Chapter 13 Outcomes

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Abstract

Roughly 40% of bankrupt consumers file under Chapter 13. However, scholars have consistently criticized the chapter, sometimes calling for its elimination. Much of this criticism is motivated by the longstanding statistic that only one-third of Chapter 13 debtors obtain a discharge. Despite its prominence, much research underpinning this statistic is decades old and relies on small samples from a few bankruptcy courts. This paper reexamines the Chapter 13 discharge rate using the universe of recently filed bankruptcy cases. We first clarify that there are multiple plausible definitions of the "discharge rate." Most prior literature measures the share of Chapter 13 cases that obtain a discharge in Chapter 13, and sometimes the discharge measure is expanded to include conversions to Chapter 7. By matching cases based on debtor names, we can observe whether a debtor receives a discharge in a subsequent case. Using this matching procedure, we introduce a new definition - the share of debtors who receive a discharge within six years of their Chapter 13 filing. We find that, for cases filed between 2008 and 2014, the discharge rate exceeds the oft-cited one-third statistic. Plausible national discharge rates vary from 40% (percent of Chapter 13 cases that obtain a discharge in Chapter 13) to 66% (percent of attorney-represented, first-time Chapter 13 debtors who obtain a discharge within six years). We also examine geographic patterns in discharge rates across districts and quantify the role of attorney representation, conversion rates, and repeat filing rates in explaining cross-district variation.

Keywords: bankruptcy, discharge, Chapter 13, repeat filings, conversions, pro se

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1. Introduction

Consumer bankruptcy promises "a 'fresh start' to the 'honest but unfortunate debtor'"[2] by offering a discharge of most unsecured debts. Beginning with the empirical research of Sullivan et al. (1989), however, researchers began to raise questions about how frequently this discharge was realized in Chapter 13. Discussing this research, Porter (2011) writes that "[t]heir most controversial finding was that only *one in three* cases filed under Chapter 13 ended in a completed payment plan [emphasis added]." Despite this original one-third statistic coming from a relatively small sample – 481 Chapter 13 cases from three states in 1981 – it has held up remarkably well.[3] At least six early papers estimated the Chapter 13 discharge rate to be within the range of 31-33%.[4] As a result, the one-third discharge rate in Chapter 13 has become conventional wisdom.[5] As summarized by Porter (2011), "Decades after the enactment of the Bankruptcy Code, knowledge of outcomes of Chapter 13 can largely be reduced to one enduring fact: only one in three cases ends in a Chapter 13 discharge."[6]

This one-third statistic is also the centerpiece of much of the criticism of Chapter 13. Critics argue that Chapter 13 debtors would have been better off filing under Chapter 7 because of its over ninety-percent discharge rate and its lower cost of filing.[7] Many have called for the elimination of Chapter 13 (Whitford, 1989; Braucher, 2006; Ponoroff, 2024). In her academic work, law professor and former Congresswoman Katherine Porter, has labeled Chapter 13 a "pretend solution," and Senator (and law professor, emerita) Elizabeth Warren has introduced legislation that would

[2] See Marrama v. Citizens Bank of Mass., 549 U.S. 365, 367 (2007) (internal quotation marks omitted).

[3] "Study after study . . . has found that only about one-third of consumers who enter Chapter 13 complete their repayment plans and therefore receive a discharge" (Greene et al., 2017), ". . . extensive data also show that, historically, only one-third of Chapter 13 cases end with the discharge" (Foohey et al., 2022).

[4] These papers include Sullivan et al. (1989), Hildebrand III (1994), Whitford (1994), Norberg (1999) and Bermant and Flynn (2000), and Norberg and Velkey (2006). See Table 1 for the estimates.

[5] For example, Hildebrand III (1994) states that "trustees estimated that the completion rate of chapter 13 cases averaged 32.89 percent. . . consistent with conventional wisdom that approximately two-thirds of chapter 13 cases fail to reach discharge."

[6] Indeed, researchers sometimes assess whether a sample of Chapter 13 cases is representative by checking whether the sample discharge rate matches the one-third statistic. Norberg and Velkey (2006) write "The Chapter 13 Project's sample of debtors, trusteeships, and districts is highly representative of the nation as a whole, . . . [t]he discharge rate for the 795 debtors, as well as the average discharge rate across the seven districts, was almost identical to the oft-cited national average of 33%." Similarly, Porter (2011) argues that a sample of Chapter 13 dismissals from the Great Recession may not be too distorted, relative to a sample from a more typical economic environment, given that "the one-in-three discharge rate for Chapter 13 has been relatively steady for the last thirty years, including during other recessions."

[7] See, e.g., Sullivan et al. (1989) and Porter (2011). Even defenders of Chapter 13 grudgingly acknowledge the statistic and argue that discharge alone is not a good measure of success (Porter, 2011).

substantially rewrite the bankruptcy code and eliminate Chapter 13.[8]

Despite the ubiquity and influence of the one-third statistic, there are reasons to question its continued accuracy. The early papers consistently supporting the one-third statistic are decades old and often use small samples from only a handful of the more than ninety federal court districts. More recent estimates, many using national data, exhibit more variation and higher estimates. For example, each year the Administrative Office of the US Courts (AOUSC) reports the percentage of closed Chapter 13 cases that end in a discharge and over the last ten fiscal years (ending in 2023) this number has averaged 50.8%.[9] As we detail in the next section, studies differ in the method of calculating the discharge rate and the populations sampled, making it difficult to compare estimates across studies. Additionally, the largest national samples are of cases *closed* in a certain time period which, as noted by Braucher (2001), can lead to biased estimators for the national and district-specific discharge rates.

The goal of this paper is to provide an updated estimate and a more complete understanding of the discharge rate in Chapter 13. Our data and method have several advantages. We use the universe of all Chapter 13 filings from 2008-2017, which provides an updated, nationally representative statistic. We stop in 2017 so that we can observe the completion of all Chapter 13 cases, which can last for five years from the filing date. We also examine outcomes for cases *filed* during the period, avoiding the issues caused by sampling *closed* cases.

We also examine multiple definitions of the discharge rate and clarify the sources of the differences across definitions. The first two definitions have been estimated in the prior literature. The *Plan Completion Rate* measures the percentage of Chapter 13 cases that receive a discharge in Chapter 13 under section 1328.[10] This is the most common definition in the existing literature and is the definition underlying the commonly cited one-third statistic. The *Case Discharge Rate* measures the percentage of cases begun under Chapter 13 that end in a discharge under any chapter, thereby including conversions to Chapter 7. Several papers report the share of Chapter 13 cases converted, and Foohey et al. (2017) reports this Case Discharge Rate as the measure of discharge. Taking advantage of new data on debtors' names to link repeat filings by the same debtor, we also define a new measure, the *Debtor Discharge Rate*, as the percentage of Chapter 13 *debtors* who

[8] See Porter (2011) and S. 5577, Consumer Bankruptcy Reform Act of 2024.

[9] BAPCPA Table 6: `https://www.uscourts.gov/data-table-numbers/bapcpa-6`

[10] This definition includes hardship discharges, though these are just 0.2% of Chapter 13 outcomes.

receive a discharge within six years of their initial filing, counting discharges in the initial Chapter case, through conversion, or through subsequent filings.[11] We derive an equation that mechanically links these definitions, allowing us to isolate the underlying sources of any differences. For each definition, we also examine the impact of restricting the samples to pro se filers, filers represented by an attorney (dropping pro se), and to first-time filers (dropping those with a prior filing).

The appropriate definition of discharge rate depends on the intended use. The Plan Completion Rate gives the likelihood that a Chapter 13 plan will be completed. If one's goal, however, is to understand whether cases begun in Chapter 13 end in a discharge, the Case Discharge Rate is more appropriate because it includes discharges obtained through conversions to other chapters. The first two definitions reflect outcomes for *cases* whereas, for many questions, one may be interested in outcomes for *debtors*. The distinction between cases and filers is important, as more than 30% of Chapter 13 cases report that the debtor has filed another bankruptcy within the previous eight years. The Debtor Discharge Rate accounts for this distinction by measuring the share of debtors that obtain a discharge, even if in a subsequent case.

We then estimate the various measures of the discharge rate using case-level data on all Chapter 13 cases filed between 2008 to 2017, with our primary sample restricted to 2008-2014 so that we can observe the outcomes of subsequent filings by the same debtor. All definitions indicate that the discharge rate is higher than the one-third statistic, sometimes substantially higher. In the primary sample period, the Plan Completion Rate (discharges received in Chapter 13) is 40%, the Case Completion Rate (including discharges received after conversion to Chapter 7) is 50%, and the Debtor Discharge Rate (including discharges received in another case completed within six years of the initial filing) is 59%. At the extreme upper end, the Debtor Discharge Rate for debtors represented by an attorney and without prior filings is 66%, double the one-third statistic from the prior literature. At the other extreme, the Plan Completion Rate for pro se filers is just 1.2%; it is only a small hyperbole to say that pro se filers *never* complete reorganization plans. To summarize, in our sample period, the Chapter 13 discharge rate is higher than the oft-cited one-third statistic and varies significantly depending on what definition one uses.

We also provide more detail on the sources of the differences across definitions, investigating

[11] When we calculate this measure, we limit each debtor to at most one discharge within the six-year period. This affects a trivial share of cases. Reasonable minds can disagree with our choice of six years as the appropriate time period, but we choose it because it is just one year more than the maximum length of a Chapter 13 plan.

the rates of discharges within conversions and repeat filings. To identify repeat filings, we use information on debtors' names from 93% of all bankruptcy filings in the period, then develop a method to match multiple filings by the same debtor. We then examine the behavior of debtors whose original Chapter 13 case was dismissed, focusing on the tendencies to refile under Chapter 7 or Chapter 13 and the discharge rates in these subsequent filings. This complements the small literature on repeat filings (Golmant and Ulrich, 2006; Miller and Miller, 2008; Greene, 2015; Foohey et al., 2022), which primarily examines the overall rates of repeat filings in all chapters and whether the prevalence of repeat filings was altered by BAPCPA.[12] The most similar paper Norberg and Velkey (2006) also provides statistics on how discharge rates vary in repeat filings using statistics on around 250 repeat cases from seven districts. Relative to this paper, we provide updated statistics from the universe of bankruptcy cases, and this sample improvement allows for more precise and detailed statistics about the patterns in repeat filings.[13]

Finally, we turn to the geographic variation in the discharge rate. The prior literature has shown that, across districts, the Chapter 13 discharge rate (measured as the Plan Completion Rate) varies from less than 20% to around 60% (Braucher, 2001; Norberg and Velkey, 2006; Flynn, 2014). We find similar variation across districts, but the implications are unclear. As we emphasize when introducing the alternative definitions, the discharge rate reflects the net effect of differences in conversions, repeat filings, attorney representation, and whether debtors ultimately obtain a discharge. Highlighting this, the ordering of districts' discharge rates depends on how one defines discharge. Some districts have high discharge rates by one measure and low discharge rates by another. To better understand the patterns, we conduct a decomposition exercise that attributes the variation in the Plan Completion Rate to differences across districts in attorney representation, conversion rates, repeat filing rates, and the ultimate share obtaining any discharge. More than half of the cross-district variation in the Plan Completion Rate is explained by differences in attorney representation, conversions, and repeat filings. We also examine whether this variation can be explained by differences in selection into bankruptcy and whether it is correlated with prominent economic and legal factors that differ across districts.

[12] Flynn (2017) and Foohey et al. (2022) also provide recent estimates of the percentage of Chapter 13 debtors who are repeat filers.

[13] For example, Norberg and Velkey (2006) has 57 observations of individuals with 2 or more prior filings, whereas we observe more than 110,000 such cases (plus another 25,000 that refile under Chapter 7). This allows us to precisely estimate discharge rates for second filings, third filings, fourth filings, etc.

The main contribution of this paper is to provide an accurate, updated, representative, and nuanced measurement of the discharge rate in Chapter 13 and its geographic heterogeneity. But there are limitations to our analysis and its implications. We do not provide causal evidence on why certain cases do not obtain a discharge. Our analysis of geographic heterogeneity, in particular, highlights many stark and interesting differences across districts, but isolating the causes of these differences is beyond the scope of this paper. Another caveat is that, although we find higher discharge rates than the conventional one-third statistic, the relative value of Chapter 13 versus Chapter 7 for debtors remains unclear. Even the higher discharge rates estimated in this paper are far below the discharge rate for Chapter 7.[14]

Our paper also relates to the larger literature on chapter choice in bankruptcy. Models of bankruptcy emphasize the trade-off in chapter choice between protecting non-exempt assets in Chapter 13 versus protecting future income in Chapter 7 (Adler et al., 2000; Li and Sarte, 2006). Additionally, Chapter 13 provides some benefits that are not available in Chapter 7, including repaying mortgage arrears and avoiding foreclosure (White and Zhu, 2010; Morrison and Uettwiller, 2017), retrieving vehicles and driver's licenses seized as a result of unpaid traffic tickets (Morrison and Uettwiller, 2017; Morrison et al., 2020), or dealing with certain nondischargeable debts (e.g., government debts, child support obligations). Dobbie and Song (2015) provide suggestive evidence that the relief in Chapter 13 is somehow different. They find large benefits from Chapter 13 protection and more modest effects for Chapter 7, although they raise concerns that smaller effects in Chapter 7 may be driven by the composition of filers in that chapter, and they question whether their identification strategy is appropriate for Chapter 7. Debtors may also be forced or steered into Chapter 13. Some individuals, due to financial characteristics (excess disposable income, failing the means test) or recent Chapter 7 filings, may be ineligible for Chapter 7. Liquidity-constrained consumers sometimes choose Chapter 13 because it offers lower upfront fees. There is also evidence that attorneys steer clients into Chapter 13 in response to attorney specialization Lefgren et al. (2010) or higher attorney fees McIntyre et al. (2015), and that attorneys are more likely to suggest Chapter 13 for African American debtors (Braucher et al., 2012). Our paper contributes to this broader literature on the trade-offs of chapter choice by clarifying the uncertainty in the probability

[14]In addition, our paper does address arguments about more substantial reforms of chapter choice, such as eliminating Chapter 13 (Whitford, 1989; Braucher, 2006; Ponoroff, 2024), expanding options within bankruptcy to better manage heterogeneity across consumers (Foohey et al., 2022), or allowing debtors to waive the right to certain chapters (Adler et al., 2000).

of obtaining a discharge when filing Chapter 13. In the initial chapter choice decision, debtors must account for the uncertainty of discharge in Chapter 13 in addition to financial considerations (e.g., forfeiting assets or income) emphasized in much of the existing literature.

2. Literature Estimating the Discharge Rate

In this section, we provide an overview of existing estimates of the Chapter 13 discharge rate and discuss our contribution relative to this literature. Table 1 provides a list of existing estimates, with the sample of papers based on the citations supporting the one-third statistic in Greene et al. (2017) and updated to include recent work. We generally report one estimate per paper, attempting to select the estimate that represents the full sample discharge rate for the paper. The table is not a comprehensive review of the papers, as several report multiple discharge rates, such as for subgroups of debtors or specific geographies. Additionally, producing an estimate of the national discharge rate was not the primary goal of many of these studies, and estimates are reported as a part of a broader analysis. Still, Table 1 illustrates the variation in available estimates and highlights the variation in sampling procedures and methods.

Table 1: Existing Discharge Rate Estimates

Paper	Period	National	Sample	N Cases	Definition	Estimate
Sullivan et al. (1989)	1981	No	Filed	481	Plan Completion*	32.4%
Hildebrand III (1994)	1993	Yes	Closed	N/A	Plan Completion*	32.89%
Whitford (1994)	1993	Yes	Closed	N/A	Plan Completion*	31%
Norberg (1999)	1998	No	Closed	71	Plan Completion*	32%
Bermant and Flynn (2000)	1995	Yes	Closed	N/A	Plan Completion	31%
Braucher (2001)	1994	No	Filed	7,746	Plan Completion	18.2%-54.1%
Norberg and Velkey (2006)	1994	No	Filed	795	Plan Completion	33%
Flynn (2014)	2007-2013	Yes	Closed	2,264,505	Plan Completion	35.8%
Dobbie and Song (2015)	1992-2005	No	Filed	1,869,772	Plan Completion*	48.8%
Flynn (2017)	2010-2016	Yes	Closed	123,185	Plan Completion	38.8%
Foohey et al. (2017)	2007	Yes	Filed	$\sim$ 800	Case Discharge	49.5%
Greene et al. (2017)	2007	Yes	Filed	770	Plan Completion	36.5%
Dobbie et al. (2017)	2002-2005	No	Filed	175,076	Plan Completion*	44.6%
AOUSC (2017)	2017	Yes	Closed	318,974	Plan Completion*	48.4%

Note: Estimates from studies cited in Greene et al. (2017), updated to include a few recent papers. "National" reports whether the study uses a nationally representative sample. "Sample" reports whether the sample is of closed cases or filed cases. "N Cases" reports the number of cases in the sample (for papers using samples of cases). "Definition" reports the definition of the discharge rate used, with an asterisk indicating that the paper's calculation differs from the share of all Chapter 13 cases that end in plan completion, either with further sample restrictions or different weighting methods. "Estimate" reports the estimated discharge rate. Details on the samples and discharge definitions are reported in Online Appendix Table A.1.

The first seven papers on the list are commonly cited in support of the statistic that one-third

of Chapter 13 bankruptcies are successful (e.g, in Greene et al. (2017)). Other than Braucher (2001), which estimated discharge rates in five separate cities, the consistency of the estimates around one-third is remarkable. This consistency is even more surprising given that most early papers used small samples from only a handful of court districts.[15] No early papers use case-level data for a nationally representative sample of cases. Similar estimates are found, however, in the nearly national samples of Hildebrand III (1994) and Whitford (1994), which report results from surveys of Chapter 13 trustees (response rates of 71-87%), and Bermant and Flynn (2000), from which we average state-level discharge rates.[16]

The remaining papers in Table 1, beginning with Flynn (2014), report more recent estimates. Relative to the early literature, these papers use better data and, often, nationally representative samples of individual cases. The estimates are all higher than the one-third statistic, perhaps reflecting that the discharge rate has increased over time. The recent estimates are also more variable, ranging from 35.8% to 49.5%.

Differences in methods make it difficult to identify the cause of the differences in estimates across papers. First, there is variation in the geographic population sampled. Some use nationally representative data, others sample from only a few districts. The periods sampled also span thirty-five years.

Second, papers use different definitions or methods of calculating the discharge rate, with some with additional sample restrictions. Most estimate the Plan Completion Rate, which is the share of Chapter 13 plans that are completed and end in a discharge in Chapter 13. However, several papers use sample restrictions or different weighting methods that differ from the share of all Chapter 13 cases ending in completion. Sullivan et al. (1989) uses a sample of ongoing cases and reports the share still making payments, Hildebrand III (1994) and Whitford (1994) report unweighted averages of trustees' estimates for their regions, Norberg (1999) and AOUSC (2017) exclude any converted cases from their sample, and Dobbie and Song (2015) and Dobbie et al. (2017) include

[15] Sullivan et al. (1989) uses less than 500 cases from ten districts in three states. Norberg and Velkey (2006) uses a sample of around 800 cases from seven districts. Braucher (2001) uses five districts with the district-specific discharge rate varying from 18% to 55%. Norberg (1999) uses a sample of 71 cases from one district.

[16] We say "nearly" national because, for Hildebrand III (1994) and Whitford (1994), the nonresponse of some trustees causes some districts to be excluded. For Bermant and Flynn (2000), the number we report is the average of state-level responses for the six states ranked in the middle of the state discharge distribution. Moreover, these estimates are unweighted averages of district- or state-level responses. Because the number of Chapter 13 cases varies across districts and states, averages of district- or state-level rates may not equal the share of Chapter 13 cases that are successful.

only first-time filers. Additionally, as Flynn (2017) notes, the Plan Completion Rate is a fairly narrow measure of success in Chapter 13, and, as we discuss in the next section, several have suggested that discharges obtained through conversion may reasonably be viewed as a successful Chapter 13. Only Foohey et al. (2017) reports this broader definition of discharge that includes conversion, the Case Discharge Rate. A few papers report the share of cases converted (though not necessarily discharged), with estimates ranging from 9.5% to 12.1% (Sullivan et al., 1989; Norberg and Velkey, 2006; Flynn, 2014; Greene et al., 2017).

Third, the largest national samples are of cases *closed* within certain time periods (Flynn, 2014, 2017; AOUSC, 2017).[17] Sampling cases closed in a certain time period is a form of length-based sampling, in which whether a case enters the sample depends on when it was filed and, more importantly, how long it lasted before closure. For example, in the sample of Flynn (2017) of cases closed in FY2010-2016, cases filed in 2016 will enter the sample only if they last less than one year (almost certainly dismissals). Biases from length-based sampling have been widely discussed in the literature examining unemployment durations (Kiefer, 1988; Wooldridge, 2010). Within bankruptcy, fluctuations in the number of cases filed over time will lead to biased estimates of the discharge rate from samples of closed cases, as recognized by Braucher (2001), which notes that "completion rates are sometimes reported as a percentage of cases closed in a given a year, but such figures are distorted by, among other factors, changes in volume of filings from year to year." Because dismissed cases close quickly while successful cases last three to five years, sampling closed cases underestimates the discharge rate when the number of filings is rising (as it was when many of the one-third studies were conducted) and overestimates the discharge rate when the number of filings is falling (as they have been in recent years). In addition to changes in the number of filings, fluctuations in the number of 3-year versus 5-year plans and the number of conversions create additional sources of bias. Online Appendix B provides a more complete discussion of this bias and its effects on the discharge rate. We find that the impact is especially important for district-specific discharge rates, where the Plan Completion Rate in samples of filed and closed cases differs by at least five percentage points in twenty districts.

In estimating the national discharge rate, our paper builds on this work in several ways. Our

[17] Flynn (2014) and Flynn (2017) consider all cases filed under Chapter 13 that closed in a given time period. By contrast, AOUSC (2017) considers only cases closed in Chapter 13 and thus excludes cases converted to another chapter. Excluding converted cases increases the estimated Plan Completion Rate by reducing the denominator.

primary sample uses the near-universe of national cases *filed* in a certain period, thereby providing nationally representative estimates from a large sample and avoiding bias from sampling closed cases.[18] Second, we formally define and estimate multiple measures of the discharge rate, accounting for the multiple paths to discharge available to Chapter 13 filers (conversions, repeat filings). In doing so, we also introduce a new measure of discharge that includes discharges obtained in subsequent filings by the same debtor. The formal definitions clarify how attorney representation, conversions, and repeat filings influence the estimated discharge rates. Finally, we also repeat the analysis at the district-level, providing new statistics and analysis of heterogeneity across districts.

Perhaps closest to this paper, Flynn (2014) and Flynn (2017) use large, national samples of Chapter 13 cases to examine Chapter 13 outcomes, including geographic heterogeneity.[19] These papers estimate Chapter 13 plan completion rates of 35.8% and 38.8%, respectively, and also examine the variation in each state. Additionally, Flynn (2017) examines heterogeneity in plan completion rates by joint filing status, prior filing status, whether fees are paid in full at filing, and pro se status. Relative to this existing work, our paper makes three contributions. First, these papers focus on Plan Completion Rates as the measure of Chapter 13 discharge, though Flynn (2017) acknowledges that this is a fairly narrow definition and that there is no consensus on the definition of success. We expand to consider multiple definitions, including the new Debtor Discharge Rate.[20] Second, these papers use samples of cases closed in a certain time period, which, as discussed above, can lead to bias from length-based sampling. We avoid this potential bias by using samples of cases filed, which is especially important for the district-level analysis (see Online Appendix B). Finally, we go beyond documenting the cross-state variation in discharge rates to examine its sources in Section 6.

Also closely related, Foohey et al. (2017) and Greene et al. (2017) report nationally representative estimates using filed cases. Potential drawbacks, however, are relatively small samples (around 800 cases) of cases filed in January and February of 2007. This may be a concern if discharge rates fluctuate seasonally, across years, or as a result of the financial crisis. More recently, Foohey et al.

[18] In our primary sample, we drop the 7% of cases for which case names were unavailable. However, we find nearly identical Plan Completion Rate and Case Discharge Rate estimates when using the universe of bankruptcy cases, and show our primary sample matches the national universe of cases on several measures (see Section 3.

[19] Flynn (2014) examines data from the Executive Office for the U.S. Trustees (EOUST) on distributions and outcomes for Chapter 13 cases closed between fiscal years 2007-2013. Flynn (2017) uses a sample of nearly 125,000 Chapter 13 cases closed between fiscal years 2010 and 2016, taken from the FJC's Integrated Database.

[20] Flynn (2014) does report the share of cases converted, though not discharged, at the national level. The district-level analysis focuses on the Plan Completion Rate.

(2022) uses a national sample from the more recent 2013-2017 Consumer Bankruptcy Project, which contains more than 2,000 Chapter 13 cases. In that sample, 35% of Chapter 13 cases had been dismissed, 15% obtained a discharge, and the remaining 50% were still pending. We build on this work by using a larger sample, which allows for more precise estimates of variation in the discharge rate (e.g., across districts), and by considering multiple definitions of discharge (including linking repeat filers).

3. Data

We use Federal Judicial Center (FJC) Integrated Database data containing the universe of all bankruptcy cases filed between October 2007 and September 2023 (FY2008-2023). The FJC data contain information on the debtor's financial characteristics, the court district, the date of the filing, and whether the debtor has filed a prior bankruptcy within the previous eight years. For case outcomes, we observe the final disposition of the case (dismissal or discharge) and the final chapter of the case, which allows us to identify conversions to Chapter 7 or other chapters.[21] These data allow us to observe discharges and conversions for all cases begun under Chapter 13 and to examine heterogeneity by geography, time, and debtor characteristics (e.g., whether they report a prior filing).

A shortcoming of the FJC data is that we cannot link multiple cases filed by the same debtor and so cannot examine how many Chapter 13 debtors ultimately obtain a discharge in a subsequent case. Repeat filings are common, with 31.8% of Chapter 13 cases filed in 2008-2017 reporting another filing within the last eight years prior to filing. To address this shortcoming, we use case numbers to merge the FJC data with data that includes case names (including the debtor's name), which are scraped from court dockets by the Free Law Project.[22] We successfully merged the case names for 93.2% of cases in the full FJC data. The match rate is above 80% for all districts but Arizona (match 0%), the Southern District of Indiana (match 5.9%), and Utah (match 55.4%). Sixty-three districts have more than 99% of cases matched to case names.[23] We restrict this Matched Case Name Sample to cases filed in 2008-2014 to allow for sufficient time to observe outcomes in subsequent filings for debtors whose original case (in the 2008-2014 period) was dismissed.

[21] We focus on these primary measures of dismissal and discharge, but Appendix Table A.2 shows the full distribution of final dispositions in our main analysis sample.

[22] More information on coverage is available at `https://www.courtlistener.com/help/alerts/#coverage-gaps`.

[23] Online Appendix C details the coverage of the matched sample.

The purpose of the Matched Case Name Sample is to link repeat filings by the same debtor. We develop a matching procedure relying on extracting the debtors' names from the bankruptcy case names and identifying repeat filers based on a combination of their name and residence location (county or zip code). We are intentionally conservative in that we aim to minimize the probability of falsely linking cases by different debtors. Online Appendix C details the matching procedure. To assess the accuracy of the procedure, we compare results from our matching procedure to another measure of repeat filings: the FJC data reports whether the debtor has filed another bankruptcy within the prior eight years. For cases that report no prior filings in the FJC, we identify a prior filing with our matching method in only 1.5% of cases (apparent false positives). For cases that report a prior filing within eight years, we correctly identify a prior filing in 70.6% of cases, an apparent false negative rate of 29.4%. These statistics understate the accuracy of our matching procedure because there is also measurement error in the FJC's indicator for repeat filings. From a random sample of bankruptcy documents from 100 apparent false positives and 100 apparent false negatives, we found that our false positive rate was 0.25% and the false negative rate was 16.7%.[24]

The Matched Case Name Sample, which we use for most of our analysis, consists of cases filed in 2008-2014 that we can successfully match to case names. Table 2 shows that this sample matches the full national sample on the key outcomes of discharge, conversions, repeat filings, and pro se filings. First, Panel A reports these statistics for the full 2008-2017 sample of the FJC data consisting of the universe of Chapter 13 filings. 39% of Chapter 13 cases are completed (ending in a Chapter 13 discharge), and another 8.7% obtain a discharge in Chapter 7. Almost 32% of Chapter 13 cases report that the debtor had filed another bankruptcy within the prior eight years. Table 2 also reports these same outcomes for samples restricted to filers with and without prior filings, and filers that are and are not pro se. Table 2 Panel B reports statistics for the full FJC sample

[24] We pulled a random sample of 100 apparent false positives as well as the case that created the match. For five of these matches, we were unable to retrieve one of the cases from Bloomberg Law. For eighty (84.2%) of the remaining ninety-five matches, we were able to confirm that the same debtor did make both filings. We confirmed a match either by comparing the last four digits of the debtor's social security number or by locating the case number of the earlier filing on the later filing's docket The remaining fifteen (15.8%) of the matches were actual false positives created by our matching procedure. We also pulled a random sample of 100 apparent false negatives and were able to retrieve 97 of the cases. In 42 (43.3%) of these cases, the debtor did not make a prior filing within the prior 8 years. Most of these errors in the FJC data were due to debtors disclosing filings that were more than eight years old. The remaining 55 (56.7%) of cases were actual false negatives. In 13 of these cases, the debtor's prior filing was in a different district. In 29 of these cases, the debtor used a different name in the prior filing, and 8 of these names were substantially different (e.g. different last name). The remaining false negatives were due to debtors moving within a district.

restricted to the years 2008-2014. Finally, Panel C reports the same statistics for the Matched Case Name sample. The Matched Case Name sample includes 92.9% of the cases from the full 2008-2014 sample, and the imperfect coverage results from differences in the availability and timeline of RSS feeds that source the data in each district. The statistics on discharge rates, prior filings, and conversions are very similar in all panels and are nearly identical in Panels B and C, typically varying by less than 0.3 percentage points.

4. Defining the Discharge Rate in Chapter 13

A Chapter 13 debtor can obtain a discharge in multiple ways: by completing the Chapter 13 plan, by converting to Chapter 7, or, if the initial case fails, by refiling. In this section, we formalize these multiple paths to discharge in three alternative definitions of the discharge rate. We do not advocate for one definition over the others, as each definition is appropriate for different questions one may ask. We also provide a formula that links the definitions to clarify the underlying sources of the differences.

4.1. Alternative Definitions of Discharge

Our goal is to provide a framework within which we can study different measures of discharge for Chapter 13 debtors. To begin, we develop a notation that will allow us to distinguish between cases and debtors, and between discharges in Chapter 13 and post-conversion discharges in Chapter 7. This notation allows us to precisely define each measure of the discharge rate, as well as derive the formal connections between them. Let $i = 1, \ldots, I$ index the debtors that file for Chapter 13 bankruptcy, and let F_i indicate the number of Chapter 13 cases filed by debtor i (or married couple i in joint cases). The number of Chapter 13 cases is $N \equiv \sum_{i=1}^{I} F_i$ and, due to repeat filings, the number of cases exceeds the number of debtors, i.e., $N > I$. To denote the outcomes of cases, let o_{if}^{13} be an indicator for whether the Chapter 13 filing f by debtor i receives a discharge in Chapter 13, where f can take the values $1, \ldots, F_i$. Similarly, let o_{if}^{7} equal one if filing f by debtor i leads to a discharge in Chapter 7 (either through conversion or a subsequent new filing under Chapter 7), and zero otherwise.[25]

[25] Technically, we also count discharges under other chapters in o_{if}^{7}, but more than 99% of conversions are to Chapter 7.

Table 2: Sample Comparison

sample	disch. 13	convert 7	disch. 7	any disch.	prior filing	n
	(1)	(2)	(3)	(4)	(5)	(6)
A: Full FJC Data: 2008-2017 Ch.13 Cases						
All	0.391	0.097	0.087	0.479	0.318	3,459,126
No Prior	0.448	0.111	0.103	0.551	0.000	2,359,771
Prior	0.269	0.065	0.053	0.323	1.000	1,099,355
Not Pro Se	0.428	0.102	0.094	0.522	0.307	3,155,629
Pro Se	0.012	0.041	0.017	0.029	0.431	303,497
Not Pro Se, No Prior	0.482	0.116	0.110	0.592	0.000	2,186,980
B: FJC Data: 2008-2014 Ch.13 Cases						
All	0.403	0.104	0.094	0.497	0.295	2,586,094
No Prior	0.454	0.118	0.109	0.563	0.000	1,822,755
Prior	0.281	0.071	0.058	0.339	1.000	763,339
Not Pro Se	0.440	0.109	0.101	0.541	0.287	2,361,401
Pro Se	0.013	0.047	0.019	0.032	0.380	224,693
Not Pro Se, No Prior	0.491	0.123	0.116	0.607	0.000	1,683,533
C: Matched Case Name Sample: 2008-2014 Ch.13 Cases						
All	0.405	0.102	0.092	0.497	0.296	2,402,943
No Prior	0.457	0.115	0.106	0.563	0.000	1,691,374
Prior	0.282	0.071	0.057	0.340	1.000	711,569
Not Pro Se	0.444	0.107	0.099	0.543	0.288	2,187,645
Pro Se	0.012	0.046	0.018	0.030	0.383	215,298
Not Pro Se, No Prior	0.495	0.120	0.113	0.608	0.000	1,558,635

Data: 2008-2017 FJC IDB. This table shows outcomes for Chapter 13 cases filed between 2008 and 2017 in Panel A, and between 2008 and 2014 in Panels B and C. The top two panels show the summary statistics for all cases in the full FJC sample. The bottom sample shows the summary statistics for the sample whose cases were matched to the Free Law Project's case name data. Within each panel, we report statistics for all cases, and those without (No Prior) and with (Prior) a prior filing.

We begin with the percentage of cases begun under Chapter 13 that are completed under Chapter 13 and receive a discharge under Section 1328. We call this rate the *Plan Completion Rate*:

$$\overline{D}^P \equiv \frac{1}{N} \sum_{i=1}^{I} \sum_{f=1}^{F_i} o_{if}^{13}. \tag{1}$$

Most of the existing literature, including all studies supporting the one-third statistic, uses the plan completion rate as the discharge measure. This definition is useful for measuring whether debtors propose plans that can realistically be completed. One may also prefer this measure because other paths to discharge, namely conversion or refiling, may require additional attorney fees.

If the focus is on the fresh start provided by discharge, a drawback of the Plan Completion Rate is that it implicitly counts all conversions to Chapter 7 as failures. Thus, our second definition broadens the notion of discharge to include those coming through conversions to Chapter 7. We define the *Case Discharge Rate* as the percentage of cases begun under Chapter 13 that end in a discharge under any chapter:

$$\overline{D}^C \equiv \frac{1}{N} \sum_{i=1}^{I} \sum_{f=1}^{F_i} (o_{if}^{13} + o_{if}^{7}). \tag{2}$$

The Case Discharge Rate provides a more complete measure of the share of cases obtaining a discharge, and some argue that conversions are a desirable outcome for some Chapter 13 cases. Although it ultimately excludes conversions, Greene et al. (2017) mentions that converted cases could reasonably be viewed as a success and that one of the authors has argued that conversion should be used more widely as a tool in Chapter 13. Similarly, both the National Bankruptcy Review Commission and the American Bankruptcy Institute have recommended that conversion to Chapter 7 be the default option for struggling Chapter 13 debtors (NBRC, 1997; Logan, 1997). Although less common, some existing work also uses the Case Discharge Rate as their reported measure (Foohey et al., 2017).

These first two measures focus on the probability that a *case* ends in a discharge, whereas, for many questions, one is interested in the probability that a given *debtor* obtains a discharge. This distinction is important because repeat filings are common, so the number of cases exceeds the number of debtors ($N > I$). As a result, the probability that a case obtains a discharge will underestimate the probability that a debtor obtains a discharge. One reason is that repeated dismissals of the same debtor receive extra "weight" when using cases as the unit. A debtor who

obtains a discharge in the first filing and never files again appears just once in the sample of cases, but a debtor who files five bankruptcy petitions appears five times. Additionally, some debtors will eventually obtain a discharge in a subsequent, refiled case, perhaps soon after the original case is dismissed. Moreover, using cases as the unit may place undue importance on the decision to modify (retaining the same case) or refile (leading to a new case).

Our third measure examines the rate at which debtors receive a discharge even if the discharge comes from a subsequent filing.[26] We define the *Debtor Discharge Rate* as the percentage of Chapter 13 *debtors* who receive a discharge within six years of their initial filing:[27]

$$\overline{D}^{D} \equiv \frac{1}{I} \sum_{i=1}^{I} \sum_{f=1}^{F_i} (o_{if}^{13} + o_{if}^{7}). \tag{3}$$

This measure is most useful as a measure of the probability that a debtor filing under Chapter 13 will successfully discharge his debts. Because the debtor is the unit of analysis, multiple filings by a single debtor should not be treated as independent observations. We calculate the Debtor Discharge Rate by restricting the sample of cases to the first filing by each debtor, and we then calculate the share of debtors that obtain any discharge within six years of that initial filing.

The Debtor Discharge Rate provides the most complete measure of whether a debtor obtains a discharge, but there can be reasons to prefer the definitions that measure discharges obtained in the initial case. In particular, there may be meaningful differences in bankruptcy protection and costs between receiving a discharge after refiling and receiving a discharge in the initial case. We list only a few. First, refiling requires additional attorneys' fees. Even if an initial case requires plan modification, attorney fees for a modification may be less than those for refiling (although we know of no relevant research). Second, a debtor whose initial case is dismissed may be vulnerable to collection efforts before refiling. Third, the bankruptcy judge may view a refiling with more

[26] In joint cases, we match repeat filings only for the debtor listed first in the joint filing. This will not affect our estimates if joint debtors also refile together, which appears to be the common scenario. In cases where joint debtors later file individually, one must choose how to define a discharge. It could require that both debtors obtain a discharge (the strictest definition) or either debtor obtains a discharge (the most lenient definition). By focusing on the first debtor alone, our choice lies between these two options.

[27] When we calculate this measure, we limit each debtor to at most one discharge within the six-year period. This affects a trivial share of cases. We conservatively choose six years because it is just one year more than the maximum length of a Chapter 13 plan. It is a somewhat strict threshold for subsequent discharges, but one that still captures most discharges. Among Chapter 13 debtors who have their original case dismissed but obtain a discharge in a subsequent case within our sample period (2008-2023), 63% obtain that discharge within six years of the initial filing. A consequence, however, is that we miss most subsequent discharges that occur in Chapter 13.

suspicion, potentially leading to a more difficult path to discharge. Fourth, dismissing and refiling can increase the total time spent in bankruptcy, leading to additional financial and psychic costs. In some cases, there may also be advantages to refiling. More time in bankruptcy could make it easier to repay arrears on the mortgage, and refiling may be helpful to a debtor who has incurred new debts as these can be discharged as well. To be clear, however, our point is not that a discharge received in a subsequent case is as good as a discharge received in the first case. Rather, we merely argue that the Debtor Discharge Rate, which uses the debtor as the unit of analysis and accounts for discharges in repeat filings, is useful for some purposes and should be estimated.

In addition to varying what counts as a discharge, researchers may wish to vary the set of cases or debtors considered. Given the high rates of repeat filings and the lower success rates for these cases, one may want to distinguish between the discharge rate for first-time filers and the rate for repeat filers. One may also want to distinguish between the discharge rates for debtors represented by an attorney and those who file pro se. Pro se filings account for a little under ten percent of all filings, but they are much more common in some districts. More than 40% of all filings in the Central District of California are pro se. The Plan Completion Rate for pro se filings is near zero, and including these cases will produce a misleadingly low estimate of the expected discharge rate for the typical debtor who is represented by an attorney. Moreover, much of the criticism of Chapter 13 rests both on its low discharge rate *and* its high attorneys' fees relative to Chapter 7. This argument should be made using the discharge rate for represented debtors, since only they pay attorneys fees. To examine represented borrowers and pro se borrowers, we will also use versions of the three definitions restricted to represented filers (denoted by A for attorney), D_A^P, D_A^C, D_A^D, and pro se filers (denoted by $\neg A$), $D_{\neg A}^P, D_{\neg A}^C, D_{\neg A}^D$. Thus, we will at times present measures for nine different possible definitions of a discharge rate, a three-by-three matrix of: i) the Plan Completion Rate (just discharges received in Chapter 13), the Case Discharge Rate (including discharges received after conversion to Chapter 7), and the Debtor Discharge Rate (including discharges received in subsequent cases completed within six years of the initial filing), and ii) all debtors, represented debtors, and pro se debtors.

4.2. Comparing the Measures

These alternative measures will produce different estimates of the Chapter 13 discharge rate. To clarify the underlying source of the differences, the commonly used Plan Completion Rate ($\overline{D}^P$)

can be mechanically decomposed into four sources: the rate of attorney representation, the rate of repeat filings, and the rate of conversions, and the Represented Debtor Discharge Rate:[28]

$$\overline{D}^P \approx \underbrace{\left(\frac{N_A}{N}\right)}_{\mathbf{A}\text{: attorneys}} \times \underbrace{\left(\frac{I_A}{N_A}\right)}_{\mathbf{R}\text{: repeat filings}} \times \underbrace{\left(\frac{\overline{D}_A^P}{\overline{D}_A^C}\right)}_{\mathbf{C}\text{: conversions}} \times \underbrace{\overline{D}_A^D}_{\substack{\text{Rep. debtor} \\ \text{discharge rate}}} \tag{4}$$

where N_A is the number of represented Chapter 13 cases and I_A is the number of represented Chapter 13 debtors.[29] Equation (4) highlights several factors that determine the Plan Completion Rate. The first term, A, is the share of debtors that are represented by an attorney, with higher rates of attorney representation leading to greater plan completion. The next three terms reflect statistics for represented filers. The second term, R, is the ratio of debtors to cases, which inversely depends on the rate of repeat filings. The third term, C, is the ratio of the Plan Completion Rate to the Case Completion Rate, which depends on the frequency of conversions. For example, if there are no conversions then this ratio equals one, but if conversions that result in a discharge are as common as Chapter 13 discharges then this ratio equals 0.5. Finally, the fourth term is the Represented Debtor Discharge Rate, which reflects whether the Chapter 13 debtors will obtain a discharge in a subsequent case (whether filed under Chapter 7 or Chapter 13) within six years of the initial filing. This linking equation is an approximation rather than an exact equation, however, because of a small residual component from assuming that the discharge rate of pro se debtors is zero. Additionally, we restrict attention to initial cases filed within a certain window of time (2008-2014), while the equation above would technically consider all cases filed by an individual debtor that appears in the sample. The approximation is quite good; these terms explain 97.7% of the geographic variation in districts' Plan Completion Rate.

These formulas help guide the empirical work in the rest of the paper. First, from equation (4), we focus on rates of attorney representation, repeat filings, and conversions when analyzing discharges in the national sample. Second, we examine geographic variation in discharge rates across the federal court districts, using equation (4) to understand and formally decompose the differences across districts.

[28] We provide the details of this derivation in D.

[29] If a debtor's first petition is filed pro se, all subsequent petitions are considered pro se. This simplification will understate the difference between pro se and filings made with the assistance of an attorney because of the subset of debtors that file cases both with and without an attorney.

5. National Outcomes

5.1. Comparing Definitions of Discharge

Table 3 reports the Chapter 13 discharge rates from the three definitions described in Section 4. The commonly used Plan Completion Rate (discharges received in Chapter 13) is 40.5%, 23% higher than the commonly cited completion rate of 33%. When using the alternative definition that accounts for discharges through conversions, the Case Discharge Rate is even higher at 49.7%. This Case Discharge Rate estimate is nearly identical to that of Foohey et al. (2017), which uses a national sample of cases filed in early 2007. The similarity of the discharge rate in their 2007 sample to the discharge rate from cases filed in 2008-2014 suggests that the Great Recession did not meaningfully alter the discharge rate. Finally, when examining debtors instead of cases, the Debtor Discharge Rate is 59%,[30] indicating that more than half of Chapter 13 debtors obtain a discharge within six years of filing. The gap between the Plan Completion Rate and the Debtor Discharge Rate is 15 percentage points, showing the significant role played by conversions and repeat filings. Moreover, our matching procedure is conservative in that it minimizes false matches (see Section 3), and as a result, our statistics will slightly understate the share of filers that refile and ultimately obtain a discharge in subsequent filings.

Table 3: Chapter 13 Discharge Definitions

Definition	All	Represented	Pro Se
Plan Completion Rate	40.5%	44.4%	1.2%
Case Discharge Rate	49.7%	54.3%	3.0%
Debtor Discharge Rate	59.0%	62.7%	11.1%
Number of Cases	2,402,943	2,187,645	215,298

Data: 2008-2014 Matched Case Name Sample. To ensure only one case per individual is counted, the Debtor Discharge Rate restricts the sample to the first case filed by each debtor in the sample (identified using debtor names). This sample includes 2,114,795 cases, 1,961,855 of which are by Represented debtors.

Outcomes are even better when examining debtors represented by an attorney. For debtors represented by an attorney, the Case Completion Rate is 44.4%, the Case Discharge Rate is 54.3%,

[30] Dobbie et al. (2017) report a discharge rate of 44.6% and, using credit bureau data, provide information about what happens to debtors who have their cases dismissed. If we assume that their discharge rate is a Plan Completion Rate and assume that they consider all cases that did not receive a discharge to have been dismissed, their results imply a Debtor Discharge Rate of 60.7%, a little higher than our own.

and the Debtor Discharge Rate is 60.1%. That is, when considering Chapter 13 debtors represented by an attorney, more than 60% obtain a discharge within six years of filing for Chapter 13. Outcomes for pro se filers, however, are dramatically worse. The Plan Completion Rate for pro se filers is only 1.2%. Thus, pro se filers almost *never* complete their plans.[31] The Case Discharge Rate for pro se filers (accounting for discharges received after conversion) is only slightly higher at 3%. The Debtor Discharge Rate is substantially higher at 11.1%, but this is partially because we determine whether the debtor is pro se based on the initial filing, and the debtor may have been represented by an attorney in the subsequent case.

Representation may have a causal effect on whether the debtor receives a discharge; debtors filing pro se may be unable to successfully navigate the complexities of Chapter 13.[32] But the low rates may also be due to selection effects. For example, attorneys may be reluctant to represent debtors whose cases are likely to fail quickly as attorneys are frequently paid from plan proceeds, and some pro se filers may not contemplate plan completion but instead seek the short reprieve provided by the automatic stay prior to dismissal.

One may also want to consider outcomes for debtors who are not repeat filers. While we cannot determine whether a debtor has ever filed for bankruptcy before, the data do contain an indicator for whether the debtor reports a prior filing within the previous eight years. Table 4 restricts the sample to debtors who report no prior filings in this period. These "first-time" Chapter 13 debtors have higher discharge rates across all definitions and groups. The Debtor Discharge Rate for first-time filers who are represented by an attorney is 66%, double the oft-cited statistic of 33%.

To summarize, the estimate of the discharge rate is higher than the well-known one-third statistic, but is also sensitive to how one measures the discharge rate. The represented Debtor Discharge Rate, measuring the probability that a Chapter 13 debtor represented by an attorney obtains a discharge within six years of filing, is 46% higher than the Plan Completion Rate for all

[31] A prior study by the Central District of California suggests that most pro se filings fail before plan confirmation. "Of the chapter 13 cases that closed in 2018, . . . fewer than three percent of [self-reprsented] debtors had a confirmed plan."

[32] Many, and perhaps most, debtors who file pro se utilized the help of bankruptcy petition preparers "BPPs." Section 110 of the bankruptcy code sharply limits the help that BPPs can provide, prohibiting them from offering legal advice, such as advice on which bankruptcy chapter the debtor should choose, or handling any payment for court fees. According to the Department of Justice, "[b]ankruptcy petition preparers may only type documents . . ." `https://www.justice.gov/ust/ust-regions-r09/file/petition_prep.pdf/dl`. However, prior research suggests that many BPPs ignore these restrictions. "[M]any debtors rely almost completely on BPPs to tell them what to do in the case. The BPP frequently advises which chapter to file, which exemptions to choose, which forms to fill out, and when to file." `https://www2.cacb.uscourts.gov/prose/annualreport/2011/ProSeAnnual%20Report2011.pdf`

Table 4: Chapter 13 Discharge Definitions - No Prior Filing

Definition	All	Represented	Pro Se
Plan Completion Rate	45.7%	49.5%	1.4%
Case Discharge Rate	56.3%	60.8%	3.5%
Debtor Discharge Rate	62.0%	66.0%	11.8%
Number of Cases	1,691,374	1,558,635	132,739

Data: 2008-2014 Matched Case Name Sample, restricted to those with no prior filing in the previous eight years. To ensure only one case per individual is counted, the Debtor Discharge Rate restricts the sample to the first case filed by each debtor in the sample (identified using debtor names).

debtors and 79% higher than the well-known one-third discharge statistic. Many of the discharges, both in the original case and in the repeat filings, come through conversions to Chapter 7.[33] That is, a nontrivial share of debtors who file under Chapter 13 ultimately obtain a discharge of debt through a path that is not captured by the Plan Completion Rate.

5.2. Additional Analysis of Repeat Filings

A new aspect of our paper is the ability to link multiple filings by the same debtor. This is used in the Debtor Discharge Rate, which differs from other definitions by incorporating outcomes obtained in subsequent filings by the same debtor. In this subsection, we further explore outcomes for these repeat cases. We provide new statistics on (i) the subsequent refiling decisions of debtors whose initial case is dismissed, and (ii) the outcomes in refiled cases.

First, Table 5 examines the incidence of repeat filings using the 2008-2014 matched case name sample. We first form a sample of "original" cases consisting of the first Chapter 13 bankruptcy filed by each debtor in that period.[34] Columns (1)-(3) report outcomes for these original cases, which show discharge rates that are similar but slightly higher discharge rates than in Table 2 because we are restricting the sample to the "original" cases. The central focus of Table 5 is columns (4)-(8), which report the incidence of repeat filings and subsequent discharge among debtors whose original Chapter 13 case was dismissed. Within the two years following the closing date of the original case, 25% of dismissed debtors refile under Chapter 13 and an additional 7.1% refile under Chapter 7

[33] Overall, 90% of converted cases end in a discharge (see Appendix Table A.2).

[34] If a debtor files only one bankruptcy, that would be included in the sample of original cases.

(columns 4-5). Most repeat filings occur quickly after the original Chapter 13 case is dismissed, and a few actually occur before the prior case is closed. The median delay is 1.1 months and the 75th percentile is 11 months.[35] Thus, when Chapter 13 cases are dismissed, more than 30% of these debtors will refile another bankruptcy within two years, and most will refile under Chapter 13.

While dismissed Chapter 13 debtors frequently refile under Chapter 13, most subsequent discharges occur under Chapter 7 (including conversions into Chapter 7). We focus on discharges that occur within six years (columns 6-8) or ten years (columns 9-10) of the filing date of the initial case that was dismissed. Within six years of the initial dismissed case's filing date, only 1.75% of these dismissed debtors have obtained a discharge in Chapter 13 while 10.2% have obtained a discharge under Chapter 7. Using this six-year cutoff, the low Chapter 13 discharge rate is unsurprising because many Chapter 13 refilings are ongoing. Consistent with this, we observe more Chapter 13 discharges when we expand the timeline to ten years from the initial filing date (columns 9-10). There is relatively little change in the share obtaining a Chapter 7 discharge, but expanding the timeline from six years to ten years roughly triples the share obtaining a discharge under Chapter 13 (to nearly 6%). Still, even though most (first-time) refilings are under Chapter 13, most discharges occur under Chapter 7.

[35] Online Appendix E provides more detail on the timing of repeat filings and subsequent discharges.

Table 5: Chapter 13 Outcomes

	Original Case Outcomes			Conditional on No Discharge in Original						
	Disch. 13	Disch. 7	Disch.	Refile 13 (2 year)	Refile 7 (2 year)	Disch. 13 (6 year)	Disch. 7 (6 year)	Disch. (6 year)	Disch 13. (10 year)	Disch. 7 (10 year)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
all Ch.13 cases	0.438	0.096	0.534	0.254	0.071	0.018	0.102	0.120	0.059	0.120
no prior case	0.464	0.107	0.571	0.254	0.067	0.018	0.097	0.115	0.060	0.111
prior case	0.346	0.054	0.401	0.252	0.084	0.015	0.117	0.132	0.054	0.143
not pro se	0.471	0.102	0.573	0.251	0.073	0.019	0.108	0.127	0.066	0.127
pro se	0.015	0.020	0.035	0.271	0.062	0.008	0.071	0.079	0.015	0.080
not pro se, no prior case	0.499	0.114	0.613	0.251	0.067	0.020	0.101	0.121	0.069	0.117

Data: 2008-2014 Matched Case Name Sample, restricted to the first Chapter 13 filing of each debtor in 2008-2014. Columns 4-8 restrict the sample to debtors whose original Chapter 13 case was dismissed. Refile 13 and Refile 7 are indicators for whether the debtor filed another case within 2 years of the original Chapter 13 case being closed. In columns 6-10, we report whether the debtor received a discharge within six years of the filing date of the original case and within ten years of the filing date of the original case.

Next, we examine the probability of success in subsequent filings. Table 6 takes the sample of original cases filed in 2008-2014 from Table 5, further restricting it to debtors who did not report a prior filing when they made their initial filing in our sample. The table reports the outcomes for the set of initial filings, second filings, third filings, etc. The first striking fact is that discharge rates monotonically and substantially decrease with additional filings. For Chapter 13 filings, 46.7% will end in a Chapter 13 discharge if it is the debtor's first Chapter 13 filing;[36] this rate drops by more than half (to 21.1%) for the second filing and then drops by almost half again between the second and third filing (to 10.7%) and between the third and fourth filing (to 5.9%). Part of this is due to the truncated sample; we only observe through September 2023 so some subsequent cases are still pending. But, as shown in column 7, the share of pending cases cannot fully explain the drop in the discharge rate. Moreover, even for cases that are refiled in Chapter 7, the share obtaining a discharge falls from 86.4% for the second case to only 46.3% for cases that are the fifth or greater filing of the same debtor (column 9). Debtors who refile are less likely to obtain a discharge.

There are several implications. Considering that nearly one-third of Chapter 13 cases are filed by debtors with prior filings, the low success rates of repeat filings has important effects on statistics about the discharge rate in Chapter 13. For example, if one is interested in forming expectations that a first-time filer will obtain a discharge in Chapter 13, it is probably better to use the statistics for first-time filers rather than the overall discharge rate. A second fact from Table 6 is that, as seen in column (4), repeated filing under Chapter 13 is common. The share of subsequent filings that are under Chapter 13 remain between 75% and 85% for the second, third, fourth, and 5+ filings by the same debtor. Thus, even though the initial filing did not obtain a discharge, the large majority continue to file under Chapter 13. Finally, Table 6 shows that the probability that a Chapter 13 debtor will receive a discharge after having failed multiple times is exceedingly low. Of course, our data cannot tell us whether these repeat debtors subjectively expected to receive a discharge or were seeking other benefits that Chapter 13 can provide.

Together, the prevalence of refiling under Chapter 13 and low success rates in these refilings show there exists a subset of debtors that file Chapter 13 repeatedly but rarely obtain a discharge. This group meaningfully affects the discharge rate and causes some of the variation across discharge

[36]This rate is 1 percentage point higher than that reported in Table 4 because the sample differs slightly. In particular, in Table 6, the first filing row restricts the sample to cases with no prior filings within eight years (reported by FJC) and for which we identified no prior filings in our name-matching procedure.

definitions; all measured discharge rates increase when the sample is restricted to those without prior filings (Table 3 vs. Table 4). Because repeat filers each file multiple Chapter 13 cases, they receive more "weight" than a non-repeat filer when examining discharge rates as a share of cases - the Plan Completion Rate or the Case Discharge Rate. Restricting the sample to first-time filers solves this problem by weighting all debtors equally. Additionally, the Debtor Discharge Rate exceeds the case-based discharge rates, in part, because it places less weight on this group of repeat filers.

Table 6: Outcomes for Repeat Filings

				Cond. on Filing 13				Cond. on Filing 7		
Filing Number	N	Any Disch.	Sh. 13	Disch. 13	Disch. 7	Pending	Sh. 7	Disch. 13	Disch. 7	Pending
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	1,633,545	0.574	1.000	0.467	0.108	0.001				
2	321,375	0.413	0.764	0.211	0.066	0.066	0.232	0.003	0.864	0.005
3	88,294	0.257	0.810	0.107	0.044	0.088	0.184	0.002	0.729	0.006
4	30,736	0.175	0.831	0.059	0.032	0.097	0.163	0.002	0.610	0.008
5+	23,715	0.107	0.846	0.025	0.020	0.076	0.149	0.001	0.463	0.010

Data: 2008-2014 Matched Case Name Sample, restricted to a sample of first cases, i.e., the first observed filing in our full data based on the debtor's name and the case reports no filing in the previous eight years. From this original sample of cases, the filing number 2-4 indicates the second through fourth filings of these original cases and 5+ groups together all additional filings. If the original case was a joint filing, we count repeat filings as those involving the debtor listed first in the original case. Sh. 13 and Sh.7 report the share of each row that was filed under Chapter 13 and Chapter 7, respectively.

6. Geographic Variation

In addition to generating the one-third statistic, the existing literature has also documented significant variation in discharge rates across districts. Braucher (2001), examining 7,746 cases from 1994 in five cities, found the Plan Completion Rate across cities to vary from 18.2% to 54.9%. Norberg and Velkey (2006), examining 795 Chapter 13 cases from 1994 filed in seven districts, found the Plan Completion Rate across districts to vary from 20% to 47%. Most recently, Flynn (2014), examining cases closed during fiscal years 2007-2013 from all states, found that the Plan Completion Rate varied across states from less than 20% to more than 60%.

Districts with high Plan Completion Rates may provide some guidance on practices that can make Chapter 13 more successful. As we emphasize in Section 4, however, interpreting differences in the Plan Completion Rate is challenging, as it reflects the net impact of differences in attorney representation, conversion rates, refiling rates, and the represented Debtor Discharge Rate. Additionally, there are multiple reasonable definitions of the discharge rate and the geographic patterns may vary across definitions. For example, a district may have a low Plan Completion Rate but a high Case Completion Rate if it frequently encourages debtors to convert to Chapter 7. In this section, we reexamine the geographic variation using multiple definitions of the discharge rate. We first show that choosing different definitions leads to significantly different rankings of which districts have the highest success rates in Chapter 13. We then examine the sources underlying these differences and quantify the role of repeat filings, conversions, and pro se filings in explaining the geographic variation. We examine the geographic variation across 88 of the 94 federal court districts, excluding the US territories (GU, NMI, PR, VI), and also excluding Arizona and the Southern District of Indiana, which are unavailable in the Matched Name Sample.[37]

6.1. Alternative Measures of Discharge

The geographic patterns in discharge rates depend, in part, on how one defines discharge. To illustrate, we compare the Plan Completion Rate (the definition used in the literature claiming a one-third discharge rate) and the Represented Debtor Discharge Rate (the percentage of Chapter 13 debtors represented by attorneys who receive a discharge within six years of their initial filing).

[37]We exclude the US territories because, with the exception of Puerto Rico, they have very few Chapter 13 bankruptcies. For most of the sample period, Arizona and the Southern District of Indiana are not available in the Free Law Project data used to create the Matched Case Name Sample.

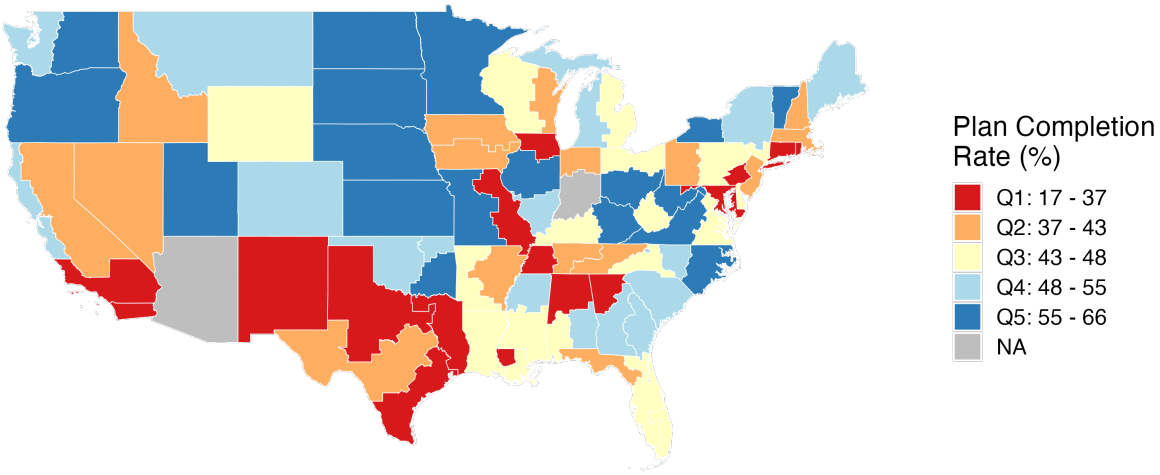
We focus on these two measures because the Plan Completion Rate is the most common measure in the existing literature and generates the lowest statistics on discharge rates, while the Represented Debtor Discharge Rate is at the other extreme, generating the highest discharge rates. Additionally, in equation (4), we derive a formula that mechanically links the Plan Completion Rate and the Represented Debtor Discharge Rate. Online Appendix Figures A.1, A.2, and A.3 report similar graphs comparing districts' discharge rates using our other measures.

Figure 1 shows the geographic variation in these two measures across districts. There are noticeable changes between the two figures. First, as expected, discharge rates are significantly lower when using the Plan Completion Rate (just Chapter 13 discharges) compared to the Represented Debtor Discharge Rate (all discharges for represented debtors, including those received in subsequent cases completed within six years). Districts' Plan Completion Rates vary from 17% (CA,C) to 66% (VT). Districts' Represented Debtor Discharge Rates vary from 38% (TN,W) to 84% (VT).[38] Second, and more importantly, the two measures provide a different ranking of which districts have the highest rates of discharge. For example, the discharge rate for the Eastern District of North Carolina is in the 95^{th} percentile when using the Plan Completion Rate, but at the 54^{th} percentile when using the Represented Debtor Discharge Rate. Conversely, the Northern District of Iowa's Plan Completion Rate is only at the 39^{th} percentile, but its Represented Borrower Discharge Rate is above the 80^{th} percentile.

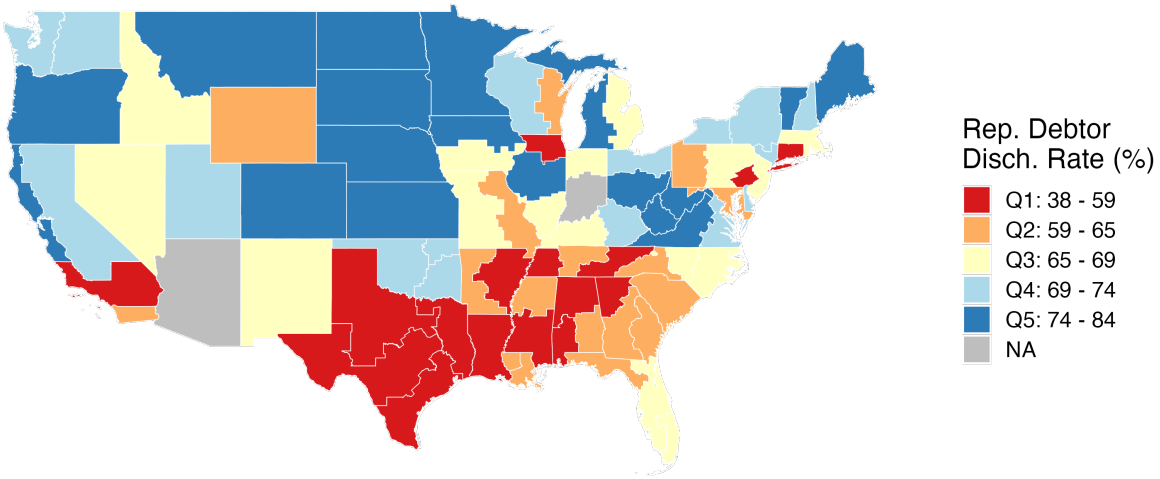
To further illustrate the changes in the rankings, Figure 2 compares each district's percentile in the cross-district discharge rate distribution using each of the two measures. Districts near the 45-degree line have similar rankings using both measures, with districts in the upper-right having high discharge rates (high percentiles in both distributions) and districts in the bottom-left having low discharge rates in both distributions. Districts above the 45-degree line are ranked higher using the Represented Debtor Discharge Rate, while districts below the 45-degree line are ranked higher using the Plan Completion Rate. In red, the figure highlights the districts whose percentile moves more than 25 points depending on the ranking, i.e., districts that move up or down at least 20 spots in the ranking. For example, Rhode Island has one of the lowest Plan Completion Rates (11^{th} percentile) but jumps to above-median (49^{th} percentile) when ranked according to the Represented Debtor Discharge Rate.

[38] Online Appendix Table A.3 report the Plan Completion Rate and Debtor Discharge Rate for each district.

Figure 2 also shows that several of the districts in the South do relatively worse when switching from the Plan Completion Rate to the Represented Debtor Discharge Rate. This is due to several factors. Districts in these southern states (AL, GA, LA, MS, NC, SC) have low rates of pro se filing (4.3% vs. 16.2% for other states), which means there is less of an improvement in their discharge rates as we switch from considering all debtors to only represented debtors. Additionally, among represented debtors, these southern states typically have lower rates of conversion and refiling under Chapter 7. 11.7% of Chapter13 debtors in these southern states ultimately obtain a discharge under Chapter 7, compared to 16.5% of Chapter 13 debtors in other states. This again leads to less of an improvement as we switch from the Plan Completion Rate to the Debtor Discharge Rate. These different patterns in pro se filings and in conversions to Chapter 7, combined with lower baseline Chapter 13 Plan Completion Rates, all contribute to the reductions in the discharge rate for the southern states in Figure 2. In the next subsection, we conduct a more formal decomposition exercise to quantify the source of differences across the discharge measures for all districts.



(a) Plan Completion Rate $\overline{D}^P$



(b) Represented Debtor Discharge Rate $\overline{D}_A^D$

Figure 1: Comparing Discharge Definitions

Data: 2008-2014 Matched Case Name Sample. Arizona and the Southern District of Indiana are missing from the matched case name sample. Colors group districts into quintiles.

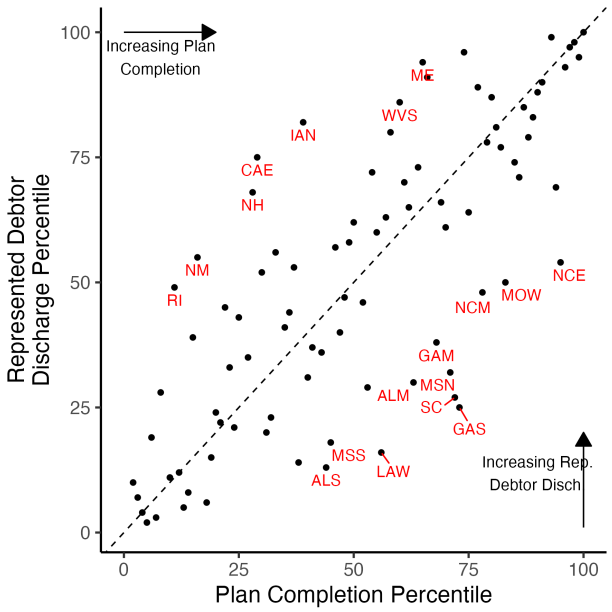


Figure 2: Correlation of Two Discharge Measures

Data: 2008-2014 Matched Case Name Sample. Each point shows a district's percentile in the distribution of Plan Completion Rates (horizontal axis) and Represented Debtor Discharge Rates (vertical axis). Estimates for each district are reported in Online Appendix Table A.3.

6.2. Decomposition of Variation in Ch.13 Discharge Rates

Section 5.1 showed that a district's ranking based on the Plan Completion Rate can be quite different than its ranking based on the Represented Debtor Discharge Rate. This raises a natural question: what accounts for the difference? It reflects a combination of factors including attorney representation, conversion rates, and repeat filing rates, and the portion attributed to each factor likely varies by district. For example, the Central District of California has the lowest Plan Completion Rate (17%), but this largely reflects its high rate of pro se filings (44% of filings are pro se). As another example, New Mexico has a below-average Plan Completion Rate (34%), but a significantly higher Case Discharge Rate (56.4%) due to the district's high rate of conversions and discharges under Chapter 7.

To assess the importance of attorney representation, repeat filing, and conversion rates in explaining why the rankings differ, recall that Section 4 shows that the relationship between the Plan Completion Rate and the Represented Debtor Discharge Rate depends mechanically on each

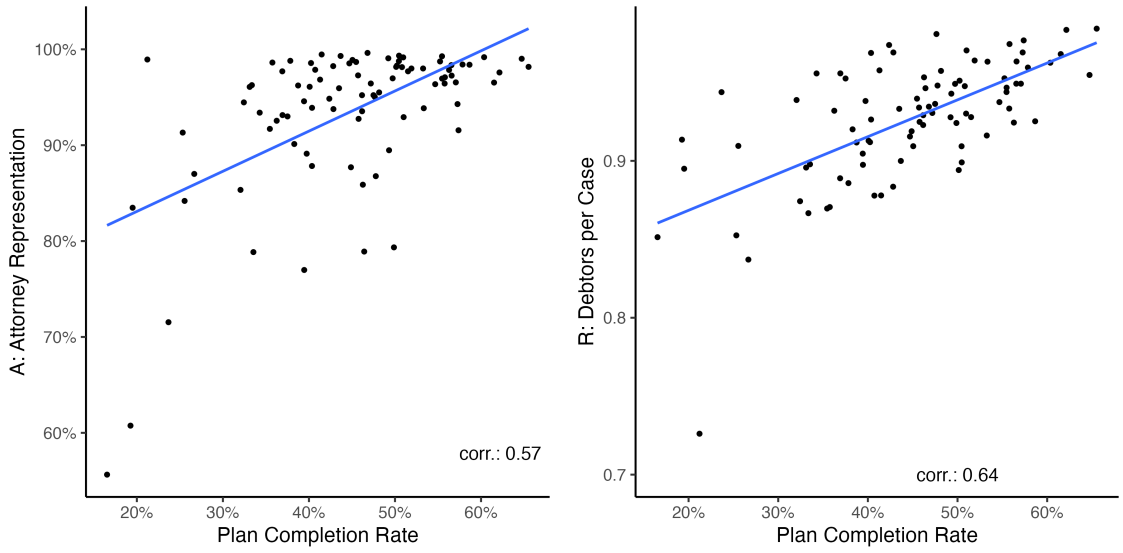
of these factors. We formally decompose the geographic variation in district Plan Completion Rates into four different sources: rates of attorney representation, rates of repeat filings, conversion rates, and the overall Represented Debtor Discharge Rate. To do so, we use the district-level version of equation (4), which for district d is

$$\overline{D}_d^P = \underbrace{\left(\frac{N_{A_d}}{N_d}\right)}_{\mathbf{A}_d\text{: attorneys}} \times \underbrace{\left(\frac{I_{Ad}}{N_{Ad}}\right)}_{\mathbf{R}_d\text{: repeat filings}} \times \underbrace{\left(\frac{\overline{D}_{Ad}^P}{\overline{D}_{Ad}^C}\right)}_{\mathbf{C}_d\text{: conversions}} \times \underbrace{\overline{D}_{Ad}^D}_{\substack{\text{Rep. debtor} \\ \text{discharge rate}}} \tag{5}$$

where the subscript d indicates that everything is computed at the district level. This equation demonstrates that a district's Plan Completion Rate, $\overline{D}_d^P$, reflects variation in these four possible sources. The approximation does not hold exactly, but is quite good, as a district-level simple regression of the Plan Completion on the product of the terms on the right-hand-side has an R-squared of 0.977.[39]

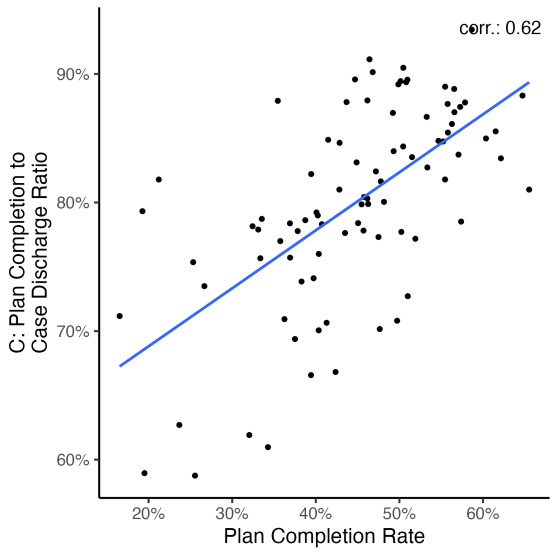
Table 7 shows the extent of cross-district variation in each source. The Plan Completion Rate varies from 17% to 66%. Rates of attorney representation ($\mathbf{A}_d$) in Chapter 13 vary from 56% (CA,C) to 99.6% (LA,W) across districts. The (inverse) measure of repeat filings ($\mathbf{R}_d$), which equals the ratio of individuals to cases, varies from 0.73 (many repeat filings - TN,W) to 0.98 (few repeat filings - VT). The measure of conversions ($\mathbf{C}_d$), which is inversely related to the share of conversions (it is the share of case discharges obtained in Chapter 13), varies from 59% (many conversions - MD) to 93% (few conversions - NC,E). Lastly, the Represented Debtor Discharge Rate ($\overline{D}_{Ad}^D$) varies from 34% to 84%. Equation (5) shows that the commonly used Plan Completion Rate ($\overline{D}_d^P$) reflects the net impact of all of these sources of variation. Illustrating the impact, Figure 3 shows that each of these components is highly correlated with a district's Plan Completion Rate.

[39] There are three sources of errors. First, the approximation assumes the discharge rate in pro se filings is zero. Second, we use our primary measure of the Debtor Discharge Rate, which includes any discharges obtained in six years. To hold exactly, Debtor Discharge Rate should instead include any discharge obtained in a case filed within the sample period of 2008-2014. Finally, a small source of error is that we restrict each filer to at most one discharge, whereas the exact formula would count multiple discharges by the same debtor.

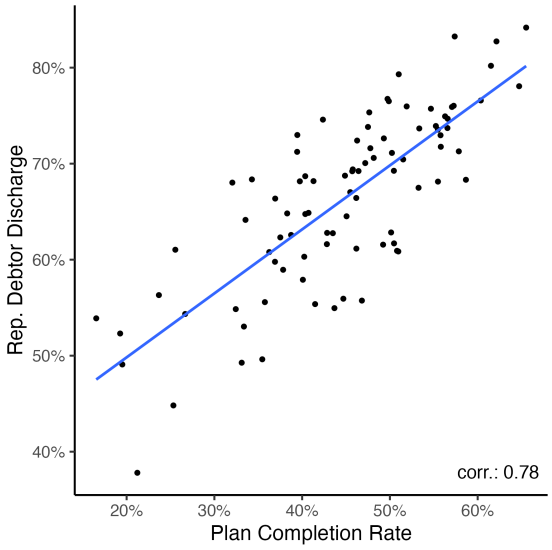


(a) $\mathbf{A}_d$

(b) $\mathbf{R}_d$



(c) $\mathbf{C}_d$



(d) $\overline{D}^{D}_{Ad}$

Figure 3: Components of the Decomposition

Data: 2008-2014 Matched Case Name Sample. Each point represents a district, and the figures plot each term in the right-hand side of equation (5) against the Plan Completion Rate. Matched Case Name Sample from Table 5. The vertical axes of panels (b)-(d) show the district averages for the subsample of debtors with attorney representation.

Table 7: Decomposition Terms

Name	Term	National Value	Min District	Max District
Plan Completion Rate	$\overline{D}_d^{13}$	0.40	0.17	0.66
Attorney Representation	$\mathbf{A}_d = \frac{N_{A_d}}{N_d}$	0.91	0.56	1.00
Repeat Filings	$\mathbf{R}_d = \frac{I_{Ad}}{N_{Ad}}$	0.90	0.73	0.98
Conversions	$\mathbf{C}_d = \frac{\overline{D}_{Ad}^P}{\overline{D}_{Ad}^C}$	0.82	0.59	0.93
Rep. Debtor Disch.	$\overline{D}_{Ad}^D$	0.63	0.38	0.84

Data: 2008-2014 Matched Case Name Sample. This figure shows the decomposition components following equation (5).

Of the possible sources of geographic variation in the Plan Completion Rate - attorney representation, repeat filings, conversions, and the Represented Debtor Discharge Rate - which is the most important? We conduct an exact variance decomposition of the (log) Plan Completion Rate to isolate and quantify the role of each component. This is a standard decomposition method used to quantify the sources of geographic variation in economic conditions (Fadinger et al., 2022; Bilal, 2023) and heterogeneity in firm size (Eaton et al., 2004; Bernard et al., 2022). First, from equation (5), each district's (log) Plan Completion Rate can be written as the sum of the (log) components due to attorney representation, repeat filings, conversions, and the overall discharge rate.

$$\ln(\overline{D}_d^P) = \ln(A_d) + \ln(R_d) + \ln(C_d) + \ln(\overline{D}_{Ad}^D) + r_d \tag{6}$$

The residual captures any errors in the approximation. We then decompose the variance of $\ln(\overline{D}^P)$ in equation (6) as

$$\begin{aligned}\text{Var}[\ln(D_d^P)] = \quad & \text{Cov}[\ln(A_d), \ln(D_d^P)] + \text{Cov}[\ln(R_d), \ln(D_d^P)] + \text{Cov}[\ln(C_d), \ln(D_d^P)] \\ & + \text{Cov}[\ln(D_d^D), \ln(D_d^P)] + \text{Cov}[r_d, \ln(D_d^P)]\end{aligned}$$

The share of the cross-district variation in Plan Completion Rates attributed to component X,

therefore, is

$$S^X = \frac{\text{Cov}[\ln X, \ln(D_d^P)]}{\text{Var}[\ln(D_d^P)]} \tag{7}$$

for $X \in \{A_d, R_d, C_d, \overline{D}_{Ad}^D, r_d\}$. The expression in (7) attributes a share of the variation in (log) Plan Completion Rate to each of the components, and the sum of the shares add to 100%.[40]

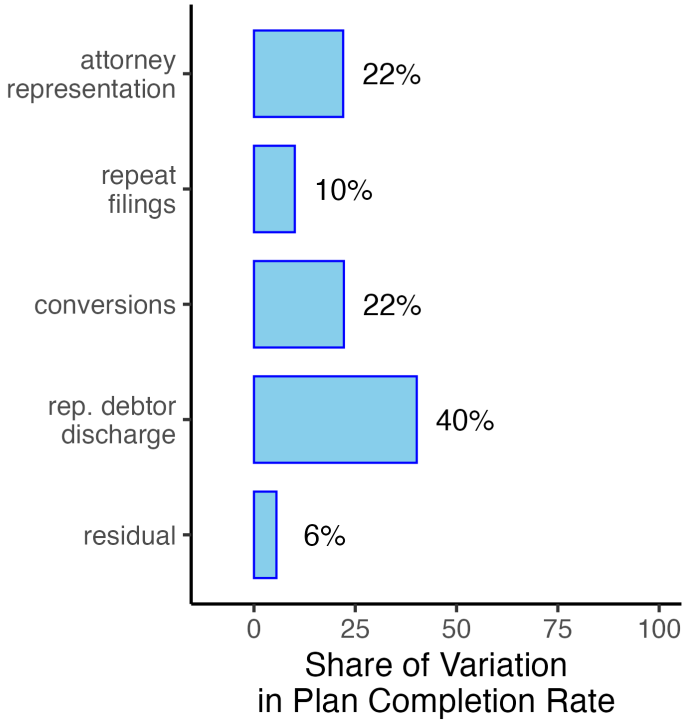


Figure 4: Decomposition of Districts' Plan Completion Rate

Data: 2008-2014 Matched Case Name Sample. Exact variance decomposition of the total geographic variation in districts' Plan Completion Rates.

Figure 4 reports the results of the exact variance decomposition 40% of the variance in Plan Completion Rates across districts reflects differences in the probabilities that a represented debtor obtains a discharge. More than half of the geographic variation does not reflect differences in the probability of a debtor obtaining a discharge (conditional on having an attorney), but in rates of attorney representation, repeat filings, and conversion rates. Thus, when analyzing the geographic patterns of the most common measure of Chapter 13 success - the Plan Completion Rate - one is primarily seeing the effects of differences in district patterns of attorney representation, repeat

[40]The share in equation (7) is also equal to the coefficient estimate from a regression of X on $\ln \overline{D}_d^{13}$, which is the version used in Eaton et al. (2004).

filings, and conversions.

6.3. Correlates of District Discharge Rates

The primary goal of our paper is to accurately measure the discharge rate in Chapter 13 and show how this rate varies across definitions and across districts. But the heterogeneity across districts naturally raises questions about what economic or legal factors generate these differences. In this section, we provide a brief discussion of the existing literature and then empirically analyze the correlates of the cross-district differences in discharge rates in our data. We do not claim to identify causal effects.

The variation in Chapter 13 discharge rates across districts reflects heterogeneity in selection into bankruptcy, i.e., differences in who files for Chapter 13 in each district, and conditional discharge rates, i.e., differences in discharge rates for similar filers across districts. A large literature examines what drives selection into bankruptcy and chapter choice. Economic models often focus on important financial characteristics (income, assets, dischargeable debt) and prominent legal factors (state exemption laws, means testing) that vary across debtors and locations (e.g., Li and Sarte (2006) or Fay et al. (2002)). In models of chapter choice, the central tradeoff is often between the ability to protect non-exempt assets in Chapter 13 versus the ability to protect future income in Chapter 7 (Adler et al., 2000). Statistical models of filing and chapter choice incorporate more detailed financial and demographic characteristics, such as the specific types of assets (homeownership, vehicles), debt (medical debt, mortgage arrears), and demographic characteristics (race, gender, family composition) that are also important (e.g., Domowitz and Sartain (1999) and Lawless and Littwin (2017)). Conditional on debtor characteristics, where debtors live also matters. Keys et al. (2023) uses a mover-design to show that location, apart from a debtor's characteristics, drives filing decisions and chapter choice. Moreover, they find no strong patterns between these place-based effects and prominent state laws or economic characteristics relevant to bankruptcy decisions, consistent with an important role for informal local legal culture in bankruptcy.

Less is known about the determinants of Chapter 13 discharge conditional on filing. Dobbie and Song (2015) and Dobbie et al. (2017) use randomized judge assignment and identify the effect of specific judges on Chapter 13 discharge rates. Eraslan et al. (2017) estimates a structural model that highlights the effect of plan length on dismissal rates in Chapter 13. Greene et al. (2017) use detailed, case-level data to examine heterogeneity in Chapter 13 discharge rates across debtor

financial characteristics, demographics, measures of household economic security, and bankruptcy system processes. They find that wage orders and conduit plans are not strongly associated with the likelihood of discharge, while Black filers, the presence of young children, and the lack of health insurance are associated with lower discharge rates. Morrison and Uettwiller (2017) also uses detailed case-level data from Cook County, Illinois, and find significant heterogeneity across debtors, with especially low discharge rates among those with mortgage arrears or traffic-related fines, and provides evidence that these debtors file Chapter 13 for reasons other than paying a discharge. Consistent with this, Morrison et al. (2020) exploit a policy change to provide causal evidence that traffic-related fines induce Chapter 13 filings.

Given the variety of factors potentially causing the variation in discharge rates across districts, our empirical strategy takes a broad, correlational approach to examine which factors are most correlated with the district-level variation. We conduct a two-part empirical analysis to examine differences in selection and district characteristics that are associated with heterogeneity in districts' discharge rates. In the first step, we gauge the role of selection by examining how much controlling for the observable characteristics of debtors reduces the cross-district variation in discharge rates. To do so, we estimate logit models with discharge (Plan Completion and, separately, the Represented Debtor Discharge) as the dependent variable and control for district fixed effects and case-level characteristics observable in the FJC.[41] The case-level observable characteristics we include are indicators for a joint filing, prior filings, pro se, whether the filing fees were paid in full at the time of filing, having real property, and having above-median income based on the means-test thresholds. We also include the filers' average monthly income, total assets, secured debt, unsecured debt, and nondischargeable debt. The coefficient estimates from this model are reported in Online Appendix Table A.4. Consistent with earlier evidence, those who file jointly with a spouse or who pay their fee in full upon filing are more likely to obtain a discharge, and those with prior filings and pro se debtors are less likely to obtain a discharge. Perhaps reflecting the incentives to discharge debt, those with more secured and non-dischargeable debt are less likely to obtain a discharge, while those with more unsecured debt are more likely to obtain a discharge.

Using the estimated coefficients from the logit models, we then form composition-adjusted district discharge rates by predicting the probability of discharge in each district for an identical

[41] When estimating the Represented Debtor Discharge Rate, we restrict the sample to debtors represented by an attorney.

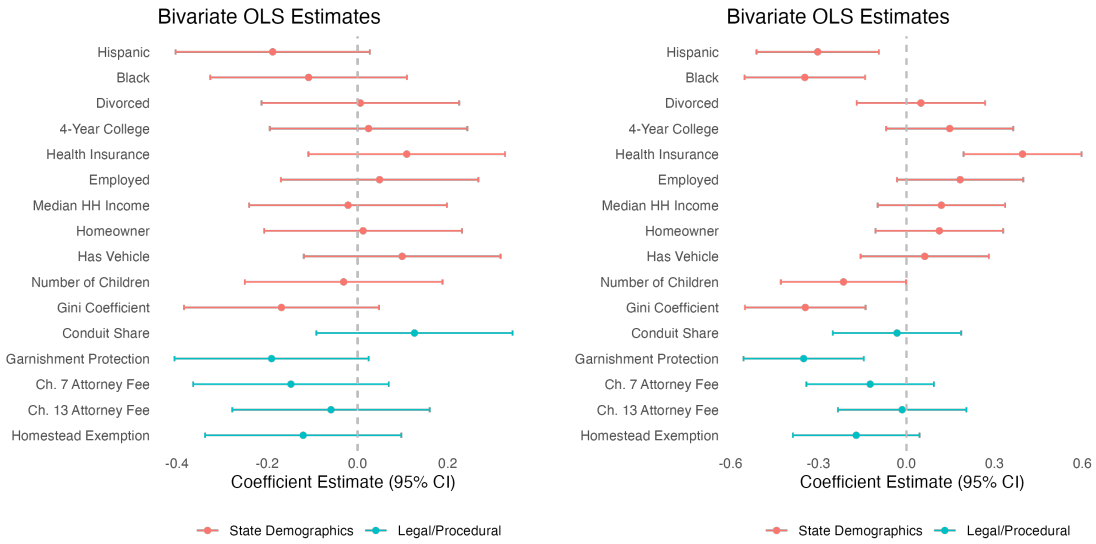
debtor whose observable characteristics are set to their respective mean values from the national sample. That is, the composition-adjusted discharge rates reflect the probability of discharge in each district for an "average" debtor. We do this both for the Plan Completion Rate and the Represented Debtor Discharge Rate. For the Plan Completion Rate, adjusting for the composition causes the cross-district variance in discharge rates to fall by 26.7%. For the Represented Debtor Discharge Rate, the variance falls by 31.6%. Thus, differences in observable selection of bankruptcy filers explain roughly a quarter of the heterogeneity in district discharge rates. Since there are many relevant characteristics that we do not observe in the FJC data (e.g. demographic variables such as family size or race), these shares likely reflect a lower bound on the importance of selection in explaining the cross-district variation.

In the second step, we examine whether geographic differences in demographic conditions, economic conditions, and bankruptcy-related laws or practices are correlated with the composition-adjusted district discharge rates. We consider a variety of demographic, economic, and legal characteristics common in the literature, many taken from Keys et al. (2023). For the demographic variables, include state-level ethnicity (share Hispanic), race (share Black), divorce, college degrees, health insurance, employment, median income, homeownership, vehicle ownership, the presence of children, and the Gini coefficient. Some of these variables (homeownership, income) overlap with individual-level controls included in the first step, but we include them again here to allow for the possibility that state-level factors have an independent effect. We also include legal controls for whether districts use conduit Chapter 13 plans (mortgage paid through the plan), garnishment protection, attorney fees, and homestead exemptions. We present detailed descriptions of the variables in Online Appendix Table A.5, and focus on the most significant ones here. To examine correlations, we employ a standard method from the mover-design literature (Chetty and Hendren, 2018; Finkelstein et al., 2021; Keys et al., 2023) which separately estimates a bivariate regression of each variable on the district-level composition-adjusted discharge rate. The dependent variable and all covariates are standardized to have a mean of zero and a standard deviation of one.

Figure 5 reports the results from this correlation analysis for the composition-adjusted Plan Completion Rate and composition-adjusted Represented Debtor Discharge Rate. For the Plan Completion Rate, none of these covariates are significantly correlated at the 5% level. This finding is similar to the results of Keys et al. (2023), which found no consistent patterns between these

characteristics and composition-adjusted bankruptcy filing rates. For the Represented Debtor Discharge Rate, we find that the shares of state residents that are Hispanic or Black are negatively associated with discharge rates,[42] and health insurance is positively correlated. These results are consistent with those of Greene et al. (2017), which found similarly signed correlations for Black filers and health insurance when using individual-level data. We also find that discharge rates are negatively correlated with garnishment protection and income inequality (Gini coefficient for household income). A drawback of bivariate regressions is that they consider each variable individually, so we also report results from a post-Lasso multivariate regression in Online Appendix Figure A.4. Again, we find no variables correlated with the Plan Completion Rate and that the share of the population that is Black and garnishment protection remain significantly negatively correlated with the Represented Debtor Discharge Rate. These relationships are merely correlations and do not necessarily reflect causal effects, though they support existing evidence about the importance of race and health insurance, Greene et al. (2017), and also suggest areas for further research, such as the importance of wage garnishment for Chapter 13 filers.

[42]Some of the estimated negative relationship between the share of state residents that are Hispanic and the Debtor Discharge Rate could be due to our matching procedure. As we note in Appendix C, our matching procedure performs less well in regions with a high concentration of Hispanic names because of the number of common names that appear in multiple zip codes. Imperfect matching of Hispanic names, however, would not be a problem for the Plan Completion Rate, which also shows a negative relationship between Hispanic share and the discharge rate.



(a) Plan Completion Rate (b) Represented Debtor Discharge Rate

Figure 5: Correlates of Composition-Adjusted District Discharge Rates

Figure shows bivariate OLS coefficients of bivariate regressions of each covariate and the composition-adjusted district discharge rate. To adjust for the composition, we estimate a case-level logit model (reported in Online Appendix Table A.4) with district fixed effects, and then form district-specific predicted probabilities evaluated at the national mean of all covariates. These predictions represent each district's probability of discharge for a debtor with the mean value of each respective covariate. Panel (a) reports correlations with the Plan Completion Rate, and panel (b) reports correlations with the Represented Debtor Discharge Rate. The dependent variable and all covariates have been standardized to have a mean of zero and a standard deviation of one. The Conduit Share regressions exclude districts in Alabama and North Carolina because the measure of Conduit Share is unavailable for these states. Colors denote the variable group as the mean characteristics of adult state residents or state and district legal/procedural characteristics. Detailed covariate descriptions are included in Online Appendix Table A.5.

7. Conclusion

The most prominent statistic about Chapter 13 is that only one in three Chapter 13 plans end in a discharge. This statistic has been cited for decades, has been reproduced in numerous studies, and underpins much of the criticism about Chapter 13 outcomes. But much of the data behind this statistic is mostly decades old, from small and geographically selective samples, and makes specific choices about how to define "discharge." More recent estimates exist, including estimates from national samples, but the estimates exhibit more variation across studies and often differ from the one-third statistic (see Table 1). Because these papers use a variety of methods and multiple definitions of discharge, it is difficult to understand what drives the differences in estimates. This paper reexamines the overall discharge rate in Chapter 13 with the universe of recent Chapter 13 cases and applies several reasonable definitions of what constitutes a discharge.

There are three main contributions and results. First, we emphasize that the measured discharge rate in Chapter 13 depends on how one treats conversions, repeat filings, and attorney representation, and we estimate the multiple corresponding definitions of the discharge rate. Second, empirically, we find that recent discharge rates are consistently higher than the oft-cited one-third statistic and vary significantly across definitions of discharge, ranging from 40% (percent of Chapter 13 cases that obtain a discharge in Chapter 13) to 66% (percent of attorney-represented, first-time Chapter 13 debtors who obtain a discharge within six years). Finally, we show that the choice of definition affects the geographic variation in discharge rates across districts. Some districts have high discharge rates by one measure, and low discharge rates by another.

Although higher than the canonical one-third rate, these rates are still far below the discharge rate of Chapter 7. Thus, if a debtor's only goal is to obtain a discharge, most debtors should file under Chapter 7 if eligible. But obtaining a discharge is not always the only goal of debtors who file under Chapter 13. Often, debtors file to retain property, especially their home (White and Zhu, 2010).[43] Others use Chapter 13 to address the consequences of parking or traffic violations (Morrison et al., 2020). Whether the pursuit of these other goals is a sufficient justification for choosing Chapter 13 is a question we leave to future work. Lastly, our work documents the variation

[43] In a survey of Chapter 13 debtors with failed plans, Porter (2011) finds that the "most important goal" of most (51.5%) homeowners was to "keep house." "Get a Fresh Start" (5.9%) and "Discharge Unsecured Debts" (5.0%) were less common choices. However, most (75.9% and 61.6%) did list these as "very important," indicating that discharge is still a primary goal.

in discharge rates across districts and whether it is driven by attorney representation, conversion rates, and refiling rates, but additional research is needed to understand why these differences exist.

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Online Appendix: Chapter 13 Outcomes

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A. Tables and Figures

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Paper	Details
Sullivan et al. (1989)	**Sample** 481 Chapter 13 cases in the 1981 Consumer Bankruptcy Project. The 1981 Consumer Bankruptcy Project sampled 1,529 individual bankruptcy cases from the universe of case filed in 1981 in three states (IL, PA, and TX). **Discharge** The reported discharge rate is the share of cases that, at the time the authors collected the data in 1983-1985, were still paying. Specifically, still-paying cases are those that had not been dismissed, converted, were not "troubled," and were not missing. Troubled cases are those that had no confirmed plan or had received post-confirmation motions to dismiss or convert. **Source** Figure 12.1
Hildebrand III (1994)	**Sample** National Association of Chapter 13 Trustees' survey of its members around 1993, asking each trustee for his or her average plan completion rate. The response rate was 87% (158/183 trustees) **Discharge** The reported discharge is the unweighted average of trustee responses. Trustees were asked to estimate the average completion rate among Chapter 13 cases completed in their jurisdiction. **Source** p. 1
Whitford (1994)	**Sample** The National Association of Chapter 13 Trustees' survey of Chapter 13 trustees conducted in 1993. The response rate was 71% (124/174 trustees). **Discharge** The national plan completion rate is the unweighted average of trustee responses in each region. The discharge rate is the unweighted average of the percent of cases closed as completed in the 21 regions. **Source** p. 411
Norberg (1999)	**Sample** Systematic sample of 71 Chapter 13 cases filed in the Southern District of Mississippi between 1992 and 1998 and closed in January through June of 1998. The study samples cases closed under Chapter 13, and therefore do not include any Chapter 13 cases that were converted into Chapter 7. **Discharge** Discharges as a share of cases closed under Chapter 13. Sample excludes any converted cases **Source** Table 9
Bermant and Flynn (2000)	**Sample** Aggregated state-level data from the Executive Office for the U.S. Trustee for cases closed in FY1998. **Discharge** We report the unweighted average of the plan completion rate for the six cities in the middle of the state-level distribution. **Source** Table 6
Braucher (2001)	**Sample** 7,746 Chapter 13 cases filed in 1994 within trusteeships of five cities. The five cities are Fort Worth, Sacramento, Greensboro, Charlotte, and San Antonio. **Discharge** Plan Completion **Source** Table 1
Norberg and Velkey (2006)	**Sample** 795 Chapter 13 cases filed in 1994, including a minimum of 100 cases from each of seven districts (GAN, GAS, NCM, TNM, TNW, MD, PAW) **Discharge** Plan Completion **Source** Table 19
Flynn (2014)	**Sample** Aggregate district-level statistics from the AOUSC based on the 2,264,505 Chapter 13 Cases Closed in FY 2007-2013. **Discharge** Plan Completion **Source** Table 1
Dobbie and Song (2015)	**Sample** First-time Chapter 13 filers between 1992 and 2005 from 72 bankruptcy courts **Discharge** Plan Completion Rate among first-time filers. Although not explicitly stated, we assume converted cases are not counted as discharged. **Source** Table 1
Flynn (2017)	**Sample** From FJC's Integrated Database, a sample of 123,185 cases originally filed as Chapter 13s that were closed between fiscal years 2010 and 2016. It includes all cases closed on one day per month (randomly selected) for each of the 84 months during this period. For states with less than 300 cases in the original sample, all Chapter 13 cases closed from fiscal years 2010-2016 were used. **Discharge** Plan Completion **Source** Table 1, Row 1.
Foohey et al. (2017)	**Sample** 2007 Consumer Bankruptcy Project, consisting of a random, national sample of 2,438 consumer bankruptcy cases filed in the fifty states and DC in January and February 2007. We estimate the number of cases by multiplying the 2,438 2007 CBP cases by the Chapter 13 rate of 32.9% reported in Table 1, equaling 802 cases. **Discharge** We report the weighted average of the money-down and no-money-down Case Discharge Rates in Table 5, weighting by the 2007 shares of each reported in Table 1. **Source** Table 5
Greene et al. (2017)	**Sample** 770 Chapter 13 cases from the 2007 Consumer Bankruptcy Project, a national, random sample of bankruptcy cases filed in January - February 2007. **Discharge** Plan Completion **Source** Table 1
Dobbie et al. (2017)	**Sample** First-time Chapter 13 filers between 6/2002 and 12/2005 from 29 bankruptcy districts that have random judge assignment. **Discharge** Plan Completion Rate among first-time filers. Although not explicitly stated, we assume converted cases are not counted as discharged. **Source** p. 860
AOUSC (2017)	**Sample** Chapter 13 Individual Debtor Cases with Primarily Consumer Debts Closed during CY 2017. **Discharge** Plan Completion for Cases Closed Under Chapter 13. Sample excludes any converted cases. **Source** Row 1

Table A.1: Details for Estimates in Table 1

A: 2008-2014 Matched Sample Ch.13 Cases

Disposition	All Cases		Prior Filing		Pro Se	
	Closed 13	Closed Other	Closed 13	Closed Other	Closed 13	Closed Other
	(1)	(2)	(3)	(4)	(5)	(6)
Total in Column	89.76	10.24	92.89	7.11	95.31	4.68
Standard Discharge	40.31	9.18	28.04	5.74	1.23	1.80
Dismissed for Failure to Make Plan Payments	22.72	0.00	30.01	0.00	6.43	0.00
Dismissed for Other Reason	16.17	0.57	21.22	0.79	28.68	2.04
Dismissed for Failure to File Information	7.04	0.09	8.12	0.09	51.47	0.38
Dismissed for Failure to Pay Filing Fee	1.40	0.02	2.19	0.02	5.45	0.07
Discharge Withheld for Other Reasons	0.39	0.02	0.78	0.03	0.07	0.02
Discharge Withheld: Financial Management Course	0.33	0.24	0.32	0.24	0.03	0.25
Discharge Withheld: Financial Management Course and Pay DSO	0.22	0.00	0.23	0.00	0.01	0.00
Discharge Not Applicable	0.21	0.03	0.53	0.04	0.06	0.02
Hardship Discharge	0.20	0.00	0.18	0.00	0.01	0.00
Case not closed	0.15	0.00	0.17	0.00	0.22	0.00
Discharge Withheld: Failure to Comply with DSO	0.15	0.00	0.13	0.00	0.01	0.00
Discharge Denied	0.14	0.04	0.41	0.10	0.02	0.04
Dismissed for Abuse	0.10	0.02	0.24	0.02	0.74	0.04
Dismissed: Failure to Pay Filing Fee and to File Information	0.10	0.00	0.15	0.00	0.72	0.00
Inter-District Transfer	0.04	0.00	0.03	0.00	0.07	0.00
Filed in Error	0.03	0.00	0.04	0.00	0.07	0.00
Discharge Waived	0.03	0.01	0.08	0.01	0.00	0.00
Split or Deconsolidated	0.03	0.01	0.03	0.01	0.00	0.00
Closed in Error	0.00	0.00	0.00	0.00	0.00	0.00
Discharge Revoked	0.00	0.01	0.01	0.01	0.00	0.00
Homestead Exemption/Felony Conviction	0.00	0.00	0.00	0.00	0.00	0.00
Intra-District Transfer	0.00	0.00	0.00	0.00	0.00	0.00

Table A.2: Final Disposition of Chapter 13 Cases

Data: Matched Case Name Sample (2008-2014). This table shows the share of all cases filed under Chapter 13 ending in each final disposition. Shares are reported in percentage points. Columns (1) and (2) show outcomes for all cases (both columns combined add to 100%), columns (3) and (4) show outcomes for cases with prior filings, and columns (5) and (6) show the outcomes for pro se cases. The number "0.00" reflects that the share is less than 0.01%.

Court	Plan Compl.	Rep. Debtor Disch.	Court	Plan Compl.	Rep. Debtor Disch.
akb	40.4	68.7	nceb	58.7	68.3
almb	49.2	61.6	ncmb	53.3	67.5
alnb	35.8	55.6	ncwb	43.5	62.8
alsb	43.7	55.0	ndb	62.1	82.7
areb	41.5	55.4	neb	60.4	76.6
arwb	45.1	64.5	nhb	39.4	71.2
cacb	16.5	53.9	njb	40.4	64.8
caeb	39.4	73.0	nmb	34.3	68.4
canb	49.9	76.5	nvb	39.7	68.2
casb	33.5	64.1	nyeb	19.3	52.3
cob	54.7	75.7	nynb	50.2	71.1
ctb	19.5	49.1	nysb	46.3	72.4
dcb	23.7	56.3	nywb	57.8	71.3
deb	47.8	71.6	ohnb	47.2	70.1
flmb	44.9	68.7	ohsb	56.3	74.9
flnb	37.5	62.3	okeb	55.8	71.8
flsb	46.4	69.2	oknb	48.2	70.6
gamb	50.1	62.8	okwb	51.5	70.4
ganb	26.7	54.3	orb	57.3	76.0
gasb	51.0	60.9	paeb	25.3	44.8
hib	53.3	73.7	pamb	46.2	66.4
ianb	42.4	74.6	pawb	42.8	61.6
iasb	41.3	68.2	rib	32.0	68.0
idb	36.9	66.4	scb	50.8	60.9
ilcb	55.2	73.9	sdb	56.6	74.7
ilnb	32.4	54.8	tneb	37.8	58.9
ilsb	50.5	69.3	tnmb	40.2	60.3
innb	40.7	64.9	tnwb	21.2	37.8
ksb	64.7	78.1	txeb	33.1	49.3
kyeb	55.5	73.5	txnb	33.4	53.0
kywb	45.5	67.0	txsb	35.5	49.6
laeb	46.2	61.2	txwb	40.1	57.9
lamb	36.3	60.8	utb	56.6	73.7
lawb	46.8	55.7	vaeb	45.8	69.4
mab	38.3	64.8	vawb	57.1	75.9
mdb	25.5	61.0	vtb	65.5	84.2
meb	49.7	76.7	waeb	55.8	73.0
mieb	45.7	69.2	wawb	49.3	72.6
miwb	51.9	76.0	wieb	38.7	62.6
mnb	61.5	80.2	wiwb	47.5	73.8
moeb	36.9	59.8	wvnb	57.4	83.2
mowb	55.5	68.1	wvsb	47.6	75.3
msnb	50.5	61.7	wyb	42.8	62.8
mssb	44.7	55.9	azb	n/a	n/a
mtb	51.0	79.3	insb	n/a	n/a

Table A.3: District Discharge Rates

Data: 2008-2014 Matched Case Sample. This table shows the Plan Completion Rate and the Represented Debtor Discharge Rate for each district.

	Plan Comp.	Marg. Eff.	Rep. Debtor Disch.	Marg. Eff.
	(1)	(2)	(3)	(4)
Joint File	0.417***	0.099	0.511***	0.118
	(0.022)		(0.021)	
Prior File	-0.621***	-0.151	-0.674***	-0.163
	(0.026)		(0.027)	
Pro Se	-2.859***	-0.533		
	(0.160)			
Fee Paid in Full	0.307***	0.075	0.279***	0.067
	(0.051)		(0.033)	
Average Monthly Income (in thousands)	-0.007	-0.002	-0.046***	-0.011
	(0.005)		(0.005)	
Above Median Income	0.488***	0.117	0.525***	0.123
	(0.026)		(0.023)	
Has Real Property	0.227***	0.055	0.140**	0.033
	(0.045)		(0.045)	
Total Assets (in thousands)	0.000+	0.000	-0.001***	-0.000
	(0.000)		(0.000)	
Secured Debt (in thousands)	-0.001***	-0.000	-0.000	-0.000
	(0.000)		(0.000)	
Unsecured Debt (in thousands)	0.002***	0.001	0.005***	0.001
	(0.000)		(0.000)	
Non-Dischargeable Debt (in thousands)	-0.005***	-0.001	-0.006***	-0.001
	(0.000)		(0.000)	
Num.Obs.	2,068,979		2,008,224	
R2	0.093		0.083	

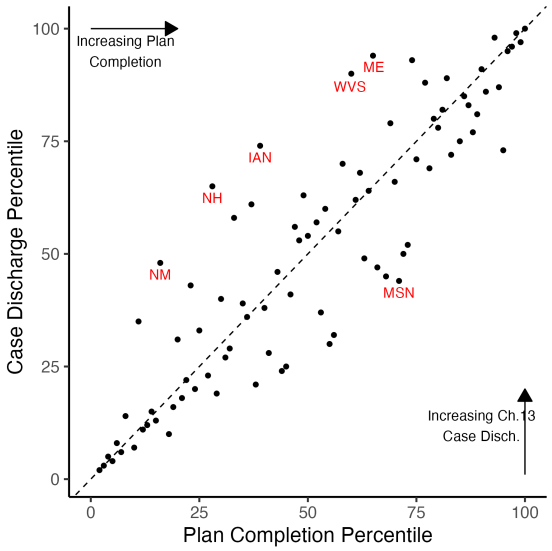
Table A.4: Coefficients and Marginal Effects from Case-Level Logit Models

This table reports estimated coefficients and marginal effects from a case-level logit model of discharge, estimated on the 2008-2014 Matched Case Sample from the 88 federal court districts (excluding US territories, Arizona, and the Southern District of Indiana). All observations with any missing variables are dropped. All models include district fixed effects. The dependent variable in columns (1) and (2) is plan completion, i.e., whether the debtor obtained a discharge in Chapter 13 in the original case. The dependent variable in columns (3) and (4) is debtor discharge, i.e., whether the debtor obtained any discharge within six years of filing. The sample in columns (3) and (4) is further restricted to represented (not pro se) filers, and so the estimates reflect the represented debtor discharge rate. Marginal effects are reported for a one-unit increase in the variable and evaluated at the sample mean. For discrete variables, the marginal effect is the change in the predicted probability as that variable goes from zero to one, with other variables set to the mean. $^{+}p < 0.10$, $^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$

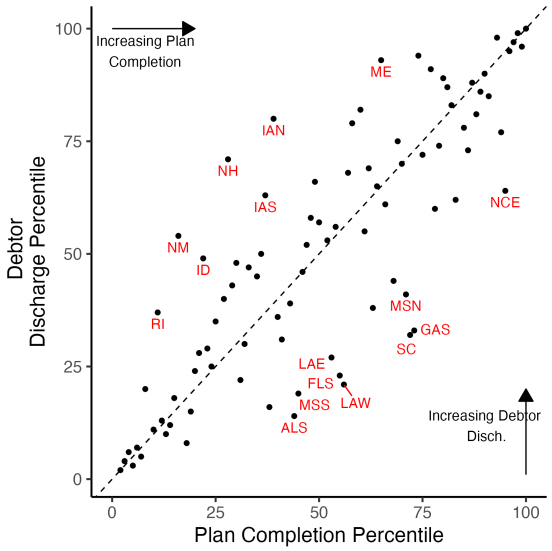
Group	Variable	Unit	Definition	Source
State Characteristics				
	Hispanic	State	Share of state residents over 20 years old with Hispanic ethnicity	ACS 5-year (2011-2015)
	Black	State	Share of state residents over 20 years old reporting race as Black	ACS 5-year (2011-2015)
	Divorced	State	Share of state residents over 20 years old divorced	ACS 5-year (2011-2015)
	4-Year College	State	Share of state residents over 20 years old reporting at least 4 years of college	ACS 5-year (2011-2015)
	Health Insurance	State	Share of state residents over 20 years old with health insurance	ACS 5-year (2011-2015)
	Employed	State	Share of state residents over 20 years old employed	ACS 5-year (2011-2015)
	Median HH Income	State	Median household income (2010 dollars)	ACS 5-year (2011-2015)
	Homeowner	State	Share of households owning home	ACS 5-year (2011-2015)
	Has Vehicle	State	Share of households with at least one vehicle	ACS 5-year (2011-2015)
	Number of Children	State	Average number of children in a household	ACS 5-year (2011-2015)
	Gini Coefficient	State	Gini coefficient for state's household income	ACS 5-year (2011-2015)
Legal Variables				
	Conduit Share	Mixed	Share of Total Chapter 13 Trustee Receipts that go to ongoing mortgage payments. Unavailable for AL and NC. Available only at the state-level for AR and WV. HI includes GU and NMI.	Chapter 13 Final Trustee Reports from 2010-2014.
	Garnishment Protection	State	Weekly wages protected (in dollars) from garnishment for a debtor that is working full-time at minimum wage and is the head of a four-person household that includes two dependent children. States that protect all wages are coded as the maximum protection in the states with finite garnishment protection.	National Consumer Law Center. (2019). No fresh start in 2019: How states still allow debt collectors to push families into poverty.
	Chapter 7 Attorney Fee	State	Average Chapter 7 attorney fees during the post-BAPCPA period	Lupica, L. (2011). The consumer bankruptcy fee study. Available at SSRN 2132913.
	Chapter 13 Attorney Fee	State	Average (pre- and post-petition) Chapter 13 attorney fees during the post-BAPCPA period	Lupica, L. (2011).
	Homestead Exemption	State	Homestead exemption for a married debtor in 2012. Use the max of state and federal exemptions where available. Unlimited exemptions coded as the maximum of among states with finite exemptions. NY and WA, which have within-state variation, are coded as the maximum exemption available within the state.	Indarte, S. (2023). Moral hazard versus liquidity in household bankruptcy. The Journal of Finance, 78(5), 2421-2464.

State characteristics data are from the American Community Survey (ACS).

Table A.5: Data Description for Correlation Analysis



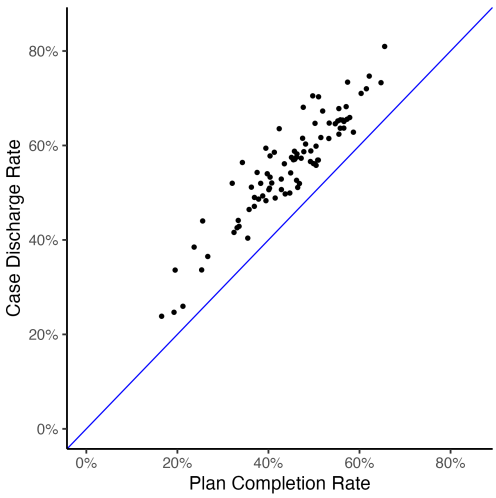
(a) Case Discharge Rate



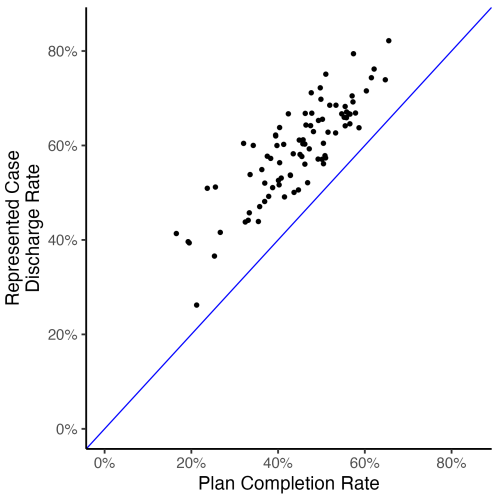
(b) Debtor Discharge Rate

Figure A.1: Correlation of Two Discharge Measures

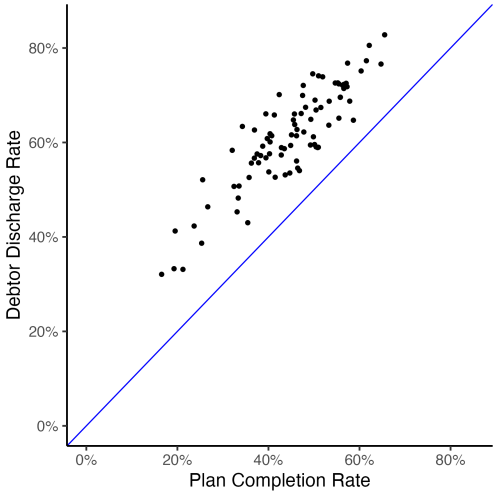
Data: 2008-2014 Matched Case Name Sample. Each point shows a district's percentile in the distribution of Plan Completion Rates (horizontal axis) and Case Discharge Rates (vertical axis, figure a) or Debtor Discharge Rate (vertical axis, figure b).



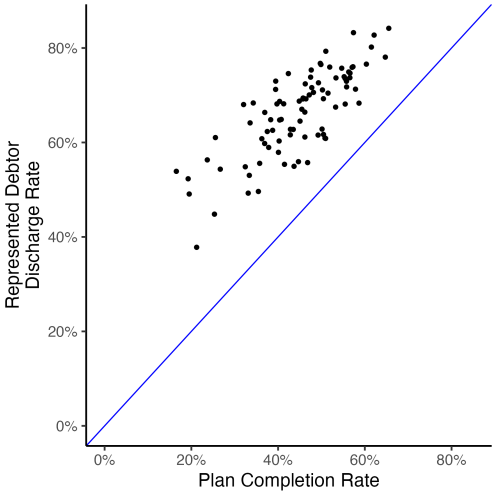
(a) Case Discharge Rate



(b) Represented Case Discharge Rate



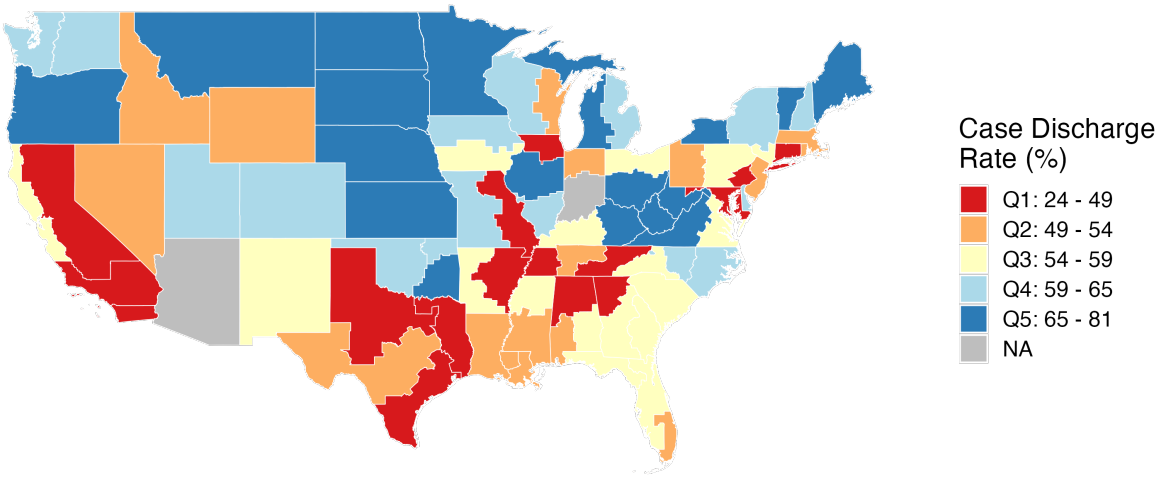
(c) Debtor Discharge Rate



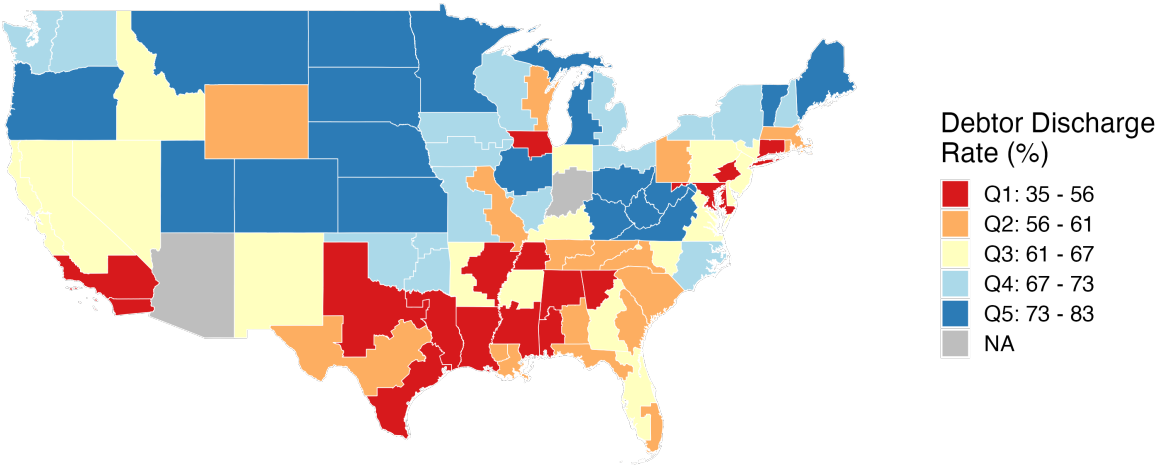
(d) Represented Debtor Discharge Rate

Figure A.2: Comparison with Plan Completion Rate

Data: 2008-2014 Matched Case Name Sample. Each point represents a district (US territories are excluded). Blue line shows 45-degree line.



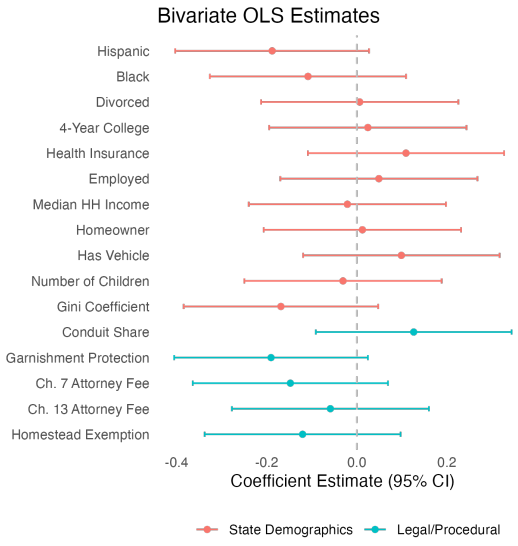
(a) Case Discharge Rate $\overline{D}^C$



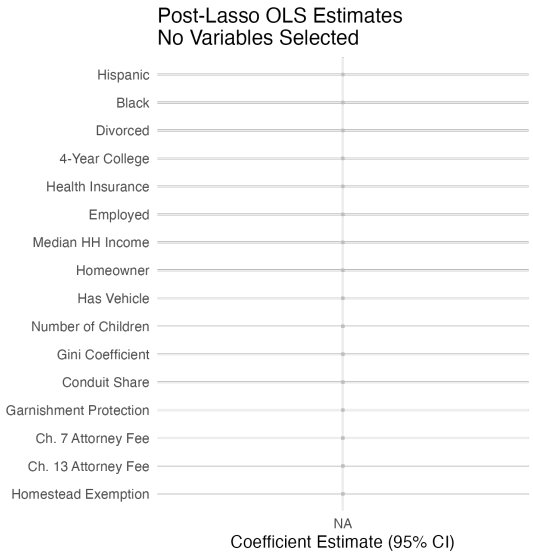
(b) Debtor Discharge Rate $\overline{D}^D$

Figure A.3: Comparing Discharge Definitions

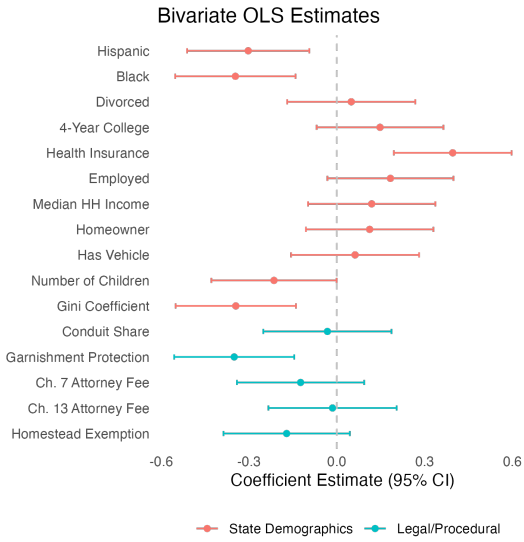
Data: 2008-2014 Matched Case Name Sample. Arizona and Indiana, Southern District are missing from the matched case name sample. Colors group districts into quintiles.



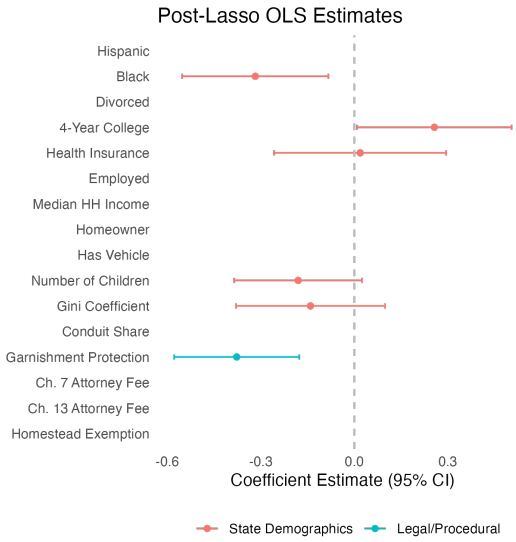
(a) Plan Completion Rate



(b) Plan Completion Rate



(c) Represented Debtor Discharge Rate



(d) Represented Debtor Discharge Rate

Figure A.4: Post-Lasso Correlates of Composition-Adjusted District Discharge Rates

This figure reports the bivariate and post-Lasso analysis following the strategy of Figure 5. To adjust for the composition, we estimate a case-level logit model (reported in Table A.4) with district fixed effects, and then form district-specific predicted probabilities evaluated at the national mean of all covariates. These predictions represent each district's probability of discharge for a debtor with the mean value of each respective covariate. To obtain the post-Lasso estimates, we first run a Lasso regression on the full set of covariates, with the penalty level chosen by 5-fold cross-validation to minimized the mean squared error. We then run a multivariate OLS regression on the set of covariates selected by the Lasso regression. The Conduit Share bivariate regressions and the post-Lasso samples exclude districts in Alabama and North Carolina because the measure of Conduit Share is unavailable for these states. Detailed covariate descriptions are included in Appendix Table A.5. The Lasso model in panel (b) selects no coefficients, indicating that none are strongly correlated with the out-of-sample outcomes.

B. Sampling Filings vs. Sampling Closed Cases

Our paper uses the universe of Chapter 13 cases *filed* within a specific time frame (2010-2017), while several other papers - Norberg (1999), Bermant and Flynn (2000), Flynn (2014), Flynn (2017), and AOUSC (2017) - examine samples of cases *closed* within a certain time frame. This section discusses the potential bias resulting from sampling closed cases. In general, sampling closed cases is a form a length-based sampling, and biases and potential corrections for such sampling have been widely discussed in the literature examining unemployment durations (Kiefer, 1988; Wooldridge, 2010). For simplicity, we focus our discussion on the impact on estimating the Plan Completion Rate, although the insights apply equally to the other measure of the Chapter 13 discharge rate.

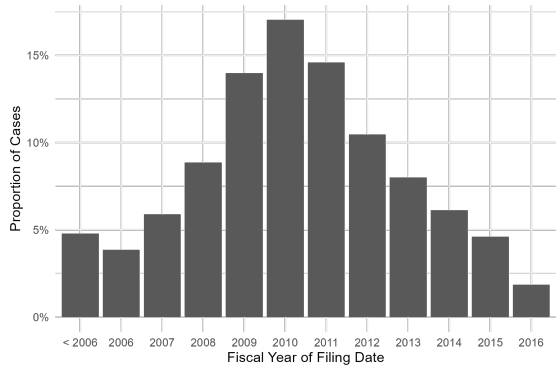
When estimating discharge rates, the object of interest (estimand) is the probability of discharge for some population of bankruptcy cases. When sampling filed cases, this population is well-defined, e.g., cases filed in FY2010-2016, and this population remains constant across U.S. states or court districts. When sampling closed cases, however, the population is difficult to interpret and varies across states. This variability in the population sampled arises because, when sampling closed cases, whether a case enters the sample depends on (i) when the case was filed and (ii) the duration of the case. Because discharges are tightly linked to the duration of the cases, the length-based sampling implied by condition (ii) will bias discharge rates.

As an example, consider cases closed in FY2010-2016, the period used in Flynn (2017). Figure B.1(a) shows the distribution of filing dates for cases that closed in FY2010-2016. The filing dates of these cases span more than a decade (with a handful, surprisingly, filed in the 1980s), and nearly 5% of these cases were filed in the pre-BAPCPA era. For cases in this sample that were filed before FY2006, they must be open for at least five years to enter the sample. For cases filed in FY2015, they must close within two years of filing to enter the sample. This sampling based on the duration of the case will heavily influence estimated discharge rates because the probability of plan completion depends on the duration. The relationship between duration and discharge is evident in Figure B.1(b), which shows that 85.5% of cases filed before FY2006 in this closed-case sample end in plan completion, while almost 0% of cases filed in FY2015 end in plan completion. As a result, fluctuations in the number of cases filed each year will alter the composition of the sample and affect the estimated Plan Completion Rate from a sample of closed cases, even if the probability

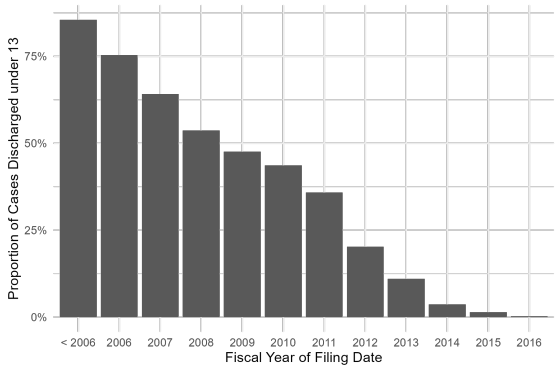
that a filed case obtains discharge remains constant. This bias from sampling closed cases was also recognized in Braucher (2001), which notes "completion rates are sometimes reported as a percentage of cases closed in a given year, but such figures are distorted by, among other factors, changes in the volume of filings from year to year." These "other factors" include, for example, changes in the composition of filers over time, fluctuations in the number of 3-year versus 5-year plans, or fluctuations in conversion rates.

The bias from closed-case sampling can be worse when estimating district-specific discharge rates. This is because trends in bankruptcy filings vary across court districts, so the population of cases sampled and the resulting bias will also differ across districts. For example, when using district-specific samples of cases closed in FY2010-2016, the share of the sample that was filed before FY2006 varies across districts from less than 1% to more than 10%. Similarly, the share filed after FY2013 varies from less than 5% to more than 25%. This cross-district heterogeneity reflects differences in the probability of a case remaining open, as intended when measuring discharge rates, but also cross-district differences in the number of bankruptcy filings each year. If bankruptcy filings are trending downward in a district (relative to other districts), this would increase the estimates of that district's discharge rate in a sample of closed cases. Thus, cross-districts comparisons of Plan Completion Rates in closed case samples are difficult to interpret because the population of cases varies.

These sampling considerations meaningfully affect estimates of the discharge rates. To illustrate, we compare estimated Plan Completion Rates for a sample of cases filed in FY2010-2016 to a sample of cases closed in FY2010-2016. At a national level, estimates from the two samples happen to be fairly similar: 39.6% for filed cases vs. 38.1% for closed cases. But this national similarity masks more significant variation across districts. Figure B.2(a) compares the district-specific Plan Completion Rates for the two samples. Twenty-one of the ninety-four districts have a difference of at least five percentage points. For example, the Chapter 13 Plan Completion Rate based on filed vs. closed cases is 46.2% vs. 33.5% in the Southern District of New York, and 47.7% vs. 54.7% in the Southern District of Illinois. Because a Chapter 13 case can last many years, cases closed in FY2010-2016 are, on average, older than cases filed in FY2010-2016, but the discrepancies remain even when the time periods are made more similar. Figure B.2(b) compares the district-specific Plan Completion Rates for cases filed in FY2009-2014 against cases closed in



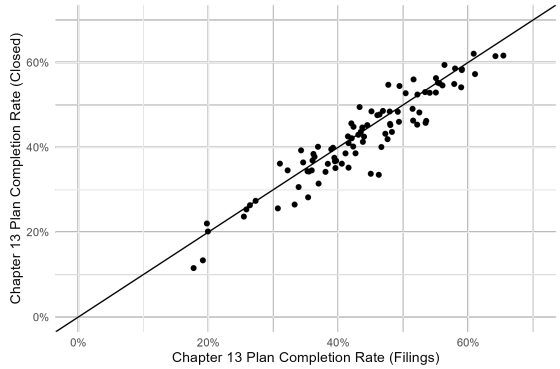
(a) Filing Dates of Cases Closed in FY2010-2016



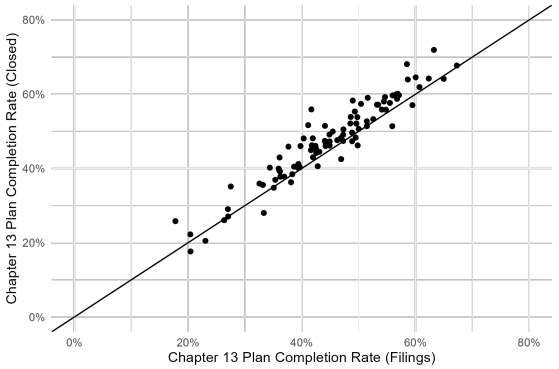
(b) Discharge Rates for Cases Closed in FY2010-2016

Figure B.1: Sample Selection for Cases Closed in FY2010-2016

FY2012-2017, chosen to roughly match the minimum three-year duration for Chapter 13 plans. Even with this more similar sample period, the discharge rate computed in the two samples differs by at least five percentage points in twenty districts.



(a) Cases Filed in FY2010-2016 vs. Cases Closed in FY2010-2016



(b) Cases Filed in FY2009-2014 vs. Cases Closed in FY2012-2017

Figure B.2: Comparison of District Plan Completion Rates

Each point represents a court district. Sample restricted to districts with at least 100 filings during the sample period.

C. Data Merging and Matching

C.1. Merging FJC with Free Law Project Data

We merge the FJC IDB data with data on filer names from the Free Law Project's bulk data. These data are largely pulled from bankruptcy courts' RSS feeds.[1] We merge on court and docket number, except in FLM and CAC, where the unique identifiers are court, docket number, and office.[2]

We extract each debtor's name from the case name and use this information, along with the debtor's residence (county or zip code), to link repeat filings by the same debtor. The matching procedure links debtors by their first name, last name, and middle name when available, making restrictions on the geographic area of the search that depend on the uniqueness of the debtor's name and the population of the debtor's county or zip code. These restrictions are conservative in that they aim to minimize the probability of falsely linking cases by different debtors.

C.2. Repeat Cases Matching Procedure

1. For each district, the FJC and Free Law Project data are merged and restricted to contain only cases filed in that district. We do not attempt to match filings by the same debtor that

[1] More information on coverage is available on the Free Law Project's webpage: https://www.courtlistener.com/help/alerts/#coverage-gaps.

[2] In a very small share of cases, there are duplicate matches in the Free Law data. These are mostly due to cases that were transferred. We keep cases that have completed case and fields and, if more than one does, the case that was terminated last.

occur in multiple districts.

2. The debtor's names are extracted from the bankruptcy case name, and both debtor's names are extracted from joint filings by splitting the case name around the string " and ". We split the debtor's names into first name (the first word in the debtor's name), last name (the last name in the debtor's name, combined with common suffixes jr., sr., and iii), and the middle name (the second word in the debtor's name). If there are multiple middle names, we record only the first middle name.
3. Debtors are grouped into three categories, depending on the presentation of their middle names:
   - **FULL**: Full middle name (length of the middle name is two or more letters)
   - **MI**: Middle initial (length of the middle name is one letter)
   - **NMI**: No middle name (length of the middle name is zero)
4. The new matching procedure incorporates county population and surname frequencies to adjust the matching rules.

   We define the **GEOID** as the debtor's county if county population is less than or equal to 500k, OR the debtor's zip code if the county population is greater than 500k.

   We assign two variables to each name that classify whether the name is common:
   - **common_in_data**: This variable is an indicator for whether the name (FULL, MI, or NMI) appears in four or more zip codes within the district during the sample period (2007-2023).
   - **common_surname**: This is an indicator for whether the last name of the debtor is one of the 500 most common surnames in the U.S. As an example, the 500th most common surname, Harrington, occurs in 22.7 out of every 100k people. We use this common_surname variable to determine the matching rules.
5. For names that are `common_in_data`, we assume that these cases are multiple debtors with the same name, and do not attempt to match these cases. That is, any names that appear in four or more zip codes are treated as distinct debtors. This is a big issue in CACB, and is primarily due to Hispanic names.

   For names that are not `common_in_data`, the geography grouping for each name-surname combo is:

Name Presentation	Common_Surname	Uncommon_Surname
FULL	district	district
MI	GEOID	district
NMI	GEOID	county

This means, for example, that for the group of FULL names with common surnames, we consider all exact matches in the district to be the same debtor. In contrast, for the MI names with common surnames, we consider matches to be the same debtor only if they also reside in the same GEOID.

For the FULL name group, we also allow for matches when there are minor spelling variations in the middle name. We consider them a match if their first and last names match exactly, they live in the same GEOID, and their middle names differ by fewer than two characters (according to the OSA string distance metric). (2 or fewer average differences by the OSA metric). An example would be John James Smith and John Jaems Smith.

6. **Matching between name-presentation groups**

   We also allow some matches between the name-presentation groups (FULL, MI, and NMI) (e.g. John J. Smith to John James Smith). These matches are all done within the GEOID, and require the mapping to be unique.

   - A MI name is matched to a FULL name if
     - The FULL name's first, middle initial, and last name are unique within the GEOID. For example, John James Smith would need to be the only FULL name that fits "John J. Smith" within the GEOID.
   - A NMI name is matched to a FULL name if
     - The FULL name's first and last name are unique within the GEOID. For example, John James Smith would need to be the only FULL name that fits "John Smith" within the GEOID.
   - A NMI name is match to a MI name if
     - The MI name's first and last name are unique within the GEOID. For example, John J. Smith would need to be the only MI name that fits "John Smith" within the GEOID.

Table C1: Merging Case Information

district	has casename	district	has casename
akb	0.998	mtb	0.998
almb	0.998	nceb	0.801
alnb	0.998	ncmb	0.998
alsb	0.998	ncwb	0.998
areb	0.925	ndb	0.998
arwb	0.996	neb	0.998
azb	0.000	nhb	0.994
cacb	1.000	njb	0.996
caeb	0.996	nmb	0.994
canb	0.996	nmib	0.893
casb	0.996	nvb	0.927
cob	0.963	nyeb	0.997
ctb	0.844	nynb	0.961
dcb	0.996	nysb	0.959
deb	0.994	nywb	0.829
flmb	1.000	ohnb	0.997
flnb	0.997	ohsb	0.998
flsb	0.998	okeb	0.997
gamb	0.997	oknb	0.999
ganb	0.999	okwb	0.809
gasb	0.875	orb	0.999
gub	0.995	paeb	0.995
hib	0.998	pamb	0.993
ianb	0.984	pawb	0.958
iasb	0.999	prb	0.914
idb	0.999	rib	0.993
ilcb	0.998	scb	0.905
ilnb	0.998	sdb	1.000
ilsb	0.999	tneb	0.999
innb	0.999	tnmb	0.890
insb	0.059	tnwb	0.997
ksb	0.985	txeb	0.997
kyeb	0.888	txnb	0.998
kywb	0.869	txsb	0.994
laeb	0.997	txwb	0.893
lamb	0.998	utb	0.554
lawb	0.900	vaeb	0.997
mab	0.994	vawb	0.986
mdb	0.997	vib	0.996
meb	0.970	vtb	0.998
mieb	0.998	waeb	0.997
miwb	0.859	wawb	1.000
mnb	0.999	wieb	0.919
moeb	0.998	wiwb	0.998
mowb	0.882	wvnb	0.997
msnb	0.998	wvsb	0.982
mssb	0.867	wyb	0.999

This table shows the share of Chapter 13 cases that have a successfully merged case name.

Table C2: Match Rate on Prior Filings

Court	Prior (FJC)	No Prior (FJC)	Court	Prior (FJC)	No Prior (FJC)
all	70.6%	1.5%	nceb	80.3%	0.9%
akb	67.4%	0.1%	ncmb	76.8%	1.0%
almb	70.7%	1.2%	ncwb	77.5%	0.2%
alnb	66.4%	1.0%	ndb	48.7%	0.2%
alsb	75.0%	1.4%	neb	44.2%	0.2%
areb	68.4%	1.1%	nhb	81.3%	0.9%
arwb	63.3%	0.5%	njb	76.6%	2.6%
cacb	70.5%	2.8%	nmb	53.8%	0.8%
caeb	72.5%	2.1%	nmib	n/a	0.0%
canb	77.4%	1.1%	nvb	53.9%	0.5%
casb	71.2%	1.2%	nyeb	84.7%	1.8%
cob	70.0%	1.3%	nynb	68.8%	0.9%
ctb	72.5%	0.4%	nysb	78.5%	1.4%
dcb	71.5%	0.4%	nywb	72.3%	1.4%
deb	77.1%	0.6%	ohnb	61.1%	0.6%
flmb	64.8%	1.9%	ohsb	74.7%	0.6%
flnb	65.2%	1.1%	okeb	41.6%	0.2%
flsb	76.4%	2.1%	oknb	71.2%	0.4%
gamb	77.0%	1.9%	okwb	58.4%	0.3%
ganb	77.6%	1.2%	orb	70.3%	0.5%
gasb	64.8%	0.7%	paeb	81.4%	0.6%
gub	89.3%	0.7%	pamb	70.8%	1.3%
hib	77.2%	0.3%	pawb	84.0%	0.4%
ianb	50.1%	0.4%	prb	83.1%	3.5%
iasb	40.3%	0.3%	rib	68.3%	0.5%
idb	23.6%	0.5%	scb	60.2%	1.2%
ilcb	68.9%	1.4%	sdb	53.9%	0.1%
ilnb	69.3%	1.1%	tneb	80.7%	2.2%
ilsb	74.1%	0.6%	tnmb	59.3%	1.4%
innb	73.4%	1.0%	tnwb	80.2%	4.0%
ksb	71.1%	0.9%	txeb	70.3%	0.7%
kyeb	62.6%	2.0%	txnb	81.8%	1.0%
kywb	66.5%	0.5%	txsb	83.2%	2.5%
laeb	77.9%	1.5%	txwb	72.8%	1.4%
lamb	77.6%	0.8%	utb	67.2%	0.6%
lawb	65.8%	0.9%	vaeb	78.2%	1.4%
mab	85.7%	1.8%	vawb	51.2%	0.6%
mdb	69.6%	0.7%	vtb	45.6%	0.1%
meb	49.9%	0.5%	waeb	60.5%	1.2%
mieb	66.1%	4.8%	wawb	59.3%	0.6%
miwb	67.1%	1.3%	wieb	71.6%	0.6%
mnb	59.8%	0.6%	wiwb	67.1%	0.3%
moeb	61.7%	1.4%	wvnb	49.3%	0.3%
mowb	31.3%	1.9%	wvsb	51.3%	1.1%
msnb	67.9%	2.6%	wyb	57.6%	0.2%
mssb	68.5%	2.4%	azb	n/a	n/a
mtb	59.8%	0.6%	insb	n/a	n/a

This table shows the share of cases where we match a prior filing within the last six years based on the debtor's name and residence. The sample is restricted to cases filed in 2017 or later.

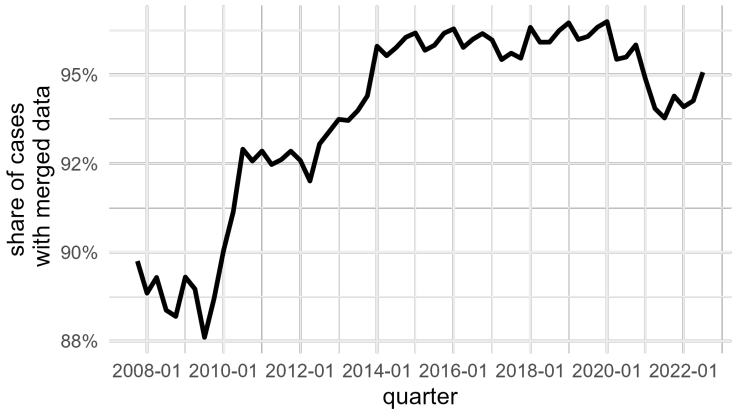


Figure C1: Merging Case Information

Share of FJC cases with matched case name from the Free Law Project data.

D. Deriving the Decomposition Formula

Combining the equations in Section 4, we derive the formula that relates the Plan Completion Rate, $\overline{D}^P$, and the Represented Debtor Discharge Rate, $\overline{D}^D_A$. To formally define the Represented Debtor Discharge Rate, we first need to distinguish between filers represented by an attorney ($A_i = 1$) and pro se filers ($A_i = 0$). To simplify the formulas, we categorize debtors by whether the debtor filed with an attorney on his or her first case in our sample[3] With this notation, let $N_A = \sum_{i=1}^{I} A_i F_i$ be the number of cases by debtors with an attorney, and $I_A = \sum_{i=1}^{I} A_i$ be the number of debtors with attorney representation.

The *Represented Debtor Discharge Rate*, $\overline{D}^D_A$, is therefore

$$\overline{D}^D_A \equiv \frac{1}{I_A} \sum_{i:A_i=1} \sum_{f=1}^{F_i} (o^{13}_{if} + o^{7}_{if}) \tag{1}$$

The equation reflects the different treatment of conversions, repeat filings, and pro se filings compared to equation (1). First, it is computed over only the subset of debtors represented by an attorney, denoted by the subscript A. Second, equation (1) calculates the discharge rate discharge rate per debtor rather than per case). Reflecting this, it is normalized by the number of unique debtors who have filed for Chapter 13, I_A. Finally, it counts discharges that occur in Chapter 13 (o^{13}_{if}) or in conversions to Chapter 7 (o^{7}_{if}).

Next, split the Plan Completion Rate into a weighted average of the rate for filers with (A) and without ($\neg A$) an attorney, i.e., pro se as

$$\begin{aligned}
\overline{D}^P &= \frac{1}{N} \sum_{i=1}^{N} \sum_{f=1}^{F_i} o^{13}_{if} \\
&= \frac{1}{N} \sum_{i:A_i=1} \sum_{f=1}^{F_i} o^{13}_{if} + \frac{1}{N} \sum_{i:A_i=0} \sum_{f=1}^{F_i} o^{13}_{if} \\
&= \left(\frac{N_A}{N} \right) \overline{D}^P_A + \left(\frac{N - N_A}{N} \right) \overline{D}^P_{\neg A}.
\end{aligned}$$

Given that the Chapter 13 discharge rate for pro se filers is very low (1.2% nationally), we make

[3] If a debtor's first petition if filed pro se, all subsequent petitions are considered pro se. This simplification will understate the difference between pro se and filings made with the assistance of an attorney because of the subset of debtors that file cases both with and without an attorney.

the simplifying approximation that $\overline{D}^P_{\neg A} \approx 0$. Therefore, the above equation simplifies to

$$\overline{D}^P \approx \left(\frac{N_A}{N}\right) \overline{D}^P_A. \tag{2}$$

Next, we can write the equation for the Represented Debtor Discharge Rate, $\overline{D}^D_A$, in equation (1), as

$$\begin{aligned}
\overline{D}^D_A &= \frac{1}{I_A} \sum_{i:A_i=1} \sum_{f=1}^{F_i} (o^{13}_{if} + o^{7}_{if}) \\
&= \frac{N_A}{I_A} \frac{1}{N_A} \sum_{f=1}^{F_i} (o^{13}_{if} + o^{7}_{if}) \\
&= \frac{N_A}{I_A} (\overline{D}^C_A).
\end{aligned} \tag{3}$$

This expression shows that the Represented Debtor Discharge Rate equals the Represented Case Discharge Rate inflated by the ratio of cases to individuals ($\frac{N_A}{I_A}$) to account for repeat filings.

Combining equations (2) and (3), we can link the Represented Debtor Discharge Rate ($\overline{D}^D_A$) to the Plan Completion Rate ($\overline{D}^P$) as

$$\begin{aligned}
\overline{D}^D_A &= \left(\frac{N_A}{I_A}\right) \left(\frac{\overline{D}^C_A}{\overline{D}^P_A}\right) \overline{D}^P_A \\
&\approx \left(\frac{N_A}{I_A}\right) \left(\frac{\overline{D}^C_A}{\overline{D}^P_A}\right) \left(\frac{N}{N_A}\right) \overline{D}^P.
\end{aligned}$$

Finally, inverting this, we arrive at our decomposition approximation in equation (4):

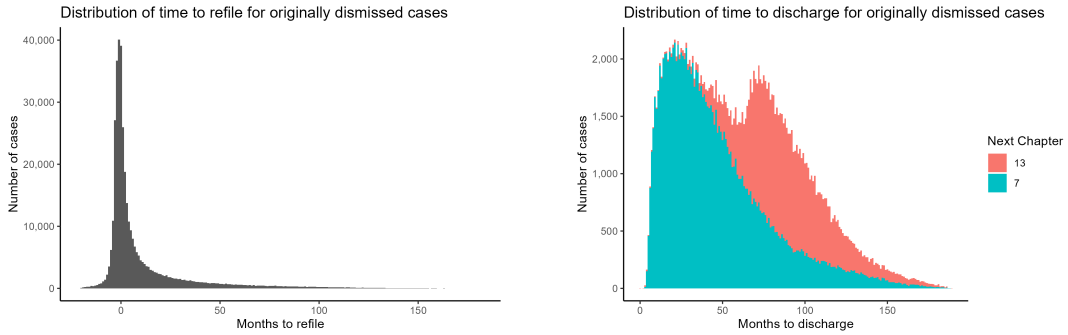
$$\overline{D}^P \approx \underbrace{\left(\frac{N_A}{N}\right)}_{\text{A: attorneys}} \times \underbrace{\left(\frac{I_A}{N_A}\right)}_{\text{R: repeat filings}} \times \underbrace{\left(\frac{\overline{D}^P_A}{\overline{D}^C_A}\right)}_{\text{C: conversions}} \times \underbrace{\overline{D}^D_A}_{\substack{\text{overall discharge} \\ \text{with attorney}}} .$$

The approximation reflects the assumption that zero pro se filings obtain a discharge. Additionally, when we implement this approximation empirically, we make two further simplifications. First, we use our primary measure of the Debtor Discharge Rate, which includes any discharges obtained in six years. To hold exactly, Debtor Discharge Rate should instead include any discharge obtained in a case filed within the sample period of 2008-2014. Second, a small source of error is that we

restrict each filer to at most one discharge in the Debtor Discharge Rate, whereas the exact equation would count multiple discharges by the same debtor. Still, the approximation explains nearly all of the geographic variation in Plan Completion Rates. A district-level bivariate regression of Plan Completion Rates on the product of the right-hand-side terms has an R-squared of 0.977.

E. Timing

This Appendix provides additional analysis about the timing of repeat filings, discharges, and dismissals. First, Figure D1(a) plots the distribution of the delay between the closure of the original case and the filing date of the next case. The median delay is 1.1 months and the 75th percentile is 11 months. Among debtors who refiled and ultimately obtain a discharge by the end of our sample, Figure D1(b) shows the distribution of the gap between the original case filing date and the (first) discharge of the debtor in a refiling. The median delay is 57 months and the 75th percentile is 86 months. Conditional on receiving a subsequent discharge, 37% of cases receive a discharge more than six years after the initial filings, 18% receive a discharge more than 8 years after the initial filing, and 6.6% receive a discharge more than 10 years after the initial filing.

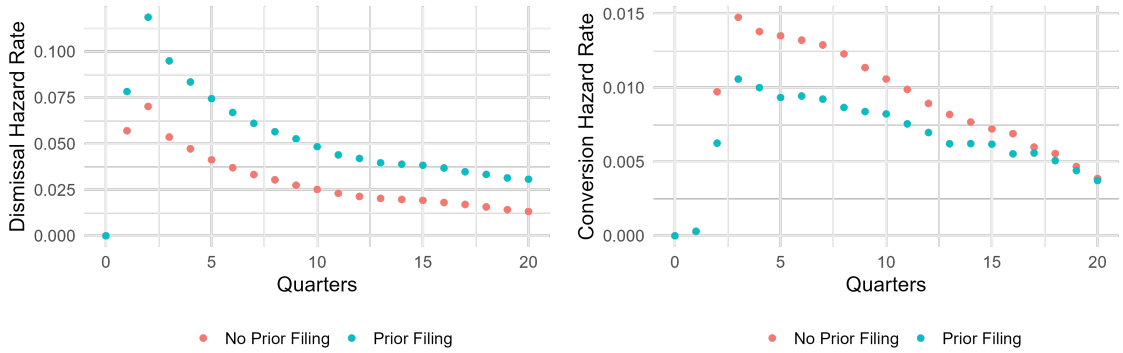


(a) Time to Refile (b) Time to Discharge

Figure D1: Timing of Repeat Filings and Discharges for Dismissed Chapter 13 Cases

Data: 2008-2014 Matched Case Name Sample, restricted to the first Chapter 13 filing of each debtor within each calendar year. Panel (a) restricts the sample to debtors whose original Chapter 13 cases were dismissed but who refiled under either chapter. It shows a histogram of the gap between the date that the initial case was closed and the date that the next case was opened. There can be a delay between when a case is dismissed and when it is closed, which explains the small number of negative times to refile. Panel (b) restricts the sample to debtors whose original case was dismissed but obtained a discharge in a repeat filing. It shows a histogram of the gap between the date that the original case was filed and the date the closing date of a case obtaining a discharge.

We also track when cases fail. Figure D2 Panel A shows the hazard rates for dismissals as a function of the length of time (in quarters) a case has been open, and Panel B shows the hazard rates for conversions. We show these separately for cases with and without prior filings. The numerical values for the even quarters are also reported in Table D1. As one might expect, the risk of dismissal is highest in the first year after filing and falls steadily thereafter. For example, 7% of ongoing cases without a prior filing in the second quarter from their filing date are dismissed, but only 2.1% of cases open in the twelfth quarter are dismissed. Conversions, though less common than dismissals, peak around one year after the initial filing and then fall steadily thereafter. However, the hazard rates remain non-trivial even up to the end of the case. As a result, cases that remain open for four years have just a 87% chance of resulting in a Chapter 13 discharge if made by a debtor with no prior filing and a 76% chance if made by a debtor with a prior filing. Even more surprisingly, cases that remain open for a full five years still face a substantial chance of not resulting in a Chapter 13 discharge.



(a) Dismissal Hazard Rate (b) Conversion Hazard Filing

Figure D2: Hazard Rate for Dismissals and Conversions

Data: FJC IDB: 2008-2014 Ch.13 Cases (Panel B of Table 2). The empirical hazard rate is the share of cases that are dismissed (panel a) or converted (panel b) in quarter t among cases that last until at least quarter t. The timing of conversions and dismissals is determined by the gap (in quarters) between the filing date and the closing date of the case.

Table D1: Hazard Rates and Completion Rates

	No Prior Filing				Prior Filing			
Qtr	Dism. Hazard (%)	Conv. Hazard (%)	Disch. Ch. 13 (%)	Pr. Disch. Any Ch. (%)	Pr. Dism. Hazard (%)	Conv. Hazard (%)	Pr. Disch. Ch. 13 (%)	Pr. Disch. Any Ch. (%)
0	0.0	0.0	45.5	56.4	0.0	0.0	28.1	33.9
2	7.0	1.0	48.2	59.8	11.9	0.6	30.5	36.8
4	4.7	1.4	56.1	67.2	8.4	1.0	38.8	45.3
6	3.7	1.3	62.9	72.7	6.7	0.9	46.4	52.4
8	3.0	1.2	69.0	77.3	5.7	0.9	53.6	58.9
10	2.5	1.1	74.7	81.3	4.8	0.8	60.6	65.0
12	2.1	0.9	79.7	84.8	4.2	0.7	67.1	70.7
14	2.0	0.8	83.9	87.8	3.9	0.6	72.8	75.6
16	1.8	0.7	86.7	89.7	3.7	0.6	76.0	78.4
18	1.6	0.6	90.0	92.1	3.3	0.5	80.4	82.2
20	1.3	0.4	92.7	94.1	3.1	0.4	84.5	85.7

Data: FJC IDB: 2008-2014 Ch.13 Cases (Panel B of Table 2). This table reports selected values from Figures D2 and D3. Odd years are omitted for brevity.

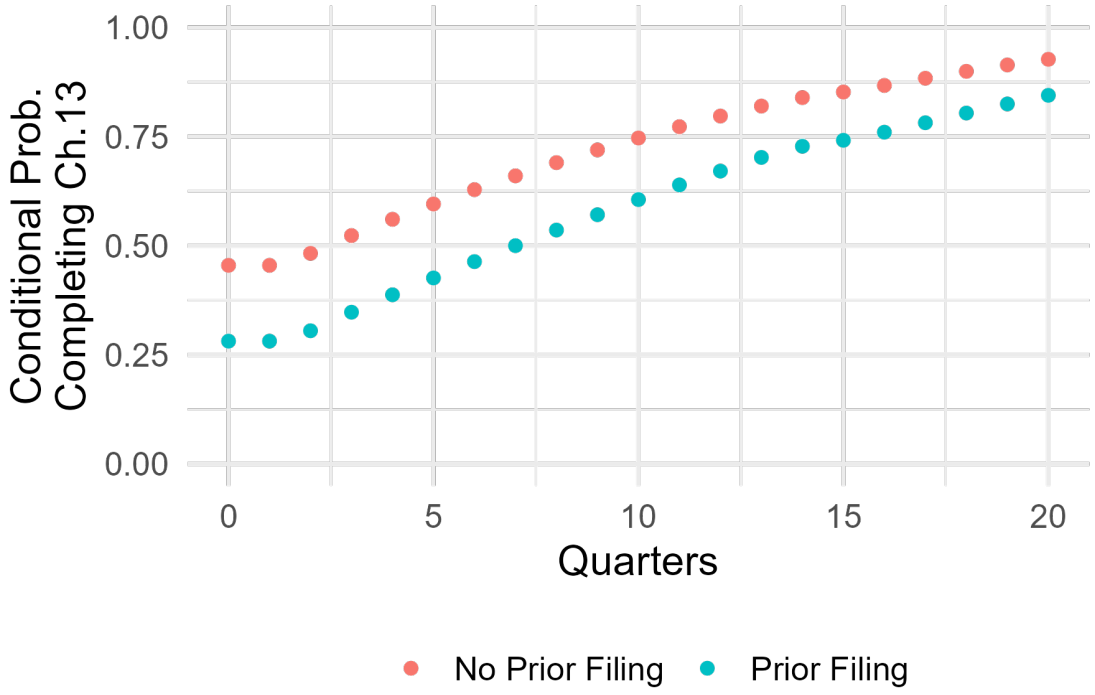


Figure D3: Conditional Completion Rate

Data: FJC IDB: 2008-2014 Ch.13 Cases (Panel B of Table 2). This figure shows the share of Ch.13 cases that obtain a discharge in Ch.13, conditional on having not been dismissed or converted by month t from the filing date. Timing is measured by the gap (in months) between the filing date and the closing date of the case.

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