, but the debtor still owes it, and the debt is often sold to a debt buyer or passed to a collector. Banks must charge off credit cards after 180 days without payment and installment loans, such as auto and personal loans, after 120 days.[8] Following default, creditors may contact the debtor directly through phone calls and written notices.

If the creditor decides to pursue legal action, they can obtain a collection judgment and force the debtor into **wage garnishment**, a process in which the debtor's employer is required to withhold part of the debtor's paycheck and send it directly to the creditor. Judgments are easy for creditors to obtain. Most debtors who are sued never appear in court, often because they were not properly notified, cannot take time off work, or have no lawyer, so the court enters a default judgment for the creditor without examining the claim. More than 70% of debt collection lawsuits that are resolved end in a default judgment.[9] Federal law caps garnishment at 25% of disposable earnings, although many states impose stricter limits.[10] Wage garnishment orders are job-specific and end if the worker leaves or loses the job, switches jobs, or repays the debt. Most importantly for this paper, filing for bankruptcy immediately halts any active garnishment and prevents creditors from

[7] 11 U.S.C. §727(a)(8)–(9) and §1328(f); the periods run between filing dates. Credit reporting periods are set by the Fair Credit Reporting Act, 15 U.S.C. §1681c(a)(1).

[8] Federal Financial Institutions Examination Council, Uniform Retail Credit Classification and Account Management Policy (2000). Other debts follow different rules: federal student loans go into default after 270 days and are collected by the government, and medical bills are typically sent to collection by the provider.

[9] Pew Charitable Trusts, *How Debt Collectors Are Transforming the Business of State Courts* (2020), for the jurisdictions with available data, 2010–2019.

[10] Several states, including North Carolina, Pennsylvania, South Carolina, and Texas, largely prohibit wage garnishment for consumer debts. The model applies the federal rules everywhere.

pursuing further collection.

Some debtors cannot be garnished at all. Low earners, with weekly disposable earnings below 30 times the federal minimum wage ($217.50), are fully protected from wage garnishment.[11] Social Security, Supplemental Security Income, veterans' and federal retirement benefits, and, under most state laws, unemployment benefits and public assistance are additionally protected from wage garnishment. Since these households have no garnishable wages, a creditor can instead use its judgment to obtain a **bank levy**, taking deposits from the debtor's bank account above an exempt amount. Retirement accounts covered by ERISA and, in most states, IRAs are protected. In a bank account, two months of directly deposited federal benefits are automatically protected, while other deposits are protected only up to state exemption amounts.[12]

## 1.2 Literature Review

Several papers study bankruptcy using a structural model. A large portion of these papers focus on Chapter 7 only. Livshits et al. (2007) and Chatterjee et al. (2007) model various shocks to explore reasons that drive households to file bankruptcy. Athreya (2008) studies how default policy shapes consumption and debt over the life cycle. Mankart (2014) additionally models separately unsecured debt and savings, finding that expanding exemptions has little effect on bankruptcy rates since many of those that enter bankruptcy have little wealth. Ionescu and Ionescu (2014) model the interaction between two forms of unsecured debt, student loans and credit card debt. Credit card default works like a Chapter 7 filing that discharges the debt, while student loan default, since the debt is nondischargeable, is modeled as a wage garnishment similar to Chapter 13. Fewer papers model an actual Chapter 13 filing. Li and Sarte (2006) and Mitman (2016) model the choice between Chapter 7 and Chapter 13 and assume Chapter 13 completion. Eraslan et al. (2017) model Chapter 13 only and attempt to account for the high Chapter 13 failure rate by modeling the decisions to file, the length of plan, and whether to continue or voluntarily default on plan for an outside option. Empirically, Dobbie and Song (2015) find that Chapter 13 filers whose cases are dismissed see large and lasting drops in earnings, while filers granted protection see little change. In general, the choice of Chapter 13 is taken seriously, but not the complexities of the actual Chapter 13 structure. No structural model ties chapter choice to when each chapter's fees are due,

[11] 15 U.S.C. §1673(a).

[12] 42 U.S.C. §407 (Social Security); 29 U.S.C. §1056(d) (ERISA plans); 31 C.F.R. §212.6 (deposited federal benefits).

lets a Chapter 13 plan fail because a fixed payment becomes unaffordable, or lets nondischargeable debt shape the choice and the relief each chapter gives. None ask how these rules affect Black and white filers differently. My model adds these features for Black and white households, so the value of filing and the chapter choice depend on a household's cash, its income and expense risk, and its debt composition.

A second line of work includes the alternatives to formal bankruptcy, informal default and debt collection. This includes Chatterjee and Gordon (2012), who model wage garnishment alongside bankruptcy, and Athreya, Sánchez, Tam, and Young (2018) and Dempsey and Ionescu (2024), which model informal default as a distinct state. The first two only include Chapter 7, while the last additionally includes Chapter 13. These extensions are important because most households that stop paying their debt never file. In reality, households face a tradeoff between repaying, filing for bankruptcy, and informally defaulting with a risk of wage garnishment. DeFusco et al. (2024) and LaVoice and Vamossy (2024) focus on wage garnishment and debt collection judgments. Using administrative payroll records, DeFusco et al. (2024) find that at any given time almost 1% of workers are subject to wage garnishment, that garnished workers have about 11% of their wages withheld, more than the average household spends on food, and that garnishment spells last about five months on average. Both papers find that garnishment and judgments are more common in Black neighborhoods, even after controlling for income and credit characteristics. What is less known is how this racial gap in collection pressure feeds into the decision to file and the choice of chapter. In my model, the cost of default, such as late fees and collection harassment, and wage garnishment after a judgment can both push a household into bankruptcy.

Relevant papers on racial bias in bankruptcy are largely empirical. Kiel and Fresques (2017) argue that the main driver of racial disparities in bankruptcy outcomes is chapter choice, influenced by both attorney fee structure and debt type. Morrison (2020) argues that Black households choose Chapter 13 to protect against car seizures and license suspensions. In an experiment, Braucher, Cohen, and Lawless (2012) find that attorneys are more likely to recommend Chapter 13 to an otherwise identical Black couple. Argyle et al. (2025) find strong evidence of racial homophily in Chapter 13: Black filers had higher income-expense gaps, leading to stricter repayment plans and higher dismissal rates when quasi-assigned to white trustees, even after controlling for income. Using a decision model of the trustee's dismissal choice, they conclude that at least 37% of the 16 percentage point racial gap in Chapter 13 dismissals is due to discrimination. Studying

Washington, D.C., Buckner (2023) concludes that its exemption laws contribute to white debtors leaving bankruptcy with greater wealth than Black debtors, and Langston (2023) argues that nondischargeable debt categories, such as student loans and criminal fines, put Black filers at a disadvantage. My paper extends this work in two ways. My dataset measures racial differences in filers' balance sheets in more detail, including their cash, their eligibility for Chapter 7, and the debt that survives discharge. My structural model then measures how these differences turn into racial gaps in filing, chapter choice, completion, and debt after discharge.

# 2 Data

This paper uses a sample of individual, primarily consumer-debt, Chapter 7 or Chapter 13 bankruptcy cases originally filed between 2016 and 2019 and closed by June 2024. The data are collected from the Federal Judicial Center (FJC) Integrated Data Base, a public dataset that includes fiscal year snapshots of bankruptcy cases active on or after October 1, 2007. This public dataset includes information on bankruptcy chapter, zip code, monthly income, monthly expenses and outcome. Total assets are reported and divided into real estate and personal property. Total liabilities are reported and broken down into secured, unsecured priority, and unsecured nonpriority, while total debt is separately reported and divided into dischargeable and nondischargeable.

I supplement this information with records I scraped from Public Access to Court Electronic Records (PACER). I drew a random sample of these cases and retrieved each case's petition schedules, means-test forms, attorney fee disclosure, and trustee's final report. The means-test forms are especially important for this paper. They show whether a filer's income was below the state median and, if not, whether the filer passed the second step of the test. Without them, a Chapter 13 filing cannot be separated into a choice and Chapter 7 eligibility. In addition to the debtor's names and address, which I use to impute race, I collect a more detailed breakdown of assets and debt, including exempt categories and nondischargeable debt categories, the nature of priority claims, arrears owed, marital status, household size, allowable expenses, and attorney fees. The trustee's report also records what each class of creditor was paid and how the case ended. I match the scraped records to the FJC data by court and case number, resulting in a final sample of 7,096 cases in 52 courts.[13]

[13]The share of sampled cases I could retrieve and parse differs by court and chapter, which over-represents Chapter

Race is imputed from PACER bankruptcy records using Bayesian Improved Surname Geocoding (BISG), following the approach of Elliott et al. (2009) and Fiscella and Fremont (2006). From the case records, I extract the debtor's surname and address, which I geocode to extract their census tract. I use BISG to combine surname-based race probabilities with tract-level racial composition from the 2020 Census to generate posterior race probabilities for each debtor. I then assign each debtor to the race category with the highest posterior probability. [14]

## 2.1 Bankruptcy Filers and Outcomes

Comparing cases filed by white and Black filers in my built dataset, I find racial differences consistent with the previous literature (Table 2). Black filers are overrepresented, have higher prior filing rates, and on average have less income, fewer assets, and less debt (Table 3). Black filers are nearly twice as likely to file under Chapter 13 (65% vs 37%). While a high percentage of both white and Black filers file Chapter 13 even though they are eligible for Chapter 7, over 83% of Black Chapter 13 filers were eligible for Chapter 7 under the means test, compared to 66% of white filers, and Black filers less often reach a successful discharge.

Table 2: Filers and Outcomes by Race

| | White | Black | All |
|---|---|---|---|
| *Sample* | | | |
| Filers ($N$) | 5,306 | 1,790 | 7,096 |
| Share of sample | 74.8% | 25.2% | 100% |
| Prior bankruptcy filing | 17.4% | 32.1% | 21.1% |
| Annual income (mean, 2017 $) | 44,574 | 35,615 | 42,314 |
| *Chapter choice* | | | |
| Filed Chapter 13 | 36.8% | 65.0% | 43.9% |
| Chapter 13 filers eligible for Chapter 7 | 65.5% | 83.4% | 72.2% |
| Closed as Chapter 13 | 34% | 60% | |
| *Outcome, by closing chapter* | | | |
| Chapter 7 discharge | 97% | 96% | |
| Chapter 13 discharge | 50% | 37% | |
| Chapter 13 missed-payment dismissal | 30% | 40% | |
| Chapter 13 other dismissal or closing | 20% | 23% | |

PACER sample of cases filed 2016–2019; BISG-imputed race. Winsorized mean income. Chapter 7 eligibility is passing the means test. Outcomes are shares of cases within race and closing chapter.

13 cases. Where noted, I correct for this with post-stratification weights that reweight each court-and-chapter cell to its share of the cases originally sampled from the FJC data.

[14] This is more accurate than assigning each filer the majority race of their neighborhood, which misclassifies Black filers who live in racially mixed or majority-white neighborhoods. Elliott et al. (2009) show that combining surname with neighborhood predicts self-reported race much better than either one alone.

Among cases that closed as Chapter 13, white filers were more likely to receive a discharge (50% vs 37%), with the gap driven by a 10 percentage point difference in missed-payment dismissals. For Black filers, missed-payment dismissal is the most common way a Chapter 13 case ends, more common than discharge. The remaining 20% of white and 23% of Black Chapter 13 cases end in other ways, including dismissal at the debtor's request and dismissal for procedural reasons. Voluntary dismissals can also include filers who found the plan payment too hard to sustain and left before missing a payment. Chapter 7 discharge rates are high and similar across groups. Table 3 reports balance sheets by closing chapter. In both chapters, white filers hold about twice as much real property as Black filers and more personal property. Among Chapter 13 filers, white filers have roughly twice the assets and more secured debt. Black filers additionally have higher mean nondischargeable debt than white filers in both chapters ($17,250 vs $13,745 in Ch7; $17,892 vs $16,278 in Ch13), despite having lower total debt.

Table 3: Balance Sheet at Filing by Race and Closing Chapter

| | **Chapter 7** | | **Chapter 13** | |
|---|---|---|---|---|
| | **White** | **Black** | **White** | **Black** |
| **Assets** | 83,283 | 47,508 | 156,684 | 76,159 |
| Real property | 56,663 | 26,451 | 116,743 | 52,449 |
| Personal property | 26,319 | 20,814 | 39,515 | 23,477 |
| **Debt** | 133,209 | 93,536 | 173,235 | 109,715 |
| Secured | 66,386 | 40,005 | 120,597 | 68,319 |
| Unsecured priority | 2,594 | 1,876 | 3,686 | 3,685 |
| Unsecured nonpriority | 65,641 | 52,799 | 50,880 | 38,785 |
| of which nondischargeable | 13,745 | 17,250 | 16,278 | 17,892 |

Note: Mean values (2017 $) from the PACER sample of cases filed 2016–2019; components need not sum to totals. Nondischargeable debt includes priority debt and nonpriority debt that survives discharge.

## 2.2 Asset and Debt Portfolios

Bankruptcy filers are extremely cash constrained. Black filers held about $1,445 in Chapter 7 and $523 in Chapter 13 (median liquid assets before paying their attorney) before filing for bankruptcy compared to $2,051 and $1,300 for white filers (Figure 1a). Liquid assets here are defined as reported financial assets net of retirement, plus any attorney fee already paid before filing. Differences in liquid assets by chapter suggest that there may be sorting from the upfront Chapter 7 fee, with those extremely constrained opting for Chapter 13 where the upfront cost is lower.

Black filers also owe more debt that bankruptcy cannot discharge, even at the same income, assets, unsecured debt, and family type (Figure 1b). Debt that survives discharge makes up 20.9% of Black Chapter 7 filers' unsecured debt against 13.0% for white filers, and 25.2% against 17.8% in Chapter 13, gaps of 7.9 and 7.4 percentage points. I focus on student loans, child support, and taxes and other government debts, with the first being nondischargeable nonpriority debt and the other two nondischargeable priority debt. Black filers carry somewhat more child support and tax debt, but most of the gap is student loans, 7.1 of the 7.9 points in Chapter 7 and 5.7 of the 7.4 points in Chapter 13 (Table 5). In both groups, Chapter 13 filers have a larger nondischargeable share, driven by priority debt. This may be because Chapter 13 provides a structured way to pay it back, while filers in Chapter 7, mostly no-asset cases, are still left with their priority debt.

The gap is mostly in who holds student loans rather than how much they owe. Black filers are 6.7 percentage points more likely to hold student loans (32.3% against 25.6%). The SCF shows the same pattern in the population. Among households aged 30–32, 53.7% of Black households hold student loans against 43.8% of white households, but the median balance among holders is nearly the same ($22,602 against $22,752). This is consistent with Athreya, Gordon, Jones, and Neelakantan (2025), who find that, conditional on net worth, Black and white households hold similar portfolios, except that education loans are a larger share of Black households' net worth.

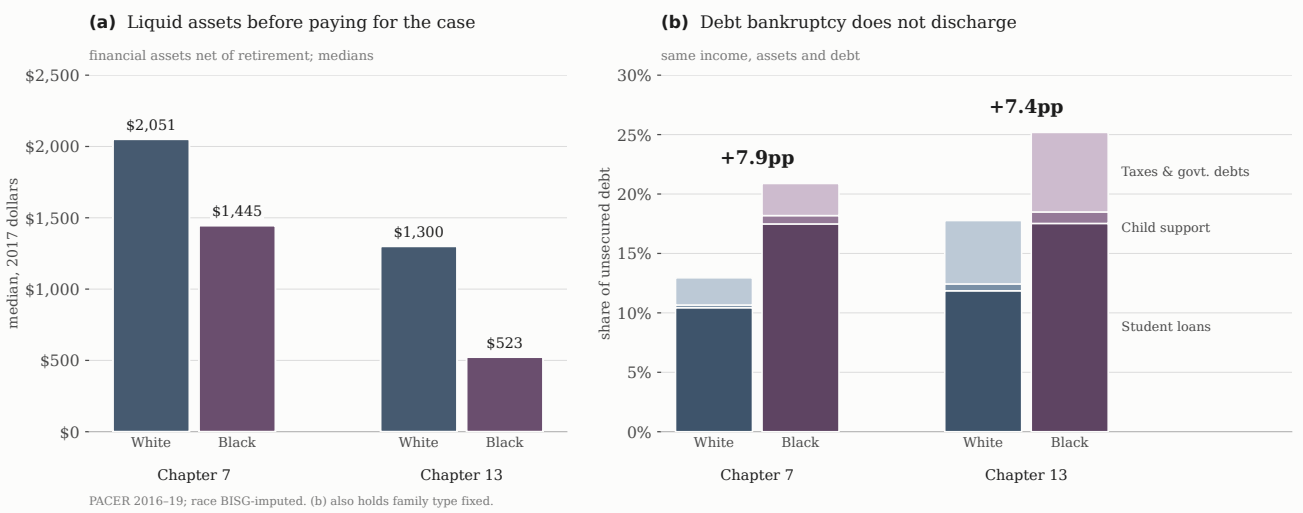



Figure 1: White and Black Households enter bankruptcy with different balance sheets. Less cash before paying for the case, in both chapters; Black Ch. 13 filers arrive with a $523 median. A larger share of their debt is beyond the discharge: +7–8pp within each chapter at the same income, assets, and debt, mostly driven by student loans.

The racial gaps in chapter filing and Chapter 13 completion are not only poverty gaps. Black

filers are 25 percentage points more likely to file Chapter 13 and almost 13 percentage points less likely to complete it. When we control for income, assets, and unsecured debt, that gap barely moves (Table 4).[15] The chapter filing gap slightly widens for Black filers, likely because they own less and owe less, both of which predict Chapter 7. Accounting for debt composition closes 11% of the filing gap and 15% of the completion gap. It closes part of the gap because Black filers hold more of the debts that predict filing Chapter 13 and not completing it, mostly student loans and, to a lesser extent, priority debt. Priority debt pulls filers toward Chapter 13 most strongly, consistent with Chapter 13 providing a structured way to pay it back. However, because priority debt must be paid in full, it may push plan payments higher, making the plan harder to complete. Black filers owe about the same priority debt in dollars, but it is a larger share of their smaller debts, about 2 percentage points more at the same income, assets, and debt. Student loans differ by about 8 points and account for about two-thirds of what debt composition explains in the filing gap. They survive both chapters, but Chapter 13 may still appeal to filers who hold them, since the automatic stay pauses their collection for the length of the plan rather than a few months. The gap persists among first-time filers, and prior filing, itself an outcome of earlier cases and probably dismissals, closes a further 16% and 10%. Chapter 13 filers are more likely to be homeowners (64% against 40% of white filers and 45% against 32% of Black filers), but accounting for homeownership only closes the filing gap slightly. Prior work points to other contributors to the chapter gap that these controls do not capture, including attorney fee structures (Kiel and Fresques 2017), attorney steering (Braucher, Cohen, and Lawless 2012), and local legal culture (Sullivan, Warren, and Westbrook 1994).

[15] Where a household files matters more. Black filers are concentrated in courts where Chapter 13 is more common, so with court fixed effects, the filing gap at equal balance sheets falls from 26 to 15 percentage points (Appendix A.2), consistent with differences in local legal practice.

Table 4: Two Gaps at Equal Income, Assets, and Debt

| Black − White, pp | Files Chapter 13 | Completes Chapter 13 |
|---|---|---|
| Raw gap | +25.0 | −12.5 |
| | (2.5) | (5.0) |
| Same income, assets and debt | +26.3 | −9.5 |
| | (2.9) | (4.0) |
| + debt composition | +23.5 | −8.1 |
| | (3.1) | (4.2) |
| + prior filing | +19.2 | −7.1 |
| | (2.7) | (4.1) |
| *Share of the equal-balance-sheet gap closed by* | | |
| debt composition | 11% | 15% |
| prior filing | 16% | 10% |

PACER 2016–19. Probit average marginal effects; standard errors clustered by court in parentheses. Chapter is the chapter at case closing. Filing: all filers, $n = 7{,}035$ (Chapter 13 share 60% Black, 34% white). Completion: Chapter 13 cases, $n = 2{,}837$ (discharge 38% Black, 50% white). Balance sheet = log income, log assets, log unsecured debt, family type. Composition = student-loan, child-support and tax shares of unsecured debt. Prior filing = the petition reports a bankruptcy filing within the previous 8 years. Descriptive, not causal: chapter is chosen, and who is in Chapter 13 is selected. Appendix A.2 reports the full specifications and robustness checks.

Table 5: Nondischargeable Gap at Equal Income, Assets, and Debt

| | Chapter 7 | | | Chapter 13 | | |
|---|---|---|---|---|---|---|
| Share of Unsecured | White | Black | Gap | White | Black | Gap |
| Student loans | 10.4% | 17.5% | +7.1 | 11.9% | 17.5% | +5.7 |
| Child support | 0.2% | 0.7% | +0.5 | 0.6% | 1.0% | +0.4$^{\dagger}$ |
| Taxes & govt. debts | 2.3% | 2.7% | +0.4$^{\dagger}$ | 5.3% | 6.7% | +1.4 |
| **Total** | **13.0%** | **20.9%** | **+7.9** | **17.8%** | **25.2%** | **+7.4** |

PACER 2016–19, $n = 7{,}035$. Within chapter, at the same income, assets, unsecured debt and family type. Total gap 95% CI: Ch7 [5.9, 10.2], Ch13 [5.0, 9.4]. $^{\dagger}$CI includes 0. Appendix A.2 reports the full specifications and robustness checks.

# 3 Model

My model is organized into quarterly periods $j$. It is important to have shorter periods so that income and expense shocks bind on within-period liquidity rather than being smoothed across a year, making it difficult to pay the upfront filing and attorney fees and to keep up with Chapter 13 plan payments. Quarterly periods also resolve the Chapter 13 plan at a realistic frequency (12 or 20 quarters), letting shocks during the plan generate forced dismissals. Households are heterogeneous in race $R \in \{W, B\}$ and family type $t \in \{1, 2, 3, 4\}$, corresponding to single without

children, married without children, single with children, and married with children. They work from age 30 to 59, with income shocks, and are retired from age 60, where they face survival risk. The model ends at age 75, where the household is valued by the continuation of a living retiree. At 75 every owner keeps the house. Creditors cannot force a sale, collecting only from liquid assets above the protected amount, with any remaining debt going unpaid.[16] Upon retirement, children are assumed to have left the household, and family types evolve accordingly (Appendix A.6).

Households hold two types of assets and two types of debt. Liquid assets $a$ serve as households' savings to insure against future shocks and can be used to meet expenses, fees, and plan payments. Unsecured debt $d$, when available, can also be used to smooth consumption and includes dischargeable, nondischargeable priority, and nondischargeable nonpriority debt. Unsecured debt contracts are one-period contracts priced at a price $q$ set by competitive lenders according to the household's risk of default (see Section 3.4). Households additionally potentially hold secured assets $h$ financed by secured debt $m$ with arrears $A$. Secured debt is priced separately from unsecured debt (see Section 3.2). Household state variables additionally include flags that determine credit state and bankruptcy eligibility. These include the bankruptcy flag $b$, the default flag $df$, and the filing waiting period states $w_7$ and $w_{13}$.

Preferences are time separable, with per-period utility given by CRRA over a Cobb–Douglas aggregate of consumption $c$ and the service flow from the secured asset:

$$u(c,h) = \frac{\left(c^{\alpha}\, s(h)^{1-\alpha}\right)^{1-\gamma}}{1-\gamma}, \qquad s(h) = \begin{cases} \omega_h(h)\, h & \text{owner} \\ p_r & \text{renter} \end{cases} \tag{1}$$

where $s(h)$ is the housing service flow and $\alpha$ governs the expenditure share on consumption. For owners, $\omega_h(h)\, h$ converts the secured asset's value into a quarterly service flow that depends on the house size. For renters, the flow is the rent paid, $p_r$.[17] Consumption and housing services are adjusted by the OECD equivalence scale.[18]

[16] An owner whose retirement income cannot cover the carrying costs of the house sells it instead.

[17] This functional form follows the housing–consumption literature (Piazzesi and Schneider 2016; Berger, Guerrieri, Lorenzoni, and Vavra 2018; Díaz and Luengo-Prado 2008), in which the service flow is proportional to the secured asset's value rather than its capital stock and enters the aggregator alongside consumption.

[18] I use the modified OECD scale, which assigns a weight of 1 to the first adult, 0.5 to each additional adult, and 0.3 to each child.

## 3.1 Government

The government taxes labor income and asset income to finance exogenous public expenditure, provide social security income to retired households, and ensure a consumption floor. Asset income tax, $\tau_a$, is fixed. Labor income is taxed according to the effective tax function of Heathcote, Storesletten, and Violante (2017):

$$\tau_y(y) = y - (1-\lambda)y^{1-\tau_l}$$

where $\tau_l$ indexes progressivity and $\lambda$ sets the overall level of taxes. Both are set separately for each family type. Social Security benefits are not taxed.

The government provides transfers to ensure that household of family type $t$ can consume at least the minimum consumption floor for their family type, out of which housing costs must also be paid, after taxes and expense shocks:

$$T(t, y, a, k) = \max\{0, c_{\min}(t) - (y - \tau_y + a(1 + r(1-\tau_a)) - \tilde{k}\}$$

$$\tilde{k} = \min\{k, (y - \tau_y + a(1 + r(1-\tau_a)\}$$

where $\tilde{k}$ is the portion of the expense shock the household can pay from its own resources before hitting zero. The unpaid part of the shock is $k^u \equiv k - \tilde{k}$.

## 3.2 Secured Asset and Debt

While keeping a secured asset is a significant motive for filing Chapter 13 (Section 1.1), I want to isolate my focus on liquidity constraints at filing and debt decomposition. As such, the housing design is kept deliberately simple. Households can choose a house from a small lumpy grid representing the value of each house. Mortgages are fixed-rate and amortize on a fixed schedule with no refinancing. The aim is to capture how owning a house, carrying a mortgage, and falling behind impacts the decision between default, Chapter 7, and Chapter 13, not to match the housing market. Mitman (2016) studies the interaction of bankruptcy and foreclosure with a richer housing model.

The secured asset $h \in \{0, h_1, h_2, h_3\}$ is financed by secured debt $m$, where $h = 0$ is a renter. House

values are fixed, with no house-price shocks, so the model cannot produce underwater owners, and foreclosure is driven by missed payments rather than negative equity. Each period a household can acquire or resize its house, sell it, or keep it.

Buying requires a clean record ($b = df = 0$), passing a front-end payment-to-income limit, and cash for the down payment, closing cost, and moving cost. The down payment is $\delta_{acq} h$, with the remaining $(1-\delta_{acq})h$ financed by a mortgage, and the closing cost is $f_b h$, a fixed share of the house value. The secured debt balance accrues at a fixed mortgage rate $r_m$.

Selling returns the house value net of the mortgage payoff, a transaction fee $f_h h$ representing realtor and closing costs, a moving cost, and any arrears owed, and requires paying the period's carrying cost. These costs must be paid from cash or from the equity in the house, preventing owners with little equity or cash from selling. A seller can become a renter or buy another house in the same period, subject to the buying requirements above.

Owning a secured asset requires a carrying cost each period,

$$\pi = \underbrace{\rho_m m}_{\text{debt service}} + \underbrace{\mu_h h}_{\text{maintenance}}, \tag{2}$$

where $\rho_m m$ is the level payment on a 30-year mortgage, fixed at origination, and $\mu_h h$ is a fixed maintenance cost, to capture other costs associated with owning, such as general upkeep costs, insurance, and property taxes. Each period, an owner decides whether to pay $\pi$ or miss it. If they miss, they fall into arrears ($A = 1$, $df = 1$), which is considered an informal default. The mortgage accrues interest but is not paid down, while the maintenance is added to unsecured debt. The period following a miss, the household in arrears must choose to either reinstate their mortgage, which involves paying the arrears plus a late premium and enforcement cost from its own cash, sell, or file Chapter 13. The reinstatement amount

$$R = (1 + f_r)\, A\rho_m m + A\mu_h h + F_r \tag{3}$$

prices the cure, the sale payoff at $A = 1$, and the foreclosure claim. By filing Chapter 13, the owner has the option to miss another period of $\pi$ ($A = 2$), and can cure missed $\pi$ payments through the repayment plan. Those in Chapter 13 must continue paying the carrying cost for the duration of the plan or else they risk foreclosure. If an owner in arrears cannot pay $\pi$, cannot sell, and does not file Chapter 13, the owner is forced into foreclosure. The lender recovers only $\psi h$ of the

house value, a discount from the sale price. The household receives any surplus over the payoff while any shortfall becomes unsecured debt. Foreclosure also sets the default flag. In bankruptcy, the owner can choose to either surrender or reaffirm. Chapter 7 does not allow for a cure option. An owner in arrears must surrender the house. Surrender is the same as foreclosure, except the shortfall is discharged rather than becoming unsecured debt the household still owes. An owner who is current can keep it only by paying the nonexempt equity $\psi h - (1 + r_m)m - \chi$, in cash.

In the repayment, default, and garnishment states, the housing cash flows of each secured action $s$ enter the budget as $\Pi_s(h, h', A)$: the carrying cost $\pi$, or the sale, reinstatement, and moving flows, for owners; the down payment and closing cost for buyers; and rent for renters.

## 3.3 Household Problem

At the start of each period, households enter the period with liquid assets $a$, unsecured debt $d$, secured asset $h$, secured debt $m$, default flag $df$, bankruptcy flag $b$, and waiting period flags $w_7$ and $w_{13}$. Income shock $z$, which includes unemployment, and expense shock $k$ are realized. Owners choose each period whether to pay secured carry cost $\pi$, and the number of missed payments is tracked as arrears $A$ (Section 3.2). Any unpaid expense $k^u$ is added to the debt at filing. Otherwise, $k$ is paid down from after income and asset tax resources. If $k$ depletes resources, the remainder is added to next period's debt. After defaulting on $k$ or paying either at least part of $k$, the government provides transfers to ensure households can consume the minimum consumption floor. If not currently in or exiting a bankruptcy state or in wage garnishment, $V$, households can choose whether to continue to repay loans, default, or file for either a Chapter 13 bankruptcy or Chapter 7, if eligible (equation 1). If in default, households experience a wage garnishment judgment with probability $\lambda_g^R$, which differs by race. Households, $V^{G1}$, can avoid wage garnishment by filing for bankruptcy or paying off the full judgment balance from cash that quarter, or accept the wage garnishment period (equation 2). At the end of the period, the default flag, bankruptcy flag, and filing waiting period flags evolve stochastically. Together, the state variables are $\Omega = \{R, j, t, a, d, h, m, A, z, k, b, w_7, w_{13}, df\}$. Figure 2 shows the choices a household faces each period.

Households are eligible to file for Chapter 7 if they pass the means test, meaning their income is below the state median for their household type ($y \leq \bar{y}$) or, if above the median, their projected disposable income is low enough to pass the second step, and they are not in a Chapter 7 waiting

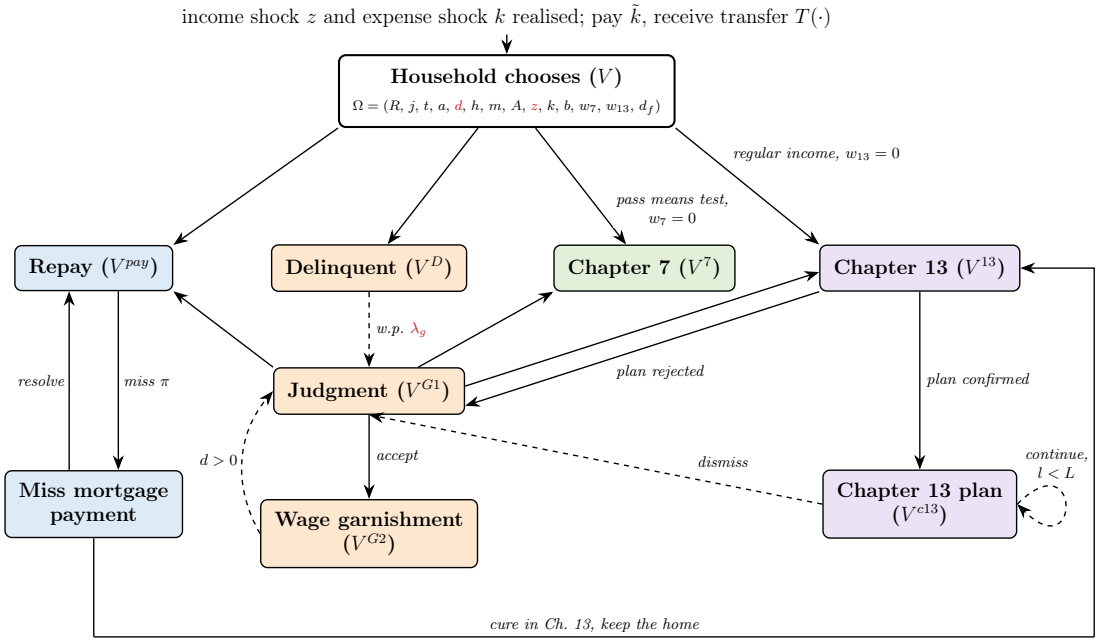



Figure 2: Household Problem

period ($w_7 = 0$). Households can file for chapter 13 if not in a chapter 13 waiting period, $w_{13} = 0$, and have regular income, which includes Social Security income. Households additionally are not allowed to borrow more than $\bar{\ell}$ beyond their existing debt and unpaid expenses in the quarter before filing, unless they experience a job loss. This represents the bad-faith dismissal rules described in Section 1.1. Households filing for bankruptcy must pay the respective upfront fees in cash. (See Institutional Rules section for filing waiting periods and eligibility rules enacted through BAPCPA (2005)).

$$V(\Omega) = \begin{cases} \max \left\{ \begin{array}{l} V^{\text{pay}}(\Omega), V^{\text{D}}(\Omega), \\ V^{7}(\Omega), V^{13}(\Omega, p, n, l) \end{array} \right\} & w_7 = w_{13} = 0 \ \& \ y <= \bar{y} \\ \max \left\{ V^{\text{pay}}(\Omega), V^{\text{D}}(\Omega), V^{7}(\Omega) \right\} & w_{13} = 1 \ \& \ y <= \bar{y} \\ \max \left\{ \begin{array}{l} V^{\text{pay}}(\Omega), V^{\text{D}}(\Omega), \\ V^{13}(\Omega, p, n, l) \end{array} \right\} & w_7 = 1 \text{ or } y > \bar{y} \\ \max \left\{ V^{\text{pay}}(\Omega), V^{\text{D}}(\Omega) \right\} & w_{13} = w_7 = 1 \text{ or } y > \bar{y} \end{cases} \tag{4}$$

$$V^{G1}(\Omega) = \begin{cases} \max \left\{ \begin{matrix} V^{\text{pay}}(\Omega), V^{\text{G2}}(\Omega), \\ V^{7}(\Omega), V^{13}(\Omega, p, n, l) \end{matrix} \right\} & w_7 = w_{13} = 0 \ \& \ y <= \bar{y} \\ \max \left\{ V^{\text{pay}}(\Omega), V^{\text{G2}}(\Omega), V^{7}(\Omega) \right\} & w_{13} = 1 \ \& \ y <= \bar{y} \\ \max \left\{ \begin{matrix} V^{\text{pay}}(\Omega), V^{\text{G2}}(\Omega), \\ V^{13}(\Omega, p, n, l) \end{matrix} \right\} & w_7 = 1 \text{ or } y > \bar{y} \\ \max \left\{ V^{\text{pay}}(\Omega), V^{\text{G2}}(\Omega) \right\} & w_{13} = w_7 = 1 \text{ or } y > \bar{y} \end{cases} \tag{5}$$

i. If households choose to **repay loans**, $V^{pay}$, they pay expense shock $k$ up to after tax labor income and after tax assets. The remainder is carried to debt next period and households receive government transfers $T$ to ensure the minimum consumption floor. Households choose consumption, next period's liquid assets and unsecured debt, and a secured action $s$ (Section 3.2).

$$V^{pay}(\Omega) = \max\{u(c, h') + \beta s_j E[V(\Omega')]\} \tag{6}$$

subject to the budget constraint, where $\Pi_s$ collects the housing cash flows of the secured action:

$$c + a' + k + \Pi_s(h, h', A) + d = a(1 + r(1 - \tau_a)) + y - \tau_y + q_j(a', d', h', m'; \Omega)\, d' + T(t, y, a, k) \tag{7}$$

$$k^u \leq d' \leq \bar{d}(b, df) \tag{8}$$

During working ages, labor income $y$ evolves and is the sum of a function of deterministic characteristics and income shock $z$. The interest rate on assets is denoted by $r$. At retirement, households receive social security income that is fixed for the remainder of life.

The unpaid expense $k^u$ is refinanced through new borrowing $d'$. Unsecured loans are one-period bonds. Each quarter, the household repays the face value $d$ and issues new face value $d'$, receiving $q_j\, d'$ in cash, so the whole balance is repriced every period (see Section 3.4 for

pricing details). A household with a bankruptcy or default flag ($b = 1$ or $df = 1$) is excluded from new credit. The flagged household cannot raise its net debt position and must pay a minimum payment of $\eta$ of the face value it carries:

$$(1+\eta)\, d' \leq N, \qquad N = \max\{0,\ d + k^u - x + y - \tau_y\} \quad \text{if } b = 1 \text{ or } df = 1, \tag{9}$$

where $x = a(1 + r(1-\tau_a)) + y - \tau_y + T(t, y, a, k) - \tilde{k}$ is cash on hand after income, transfers, and the part of the expense shock paid this quarter, and $N$ is the part of its existing debt and unpaid expenses that its resources other than this quarter's income cannot cover. A flagged household therefore cannot take on new debt. Its savings must go toward what is owed before any balance can be carried, and the balance carried must fall by at least $\eta$ each quarter. The carried balance is priced like any other loan, at the lenders' zero-profit price for the household's risk. The cost of the flag is the limit on borrowing and the minimum payment, not a penalty rate.[19] Retirees face an additional borrowing constraint, owing at most $\phi$ times their annual income.[20] They are, however, always able to refinance an unpaid expense shock or roll over existing debt under the minimum-payment rule above.

ii. If households choose to **default**, $V^D$, a default flag is added to their record. Default is on unsecured debt only. The balance is frozen, rather than accruing interest, during informal default to represent debt that is charged off. Next period's debt is the original balance plus unpaid expenses. Each quarter in default, households face a utility cost $\chi_D$, representing harassment and collection attempts from creditors. No new borrowing or debt payment is allowed, and owners make the same secured choices as in repayment (pay or miss the carrying cost, or sell the secured asset). With probability $\lambda_g^R$, household receives a wage garnishment judgment next period.

$$V^D(\Omega) = u(c, h) - \chi_D + \beta s_j E[\lambda_g^R V^{G1}(\Omega') + (1 - \lambda_g^R) V(\Omega')] \tag{10}$$

$$c + a' + \tilde{k} + \Pi_s(h, h', A) = a(1 + r(1-\tau_a)) + y - \tau_y + T(t, y, a, k) \tag{11}$$

[19] In the SCF, households aged 30–59 that filed for bankruptcy in the past five years or were 60 or more days late on a payment were turned down for credit almost three times as often as other households (38% against 13%) and were less likely to have a credit card (47% against 76%), but paid only somewhat higher card interest rates (17.8% against 15.3%).

[20] This borrowing limit follows Regulation Z (12 C.F.R. §1026.51), which requires card issuers to consider a borrower's ability to pay.

$$d' = d + k^u \tag{12}$$

iii. If households choose to remain in **wage garnishment** following a judgment, $V^{G2}$, wages are garnishment by $\xi$ percent, reducing debt by the garnished amount. As long as the household has unpaid debt ($d' > 0$), the garnishment continues and each quarter the household can again choose to accept the garnishment or escape the garnishment by filing or paying the full balance ($V^{G1}$). Once the balance is paid off ($d' = 0$) the household returns to repayment. Debt during garnishment does not accrue interest, as in default. Unlike default, garnishment carries no utility cost. The judgment replaces the contract, so there are no late fees or collection calls, and its cost is the garnished wage.[21] The garnishment amount is the smaller of the balance and $\xi y$. Retired, unemployed, and low-income households are protected from garnishment, but instead face a bank levy on liquid assets above an exemption. Since wage garnishment orders are job-specific, if a garnished household loses its job, the garnishment stops and the household returns to default with the remaining balance.[22] If the household has no garnishable wages when the judgment arrives, the creditor instead sweeps its bank account once, after which the judgment ends. A household that still owes returns to default, and one that has paid in full returns to repayment. Creditors can collect again only by obtaining a new judgment.

$$V^{G2}(\Omega) = \begin{cases} u(c,h) + \beta s_j E[V^{G1}(\Omega')] & d' > 0 \\ u(c,h) + \beta s_j E[V(\Omega')] & d' = 0 \end{cases} \tag{13}$$

$$c + a' + \tilde{k} + \Pi_s(h, h', A) = a(1 + r(1 - \tau_a)) + y - \tau_y - g + T(t, y, a, k) \tag{14}$$

[21] Chatterjee and Gordon (2012) also assume no interest or fees accrue on garnished debt. In practice, judgments carry post-judgment interest set by state statute.

[22] A worker could also switch jobs to end a garnishment. DeFusco et al. (2024) find that garnished workers are only somewhat less likely to stay with the same employer (61% against 65% of other workers), so I do not model switching jobs as a way to stop a garnishment.

$$d' = d - g + k^u, \qquad g = \min\{d,\ \xi y\} \tag{15}$$

iv. If households choose to file **Chapter 7**, $V^7$, bankruptcy and waiting flags are added to their record. The unpaid part of the expense shock is added to the debt used to file. They must pay the upfront court and attorney fee $f_7$ from their own resources. Unsecured debt is discharged down to the nondischargeable balance $n$. Owners filing Chapter 7 choose whether to **surrender** or **reaffirm** their secured asset:

- If a household chooses to **Surrender**, the secured asset is given up and $h' = m' = 0$. The trustee seizes the nonexempt equity $\max\{0, \psi h - (1 + r_m)m - \chi\}$ for unsecured creditors, where $\chi$ is the exemption on the secured asset. The household retains the rest of the sale proceeds but must pay a moving cost. If the nonexempt value of the estate is below a threshold $\underline{x}$, the trustee does not liquidate the house and the household keeps the full proceeds $\max\{0, \psi h - (1 + r_m)m\}$. Any deficiency $\max\{0, (1 + r_m)m - \psi h\}$ is added to the dischargeable unsecured pool and is discharged. The household exits as a renter. An owner in arrears must surrender in Chapter 7.

- If a household chooses to **Reaffirm**, the household keeps the secured asset and its secured debt by buying out the nonexempt equity $\max\{0, \psi h - (1 + r_m)m - \chi\}$ in a lump sum this period (the amount a creditor would otherwise recover), when the estate is above a threshold $\underline{x}$, continues paying $\pi(h, m)$, and amortizes $m' = m(1 + r_m - \rho_m)$. This option is only feasible if the household can fund the buyout, fees, and consumption floor out of its own resources. An equity-rich but cash-poor household cannot reaffirm and is pushed towards surrender, or towards Chapter 13 if it wants to keep its secured asset. An owner already in arrears cannot reaffirm since Chapter 7 does not cure arrears.

$$V^7(\Omega) = \max\left\{V^{7,\text{surr}}(\Omega),\ V^{7,\text{reaf}}(\Omega)\right\} \tag{16}$$

$$V^{7,\text{surr}}(\Omega) = \max\{u(c, 0) + \beta s_j E[V(\Omega')]\} \tag{17}$$

$$c + a' + f_7 = (a - \Delta_7)(1 + r(1 - \tau_a)) + e_7 + y - \tau_y + T(t, y, a, k) \tag{18}$$

$$\Delta_7 = \min\{a - E(a,h,m),\ \text{payable unsecured}\}, \quad d' = n, \quad h' = 0,\ m' = 0$$

where $e_7$ is the surrender proceeds the household keeps, $\max\{0, \psi h - (1+r_m)m\}$ less any nonexempt equity the trustee takes, $E(a,h,m)$ is the exempt amount of liquid assets (Section 4.4), and the deficiency $\max\{0, (1+r_m)m - \psi h\}$ is discharged.

$$V^{7,\text{reaf}}(\Omega) = \max\{u(c,h) + \beta s_j E[V(\Omega')]\} \tag{19}$$

$$c + a' + f_7 + \max\{0, \psi h - (1+r_m)m - \chi\} + \pi(h,m) = (a - \Delta_7)(1 + r(1-\tau_a)) + y - \tau_y + T(t,y,a,k) \tag{20}$$

$$d' = n; \quad h' = h,\ m' = m(1 + r_m - \rho_m); \quad b' = 1,\ w'_7 = 1,\ w'_{13} = 1,\ df' = 0$$

where $\Delta_7$ is the nonexempt liquid amount seized in liquidation and $n$ is the nondischargeable unsecured balance carried forward. After the Chapter 7 discharge, the household continues in $V$, but with both waiting flags set, it is restricted to repay or default next period.

v. If households choose to **file Chapter 13**, $V^{f13}$, bankruptcy and waiting flags are added to their record. The unpaid part of the expense shock is added to the debt used to file. After paying the upfront court filing fee $f_{13,1}$, paid from the household's own resources, they begin a plan determined by their debt composition and income and characterized by the quarterly payment $p$, nondischargeable debt $n$, and length $L$. The plan is confirmed if it meets the confirmation conditions (see Section 4.7) and the household can make the first plan payment. If not, the plan is rejected and the case is dismissed (see the next item). Owners service their secured debt outside of their plan as an allowable expense. An owner whose plan cannot be confirmed with the house may surrender it at filing and confirm a plan without it. The trustee keeps a share $f_t$ of each plan payment $p$ as its fee, so next period's debt is reduced by $(1 - f_t)p$.

$$V^{f13}(\Omega) = \begin{cases} \max\{u(c,h) + \beta s_j E[V^{c13}(\Omega', p, n, l)]\} & \text{plan confirmed} \\ \max\{u(c,h) + \beta s_j E[V^{G2}(\Omega')]\} & \text{plan rejected} \end{cases} \tag{21}$$

$$c + a' + f_{13,1} + \pi(h,m) = a(1 + r(1-\tau_a)) + y - \tau_y - p + T(t,y,a,k) \tag{22}$$

$$d' = \begin{cases} d + k^u - (1 - f_t) \times p & \text{confirmed} \\ d + k^u + f_{13,2} & \text{rejected} \end{cases}, \qquad m' = m(1 + r_m - \rho_m) \tag{23}$$

$$b' = 1$$

vi. Households **under Chapter 13**, $V^{13}$, risk having their **case dismissed**, $V^{d13}$, if their available resources after first paying what they can of expense shock $k$ and receiving government transfers do not cover the full payment plan $p$. If a household's Chapter 13 case gets dismissed, they do not make the payment plan $p$ or attorney fee $f_{13,2}$. Even if they are able to make the required payment, households may choose to voluntarily have their case dismissed. Unpaid expenses, unpaid attorney installments, and an additional attorney installment are also added to debt. They are responsible for all remaining unpaid debt, which is the original debt minus plan payments but plus the trustee fees, since those were not used to pay the creditors. Dismissal also sets the default flag. Next period, they enter wage garnishment with certainty ($V^{G2}$).[23]

An owner must keep paying the carrying cost $\pi$ and is not allowed to fall into arrears while in Chapter 13. A constrained owner may have to decide whether to maintain the secured asset carrying cost and keep the asset, or surrender the house to be able to make the plan payment, adding any mortgage deficiency to the plan debt and becoming a renter. Owners with dismissed cases face the same choice to pay, miss, or sell as outside bankruptcy (Section 3.2). Arrears already cured through the plan stay cured, but any arrears not yet cured are restored, so an owner who has not finished the cure is back in arrears and must reinstate, sell, or be foreclosed. An owner can instead reinstate the arrears in cash when the case is dismissed and become current on the mortgage.

$$V^{13}(\Omega, p, n, l) = \begin{cases} \max\left\{V^{c13}(\Omega, p, n, l), V^{d13}(\Omega, p, n, l)\right\} & \text{p affordable} \\ V^{d13}(\Omega, , p, n, l) & \text{p unaffordable} \end{cases} \tag{24}$$

[23]The model does not allow a confirmed plan to change: the household either completes it or the case is dismissed. Plan modification, conversion, and hardship discharges (Section 1.1) give some households relief that the model would dismiss, so the model likely overstates dismissals. White filers convert slightly more often than Black filers (8.4% against 7.1%), so leaving these options out, if anything, understates the racial gap in relief.

$$V^{d13}(\Omega, p, n, l) = u(c, h) + \beta s_j E[\, V^{G2}(\Omega')] \tag{25}$$

$$c + a' + k + \pi(h, m) = a(1 + r(1 - \tau_a)) + y - \tau_y + T(t, y, a, k) \tag{26}$$

$$d' = d_0 - (1 - f_t)\, p\, l + k^u + f_{13,2}, \qquad m' = m(1 + r_m - \rho_m) \tag{27}$$

where $d_0$ is the unsecured debt at filing and $l$ is the number of plan payments made.[24]

If they are able to and choose to **continue Chapter 13**, $V^{c13}$, they pay the expense shock $k$, plan payment $p$, attorney installment fee $f_{13,2}$, and the ongoing secured servicing $\pi(h, m)$. Only medium and high expense shocks are charged during the plan, since the calculated allowable expenses used in the payment plan already cover routine spending. At the completion of the plan, the household continues in $V$, retains the secured asset, and is potentially left with nondischargeable debt, which includes the $n$ originally quoted at the time of filing.

$$V^{c13}(\Omega, p, n, l) = \begin{cases} u(c, h) + \beta s_j E[V^{c13}(\Omega', p, n', l + 1)] & l < L \\ u(c, h) + \beta s_j E[V(\Omega')] & l = L \end{cases} \tag{28}$$

$$c + a' + k + p + \tilde{f_{13,2}} + \pi(h, m) = a(1 + r(1 - \tau_a)) + y - \tau_y + T(t, y, a, k) \tag{29}$$

$$d' = d - (1 - f_t) \times p + (f_{13,2} - \tilde{f_{13,2}}), \qquad m' = m(1 + r_m - \rho_m) \tag{30}$$

## 3.4 Financial Intermediaries

Lenders are risk-neutral and price loans competitively, with zero expected profit. Loans are one-period loans, repriced at origination. The price of new debt is the present value of expected

[24] In reality, the restored balance might include interest that accrued during the plan, since dismissal restores the creditor's original contract claim (§349(b)). I set it to zero, as in every collections state in the model, since most of these accounts have been charged off, which typically stops further contract interest.

recovery based on the household's state:

$$q_j(a', d', h', m'; \Omega) \;=\; \frac{1}{(1+r)(1+\tau_q)}\, \mathbb{E}_{\Omega' | \Omega,\, a', d', h', m'} \Big[ \sum_{i \,\in\, \{\text{pay},\, D,\, 7,\, 13\}} \mathcal{D}_i(d', \Omega')\; X^i(d', \Omega') \Big]$$

where the expectation is over next period's state $\Omega'$ given the current state $\Omega$ and the choices $(a', d', h', m')$. $\mathcal{D}_i$ indicates the household's choice next period given next period's state, and $X^i$ is the present value of recovery from choice $i$: full repayment, collections in default and garnishment, the Chapter 7 liquidation waterfall, or Chapter 13 plan payments and collections following Chapter 13 dismissal. Since the model is finite horizon, the price schedule is age-specific. A loan made at age $j$ is repaid fully or defaulted on, either informally or through bankruptcy, at age $j+1$. The price $q_j$ depends only on age-$(j+1)$ behavior and the household's state, including its balance sheet, income, flags, arrears, and family type. Race reaches $q$ through the race-specific income process, assets, and debt composition, allowing them to determine Chapter 7 and Chapter 13 recovery. However, lenders use a population-average judgment hazard instead of the race-specific judgment probability. This impacts how they form expectations over households entering garnishment and subsequently filing for bankruptcy. The Equal Credit Opportunity Act prohibits creditors from pricing credit, or collecting debt, differently by race; in practice, Black households are sued more often (LaVoice and Vamossy 2024), but lenders cannot price that difference into the loan, and the model contains no proxy for race, such as location. Lenders therefore break even across all borrowers, though not within each race.

Since unsecured debt $d$ includes nondischargeable debt, both priority and nonpriority, the price reflects what the creditor recovers in bankruptcy, accounting for the share of unsecured debt that is nondischargeable and the share of dischargeable debt that is lost in either a Chapter 7 or Chapter 13 discharge. There is an intermediation cost to lending, $\tau_q$, to represent lenders' funding and servicing costs above the risk-free rate.[25]

## 3.5 Definition of Equilibrium

A recursive partial equilibrium consists of: a risk-free interest rate $r$, an intermediation cost for lending $\tau_q$, a fixed mortgage rate $r_m$, an unsecured loan price schedule $q_j(a', d', h', m'; \Omega)$; value functions $V, V^{pay}, V^D, V^{G1}, V^{G2}, V^7, V^{f13}, V^{d13}, V^{c13}$; policy functions for consumption $c(\Omega)$, liquid savings $a'(\Omega)$, unsecured borrowing $d'(\Omega)$, secured asset $h'(\Omega)$, and secured debt $m'(\Omega)$; government

[25] Exclusion from credit after bankruptcy follows Chatterjee et al. (2007), Livshits, MacGee, and Tertilt (2007), and Mitman (2016).

tax rates $(\tau_a, \tau_y)$ and transfer function $T$, defined over household states $\Omega = \{R, j, t, a, d, h, m, A, z, k, b, w_7, w_{13}, df\}$, such that:

i. **Household optimality:** Given prices $r$, $r_m$, $q$, and government policy, the value functions solve the household's recursive problem and the associated policy functions $c(\Omega)$, $a'(\Omega)$, $d'(\Omega)$, the secured-asset action (pay, miss, sell, or buy), and discrete choices (repay, default, wage garnishment, file Chapter 7 with reaffirmation or surrender, file Chapter 13, continue or dismiss Chapter 13 plan) solve the household's maximization problem (Section 3.3).

ii. **Loan pricing:** Given next period's policy functions, $q_j$ satisfies the lenders' zero-profit condition (Section 3.4). The price of new debt equals the expected present value of recovery across repayment, default and garnishment, Chapter 7, and Chapter 13, discounted at $r$ plus the intermediation cost $\tau_q$. Lenders use the population-average judgment hazard. Secured debt is collateralized and carries the fixed mortgage rate $r_m$, not $q$. The risk-free rate $r$ and intermediation cost $\tau_q$ are exogenous.

iii. **Government budget balance:** Government consumption $G$ is set residually to balance the budget each period. Total revenue from labor income taxes and asset income taxes covers total transfer payments, social security payments, and government consumption.

Note that because the interest rate $r$ is exogenous and loan prices $q$ come from a zero-profit condition that depends only on next period's policies, the model does not require an asset market clearing condition. House values and rents are also fixed, so there is no housing market clearing condition. No price depends on the distribution of households, so the distribution is not part of the equilibrium, but is obtained by simulating the initial cohort (Section 4.2). The equilibrium is partial equilibrium with respect to the saving rate and the housing market, with the credit supply responding to household behavior and therefore to policy.

# 4 Calibration Strategy

My model parameters can be grouped into three categories. The first set are taken from the literature. The second set are calibrated externally from data, including bankruptcy law and fees and the PACER dataset I built. The last set are calibrated internally so that model-generated moments match target moments from the data.

## 4.1 Model Parameters

I set the coefficient of relative risk aversion to $\gamma$=1.5.[26] Following Livshits, MacGee, and Tertilt (2007), I set the annual discount factor to $\beta = 0.94$ and the risk-free annual interest rate to $r = 0.04$, both converted to my quarterly model period, so the quarterly interest rate is approximately 1%.[27] Lenders pay a proportional intermediation cost of $\tau_q = 1.44\%$ a year on top of $r$, so that a loan with no default risk costs 5.5% a year, the bank prime rate in December 2018.[28] This is smaller than the wedge measured for credit cards, about 4% a year (Livshits, MacGee, and Tertilt 2007), because unsecured debt here also includes taxes, which carry no intermediation margin, and federal student loans, which carry nearly none. Age-specific survival probabilities $s_j$ are constructed from death rates by age and race reported in the National Vital Statistics Reports for 2017 (Table I–4; Kochanek et al., 2019).

Taxes paid on assets are fixed at $\tau_a = 0.2$. The labor income tax parameters $(\lambda, \tau_l)$ are fitted by family type to the 2017 federal income tax schedule plus employee FICA; $\tau_l$ ranges from 0.072 to 0.088 and $\lambda$ from 0.139 to 0.197. State income taxes are omitted.[29]

The means test threshold for Chapter 7 eligibility and Chapter 13 allowable expense calculations is based on state median income by household size. I construct the threshold for each family type by taking the population-weighted average of state median family income by family size, using data from the Census Bureau's Median Family Income By Family Size tables. This yields annual thresholds ranging from approximately \$50,600 for single-person households to \$85,700 for the largest family type. A household above the median can still file Chapter 7 under the second step of the means test (§707(b)(2)) if its projected 60-month disposable income is below \$7,700, or below \$12,850 and less than 25% of its nonpriority unsecured debt (the thresholds in force from April 2016 to March 2019).[30] The consumption floor $c_{\min}$ is set to 20% of the quarterly state median income for each family type, about \$10,100 to \$17,100 a year, or 70–84% of the 2017 federal poverty line. For a single adult this is close to what the safety net provides: the

[26] This is within the standard range of 1–2 used in the consumption-savings literature (Attanasio and Weber, 1995; Gourinchas and Parker, 2002)

[27] Livshits, MacGee, and Tertilt (2007) use $\beta = 0.94$ and Chatterjee, Corbae, Nakajima, and Ríos-Rull (2007) estimate values between 0.93 and 0.97

[28] Board of Governors of the Federal Reserve System, H.15 Selected Interest Rates, bank prime loan rate.

[29] Brackets from IRS Revenue Procedure 2016-55; employee FICA is 7.65% up to the 2017 Social Security wage base of \$127,200.

[30] 11 U.S.C. §707(b)(2)(A)(i); the dollar thresholds are adjusted every three years under §104.

Table 6: Preferences, Prices, and Income

| Parameter | Description | Value | Target / Notes |
|---|---|---|---|
| *Preferences and prices* | | | |
| $\gamma$ | Risk aversion (CRRA) | 1.5 | |
| $\beta$ | Discount factor (annual) | 0.94 | LMT (2007) |
| $r$ | Return on savings (annual) | 4.0% | McGrattan and Prescott (2000) |
| $\tau_q$ | Intermediation cost (annual) | 1.44% | riskless loan at the prime rate (5.5%), Dec. 2018 |
| $\tau_a$ | Tax on asset income | 20% | |
| $c_{\min}$ | Consumption floor | 20% | of state median income by family type |
| $\alpha$ | Consumption share | 0.76 | Cobb–Douglas over $c$ and housing. $1-\alpha = 0.24$ was set against a bundled housing-and-vehicle durable; housing alone implies $\approx 0.82$ (Section 4.9) |
| *Income (SIPP) and survival (NVSS) by race, White / Black* | | | |
| $\rho$ | Income risk persistence (qtr) | 0.991 | AR(1), continuously employed |
| $\sigma$ | Income risk s.d. | 0.085 | pooled, survey-weighted |
| $s_R$ | Job separation (qtr) | 3.7% / 7.0% | employed $\rightarrow$ not employed |
| $f_R$ | Job finding (qtr) | 43.4% / 43.4% | not employed $\rightarrow$ employed; common by race (Cajner et al. 2017) |
| | Non-employment income | 18.1% | of median employed income; SIPP |
| $g_R(j)$ | Age–family income profile | by race | SIPP regression |
| $s_{j,R}$ | Quarterly survival, 55–64 | 0.9978 / 0.9967 | Death rates 2017 |
| | Quarterly survival, 65–74 | 0.9954 / 0.9938 | |
| | Quarterly survival, 75–84 | 0.9883 / 0.9870 | |

2017 federal SSI benefit of $8,820 plus the maximum SNAP benefit of about $2,300.[31] This floor represents the minimum consumption guaranteed by social safety net programs (food stamps, Medicaid, emergency assistance). At retirement, income is set to the statutory Social Security benefit applied to the household's combined final working-age earnings (90, 32, and 15 percent of average indexed monthly earnings below $885, between $885 and $5,336, and above $5,336, the 2017 bend points), and remains fixed for the remainder of life.[32]

The Chapter 7 filing cost $f_7$ combines three components. The court filing fee is $335, set by the Judicial Conference of the United States. Pre-filing credit counseling and pre-discharge debtor education courses, required under BAPCPA (2005), cost approximately $30–50 combined and I set at $35. Attorney fees for Chapter 7 cost around $1,200–$1,500 nationally, and I set them at the high end, $1,500. The total one-time cost of Chapter 7 $f_7$=$1,870 ($335 court fee, $35 counseling, $1,500 attorney) must be paid in cash at filing.

Chapter 13 costs are split into an upfront component due at filing and installments paid throughout the plan. The upfront cost $f_{13,1}$ =345 covers the court filing fee ($310) and credit counseling ($35). Unlike Chapter 7, Chapter 13 attorney fees are predominantly paid through the repayment plan itself rather than upfront, which is important because filers typically have limited liquidity at the time of filing. Total Chapter 13 attorney fees average $3,000-$5,000 nationally (Lupica, 2012). In my model, these fees are set at the high end with quarterly installments of $f_{13,2} = \$250$, summing to $4,750 over a five-year plan ($2,750 over a three-year plan), beginning in the second plan period.

The trustee is compensated with a percentage fee on all payments made through the Chapter 13 plan. The trustee fee is set by the U.S. Trustee Program and typically ranges from 3% to 10% of plan payments, with a statutory maximum of 10%. The median fee across judicial districts is approximately 5-7%; I set trustee fee $f_t$ to be 0.075.

There is no utility cost for filing. Instead, the costs of bankruptcy are the ones the law and the market impose: court and attorney fees, the loss of nonexempt assets in Chapter 7, plan payments in Chapter 13, the waiting periods before filing again, and exclusion from credit while the bankruptcy flag is on the household's record.

I do not separately track bankruptcy flags for Chapter 7 and Chapter 13. The Chapter 7 flag

[31] The floor is gross of rent, so a renter's net consumption at the floor is only about $150–470 a month.

[32] 42 U.S.C. §415(a)(1); bend points from the Social Security Administration for workers first eligible in 2017.

remains on credit reports for 10 years and the Chapter 13 flag for 7 years, but the flag's role is to exclude a filer from new unsecured credit, so I set $\lambda_b = 1/20$ (an expected 5 years) to match how quickly credit access recovers after filing rather than the reporting window.[33] While flagged, a household must pay a minimum of $\eta$ of the face value it carries each quarter. I set $\eta = 3\%$ per quarter, the industry minimum of about 1% of principal per month (OCC 2003). I set the borrowing limit for retirees to $\phi = 1.5$ times annual income. I set it above the 90th percentile of credit card limits among SCF households aged 60–74 (0.76 times income), because unsecured debt $d$ in the model also includes student loans and other nondischargeable debt, which households may still carry into retirement.[34] For the Chapter 7 waiting period, the statutory interval is 8 years between Chapter 7 filings and 6 years from a Chapter 13 discharge, so I set $\lambda_{w7}$=1/28, corresponding to roughly 7 years. For Chapter 13, the waiting period is 2 years after a prior Chapter 13 discharge but immediate refiling is permitted after dismissal, so I set $\lambda_{w13} = 1/12$, corresponding to approximately 3 years. The default flag clears 7 years after the onset of delinquency, but since the model does not track the initial delinquency date, I set $\lambda_{df} = 1/14$ (half the seven-year reporting window) to approximate the average remaining duration conditional on being in default. The default flag also clears at a bankruptcy discharge.

## 4.2 Initial Cohort

I initialize the simulation from the Survey of Consumer Finances (2010, 2013, 2016, 2019, and 2022 waves). Each agent's initial financial assets (including retirement accounts), unsecured debt, house, mortgage, race, and family type are drawn from SCF households aged 28–32 using survey weights. Income is mapped to the nearest point on the productivity grid, and the house to the nearest house size, with the mortgage scaled to keep the same loan-to-value ratio (Appendix A.6). Unsecured debt is credit card, other consumer debt, and nondischargeable debt, which in the SCF is student loans. The SCF does not record priority debts such as back taxes or child support owed, which enter only through the debt decomposition.[35] I assume no agent enters the simulation in the default state, which is consistent with the low observed default rates among young adults.

[33] Using credit bureau data, Jagtiani and Li (2014) find that filers' credit scores recover quickly after filing and that they open new accounts, but with much lower credit limits that stay low for years.

[34] In the SCF, about 10% of households aged 60–64 and 3–5% of those aged 65–74 owe student loans.

[35] Starting unsecured debt is therefore somewhat understated. Priority debt is a small share of unsecured debt even among bankruptcy filers: 3–9% across chapter and race in the PACER sample (Table 3).

Table 7: Bankruptcy Law, Fees, and Collections

| Parameter | Description | Value | Target / Notes |
|---|---|---|---|
| *Bankruptcy law and fees* | | | |
| $f_7$ | Ch. 7 court + credit counsel | \$335 + \$35 | 28 U.S.C. §1930 |
| | Ch. 7 attorney | \$1,500 | reported costs |
| $f_{13,1}$ | Ch. 13 court + credit counsel | \$310 + \$35 | 28 U.S.C. §1930 |
| $f_{13,2}$ | Ch. 13 attorney installment | \$250 | reported costs |
| $f_t$ | Trustee fee | 7.5% | 28 U.S.C. §586(e) |
| $\chi$ | Homestead exemption | \$25,150 | §522(d)(1) |
| $\underline{x}$ | Asset-case threshold | \$3,000 | §554 abandonment |
| | Wildcard exemption | \$1,325 + \$12,575 | §522(d)(5); second term is unused homestead |
| $\lambda_{w7}$ | Ch. 7 refiling bar | 1/28 | §727(a)(8) |
| $\lambda_{w13}$ | Ch. 13 refiling bar | 1/12 | §1328(f) |
| *Judgment and collections* | | | |
| $\xi$ | Wage garnishment share | 21% | CCPA §303, 25% of disposable |
| $\lambda_b$ | Bankruptcy flag clears | 1/20 | exclusion from new credit; post-filing credit recovery |
| $\lambda_{df}$ | Default flag clears | 1/14 | half the FCRA 7-yr mark; matches the premium integral |
| $\lambda_g$ | Judgment hazard, ratio | 1.39 | LaVoice and Vamossy (2024) |
| $\eta$ | Minimum payment, flagged (qtr) | 3% | 1% of principal per month (OCC 2003) |
| $\phi$ | Borrowing limit, retirees ($\times$ income) | 1.5 | Reg. Z §1026.51; SCF card limits |
| $r_{pr}$ | Priority accrual (annual) | 4.0% | 26 U.S.C. §6621, 2017 |
| $r_{nd}$ | Nondischargeable accrual (annual) | 5.97% | SCF, weighted mean education rate |

Table 8: Internally Calibrated Parameters

| Parameter | Description | Value | Target | Data | Model |
|---|---|---|---|---|---|
| $\lambda_g$ | Judgment hazard, level (qtr) | 0.050 | Garnishment rate, working population (%) | 0.7 | 0.9 |
| $\chi_D$ | Default stigma | 0.002 | Informal default rate (%) | 5.63 | 6.57 |

Table 9 describes the starting finances and racial gaps that already exist in early adulthood. The median Black household starts with 53% of the median white household's wage income and 20% of its financial assets, and is less than half as likely to own a home. White and Black households are about equally likely to carry credit card and other consumer debt, though white households carry about twice as much of it on average. However, Black households start with more nondischargeable debt. 54% of Black households hold student loans against 46% of white households, and student loans are 92% of Black households' unsecured debt against 85% for white households. Black borrowers owe somewhat smaller balances, but relative to income the median Black borrower's student debt is nearly twice as large (0.58 of a year of wage income against 0.32).[36] Black households are also far more likely to be single parents (34% against 9%).

[36]The gap widens after age 30. Among 2007–08 bachelor's degree recipients, Black graduates left college owing about $7,400 more than white graduates; four years later the difference had grown to about $25,000, because of interest accrued during slower repayment and more borrowing for graduate school, and 48% of Black graduates owed more than they had originally borrowed, against 17% of white graduates [**scottclayton2016black**].

Table 9: Starting Cohort by Race (SCF, ages 28–32)

| | White | Black |
|---|---|---|
| SCF households | 1,170 | 373 |
| *Income and liquid balance sheet (2017 $)* | | |
| Wage income, median | 72,889 | 38,760 |
| Wage income, mean | 85,242 | 58,789 |
| Financial assets, median | 18,154 | 3,669 |
| Financial assets, mean | 74,601 | 26,636 |
| Unsecured debt, mean | 23,027 | 21,249 |
| Unsecured debt, median | 5,552 | 5,174 |
| Share with unsecured debt | 70.3% | 69.6% |
| *Of which student loans (nondischargeable)* | | |
| Share with student loans | 45.5% | 53.7% |
| Student loans, holder median | 22,851 | 19,523 |
| Student loans / wage income, holder median | 0.32 | 0.58 |
| Student loans, mean | 19,624 | 19,589 |
| Share of all unsecured debt | 85.2% | 92.2% |
| *Housing* | | |
| Homeowners | 51.6% | 20.9% |
| House value, owner median | 226,313 | 184,953 |
| Mortgage, owner median | 137,106 | 103,972 |
| Owners with a mortgage | 92.2% | 81.3% |
| *Family type* | | |
| Single, no children | 26.4% | 34.0% |
| Married, no children | 22.4% | 8.3% |
| Single, with children | 8.5% | 34.1% |
| Married, with children | 42.7% | 23.6% |

Survey of Consumer Finances 2010, 2013, 2016, 2019, and 2022, households aged 28–32, weighted, 2017 dollars. Financial assets include retirement accounts. Unsecured debt is student loans, credit card balances, and other consumer debt; the SCF does not record priority debt, which enters through the debt decomposition (Section 4.3). The share of all unsecured debt includes student loans in the denominator. Homeowners hold a house worth more than $47,500; in the model, houses are assigned to the nearest point on the housing grid.

## 4.3 Debt Decomposition

In the model, a household's unsecured debt $d$ is split into three parts: priority debt $\hat{s}_{pr}\, d$, nondischargeable nonpriority debt $\hat{s}_{nd}\, d$, and dischargeable debt, the remainder, where $\hat{s}_k$ is the predicted share of debt of type $k$. The nondischargeable nonpriority part is capped so that the two nondischargeable parts never exceed $d$. Most filers owe no nondischargeable debt: 28% owe priority debt and 29% owe nondischargeable nonpriority debt. I therefore estimate the two nondischargeable debt shares in two steps. For $k$ in priority or nonpriority, in the first step, I use a probit model

to estimate the probability that a filer owes any debt of type $k$. In the second step, I use an OLS model to estimate the share of unsecured debt of type $k$ owed, conditional on owing. The predicted share is

$$\hat{s}_k(X_k) = \Phi(X_k'\beta_k) \times X_k'\gamma_k, \qquad k \in \{pr,\ nd\}, \tag{31}$$

with the conditional share bounded between 0 and 1. For priority debt, $X_{pr} = (\log y,\ \log a,\ \text{Black},\ \text{family type})$ in both steps. For nondischargeable nonpriority debt, $X_{nd} = (\log y,\ \text{Black},\ \text{family type},\ \text{retired})$ in the probit, and the conditional share uses the same variables plus an interaction between race and log income.[37] Retired filers are much less likely to owe nondischargeable nonpriority debt (13% against 34% of working-age filers), and it makes up 5% of their unsecured debt against 15%.

The equations are estimated on the PACER sample with post-stratification weights, using filers with more than $500 of unsecured debt. Priority claims are measured from Schedule E, and nondischargeable nonpriority claims from the itemized Schedule E and F line items.[38] Appendix Table 21 reports the coefficients, and Appendix Table 22 compares this specification with alternatives and reports robustness checks.

## 4.4 Exemptions

The model applies the federal exemption schedule. Equity in the secured asset is protected by the homestead exemption $\chi = \$25{,}150$ (§522(d)(1)). Liquid assets are protected by the federal wildcard of $1,325 plus any unused homestead allowance, up to $12,575 (§522(d)(5)):

$$E(a,h,m) = \min\left\{a,\ 1{,}325+\min\{12{,}575,\ \chi-\min\{e,\chi\}\}\right\}, \qquad e = \max\{0, \psi h-(1+r_m)m\}. \tag{32}$$

The model applies only these two exemptions. It does not separately exempt retirement accounts (§541(c)(2), §522(d)(12)), deposited public benefits such as Social Security and unemployment benefits (§522(d)(10)), or the category exemptions for a vehicle, household goods, jewelry, and tools of the trade (§522(d)(2)–(6)). Vehicles and household goods are not part of the model's balance sheet, but retirement balances and deposited benefits are part of liquid assets, so a Chapter 7

[37] Liquid assets are left out of the nondischargeable nonpriority equations so that the share depends only on characteristics the household does not choose; otherwise saving or spending would change the composition of its debt (Appendix Table 22).

[38] The decomposition has a known limitation. Debt composition is not a state variable, so each household is assigned the expected share $\Phi(X'\beta_k) \times X'\gamma_k$ rather than either zero or the conditional share. This matches the average share by race, income, family type, and retirement but not its dispersion: in the data most filers owe no nondischargeable debt and a few owe a large share, while in the model every household owes a moderate share. Since the value of a discharge is not linear in that share, the model may misstate how nondischargeable debt shapes the filing decisions of the households that actually hold it, and how much making that debt dischargeable (Section 6) would help them (Section 7).

trustee in the model can reach liquid assets that would be protected in practice. This overstates the nonexempt estate. The typical Black household has no retirement account, but Black households that do hold one keep a large share of their liquid wealth in it.

## 4.5 Allowable Expenses

Allowable expenses enter both the means test and the Chapter 13 plan feasibility calculation. For above-median filers, allowed expenses are constructed using IRS national and local standards required by Form 122C-2. I take the national average for each family type using county standards weighted by population (Appendix A.6). Below-median filers are allowed to use their reported actual expenses on Schedule J, including their taxes and their own rent or secured payment $S$, which is the carrying cost $\pi$ for owners. The model does not observe a household's actual budget, so it sets the rest of its expenses to a fraction $\nu = 0.77$ of its net income after taxes and housing, $y - \tau_y - S$. This is the median ratio of other expenses to post-housing net income among below-median Chapter 13 renters in PACER, and it varies little across income levels.[39] A below-median filer's disposable income is therefore 23% of its post-housing net income, before the attorney installment:

$$g(t, y, S) = \begin{cases} \tau_y(y) + S + \nu\left(y - \tau_y(y) - S\right) & \text{if } y \leq \bar{y}_t \\ g_{\text{IRS}}(t, S) & \text{if } y > \bar{y}_t \end{cases} \tag{33}$$

## 4.6 Chapter 7 Liquidation

In Chapter 7, the trustee liquidates nonexempt assets up to the total payable debt (Section 3.3), but only if the estate is worth liquidating. I set this threshold at $\underline{x} = \$3{,}000$ of net nonexempt value. Below it, the trustee abandons the estate (§554) and nothing is liquidated.[40] After liquidating assets, the trustee takes a statutory fee of 25% on the first \$5,000, 10% on the next \$45,000, and 5% above \$50,000. The rest is distributed first to pay priority claims and then to dischargeable unsecured creditors.

The unsecured balance a filer carries out of Chapter 7 is

[39] Because below-median filers use their actual budget approved by a trustee, there can be racial bias: trustees could allow more expenses for white households, meaning they do not have to commit as much disposable income to the payment plan (Argyle et al. 2025). The model applies the same rule to every filer, so it does not capture this channel.

[40] The \$3,000 threshold is a modeling choice. In reality, the trustee decides whether an estate is worth liquidating and administering, and can do so for an estate as small as \$3,000 or smaller; §554 lets the trustee abandon property of inconsequential value but sets no dollar amount.

$$n = \underbrace{\hat{s}_{pr}\, d - \text{paid to priority}}_{\text{remaining priority}} + \underbrace{\hat{s}_{nd}\, d}_{\text{nondischargeable nonpriority}}, \tag{34}$$

since priority debt survives a Chapter 7 discharge.

## 4.7 Chapter 13 Repayment Plan

A Chapter 13 repayment plan is characterized by its quarterly payment $p$, nondischargeable debt $n$, and plan length $l$. The plan is either $L = 12$ quarters (three years) if the filer's income is below the state median (Section 4.1) or $L = 20$ quarters (five years) if it is above.

Filers are required to pay the entirety of their priority debt and the arrears over the plan:

$$p_{\text{req}} = \frac{\hat{s}_{pr}\, d + A\pi}{L}. \tag{35}$$

They additionally must satisfy the best interest test, requiring them to pay unsecured creditors (dischargeable debt) at least what they would have received in a Chapter 7 liquidation (Section 4.6). The payment to the unsecured creditors is determined by the disposable income room. Quarterly earnings minus allowable expenses, $g(t, y, S)$ (Section 4.5), minus required payments to priority and arrears are considered disposable income and are committed to the plan.[41] Together, the quarterly payment is the required payments plus disposable income, or the best-interest amount spread over the plan if that is larger, capped at the dischargeable unsecured debt:

$$p = p_{\text{req}} + \min\left(\max\left\{\frac{y}{4} - 3\, g(t, y, S) - p_{\text{req}},\ \frac{B}{L}\right\},\ \frac{\hat{s}_{dc}\, d}{L}\right), \tag{36}$$

where $B$ is the best-interest amount, what unsecured creditors would receive in a Chapter 7 liquidation, and $\hat{s}_{dc}\, d = (1 - \hat{s}_{pr} - \hat{s}_{nd})\, d$ is dischargeable debt, so the plan never pays more than the dischargeable balance. A plan is then confirmed if (1) it pays all priority debt, all arrears, and the portion of unsecured debt that satisfies the best interest test, i.e. $p \cdot L \geq$ priority + arrears + best-interest amount, and (2) it is feasible, meaning the plan payment, attorney installment, and expenses fit within income: $y/4 \geq p + f_{13,2} + 3\, g(t, y, S)$ for below-median filers, and $y/4 \geq p + f_{13,2} + c_{\min}(t) + 3S$ for above-median filers. Above-median filers can use the IRS standards as a ceiling, but can budget a smaller expense in order to commit more to the plan, so the

[41] Under §1325(b)(1)(B), every filer must commit all projected disposable income when the trustee or an unsecured creditor objects, as trustees routinely do; the median affects only how expenses are measured (§1325(b)(3)) and the plan length (§1325(b)(4)). A plan that pays unsecured claims in full is exempt (§1325(b)(1)(A)), which is the cap below.

consumption floor, $c_{\min}(t)$, is the minimum amount that the trustee thinks is sustainable.[42] After making the $L$ plan payments, the filer successfully completes Chapter 13, remaining dischargeable unsecured debt is forgiven, and the filer exits owing the nondischargeable unsecured balance, $n = \hat{s}_{nd}\, d$.

## 4.8 Default, Garnishment, and Bank Levy

I set the wage garnishment percent $\xi$ to be 21%, the gross-earnings equivalent of the federal cap of 25% of disposable earnings (CCPA §303). The garnishment cannot reduce after-tax income below the federal floor of 30 times the minimum wage. In the model, the bank levy protects the larger of two amounts: two months of current income, following the federal protection for directly deposited benefits, and the liquid assets the household would keep in Chapter 7. The second is a modeling choice, since state levy exemptions vary widely. This restriction ensures that a creditor never reaches more than a bankruptcy trustee would, so filing offers no extra protection for savings.

Two collections parameters are calibrated inside the model. The judgment hazard $\lambda_g$ has its level (0.05 per quarter for white households) set to match a pooled garnishment rate of 0.7% of workers, and its Black/white ratio is fixed externally at 1.39 (LaVoice and Vamossy 2024). The default stigma $\chi_D = 0.002$ targets the informal default rate and represents the costs of default the model does not capture directly: collection harassment, late fees, the damage a default does to rental, utility, and job applications beyond credit access, and the stress of unpaid debt.[43] The model's garnishment rate is 0.9% and its default rate is 6.6%, close to these targets, but I am continuing to calibrate these parameters.

## 4.9 Housing

Households can choose from a small housing grid of three sizes, \$95,000, \$200,000, and \$380,000 (Table 10). Mapping households in the initial cohort to the nearest size (Section 4.2) can give them home equity they did not have. The sizes are chosen to keep this equity small and similar for Black and white owners, since nonexempt equity makes Chapter 7 costly and the grid should not itself create a racial difference in chapter choice. Appendix A.6 reports how much equity the

[42] How far an above-median filer can budget below the IRS standards is left to the discretion of the trustee and the court, who review the filer's actual expenses on Schedule J for reasonableness.

[43] The typical credit-card late fee is around \$30 for a first missed payment and higher for subsequent delinquencies. See the Consumer Financial Protection Bureau, Consumer Credit Card Market Report (2019). The report also notes that issuers often manage multiple delinquent accounts for the same borrower in collections, suggesting that financially distressed borrowers may incur late fees across several accounts.

mapping creates. Housing mechanics are described in Section 3.2.

An owner's housing services, $\omega_h(h)\,h$, are valued at the market rent of the house itself, with $\omega_h$ equal to 9.0%, 8.0%, and 7.4% of the house value a year for the three sizes. The top rate equals the average gross rental yield of Demers and Eisfeldt (7.4%), and the two lower rates are set within the observed range, falling with house value as rental yields do, to match homeownership by race and the share of owners in the smallest house.[44] Renters do not choose a house size but instead pay a rent that depends on their family size, set at 62.5% of the IRS local housing standard. This ends up being about \$830 to \$1,150 a month, close to the 2017 national median gross rent of about \$1,000.

Mortgages are 30-year fixed-rate loans at $r_m = 4.0\%$ a year, the 2013–2019 average rate. The down payment is 10% of the house value, the median for home buyers. The payment-to-income ratio required for buying is set at 31%, the federal underwriting limit for mortgage payments relative to income. The closing cost is 2% of the house value, the selling cost is 6%, and any move costs \$2,300. The carrying cost is set to $\mu_h = 0.78\%$ of the house value a quarter and covers property tax (1.1% a year, ACS), homeowners insurance (0.5%, NAIC), and upkeep that offsets depreciation (1.5%, national accounts). Reinstating a mortgage in arrears costs three months of the standard late charge plus \$2,000 of the lender's enforcement costs. Appendix A.6 gives the components. In foreclosure, the lender recovers $\psi = 78\%$ of the house value (Mitman 2016).

## 4.10 Income Process

Using the Survey of Income and Program Participation (SIPP) 2016-2019, I separately estimate the income process for Black and white households by regressing the log of the head and spouse's quarterly earnings on year dummies and household deterministic components including a second degree polynomial in household head's age and family type (Appendix Table 23).

$$\log y = \beta_0 + \beta_1 \,\mathrm{age} + \beta_2 \,\mathrm{age}^2 + \beta_3 \,\mathrm{FamType} + \beta_4 \,\mathrm{Year} + z \tag{37}$$

The idiosyncratic component $z$ is assumed to follow an AR(1) process with persistence $\rho$ and innovation standard deviation $\sigma$. I estimate it on the residuals of the earnings regression for 2016–

[44] Most housing models use a single service rate for all houses. A single rate here would either make the starter house barely worth owning, since owning costs about 6.7% of its value a year in mortgage interest and carrying costs, or make the largest house too attractive relative to its rent. Letting the rate fall with house value, as in the data, avoids both. The three rates lie between the national-accounts ratio of 5.9% and the roughly 10% gross yield on the cheapest rental homes.

Table 10: Housing Parameters

| Parameter | Description | Value | Target / Source |
|---|---|---|---|
| $h$ | House sizes | \$95k, \$200k, \$380k | SCF owners aged 30–74 |
| $r_m$ | Mortgage rate (annual) | 4.0% | PMMS 30-yr fixed, 2013–19 mean |
| $\rho_m$ | Amortization (qtr) | 1.43% | 30-year annuity at $r_m$ |
| $\mu_h$ | Carrying cost (qtr) | 0.78% | Property tax, insurance, upkeep |
| $\omega_h$ | Imputed rent, by size | 2.25, 2.00, 1.85%/qtr | Gross rent-to-value; falls with $h$ |
| $\delta_{acq}$ | Down payment | 10% | NAR median |
| $f_h$ | Seller fee | 6% | Realtor commission and closing |
| $f_b$ | Buyer closing cost | 2% | ClosingCorp |
| | Payment-to-income cap | 31% | HUD front-end ratio |
| | Moving cost | \$2,300 | AMSA intrastate move |
| $f_r$ | Reinstatement cost | 15% + \$2,000 | Late charge and enforcement costs |
| $\psi$ | Foreclosure recovery | 78% | Mitman (2016) |
| | Rent | 62.5% | Of IRS local housing standard |

2019, using instrumental variables to correct for measurement error in survey-reported earnings (Appendix A.4). I pool the two races, so the income shock itself is the same for Black and white households. This gives $\rho = 0.991$ and $\sigma = 0.0848$ per quarter. The implied annual persistence, 0.965, is within the range of 0.95 to 0.99 found in the literature. The model has no separate transitory component; instead, short-run income risk comes from expense shocks and unemployment spells. I discretize the process on five points with the Rouwenhorst method.[45]

In addition to the income process, households move between employment and non-employment. Quarterly separation rates are measured in the SIPP by race, 3.7% for white and 7.0% for Black households. The job-finding rate is set to 43.4% for both races, the white SIPP rate, following Cajner et al. (2017), who find that higher job separation, rather than lower job finding, is the main source of the racial gap in unemployment.[46] A non-employed household receives 18.1% of median employed income, the SIPP income floor during non-employment, and on finding a job draws $z$ from the stationary distribution of the employed process. Race therefore enters income through the deterministic profile and the employment transitions while the earnings shock itself is common. At retirement, income is the scheduled Social Security benefit (Section 4.1).

[45] Rouwenhorst (1995); Kopecky and Suen (2010) show the method is accurate for highly persistent processes.

[46] On a broad definition of non-employment, Cajner et al. (2017) find job-finding rates that are nearly equal by race. The SIPP rate for Black households, 34.0%, would make Black non-employment spells longer than the literature supports.

| Parameter | White HH | Black HH |
|---|---|---|
| $\rho$ | 0.991 | |
| $\sigma$ | 0.0848 | |
| Job separation (quarterly) | 3.7% | 7.0% |
| Job finding (quarterly) | 43.4% | 43.4% |
| Non-employment income (share of median) | 18.1% | |

Table 11: Income risk. AR(1) from SIPP 2014 and 2018 panels, pooled across race; employment transitions from SIPP.

## 4.11 Expense Shocks

I calibrate my expense shocks to reflect medical shocks, a common source of financial distress, using the Medical Expenditure Panel Survey for 2015-2019. Following Livshits et. al (2007), medical shock of household is calculated as the sum of each member $i$'s out of pocket expenses ($oop$), scaled by $a$ to account for underreporting, plus a fraction $b$ of total charges ($char$) less total expenditures ($exp$) if uninsured for at least a month, $I_j^i = 1$. Members who are insured but delayed or went without care because of its cost (underinsured) receive a smaller fraction $\theta b$, so the indicator becomes $m_i^j \in \{0, \theta, 1\}$. I set $\theta$ so that the uninsured carry about 45% of the allocated medical bad debt, their approximate share nationally. The fraction $b$ is set each year so that the amounts allocated across households sum to national hospital bad debt.[47] Following their method, I compute $a$ for each year as the ratio of out-of-pocket spending per household in the National Health Expenditure Accounts to the same average in MEPS; it ranges from 1.7 to 2.1 over 2015–2019.

$$s_i^j = a^j oop_i^j + b^j m_i^j [char_i^j - exp_i^j] \tag{38}$$

The sample is White and Black MEPS reference persons aged 30–64, weighted and in 2017 dollars, with household shocks winsorized at the 99.9th percentile. I pool the two races because the measured racial difference in MEPS spending reflects care avoidance and underinsurance rather than lower need, so a race-specific calibration would understate Black expense risk.[48]

[47] American Hospital Association uncompensated care series, 2015–2019 (Appendix A.6).

[48] If calculated by race, white households would have more medical shocks: in MEPS, Black households' expected annual expense is about half of white households', almost entirely because fewer Black households have a large or medium shock in a given year. But this is because white households tend to seek more medical care while Black households more often avoid it. At the same level of health, Black patients have about $1,800 less in medical costs a year than white patients [40]. Black Americans have also used less health care than white Americans for decades, even though their health is worse [17], and distrust of the medical system reduces how often Black men seek care [1].

Table 12: Expense Shock by Family Type (quarterly, pooled across race)

| **Family type** | **Low** $k_l$ | | **Medium** $k_m$ | | **High** $k_h$ | |
|---|---|---|---|---|---|---|
| | Val ($) | Prob (%) | Val ($) | Prob (%) | Val ($) | Prob (%) |
| Single | 326 | 98.4 | 13,667 | 1.4 | 45,371 | 0.1 |
| Married | 596 | 95.7 | 13,588 | 4.0 | 45,371 | 0.3 |
| Single, w/ kids | 306 | 98.4 | 13,478 | 1.5 | 45,371 | 0.1 |
| Married, w/ kids | 567 | 95.9 | 13,157 | 3.8 | 45,371 | 0.3 |

Each period, households draw an i.i.d. expense shock $k \in \{k_l, k_m, k_h\}$ that depends on their family type. Using the calculated medical expenditures, I set each shock to the mean annual spending of three ranges, $[0, \$8{,}000)$, $[\$8{,}000, \$30{,}000)$, and $[\$30{,}000, \infty)$. Since medium and high medical shocks are lumpy events, I assume they are realized in a single quarter, while the low shock is routine spending spread evenly over the four quarters of the year. Probabilities of the medium and high shocks are the share of households in each range, converted from annual to quarterly, $p_q = 1 - (1 - p_{\text{annual}})^{1/4}$, and the low shock takes the remaining probability. The high shock value is pooled across family types because the tail is thin, while its probability is pooled within singles and within married households. The resulting high shock, \$45,371, is close to the large expense shock of Livshits, MacGee, and Tertilt (2007), about 82% of mean income. By construction, the process matches the MEPS share of households spending at least \$30,000 in a year (0.84% in the model against 0.83% in the data), and expected annual spending is 2–9% above MEPS.

# 5 Results

I initialize a cohort of individuals starting at age 30 and simulate the life cycle until age 75. I then draw from my simulation a separate cross-sectional population that matches the 2016 and 2019 SCF by age, race, and family type. Using this population, I compare my model moments with moments from the data, and I use the petitions the cohort files to compare filer and case moments. Appendix A.5 describes how each moment is constructed and what the comparison assumes.

## 5.1 Untargeted Moments

Since the model focuses on household finances and the written rules, it is not expected to match every moment exactly. Table 13 reports how the model population compares to the data and literature, specifically the credit market, the default margin, and the composition of the filing

population. Only two parameters are set inside the model, and they target the pooled default and garnishment rates. The model matches several untargeted moments, including the income of filers relative to the population, unsecured debt relative to earnings, the Chapter 7 share of filings, and the cash and debt of Chapter 13 filers. Few filers in the model use Chapter 13 to cure mortgage arrears, but homeowners are more common among Chapter 13 than Chapter 7 filers, as in the data, though the difference is smaller.

Table 13: Untargeted Moments

| **Moment** | **Data** | **Model** | **Source** |
|---|---|---|---|
| *Panel A: Credit and default (population)* | | | |
| Unsecured borrowing rate (%/yr) | 11–13 | 5.5 | Fed G.19 |
| Unsecured debt / earnings (%) | 8.8 | 7.6 | Fed revolving |
| Default in past year (% hh, 30–74)† | 5.6 | 6.6 | SCF 2016, 2019 |
| Garnishment (% workers)† | 0.7 | 0.9 | DeFusco et al. (2024) |
| *Panel B: Filers at the petition* | | | |
| Filing rate (% hh per year) | 0.5–1 | 1.7 | AO; Census |
| Chapter 7 share of filings (%) | ≈70 | 63.3 | AO |
| Ch. 7 no-asset cases (%) | ≈93 | 67.2 | ABI |
| Chapter 13 completion (% Ch. 13 cases) | 45 | 34 | PACER |
| Debt / income at filing (median) | 1.04 | 0.72 | PACER |
| Mean income of filers / mean income | 0.55 | 0.544 | SWW (2000) |
| Liquid assets below $1,500 (%), Ch. 13 | 60.1 | 53.3 | PACER |
| Homeowner (%), Ch. 7 | 38.5 | 61.7 | PACER |
| Homeowner (%), Ch. 13 | 56.9 | 70.3 | PACER |
| Median unsecured debt ($), Ch. 7 | 41,275 | 19,925 | PACER |
| Median unsecured debt ($), Ch. 13 | 29,969 | 33,834 | PACER |
| Age profile of filers (ratio to mean) | see text | – | SWW (2000) |
| *Panel C: The default margin* | | | |
| Pr(new default \| current) (%/qtr) | 1.38 | 1.03 | CCP via ASTY Tab. 5 |
| Informal default / filing frequency (ratio) | 4.5–7.9 | 1.74 | ASTY Tab. 1; Herkenhoff (2018) |

Every row is pooled: these are the population and case aggregates the model must come close to for the mechanism to be trustworthy, and they are what the papers in the literature report. Racial gaps, which are the object of the paper rather than a calibration target, are in Table 14. SCF rows pool White and Black households with survey weights; PACER rows pool White and Black filers, unweighted, per petition, by current chapter. Model values pool White and Black households with SCF race shares (Black 18.7% at ages 30–74, 19.7% at 30–59). The model's unsecured borrowing rate is the median rate among borrowers. †Pooled level targeted ($\chi_D$, $\lambda_g$). Liquid assets at filing are measured before the attorney fee is paid. Source abbreviations: ASTY = Athreya, Sánchez, Tam, and Young; SWW = Sullivan, Warren, and Westbrook.

## 5.2 Untargeted Racial Gaps

The goal of the model is to isolate how racial differences in household finances and debt collection alone interact with bankruptcy law. It is not calibrated to match bankruptcy outcomes, so the racial gaps it produces are untargeted. Table 14 compares the model with the data for White households in levels and for Black households as the difference from White. Only the pooled levels of default and garnishment are targeted. Panel A asks whether the model's population of distressed

households is right, and Panels B and C ask whether, given that population, the rules produce the racial differences among filers.

The model reproduces the sorting of who files Chapter 13. Black filers were more likely to file Chapter 13, by 6 percentage points in the model against 28 in the data, and among Chapter 13 filers, more were eligible for Chapter 7, by 20 points against 17. Two features the model leaves out likely explain why its chapter gap is smaller. Black filers are concentrated in Southern districts where attorneys routinely offer "no money down" Chapter 13 cases, while the model applies the same national rules everywhere (Foohey et al. 2017). The simple housing model also does not fully capture the cure motive sorting filers into Chapter 13, which may matter more for Black homeowners, who fall behind on their mortgages more often (Bayer, Ferreira, and Ross 2016). In the model, Black filers largely sort this way because they hold less cash and cannot pay the upfront Chapter 7 fee (Section 5.3). The model also reproduces the racial gap in default, 4.7 percentage points against 4.4, matching the households in financial distress, and reproduces the direction of the filing and prior-filing gaps.

It does not produce the completion gap: in the model, Black and white Chapter 13 filers complete their plans at about the same rate (35% against 34%), while in the data Black filers complete 12 percentage points less often. Part of the data gap comes from outside the model: Argyle, Indarte, Iverson, and Palmer (2025) find that at least 37% of their estimated 16 percentage point racial gap in Chapter 13 dismissals is due to racial discrimination by trustees. The model also produces little racial gap in garnishment, because many Black households with a judgment have no garnishable wages. They are out of work or earn less than the protected amount, so the creditor can only levy their bank account once. An endowments-only model is expected to fall short, since part of the measured gap reflects attorney steering, local legal culture, and trustee discretion, which the model does not contain.

Table 14: Untargeted Racial Gaps

| **Outcome** | **Model** | | **Data** | |
|---|---|---|---|---|
| | White | Black | White | Black |
| *Panel A: Population* | | | | |
| Default in past year (% hh, 30–74)† | 5.7 | +4.7 | 4.8 | +4.4 |
| Garnishment (% workers, 30–59)† | 0.9 | +0.0 | 0.7‡ | +1.1 |
| Filed, last 5 yrs (% hh) | 8.6 | +3.1 | 2.8 | +1.5 |
| *Panel B: Filers at the petition* | | | | |
| Liquid assets below $1,500 (%), Ch. 13 | 49.2 | +15.2 | 53.6 | +17.6 |
| Median unsecured debt ($), Ch. 7 | 20,423 | −1,953 | 42,478 | −9,052 |
| Median unsecured debt ($), Ch. 13 | 36,186 | −7,996 | 32,414 | −7,192 |
| *Panel C: Bankruptcy cases* | | | | |
| Ch. 13 share (% cases) | 35 | +6 | 37 | +28 |
| Eligible for Ch. 7 (% Ch. 13) | 69 | +20 | 66 | +17 |
| Ch. 13 discharge (% Ch. 13) | 34 | +1 | 51 | −12 |
| Prior filing within 8 yrs (% cases) | 20 | +1 | 17 | +15 |

White columns are levels; Black columns are the difference from White, in the row's units (percentage points; dollars for debt). †Pooled *level* targeted ($\lambda_g$, $\chi_D$); every racial difference untargeted. ‡ZIP-composition gradient, not a measured White/Black rate. The model counts only the first step of the means test. Population rows: SCF 2016+2019 (default is weighted `late60`). Filer rows: PACER 2016–19, unweighted, per petition, by current chapter; liquid assets are measured before the attorney fee is paid.

## 5.3 Why Chapter 13, and How Both Chapters End

The model follows households as they accumulate debt and face tradeoffs between informal default, wage garnishment, and formal bankruptcy. Unlike court records, the model can tell us why a filer enters Chapter 13, why the case ends, and what happens after. Panel A of Table 15 reports why Chapter 13 filers may have filed. I find that many Chapter 13 filers could not afford the Chapter 7 upfront fee. The upfront retainer bars at most 41% of white and 54% of Black Chapter 13 petitions. Many file while under a wage garnishment judgment, about a fifth of white and a quarter of Black filings. Among them, 45% of white and 29% of Black filers file Chapter 7, while the rest file Chapter 13. In the model, 69% of white and 89% of Black Chapter 13 filers are eligible for Chapter 7, against 66% and 83% in the data (Table 14). Panel B shows how Chapter 7 and Chapter 13 cases end. Since Black filers owe more nondischargeable debt, Chapter 7 discharges 85% of white filers' balances but 79% of Black filers'. About a quarter of Chapter 13 dismissals follow an income or expense shock, 26% of Black and 21% of white dismissals. When they do, Black filers have less cash: a median of $4,883 against $8,392. However, there are other motives for leaving the plan. A filer may have entered Chapter 13 only for temporary relief from a wage garnishment, may find the plan too tight to leave room for savings, or may leave once the

mortgage arrears are cured.Failed plans and nondischargeable debt then feed the next petition. Black households refile within five years of a dismissal slightly more often than white households, 30% against 29%.

Table 15: Why Chapter 13, and How Both Chapters End

| | White | Black |
|---|---|---|
| *Panel A: Why Chapter 13 and not Chapter 7 (% of Ch. 13 petitions)* | | |
| Chapter 7 barred by a recent petition | 24 | 26 |
| Cannot pay the Chapter 7 retainer (at most) | 41 | 54 |
| Escaping an active garnishment | 31 | 43 |
| *Panel B: How the case ends* | | |
| Ch. 7 debt discharged (% of balance) | 85 | 79 |
| Income or expense shock (% Ch. 13 dismissed) | 21 | 26 |
| Refiled within 5 yrs of dismissal (%) | 29 | 30 |

Model. Barriers are assigned in order. The retainer row counts filers whose liquid assets cannot cover the Chapter 7 retainer; it is an upper bound, since a filer can also pay the fee from one quarter of spare income. The garnishment row counts petitions filed while a judgment is active; it is a motive, not a barrier, and overlaps with the rows above.

# 6 Policy Experiments

With the calibrated model in hand, I evaluate two counterfactual reforms to bankruptcy policy. Each experiment modifies one feature of the institutional environment, re-solves the household problem, and re-simulates the cohort. Both reforms are race-neutral but may narrow disparities through heterogeneous exposure to the modified feature. The first removes the upfront Chapter 7 fee, and the second makes student loans dischargeable. These experiments measure who files, under which chapter, and who completes a plan. Table 16 reports both against the baseline.

Table 16: Policy Experiments

| | **Baseline** | | **No upfront Ch. 7 fee** | | **Student loans dischargeable** | |
|---|---|---|---|---|---|---|
| | White | Black | White | Black | White | Black |
| Filing rate (% hh per year) | 1.40 | 1.95 | 1.60 | 2.96 | 1.77 | 2.16 |
| Ch. 13 share (% cases) | 35.3 | 41.7 | 25.6 | 20.1 | 29.3 | 38.8 |
| Ch. 13 completion (% Ch. 13) | 34.0 | 35.4 | 30.1 | 27.7 | 39.0 | 37.6 |
| Cases ending in a discharge (%) | 76.7 | 73.1 | 82.1 | 85.5 | 82.1 | 75.8 |
| Ch. 7 debt discharged (% of balance) | 84.6 | 78.8 | – | – | 97.7 | 96.2 |
| Ch. 13 gap, B−W (pp) | +6.4 | | −5.5 | | +9.5 | |

Model. Cases ending in a discharge count every Chapter 7 case and every completed Chapter 13 plan. The fee rule does not change which debts are discharged. Data: filing ratio 1.96, Ch. 13 share ratio 1.71 (PACER, post-stratified). Filer moments exclude the first two years after entry.

## 6.1 Removing the Upfront Chapter 7 Fee

Attorney fees are considered dischargeable debt, which is why many attorneys for Chapter 7 require the payment upfront. Allowing a special treatment of the attorney fee so that it can be paid in installments, similar to Chapter 13, would reduce the liquidity-driven selection into Chapter 13. The upfront court and credit counseling fees for both chapters are additional upfront costs that can serve as a barrier. Those who are under 150% of the federal poverty guidelines can have their Chapter 7 court fee waived (28 U.S.C. §1930(f)(1)).[49] However, the waiver requires additional paperwork, potentially standing between some filers and relief.[50] Those who meet the requirements could be automatically exempt from this fee. Considering both of these upfront fees, I experiment with removing the upfront fee requirement for Chapter 7 and automatically waiving the court fee for eligible Chapter 7 filers. The household pays what it can at filing and carries the remainder as debt, much as if attorney fees were excluded from the debts halted by the filing and paid in installments after the discharge. Since fee constraints appear to channel Black households into Chapter 13, this experiment tests how much of the racial Chapter 13 gap is driven by the asymmetric fee structure between the two chapters.

[49]Chapter 13 has no fee waiver, since a filer with enough income to fund a plan is presumed able to pay. Those filing Chapter 7 or Chapter 13 have the option to pay the court fee in installments within 120 days (Fed. R. Bankr. P. 1006(b)).

[50]In my PACER sample, 0.6% of cases are dismissed for failure to pay the filing fee (court disposition code H; 1.1% of Black filers against 0.4% of white filers), and another 0.9% end without a discharge because the filer did not submit the required course certificate, a share similar for Black and white filers. Both are lower bounds: the sample keeps cases whose schedules could be parsed, and filers who drop out early often never filed full schedules.

Removing the upfront Chapter 7 fee requirement and waiving the court fee for eligible filers reverses the chapter gap. Black filers' Chapter 13 share falls from 42% to 20%, and white filers' from 35% to 26%, reversing the gap from +6.4 to −5.5 percentage points. This 12-point swing is about 40% of the 28-point gap in the data. By reducing the cost barrier to bankruptcy in general, the reform also raises filing, more for Black households (from 1.95% to 2.96% a year) than for white households (from 1.40% to 1.60%). In the model, absent a cure motive, less wealth interacting with the upfront fee is the main driver of the racial gap in chapter choice.

The reform matters beyond race. Even though more households file, failed Chapter 13 cases fall by 14%, since fewer households enter a plan, and forced dismissals fall by about a third. The share of total cases that end in a discharge rises from 76% to 83%. Black filers gain the most, as more of them move from Chapter 13 to Chapter 7, with their discharge rate rising from 73% to 85%. In my model, the timing of the fee decides which chapter a household can use, and the chapter affects whether it gets relief.

## 6.2 Making Student Loans Dischargeable

Which debts survive a bankruptcy discharge is a policy choice. Congress has decided that some debts, such as taxes, child support, and student loans, should be repaid even after bankruptcy, since society places a high priority on repaying them. These choices are race-neutral on their face but not in their effects, since Black filers hold more of the debts that survive. I experiment with making student loans dischargeable, a debt more commonly held by Black filers. Student loans can already be discharged for "undue hardship" (Section 1.1), but this requires a separate lawsuit within the case, and few filers try.[51]

Making student loans dischargeable gives Black filers more relief after bankruptcy. Chapter 7 discharges 96% of the debt Black filers bring into the case and 98% for white filers, up from 79% and 85%. The racial gap in relief falls from 5.8 to 1.5 percentage points. The reform also draws more households into bankruptcy, and almost all of them file Chapter 7. Filing rises from 1.40% to 1.77% a year for white households and from 1.95% to 2.16% for Black households, with new filers holding large student loans. Fewer Black households take advantage of the broader discharge, which may be because the upfront Chapter 7 fee is a greater barrier. The reform draws more white

[51] Iuliano (2012) finds that only about 0.1% of bankruptcy filers with student loans seek a hardship discharge, although close to 40% of those who do obtain at least partial relief.

households into Chapter 7, and the Chapter 13 share falls from 35% to 29% for white filers but only from 42% to 39% for Black filers, widening the chapter gap from +6.4 to +9.5 percentage points. Since the student loan share is estimated on PACER filers, it likely understates student debt among the households this reform draws in, which makes these effects a lower bound. This experiment is not a recommendation to make student loans dischargeable. It shows that since Black filers are more likely to hold student loans, the rule that they survive bankruptcy accounts for about three-quarters of the racial gap in how much debt Chapter 7 discharges in the model. Under the reform, Black Chapter 7 filers leave owing about 4% of the debt they brought into the case, instead of 21%.

# 7 Conclusion

Bankruptcy is a key safety net. Black households are overrepresented among filers but receive less relief. Bankruptcy law treats everyone the same on paper, but Black and white filers get very different results. Using a new dataset I built from court records and a life-cycle model, I trace these gaps to institutional features of bankruptcy law. With racial differences in household finances and debt collection alone, the model reproduces the direction of most racial gaps, including default, filing, and the sorting of who files Chapter 13.

The model follows each household through the life cycle as it faces tradeoffs between debt, default, and bankruptcy. It answers why filers enter Chapter 13, why their plans end, and whether they file again. Unable to comfortably pay the Chapter 7 upfront fee, Black households file Chapter 13 even though they are more likely to be eligible for Chapter 7. In the model, about a quarter of Chapter 13 dismissals follow an income or expense shock, and Black filers have less cash when it happens. Chapter 7 discharges less of what Black filers owe, since more of it is nondischargeable.

Differences in income and wealth explain only part of these gaps. In the data, the chapter and completion gaps remain at equal income, assets, and debt. Bankruptcy rules can also compound existing gaps in income and wealth. The households with the least cash are the ones pushed into a harder chapter and the ones least likely to finish it. The rules produce unequal relief even at equal income and assets, because the law discharges debt by category and Black filers owe different kinds of debt. Black filers are more likely to carry student debt, which survives both chapters, so the same discharge is worth less to them.

Removing the upfront Chapter 7 fee changes these gaps. It reverses the racial gap in chapter choice, a 12 percentage point swing that is about 40% of the gap in the data. More households file, but fewer Chapter 13 plans fail, since fewer households enter a plan. Black filers gain the most, with the share of their cases that end in a discharge rising from 73% to 85%. Making student loans dischargeable nearly closes the gap in how much debt Chapter 7 discharges, but the upfront fee may still limit how many Black filers can use it. On their face, these reforms are race-neutral, not addressing any specific racial bias, and would help poor white and Black households alike. The question is how much more they help Black households.

The model makes several simplifying assumptions. I track total unsecured debt and total liquid assets, assigning each household the expected debt composition and exemption for its characteristics, rather than adding separate state variables for each category. This avoids a large increase in the state space but means households cannot strategically shift their portfolio in anticipation of filing. For the same reason, exemptions are fixed dollar amounts limited to the homestead exemption on home equity and the wildcard on liquid assets. I do not separately protect retirement accounts, a vehicle, household goods, or deposited public benefits, which are all exempt in practice. Thus, the model overstates what a Chapter 7 trustee or a creditor with a levy can take. This matters more for Black households with retirement accounts, since those accounts are a larger share of their liquid wealth. I also do not track a separate student loan balance. The nondischargeable amount is a predicted share of current unsecured debt, so it moves with new borrowing and repayment, and with changes in the state variables that predict the share, such as income and retirement. The model also simulates a single cohort and then draws a cross-section from it to represent the population. This assumes that today's older households look the way today's young households will look at the same age. This matters most for student loans, which recent cohorts borrow far more of, and for retirees, whose pensions and housing histories differ from those of younger cohorts. My model does not allow plan modification or conversion, so it may overstate dismissals after shocks. The house grid is small, with only three house sizes, and house prices are fixed. As a result, few owners are underwater and few filers use Chapter 13 to save a home.

I abstract from state-level variation in exemption laws and local court practices, applying the federal exemption schedule, despite the concentration of Black filers in Southern districts with distinct Chapter 13 norms. In practice, bankruptcy varies a lot by place. States set their own exemptions and garnishment limits, and several states with large Black populations, including

North Carolina and South Carolina, largely prohibit wage garnishment for consumer debts. Courts differ in local legal culture (Sullivan, Warren, and Westbrook 1994) and trustee practice (Argyle et al. 2025). In the model, filers must pay the full Chapter 7 attorney fee in cash, while the Chapter 13 fee is paid in installments. In practice, fee arrangements vary a lot by region. Some Chapter 7 filers pay their attorney in installments, and some Chapter 13 filers pay a larger fee upfront. In other districts, mostly in the South, attorneys routinely offer "no money down" Chapter 13 cases. Place and race are the two strongest predictors of these cases (Foohey et al. 2017). The racial gaps in the model are what the national rules alone produce from household finances. Adding state exemptions, garnishment limits, and district fee practices is a natural next step.

Several extensions would strengthen the analysis. Allowing family structure to evolve would introduce divorce and fertility as triggers of financial distress. A larger extension is a richer housing model, with more house sizes and house price risk. It would let me better model the housing side of bankruptcy, which influences chapter choice, especially through the cure motive. Adding a car as a secured asset would additionally help the model because cars lose value quickly, so many car loans are worth more than the car, and Chapter 13 lets filers reduce older car loans to the car's value.[52] A car is also the main secured asset for many filers who do not own a home.

The current payment plan calculation requires filers to commit their entire disposable income towards the plan. This leaves little room for savings, and for already financially constrained households, a slight shock could lead to a missed payment and dismissal. A natural next experiment is an emergency savings allowance in Chapter 13 plans. In 2015, the Southern District of Texas implemented a voluntary savings program within Chapter 13 proceedings, allowing debtors to allocate a modest amount from their monthly repayment plan to a trustee-managed savings account. Several district courts have already implemented similar emergency savings plans. Since many dismissals in the model follow a shock that Black filers have less cash to absorb, a small reserve may help them finish their plans. The model can measure how much it helps, and how much it costs creditors in smaller plan payments.

Bankruptcy law is race-neutral on paper, but not in effect. The same rules give less relief to households with less cash and more nondischargeable debt, and those households are disproportionately Black. Unlike the wealth gap itself, these rules are something policy can change.

[52]Under 11 U.S.C. §1325(a)(9), this applies to car loans taken out more than 910 days before filing.

# References


[1] Marcella Alsan and Marianne Wanamaker. "Tuskegee and the Health of Black Men". In: *Quarterly Journal of Economics* 133.1 (2018), pp. 407–455.

[2] Bronson Argyle et al. *Explaining racial disparities in personal bankruptcy outcomes*. Tech. rep. working paper, 2023.

[3] Kartik Athreya, Xuan S Tam, and Eric R Young. "A quantitative theory of information and unsecured credit". In: *American Economic Journal: Macroeconomics* 4.3 (2012), pp. 153–183.

[4] Kartik Athreya et al. "Bankruptcy and Delinquency in a Model of Unsecured Debt". In: *International Economic Review* 59.2 (2018), pp. 593–623.

[5] Kartik Athreya et al. *Decomposing Wealth Differences: Earnings, Demographics, and Rates of Return*. Tech. rep. Federal Reserve Bank of Richmond, Nov. 2025.

[6] Kartik B Athreya. "Default, insurance, and debt over the life-cycle". In: *Journal of Monetary Economics* 55.4 (2008), pp. 752–774.

[7] Patrick Bayer, Fernando Ferreira, and Stephen L. Ross. "The Vulnerability of Minority Homeowners in the Housing Boom and Bust". In: *American Economic Journal: Economic Policy* 8.1 (2016), pp. 1–27.

[8] Jean Braucher, Dov Cohen, and Robert M Lawless. "Race, attorney influence, and bankruptcy chapter choice". In: *Journal of Empirical Legal Studies* 9.3 (2012), pp. 393–429.

[9] Tomaz Cajner et al. *Racial Gaps in Labor Market Outcomes in the Last Four Decades and over the Business Cycle*. Finance and Economics Discussion Series 2017-071. Board of Governors of the Federal Reserve System, 2017.

[10] Satyajit Chatterjee and Grey Gordon. "Dealing with Consumer Default: Bankruptcy vs Garnishment". In: *Journal of Monetary Economics* 59 (2012), S1–S16.

[11] Satyajit Chatterjee et al. "A quantitative theory of unsecured consumer credit with risk of default". In: *Econometrica* 75.6 (2007), pp. 1525–1589.

[12] Rajeev Darolia and Dubravka Ritter. *Do Student Loan Borrowers Opportunistically Default? Evidence from Bankruptcy Reform*. Working Paper 15-17/R. Federal Reserve Bank of Philadelphia, 2015.

[13] Anthony A DeFusco, Brandon Enriquez, and Maggie Yellen. "Wage garnishment in the united states: New facts from administrative payroll records". In: *American Economic Review: Insights* 6.1 (2024), pp. 38–54.

[14] Kyle Dempsey and Anamaria Felicia Ionescu. "Lending standards and borrowing premia in unsecured credit markets". In: (2021).

[15] Kyle Dempsey and Felicia Ionescu. "Default Risk and Pricing in the U.S. Credit Card Market". In: *Journal of Political Economy Macroeconomics* 4.2 (2026), pp. 297–342.

[16] Kyle Dempsey and Felicia Ionescu. "Default risk and pricing in the us credit card market". In: *Journal of Political Economy Macroeconomics* (2024).

[17] Samuel L. Dickman et al. "Trends in Health Care Use Among Black and White Persons in the US, 1963–2019". In: *JAMA Network Open* 5.6 (2022), e2217383.

[18] Will Dobbie, Paul Goldsmith-Pinkham, and Crystal S Yang. "Consumer bankruptcy and financial health". In: *Review of Economics and Statistics* 99.5 (2017), pp. 853–869.

[19] Lukasz A. Drozd and Ricardo Serrano-Padial. "Modeling the Revolving Revolution: The Debt Collection Channel". In: *American Economic Review* 107.3 (2017), pp. 897–930.

[20] Hülya Eraslan et al. "An anatomy of US personal bankruptcy under Chapter 13". In: *International Economic Review* 58.3 (2017), pp. 671–702.

[21] Florian Exler and Michele Tertilt. "Consumer debt and default: A macro perspective". In: (2020).

[22] Pamela Foohey, Robert M Lawless, and Deborah Thorne. "Portraits of bankruptcy filers". In: *Ga. L. Rev.* 56 (2021), p. 573.

[23] Song Han and Geng Li. "Household borrowing after personal bankruptcy". In: *Journal of Money, Credit and Banking* 43.2-3 (2011), pp. 491–517.

[24] Richard M Hynes and Nathaniel Pattison. "A modern poor debtor's oath". In: *Virginia Law Review* 108.4 (2022), pp. 915–981.

[25] Felicia Ionescu and Marius Ionescu. *The Interplay Between Student Loans and Credit Card Debt: Implications for Default in the Great Recession*. Finance and Economics Discussion Series 2014-14. Board of Governors of the Federal Reserve System, 2014.

[26] Jason Iuliano. "An Empirical Assessment of Student Loan Discharges and the Undue Hardship Standard". In: *American Bankruptcy Law Journal* 86 (2012), p. 495.

[27] Jason Iuliano. "Bridging the Student Loan Bankruptcy Gap". In: *American Bankruptcy Law Journal* 99.3 (2025).

[28] Paul Kiel and Hannah Fresques. "Data analysis: Bankruptcy and race in america". In: *Pro Publica* (2017).

[29] Paul Kiel and Annie Waldman. "The color of debt: How collection suits squeeze black neighborhoods". In: *Pro Publica, October* 8 (2015).

[30] Kenneth D. Kochanek et al. *Deaths: Final Data for 2017*. National Vital Statistics Reports Vol. 68, No. 9. Hyattsville, MD: National Center for Health Statistics, June 2019. URL: https://www.cdc.gov/nchs/data/nvsr/nvsr68/nvsr68_09-508.pdf.

[31] Rakesh Kochhar and Mohamad Moslimani. "Wealth Surged in the Pandemic, but Debt Endures for Poorer Black and Hispanic Families". In: (2023).

[32] Nicole Langston. "Discharge Discrimination". In: *Cal. L. Rev.* 111 (2023), p. 1031.

[33] Jessica LaVoice and Domonkos F Vamossy. "Racial disparities in debt collection". In: *arXiv preprint arXiv:1910.02570* (2019).

[34] Jessica LaVoice and Domonkos F. Vamossy. "Racial Disparities in Debt Collection". In: *Journal of Banking & Finance* 164 (2024), p. 107208. DOI: 10.1016/j.jbankfin.2024.107208.

[35] Wenli Li and Pierre-Daniel Sarte. "US consumer bankruptcy choice: The importance of general equilibrium effects". In: *Journal of Monetary Economics* 53.3 (2006), pp. 613–631.

[36] Igor Livshits, James MacGee, and Michele Tertilt. "Consumer bankruptcy: A fresh start". In: *American Economic Review* 97.1 (2007), pp. 402–418.

[37] Katherine Lucas McKay, Joanna Smith-Ramani, and Tashfia Hasan. "Disparities in debt: Why debt is a driver in the racial wealth gap". In: (2022).

[38] Kurt Mitman. "Macroeconomic effects of bankruptcy and foreclosure policies". In: *American Economic Review* 106.8 (2016), pp. 2219–2255.

[39] Edward R Morrison, Belisa Pang, and Antoine Uettwiller. "Race and bankruptcy: Explaining racial disparities in consumer bankruptcy". In: *The Journal of Law and Economics* 63.2 (2020), pp. 269–295.

[40] Ziad Obermeyer et al. "Dissecting Racial Bias in an Algorithm Used to Manage the Health of Populations". In: *Science* 366.6464 (2019), pp. 447–453.

[41] Michael Pak, Nicolo Russo, and Fang Yang. “THE IMPORTANCE OF MODELING INCOME TAXES OVER TIME. US REFORMS AND OUTCOMES Margherita Borella Mariacristina De Nardi”. In: (2022).

# A Appendix

## A.1 Institutional Details

Table 17 lists the main categories of unsecured debt that bankruptcy treats differently, how each chapter treats them, and where each falls in the model. Chapter 13's broader discharge (§1328(a)) covers some debts that survive Chapter 7, including civil fines owed to government, property settlements from a divorce, and most debts from willful injury to property. The model does not distinguish these: its nondischargeable categories survive both chapters.

Unpaid fines and fees can also cost a debtor their driver's license. Many states suspend licenses for unpaid traffic tickets and court debt, which makes it harder to keep a job that requires driving. Filing Chapter 13 typically lets the debtor keep or get back the license: civil fines and fees can be paid through the plan and discharged in Chapter 13, though not in Chapter 7, and the Code bars a state from suspending a license solely for nonpayment of a debt that is dischargeable in the case (§525(a)). Morrison (2020) finds that Black filers, who are more likely to carry traffic debt and to have long commutes, choose Chapter 13 in part to protect their licenses and their cars. The model does not include license suspension.

**Further details.** Legal representation additionally helps navigate a process that varies considerably across jurisdictions. Local bankruptcy courts introduce procedural variation, with some districts, including the Southern District of Texas, Eastern District of Michigan, District of New Jersey, and District of Nevada, having adopted their own modifications to Chapter 13, such as emergency savings provisions. Asset cases are longer, with the median case lasting 16 months, to allow trustees to sell assets and pay creditors. However, the filer still receives a discharge after about 3.5 months, and asset cases have similar success rates to no-asset cases.[53] A filer can also petition for a hardship discharge or convert the case to Chapter 7 for a fee, but conversion is uncommon, with about 8% of Chapter 13 cases in my sample closing as Chapter 7 cases, and hardship discharges are rare.[54]

[53] In my PACER sample of Chapter 7 cases filed 2016–2019, 97% of both asset and no-asset cases end in a discharge.

[54] A hardship discharge (11 U.S.C. §1328(b)) requires that the failure to complete the plan be due to circumstances for which the debtor should not justly be held accountable and that creditors have already received at least what they would have in Chapter 7, and it is narrower than a full Chapter 13 discharge. Conversion is governed by §1307(a).

Table 17: Treatment of Unsecured Debt by Category

| Debt | Statute | Chapter 7 | Chapter 13 | Model |
|---|---|---|---|---|
| *Priority* | | | | |
| Domestic support (child support, alimony) | §507(a)(1), §523(a)(5) | Survives | Paid in full in the plan | Priority |
| Recent income taxes | §507(a)(8), §523(a)(1) | Survives | Paid in full in the plan | Priority |
| *Nondischargeable, nonpriority* | | | | |
| Student loans | §523(a)(8) | Survives unless undue hardship | Survives unless undue hardship | Nondischargeable nonpriority |
| Divorce property settlements | §523(a)(15) | Survives | Discharged | Nondischargeable nonpriority |
| Criminal fines and restitution | §523(a)(7), (a)(13) | Survives | Survives | Dischargeable |
| Civil fines owed to government | §523(a)(7) | Survives | Discharged | Dischargeable |
| Debts from fraud, including luxury purchases and cash advances just before filing | §523(a)(2) | Survives | Survives | Dischargeable |
| Debts from willful and malicious injury | §523(a)(6) | Survives | Discharged unless personal injury | Dischargeable |
| *Dischargeable* | | | | |
| Credit cards, medical bills, other consumer debt | — | Discharged | Discharged | Dischargeable |

Statutes are sections of the Bankruptcy Code (Title 11). "Survives" means the debt is not discharged. In the model, priority debt is measured from Schedule E and nondischargeable nonpriority debt from the itemized student loan, separation-agreement, and pension-loan lines; fines and fraud-related debts are not separately identified and are treated as dischargeable.

## A.2 Racial Gaps at Equal Balance Sheets

In Tables 18–20 I expand Tables 4 and 5, which report the racial gaps in filing Chapter 13, completing Chapter 13, and the nondischargeable share of debt at equal income, assets, and debt. In the full probits, more unsecured debt predicts Chapter 7, while more income and assets predict Chapter 13. This is consistent with Chapter 13 letting filers keep more of their assets, with a payment plan that depends on income.Larger student-loan, child-support, and tax shares and a prior filing predict Chapter 13 and a lower chance of completing it. The Black point estimates barely move with post-stratification weights, a linear probability model, or chapter coded at the petition, but court fixed effects cut the filing gap from 26.3 to 15.3 percentage points and the completion gap from −9.5 to −7.1. The main-text standard errors are clustered by court. They are about twice the unclustered ones, and with them the completion gap in the full specification is not significant at 5%. The nondischargeable gap stays near 7 to 8 percentage points in both chapters with weights, clustering, or court fixed effects.

## A.3 Debt Decomposition: Estimates, Alternative Specifications, and Robustness

**Sample and variables.** The nondischargeable nonpriority equations also require a parsable Social Security line on Schedule I, which drops 90 filers (1.5%) and leaves 5,753. A filer is coded as retired if Schedule I reports Social Security income. This is 24% of filers, close to the 24–27% of filers aged 60–74. The probit for nondischargeable nonpriority debt also controls for chapter, which the model does not use, since a household's debt composition is the same whichever chapter it files.

Table 22 compares four specifications of the nondischargeable nonpriority equations and two robustness checks of the one I use. All of them include log income, family type, and the retired indicator, and all use the same 5,753 PACER filers (1,629 of whom owe this debt) with post-stratification weights. Column (1) has race only in the probit. Column (2) adds race and race × log income to both equations. Column (3), the one I use in the paper, adds them only to the conditional share. Column (4) adds liquid assets to column (1).

Race matters for the conditional share. On their own, the two race coefficients are imprecise because they move together, but they are jointly significant ($\chi^2(2) = 42$, $p < 0.001$). Together, they mean that Black filers who owe this debt have a share 5.6 to 7.8 percentage points higher

Table 18: Two Gaps: Full Specification

| | Files Chapter 13 | | Completes Chapter 13 | |
|---|---|---|---|---|
| AME, pp | Balance sheet | Full | Balance sheet | Full |
| Black | +26.3 | +19.2 | −9.5 | −7.1 |
| | (1.2) | (1.2) | (2.0) | (1.9) |
| Log income | +1.7 | +1.4 | +2.0 | +2.1 |
| | (0.2) | (0.2) | (0.4) | (0.4) |
| Log assets | +5.0 | +4.9 | +0.9 | +0.5 |
| | (0.3) | (0.3) | (0.5) | (0.5) |
| Log unsecured debt | −8.5 | −9.3 | +2.0 | +2.9 |
| | (0.5) | (0.5) | (0.8) | (0.8) |
| Married, two persons | +6.7 | +4.9 | +1.8 | +2.0 |
| | (1.6) | (1.5) | (2.7) | (2.6) |
| Unmarried, two or more persons | −0.5 | −2.7 | −9.3 | −8.4 |
| | (1.5) | (1.4) | (2.6) | (2.5) |
| Married, three or more persons | +3.4 | +0.9 | −4.5 | −3.1 |
| | (1.5) | (1.4) | (2.5) | (2.4) |
| Student-loan share | | +18.5 | | −14.0 |
| | | (2.2) | | (3.7) |
| Child-support share | | +50.6 | | −67.6 |
| | | (12.4) | | (19.4) |
| Tax share | | +37.3 | | −25.6 |
| | | (4.5) | | (5.9) |
| Prior filing (8 years) | | +31.2 | | −16.5 |
| | | (1.1) | | (1.8) |
| Mean of outcome | 40.3% | 40.3% | 45.4% | 45.4% |
| Pseudo-$R^2$ | 0.107 | 0.193 | 0.025 | 0.058 |
| $n$ | 7,035 | 7,035 | 2,837 | 2,837 |

PACER 2016–19, Black and white filers with positive unsecured debt and observed family type. Probit average marginal effects in percentage points, unweighted; standard errors from the probit information matrix in parentheses. "Balance sheet" and "Full" are the second and last rows of Table 4. Filing: all Chapter 7 and 13 filers, outcome is closing chapter (CLCHPT) = 13. Completion: Chapter 13 cases with a recorded disposition, outcome is discharge (IDB D1FDSP = A). Log income, log assets (real estate plus personal property) and log unsecured debt are $\log(1 + x)$ in 2017 dollars; their AMEs are pp per log point. Shares are of unsecured debt, capped at 1; their AMEs are pp per unit share (0 to 1). Family type omitted group: one-person household. Prior filing: IDB PRFILE = Y, a case filed in the previous 8 years.

Table 19: Two Gaps: Robustness of the Black Effect

| | Files Chapter 13 | | Completes Chapter 13 | |
|---|---|---|---|---|
| Black − White, pp | Balance sheet | Full | Balance sheet | Full |
| (i) Unclustered SE | +26.3 | +19.2 | −9.5 | −7.1 |
| | (1.2) | (1.2) | (2.0) | (1.9) |
| (ii) Court-clustered SE (main text) | +26.3 | +19.2 | −9.5 | −7.1 |
| | (2.9) | (2.7) | (4.0) | (4.1) |
| (iii) Post-stratification weights | +26.1 | +19.1 | −9.5 | −6.9 |
| | (2.2) | (2.0) | (4.9) | (4.9) |
| (iv) Court fixed effects | +15.3 | +9.9 | −7.1 | −4.6 |
| | (3.2) | (2.7) | (2.6) | (2.6) |
| (v) Linear probability model | +27.5 | +20.4 | −9.5 | −7.1 |
| | (1.3) | (1.3) | (2.0) | (2.0) |
| (vi) LPM with court fixed effects | +16.5 | +11.3 | −7.1 | −4.6 |
| | (3.8) | (3.2) | (2.5) | (2.6) |
| (vii) Chapter at filing (ORGFLCHP) | +28.4 | +21.0 | −8.3 | −6.3 |
| | (1.2) | (1.2) | (1.9) | (1.9) |

PACER 2016–19. Each cell is the Black coefficient or average marginal effect from a separate regression, in percentage points; standard errors in parentheses. "Balance sheet" controls for log income, log assets, log unsecured debt and family type; "Full" adds the debt-composition shares and prior filing. (i) Probit AME, unweighted, information-matrix SE, as in Table 4 ($n$ = 7,035 filing, 2,837 completion). (ii) Same estimates, SE clustered by bankruptcy court (52 courts). (iii) Probit weighted by court × chapter post-stratification weights; cells with unusable weights are dropped ($n$ = 5,859 filing, 2,319 completion); SE clustered by court. (iv) Probit with court dummies; courts with no variation in the outcome are dropped ($n$ = 7,018 and 2,832); SE clustered by court. (v) OLS, heteroskedasticity-robust (HC1) SE. (vi) OLS with court dummies, SE clustered by court. (vii) Chapter at the petition instead of at closing: Chapter 13 cases later converted to Chapter 7 count as Chapter 13 filers who did not complete ($n$ = 7,035 filing, 3,071 completion).

Table 20: Nondischargeable Gap: Regressions

| | Chapter 7 | | | Chapter 13 | | |
|---|---|---|---|---|---|---|
| Share of unsecured, pp | Black | 95% CI | $R^2$ | Black | 95% CI | $R^2$ |
| Student loans | +7.05 | [5.1, 9.2] | 0.150 | +5.67 | [3.4, 7.7] | 0.169 |
| | (1.02) | | | (1.05) | | |
| Child support | +0.48 | [0.1, 0.9] | 0.009 | +0.39 | [−0.1, 0.9] | 0.006 |
| | (0.21) | | | (0.26) | | |
| Taxes & govt. debts | +0.41 | [−0.3, 1.2] | 0.012 | +1.36 | [0.1, 2.5] | 0.020 |
| | (0.38) | | | (0.63) | | |
| **Total** | +7.93 | [5.9, 10.2] | 0.161 | +7.42 | [5.0, 9.4] | 0.121 |
| | (1.06) | | | (1.18) | | |
| *Total, robustness* | | | | | | |
| Court-clustered SE | +7.93 | | | +7.42 | | |
| | (1.01) | | | (1.24) | | |
| Post-stratification weights | +7.86 | | 0.169 | +7.56 | | 0.130 |
| | (1.10) | | | (1.42) | | |
| Court fixed effects | +8.27 | | 0.178 | +7.16 | | 0.145 |
| | (1.09) | | | (1.26) | | |
| $n$ | 4,198 | | | 2,837 | | |

PACER 2016–19. OLS of each share of unsecured debt on a Black indicator, log non-housing non-vehicle assets, log income, log total assets, log unsecured debt and family type, estimated separately by chapter. The Black coefficient equals the gap in Table 5. HC1 standard errors in parentheses. The 95% CI is a percentile bootstrap (500 resamples of households within chapter), as in Table 5. Student loans include the other nonpriority nondischargeable debts on the schedules (separation agreements, pension loans), capped at nonpriority unsecured debt. Child support and taxes are the priority unsecured claims, with support taken first. Weighted rows use court × chapter post-stratification weights ($n$ = 3,540 Chapter 7, 2,319 Chapter 13) with court-clustered SE. Fixed-effect rows add court dummies, with court-clustered SE.

Table 21: Debt Decomposition Regressions (PACER filers)

| | Nondischargeable nonpriority | | Priority | |
|---|---|---|---|---|
| | Probit | Share | Probit | Share |
| log(assets) | — | — | 0.068 | 0.017 |
| log(income) | 0.021 | 0.001 | 0.081 | −0.009 |
| Black | 0.249 | −0.139 | 0.149 | 0.067 |
| Black × log(income) | — | 0.020 | — | — |
| Family Type 2 | 0.046 | −0.016 | 0.146 | −0.017 |
| Family Type 3 | 0.309 | 0.001 | −0.141 | −0.036 |
| Family Type 4 | 0.349 | −0.047 | 0.018 | −0.031 |
| Retired | −0.595 | −0.060 | — | — |
| Constant | −0.858 | 0.428 | −2.156 | 0.079 |

PACER filers with more than $500 of unsecured debt, post-stratification weights. Shares are of total unsecured debt, including student loans, conditional on owing a positive amount; — marks a term not in the specification. Retired: Schedule I reports Social Security income. The nondischargeable probit also controls for chapter, which the model does not use.

than white filers with incomes between $20,000 and $60,000. Adding them raises the $R^2$ of the share equation from 0.030 to 0.043, and the predicted Black/white ratio of the nondischargeable nonpriority share goes from 1.31 to 1.50, matching the data. Adding the interaction to the probit as well (column 2) does not help the probit and moves the ratio away from the data.

Liquid assets (column 4) are significant: filers with more assets owe a smaller share of nondischargeable nonpriority debt. I still leave them out for three reasons. First, liquid assets are a choice in the model. Including them would let a household lower its nondischargeable share, and make a discharge worth more, just by saving, but saving does not turn a student loan into card debt. Second, the relationship in the data is probably neither causal nor stable over the life cycle. It is estimated on assets at the time of filing, after many filers have spent down their savings, and it mostly reflects who holds student loans: younger filers with little wealth. Income and the retired indicator already capture some of this. Third, assets add little. The $R^2$ of the share equation rises only from 0.030 to 0.035, and the predicted Black/white ratio stays at 1.32. The cost is that the model's debt composition is less accurate across households, since wealthier filers do owe a smaller share of this debt. The same reasoning applies to the priority equations, which still include liquid assets.

Columns (5) and (6) check the specification I use. Estimating it without the post-stratification weights, or measuring nondischargeable nonpriority debt with the filer's reported total instead of the itemized lines, leaves the coefficients and the predicted Black/white ratio nearly unchanged.

## A.4 Income Process Estimation

Table 23 reports the earnings regression by race. Survey-reported earnings contain measurement error because of how the SIPP asks about them. Each annual interview asks respondents to recall their earnings month by month over the previous year, so quarters reported in the same interview share the same recall error. This error biases an ordinary least squares estimate of $\rho$ toward zero. I therefore estimate $\rho$ by instrumental variables, regressing $z_t$ on $z_{t-1}$ and using $z_{t-2}$ from a different interview year as the instrument. Since the recall error is not shared across interviews, the instrument is not affected by it, and it is strong (first-stage $F$ above 200 for each race). I then recover $\sigma$ from the stationary variance instead of the regression residual, which still contains the measurement error. A four-quarter lag always spans two interviews, so the stationary variance is the four-quarter autocovariance divided by $\rho^4$, and $\sigma^2$ is $(1-\rho^2)$ times that variance. The

Table 22: Nondischargeable Nonpriority Debt: Alternative Specifications

| | Specification | | | | Robustness of (3) | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| *Probit: owes any* | | | | | | |
| Black | 0.249 | 0.149 | 0.249 | 0.229 | 0.254 | 0.256 |
| | (0.046) | (0.196) | (0.046) | (0.046) | (0.041) | (0.048) |
| Black × log(income) | — | 0.010 | — | — | — | — |
| | | (0.020) | | | | |
| log(assets) | — | — | — | −0.036 | — | — |
| | | | | (0.012) | | |
| Retired | −0.595 | −0.594 | −0.595 | −0.582 | −0.568 | −0.590 |
| | (0.056) | (0.056) | (0.056) | (0.055) | (0.048) | (0.056) |
| *OLS: share of unsecured debt, if owed* | | | | | | |
| Black | — | −0.139 | −0.139 | — | −0.112 | −0.132 |
| | | (0.116) | (0.116) | | (0.115) | (0.120) |
| Black × log(income) | — | 0.020 | 0.020 | — | 0.018 | 0.019 |
| | | (0.010) | (0.010) | | (0.010) | (0.010) |
| log(assets) | — | — | — | −0.014 | — | — |
| | | | | (0.005) | | |
| Retired | −0.062 | −0.060 | −0.060 | −0.058 | −0.064 | −0.058 |
| | (0.021) | (0.021) | (0.021) | (0.020) | (0.021) | (0.022) |
| Probit pseudo-$R^2$ | 0.054 | 0.054 | 0.054 | 0.055 | 0.054 | 0.054 |
| Share $R^2$ | 0.030 | 0.043 | 0.043 | 0.035 | 0.049 | 0.046 |
| Black/white share, model | 1.31 | 1.35 | 1.50 | 1.32 | 1.51 | 1.50 |
| Black/white share, data | 1.50 | 1.50 | 1.50 | 1.50 | 1.53 | 1.49 |

PACER filers, post-stratification weights; standard errors clustered by court in parentheses. All columns include log income, family type, the retired indicator, and a constant, and the probit controls for chapter. Column (3) is the specification used in the paper. Column (5) re-estimates it without weights; column (6) measures nondischargeable nonpriority debt with the filer's reported total (UNSECNPR_NDSCHARGD) instead of the itemized lines.

instrument removes measurement error, but it cannot separate it from true short-lived income shocks, so the model has no separate transitory component.

Table 23: Log Earnings Profile by Race (SIPP 2016–2019)

| | White | Black |
|---|---|---|
| Year 2017 | 0.061 | 0.022 |
| Year 2018 | 0.043 | 0.058 |
| Year 2019 | 0.095 | 0.076 |
| Age | 0.0493 | 0.1009 |
| $\text{Age}^2$ | −0.00051 | −0.00109 |
| Family Type 2 | 0.673 | 0.631 |
| Family Type 3 | −0.189 | −0.240 |
| Family Type 4 | 0.735 | 0.686 |
| Constant | 8.226 | 6.983 |

The idiosyncratic AR(1) is pooled across race (Section 4).

## A.5 Model–Data Comparison

This comparison treats one simulated cohort as a stand-in for the whole population. Each simulated household starts at 30 with a balance sheet drawn from SCF households aged 28–32 in 2010–2022, while a 60-year-old in the 2019 SCF was 30 in 1989. Matching the data's age, race, and family type shares therefore assumes that each age group in the data looks like the simulated cohort at that age. This steady-state assumption is standard in life-cycle models of bankruptcy, but it leaves out differences between cohorts, such as in student debt, homeownership, and access to credit.

Population moments come from the resampled cross-section and use the same ages and look-back periods as the SCF. Default counts households in default at some point in the past year, against SCF households 60 or more days late on a payment in the past year, and filing counts a petition in the past five years. Filer and case moments instead pool every new petition the cohort files from age 30 to 74, leaving out petitions in the first two years after entry, before the starting balance sheets adjust to the model. Prior filing counts an earlier petition within eight years, as in the court data, but since the simulation starts at age 30, petitions before age 38 have a shorter look-back. The court records cover cases filed in 2016–2019 and closed by June 2024, so they leave out Chapter 13 plans still open in 2024, while the model observes how every plan ends.

The model's liquid assets $a$ include retirement accounts, since the starting balance sheets use SCF financial assets. For the liquidity comparisons, I therefore use only the part of $a$ held in transaction

accounts, a share fitted to the ratio of liquid to financial assets in the SCF. This is a narrower measure than the SCF's financial assets other than retirement accounts, and close to the cash and deposits reported in the court records. Even so, the model has too few households with little cash (Table 14), so this miss is not an artifact of retirement accounts.

## A.6 Calibration and Solution Details

This appendix collects details of the calibration and solution that the main text refers to.

**Family types at retirement.** Upon retirement, children are assumed to have left the household: single parents (types 3) become single households (type 1), and married parents (type 4) become married without children (type 2). This affects the consumption floor, allowable expenses, and means test thresholds.

**Chapter 13 near the end of the model.** Households are restricted from filing Chapter 13 cases that would not complete by the terminal age (age 70 for above-median filers and age 72 for below-median filers).

**Attorney installments in Chapter 13.** Each quarter of a Chapter 13 plan, the household pays the plan payment $p$ first and the attorney installment $f_{13,2}$ second, out of what remains. Only a shortfall in $p$ forces a dismissal. Any part of the attorney installment the household cannot pay is added to the nondischargeable debt it still owes after the discharge, and the case continues. This follows practice, where the trustee pays the attorney out of the plan payments, so a case is dismissed for missed plan payments rather than for unpaid attorney fees.

**Houses in the starting cohort.** Each household's house is mapped to the nearest of the three house sizes. The household's mortgage and home equity are scaled by the same factor, so its loan-to-value ratio is unchanged and a household may gain or lose equity. Households with a house worth \$47,500 or less, closer to renting than to the smallest house, start as renters, as if they had sold the house, with equity added to liquid assets and any mortgage balance above the house value added to unsecured debt.

**Pricing and the borrowing restriction.** Whether the restriction on borrowing just before filing (Section 3.3) binds depends on the household's total new borrowing and cash position, which

a single lender rarely sees. Lenders in my model do not observe this restriction and price a loan as if filing remains available, slightly overcharging the households it binds.

**Minimum payment.** The minimum payment of $\eta = 3\%$ per quarter (Section 4.1) also lies within the 1.9–3.4% per quarter implied by the ten-year standard repayment plan for federal student loans (34 C.F.R. §685.208).

**Allowable expenses.** The IRS standards for above-median filers (Section 4.5) come from the 2017 IRS and U.S. Trustee tables reporting the national standards for food, clothing, and other items, out-of-pocket health care, transportation, and housing and utilities.

**House sizes.** The $95,000 house corresponds to the 27th percentile of home values for Black owners and the 12th percentile for white owners in the SCF. The $200,000 house lies between the Black and white medians ($162,000 and $255,000), while $380,000 is the 86th percentile for Black and the 68th for white owners. Measured on SCF owners aged 30–74, mapping to this grid gives 0.3% of white and 0.4% of Black owners nonexempt equity they did not have, once homes worth $47,500 or less are treated as rented (Section 4.2); with every home above $5,000 mapped to a house, the figures would be 2.3% and 4.0%, and 2.6% and 4.8% on an earlier grid of $110,000, $230,000, and $400,000. The smallest size, $95,000, is also close to the median home among the owners mapped to it (about $89,000). A filer-based grid ($50,000, $130,000, and $260,000) was also considered and fit owners worse for both races.

**Housing costs.** The closing cost follows ClosingCorp's 2017–2018 study of about 900,000 purchases, which reports average closing costs of $5,651, including taxes, on an average price of $318,362, or 1.8%. The selling cost is the typical realtor commission plus seller closing costs. The moving cost is the average intrastate move (American Moving and Storage Association). Property tax is the national effective rate, real estate taxes paid as a share of the value of owner-occupied homes in the 2017 American Community Survey, about 1.05% (National Association of Home Builders). Insurance is the 2017 average premium on the most common homeowners policy, $1,211 (NAIC), relative to the 2017 median owner-occupied home value of about $218,000 (ACS), about 0.55%. Upkeep follows Mitman (2016), who sets maintenance to cover the 1.48% annual housing depreciation rate in the national accounts.

**Mortgage reinstatement.** The uniform mortgage contract (Fannie Mae/Freddie Mac, §19) adds the lender's attorney, inspection, and valuation fees to the reinstatement amount: about $1,500 in foreclosure attorney fees under Fannie Mae's fee schedule plus about $500 for inspection, title, and valuation.

**Medical bad debt.** National hospital bad debt is taken from the American Hospital Association's uncompensated care series, $36.1 to $41.6 billion a year over 2015–2019 at cost. The series combines bad debt with charity care and does not report them separately, so the allocated amount overstates bad debt to the extent that it includes care hospitals never expected to be paid for.

**Solving the repayment problem.** I write $N$ in terms of cash on hand $x$ rather than liquid assets $a$ and debt $d$ separately. When solving $V^{\text{pay}}$, I combine $a$ and $d$ into a single cash-on-hand state to make the problem smaller, and a limit written in terms of $x$ keeps that simplification.