Chapter 13 Outcomes

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Abstract

Roughly forty percent 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, most of the 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 also show that there are multiple plausible definitions of the "discharge rate" and clarify the uses and tradeoffs with each definition. We find that, for cases filed between 2008 and 2017, the discharge rate has exceeded the oft-cited "one-third" statistic, with plausible national discharge rates varying from forty percent to sixty-six percent depending on the definition used. The highest plausible estimate is double the one-third statistic, but it is still substantially below the discharge rate of Chapter 7. We also examine geographic patterns in discharge rates across districts and quantify the role of differences in attorney representation, conversion rates, and repeat filing rates in explaining the cross-sectional 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.[3] 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.[4] As a result, the "one-third" discharge rate in Chapter 13 has become conventional wisdom. 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."[5]

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.[6] Many have called for the elimination of Chapter 13 (Whitford, 1989; Braucher, 2006; Ponoroff, 2024). Congresswoman and former law professor Katie Porter, has labeled Chapter 13 a "pretend solution,"[7] and Senator Elizabeth Warren has introduced legislation that would 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

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

[3] See Sullivan et al. (1989).

[4] "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) and "... extensive data also show that, historically, only one-third of Chapter 13 cases end with the discharge" (Foohey et al., 2021).

[5] 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."

[6] See, e.g., Sullivan et al. (1989) and Porter (2011).

[7] Porter (2011)

[8] S. 4980, Consumer Bankruptcy Reform Act of 2022. Even defenders of Chapter 13 grudgingly acknowledge the statistic and argue that discharge alone is not a good measure of success (Porter, 2011).

accuracy. First, existing estimates may be biased from using non-representative samples of cases. Most estimates of Chapter 13 discharge rates use small samples from only a handful of the more than ninety federal court districts, which may lead to bias because the Chapter 13 discharge rate varies widely across districts (Braucher, 2001).[9] Furthermore, many references underlying the one-third statistic are decades old, describing discharge rates as they were in the 1980s or 1990s Hildebrand III (1994); Whitford (1994); Bermant and Flynn (2000). One notable exception is Greene et al. (2017), which uses a national sample (eighty-one of the ninety districts) of 770 cases. Although fairly recent and nationally representative, Greene et al. (2017) use a sample drawn from a five-week period (late January through February) in 2007, raising concerns that the estimate may be affected by distortions from the major bankruptcy reform implemented in late 2005 or the start of the housing crisis.

A second reason to question the accuracy of the one-third statistic is that recent administrative datasets report estimates significantly exceeding the one-third statistic. Over the last ten fiscal years (ending in 2023), the discharge rate among closed Chapter 13 cases has averaged about one-half (50.8%).[10] Examining the same data on closed cases for an earlier period (2007-2013), however, Flynn (2014) and Flynn (2017) find slightly above the one-third statistic. A concern is with statistics from administrative data report outcomes for cases *closed* during a year, whereas the object of interest - the probability that a Chapter 13 case obtains discharge - requires examining outcomes of cases *filed* during a given year. Sampling *closed* cases will lead to biased estimates of the probability of discharge if the number of Chapter 13 filings is trending over time. In Section 3 we provide an example that suggests that, based on recent trends, the bias could amount to more than 20% of the true discharge rate and could be positive or negative depending on the period sampled.

Lastly, there is the conceptual issue of defining what is meant by the Chapter 13 "discharge rate." Are we interested in the probability that a Chapter 13 plan is completed, the probability that the case ends in a discharge (possibly through a conversion to Chapter 7), or the probability that a given debtor obtains a discharge (possibly through a subsequent refiling)? Most papers focus

[9] 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.

[10] Since BAPCPA, the Administrative Office of the United States Courts (AOC) has published the discharge rate in closed Chapter 13 cases (Table 6): `https://www.uscourts.gov/statistics-reports/analysis-reports/bankruptcy-abuse-prevention-and-consumer-protection-act-report`.

on the the share of cases that complete a Chapter 13 plan, as in Greene et al. (2017)), while some also include discharges after conversions to Chapter 7 in their measure of the discharge rate, as in Foohey et al. (2017). We are not criticizing the multiple approaches, as each definition is reasonable and useful for a different purpose. This does, however, show that defining the "discharge rate" is not straightforward.

The goal of this paper is to provide an updated and more complete understanding of the discharge rate in Chapter 13. We improve on existing estimates in several ways. First, our data and method have several advantages. We use the universe of all Chapter 13 filings from 2008-2017, which provides an updated statistic, and, by using cases from all districts, addresses the concern with prior studies that the estimate may depend on which districts are sampled.[11] We also examine outcomes for cases filed during the period, avoiding the issues coming from sampling closed cases, and further improve our data by linking repeat filers across multiple cases to consider discharges that occur in subsequent filings. Second, we consider multiple definitions of the "discharge rate" that vary in how they treat conversions, repeat filings, and pro se filings. This adds to the existing literature by clarifying the potential definitions of the "discharge rate" and documenting how discharge statistics vary across the definition. Together, they provide a more complete picture of discharges obtained by Chapter 13 filers. Finally, we turn to the geographic variation in the discharge rate across bankruptcy districts. Like the prior literature, we find wide variation in the discharge rate across districts, but the pattern depends on the definition of discharge that one chooses. To investigate, we conduct a decomposition exercise that statistically attributes the geographic variation to differences in conversion rates, repeat filings, attorney representation, and debtor discharge rates.

We begin by formally defining the "discharge rate" in Chapter 13. Because the appropriate measure of "discharge rate" depends on the intended use, we consider three different definitions. The *Plan Completion Rate* measures the percentage of Chapter 13 cases that receive a discharge in Chapter 13 under section 1328.[12] This is the most common definition in the existing literature, the definition underlying the commonly cited "one-third" statistic, and is useful for assessing whether debtors are proposing infeasible plans or as a measure of success if some benefits of Chapter 13,

[11] 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.

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

such as saving a home, are strongly correlated with plan completion. If one's goal is to understand whether Chapter 13 debtors obtain a discharge, a shortcoming of the Plan Completion Rate is that it ignores discharges obtained through conversion to other chapters. These debtors still obtain the debt relief of a discharge, and conversions can reflect the proper functioning of the Chapter 13 system; both the National Bankruptcy Review Commission and the American Bankruptcy Institute have recommended that conversion into Chapter 7 be the default option for incomplete Chapter 13 plans (NBRC, 1997; Logan, 1997). Given this, our second definition, the *Case Discharge Rate*, measures the percentage of cases begun under Chapter 13 that end in a discharge under any chapter.

The first two definitions reflect the share of *cases* ending in a discharge whereas, for many questions, one may be interested in the share of debtors that obtain a discharge. The distinction between cases and filers can be important, as multiple Chapter 13 filings by the same debtor are common. More than 30% of Chapter 13 cases reporting that the debtor has filed another bankruptcy within the previous eight years. We define the *Debtor Discharge Rate* as the percentage of Chapter 13 *debtors* who receive a discharge within six years of their initial filing, counting discharges in the initial case, conversions, or through subsequent filings.[13] For each of these three definitions, we also examine the impact of restricting the samples to filers represented by an attorney (dropping pro se) and to first-time filers (dropping those with a prior filing).

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 main sample period, the Plan Completion Rate (just discharges received in Chapter 13) is 41%, 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 56%. 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

[13] 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.

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 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), which primarily examines the overall rates of repeat filings in all chapters and whether the prevalence of repeat filings was altered by BAPCPA. The most similar paper Norberg and Velkey (2006), which also provides statistics on how discharge rates vary with in repeat filings using statistics on around 250 repeat cases from seven districts. Relative to this paper, our paper provides 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.[14]

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, or 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 a discharge. Less than half of the variance in the Plan Completion Rate is due to whether Chapter 13 debtors who are

[14]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.

represented by an attorney will ultimately obtain a discharge (measured by the Debtor Discharge Rate). Instead, most of this variance is due to cross-district differences in the rate of attorney representation, refiling, and conversion.

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 aim to provide an explanation for why certain cases do not obtain a discharge or to understand the causes of the underlying heterogeneity. 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 prior literature, 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, so a full defense of Chapter 13 must rest on an argument that merely counting discharges does not adequately measure the "success" of a bankruptcy case. Whether such a persuasive argument for Chapter 13 exists is a task we leave to future work.

2. Data

Our analysis requires information on Chapter 13 filings, outcomes, and repeat filings. Most of the variables are contained within the Federal Judicial Center's Integrated Database. To identify filers and link multiple cases filed by the same individual, however, we merge this data with case names from the Free Law Project. This section introduces the data and our procedure for linking multiple filings by the same debtor.

We use Federal Judicial Center (FJC) 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 district and 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.[15] These data allow us to observe discharges

[15] We focus on these primary measures of dismissal and discharge, but Appendix Table A2 shows the full distribution of final dispositions in our main analysis sample.

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 a prior 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.[16] We successfully merged the case names for 93.2% of cases in the full FJC data. Appendix Table C1 and Figure C1 show the coverage of the data across districts and over time. The match rate is above 80% for all districts but Arizona, which has no information, Utah, and the Southern District of Indiana. Sixty-three districts have more than 99% of cases matched to case names. 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.

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. 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%.[17]

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

[17] 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

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 1 demonstrates 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), another 8.7% obtain a discharge in Chapter 7. Nearly 32% of Chapter 13 cases report that the debtor had filed another bankruptcy within the prior eight years. Table 1 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 1 Panel B reports statistics for the full FJC sample restricted to the years 2008-2014. Finally, Panel C reports the same statistics for the Matched Case Name sample. The Match 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 (see discussion in Section 2 and Appendix C). 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. This suggests that the matched case name sample is representative of the full national sample.

3. Defining the Discharge Rate in Chapter 13

This section introduces alternative definitions of the discharge rate and then discusses the relationship between these definitions. The measures differ in how broadly or narrowly they define "discharge" in a Chapter 13 case, such as whether they include discharges that come from conversions to Chapter 7 or subsequent repeat filings. We also provide definitions that restrict attention to debtors with attorney representation or to pro se debtors. To be clear, this section does not advocate for one definition over the others. The goal, instead, is to highlight that there are mul-

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 percent) 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.

Table 1: 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.

tiple reasonable measures of the discharge rate in Chapter 13 and to show how these alternative measures differ.

All measures in our analysis focus on cases that *begin* under Chapter 13 within a certain window of time.[18] We focus on cases that begin in Chapter 13, rather than cases that closed in Chapter 13, because sampling closed Chapter 13 cases creates two potential problems. First, because dismissed cases generally close much more quickly than cases with a completed plan, 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). Using recent trends and patterns in the timing of dismissals, a quick calculation suggests the bias could amount to more than 20% of the true discharge rate and could be positive or negative depending on the period sampled. Assume that all Chapter 13 plans are five years and that thirty percent of cases fail during the first year, ten percent fail in each of the next three years, and forty percent of cases complete all five years and receive a discharge, loosely matching the dismissal patterns found in Online Appendix Appendix D. If one takes a sample of cases that closed in a given year and the number of filings increases 10% each year, the measured discharge rate will be 33.2% instead of 40%. If the filing rate were falling at a 10% rate, the measured discharge rate would be 47.6%. Second, sampling closed cases excludes cases converted into Chapter 7. Whether this biases the estimate of the discharge rate upward or downward depends on whether one thinks that a discharge received in Chapter 7 should count as a success.

3.1. Alternative Measures 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

[18] In addition to the AOC, some of the prior literature supporting the one-third discharge rate estimate also looks at cases *closed* within a window of time See Bermant and Flynn (2000), Hildebrand III (1994), Norberg (1999), Whitford (1994)

couple i in joint cases). The number of Chapter 13 cases is $N \equiv \sum_{i=1}^{I} F_i$ and, because of 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.[19]

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*:

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

The literature producing the one-third estimate uses the Plan Completion Rate, which provides a measure of the share of Chapter 13 cases that are successfully completed and obtain a discharge. This definition is useful for measuring whether debtors are proposing plans that can realistically be completed, but it implicitly counts cases that are converted and discharged under Chapter 7 as failures.

If the focus is on the fresh start provided by discharge, one should include discharges that occur after conversion to Chapter 7. Indeed, 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 more widely used as a tool in Chapter 13. Interestingly, one of the authors, Porter, used the same sample to publish a contemporaneous study (Foohey et al., 2017) that included discharges received in Chapter 7, and this study reported a roughly one-half discharge rate (45% and 51%, depending on how the debtors paid attorneys' fees). Moreover, converting some share of cases to Chapter 7 may reflect the intended functioning of the Chapter 13 system; 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). Thus, when measuring the probability of discharge for Chapter 13 cases, one may want to include these conversions in the measure of discharge. In light of this, our second definition broadens the notion of discharge to include those

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

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:

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

A potential drawback of these first two measures is that both 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 matters 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 be lower than 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. The 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 as often. Second, some debtors will obtain a discharge in a subsequent, refiled case, and these refilings often occur soon after the original case is dismissed. Additionally, using cases as the unit may place undue importance on the decision to modify or refile. Chapter 13 filers can face income or expense shocks that make the initial plan infeasible. In response, some filers may modify the plan while others may refile. There is no obvious reason to distinguish between discharges obtained in converted or modified plans and discharges that come from subsequent filings, as all create new transaction costs (and likely attorneys fees).

Our third measure examines the rate at which debtors receive a discharge even if the discharge comes from a subsequent filing. In joint cases, we match repeat filings only for the debtor listed first in the joint filing.[20] We define the *Debtor Discharge Rate* as the percentage of Chapter 13

[20]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.

debtors who receive a discharge within six years of their initial filing:[21]

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

This measure is most useful as a measure of the probability that a debtor filing under Chapter 13 will successfully discharge his debts.

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.

[21] 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 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.

3.2. Comparing the Measures

These alternative measures will produce different estimates of the Chapter 13 discharge rate. To clarify the underlying source of the differences, we derive a formula that mechanically links the most common measure - the Plan Completion Rate - to several of the alternative definitions of discharge. This formula highlights the sources of differences across the definitions. Additionally, we will later use this formula to understand the sources of the widespread geographic variation in discharge rates documented in existing literature (Braucher, 2001; Norberg and Velkey, 2006; Flynn, 2014).

The commonly used Plan Completion Rate ($\overline{D}^P$) can be mechanically decomposed into three sources: the rate of attorney representation, the rate of repeat filings, and the rate of conversions. Specifically, the decomposition formula is[22]

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

where N_A is the number of represented Chapter 13 cases and I_A is the number of represented Chapter 13 debtors.[23] 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

[22] We provide the details of this derivation in Appendix B.

[23] 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.

zero. As we will show, the approximation is quite good; these terms explain 97% 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.

4. National Outcomes

4.1. Comparing Definitions of Discharge

We begin in Table 2 by comparing the discharge rates according to the three definitions described in Section 3. The commonly used Plan Completion Rate (just 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%. Finally, when examining debtors instead of cases, the Debtor Discharge Rate is 55.6%, 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, and as a result, we do not identify all subsequent filings by debtors (see Section 2). Because of this imperfect matching, our statistics will slightly understate the share of filers that refile and ultimately obtain a discharge in subsequent filings.

Table 2: 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	55.6%	60.1%	10.7%
Number of Cases	2,402,943	2,187,645	215,298

Data: 2008-2014 Matched Case Name Sample.

Outcomes are even better when examining debtors represented by an attorney. For this group, the Case Completion Rate is 44.4%, the Case Discharge Rate is 54.3%, 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.[24] 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 10.7%, 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.[25] 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 3 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 represented, first-time filers 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 represented Chapter 13 debtor obtains a discharge within six years of filing, is 48% higher than the Plan Completion Rate for all debtors and 80%

[24] 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."

[25] Many, and perhaps most, debtors who file pro se utilized the help of bankruptcy petition preparers "BPPs." The 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. 11 U.S.C s 110. 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 3: Chapter 13 Discharge - 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	61.3%	65.6%	11.6%
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.

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.[26] 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.

4.2. 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 4 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.[27] Columns (1)-(3) report outcomes for these original cases, which show discharge rates that are similar but slightly higher discharge rates than in Table 1 because we are restricting the sample to the "original" cases. The central focus of Table 4 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 (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. Appendix D provides more detail on the timing of repeat filings

[26] Overall, 90% of converted cases end in a discharge (see Appendix Table A2).

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

and subsequent discharges. 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.

Table 4: 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 within each calendar year. 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 5 takes the sample of original cases filed in 2008-2014 from Table 4, 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;[28] 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 5 is that, as seen in column (4), filing under Chapter 13 remains common upon refiling. 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.

[28]This rate is 1 percentage point higher than that reported in Table 3 because the sample differs slightly. In particular, in Table 5, 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.

Table 5: 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 filing 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.

5. Geographic Variation

In addition to generating the famous 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 3, 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 allows or 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.[29]

5.1. 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). 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

[29] When examining the geographic variation across districts, we exclude the U.S. territories because they have very few Chapter 13 bankruptcies.

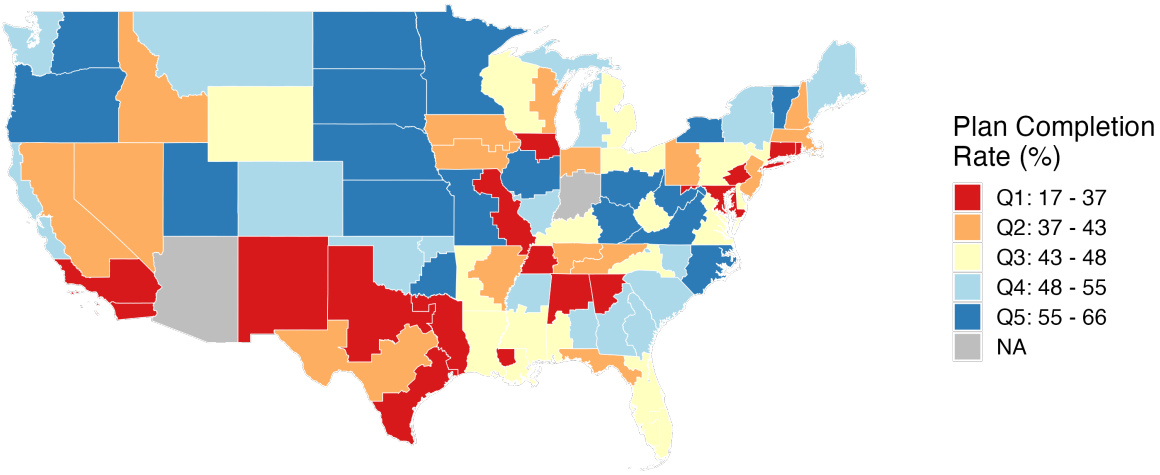
Debtor Discharge Rate is at the other extreme generates the highest discharge rates. Additionally, in equation (4), we derive a formula that mechanically links the Plan Completion Rate and the Represented Debtor Discharge Rate. Online Appendix Figures A1, A2, and A3 report similar graphs comparing districts' 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 34% (TN,W) to 84% (VT). 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 47^{th} percentile when using the Represented Debtor Discharge Rate. Oppositely, 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.

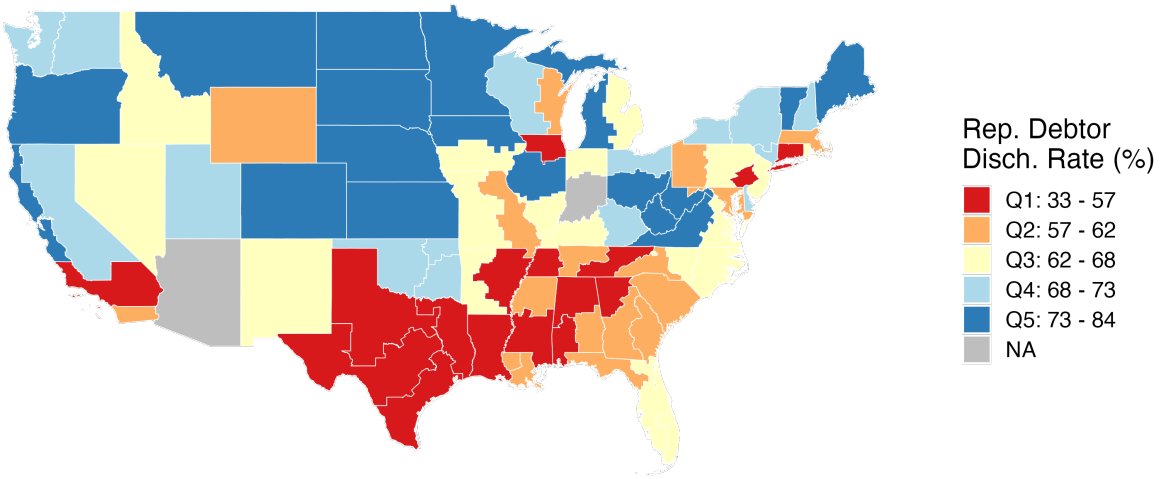
To further illustrate the changes in the rankings, Figure 2 compares each district's percentile in the cross-district discharge rate distribution using each of the two measures. Districts near the 45-degree line have similar rankings using both measures, with districts in the upper-right having high 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 more highly 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 21 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 (52^{nd} percentile) when ranked according to the Represented Debtor Discharge Rate.

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 Ch.13 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.

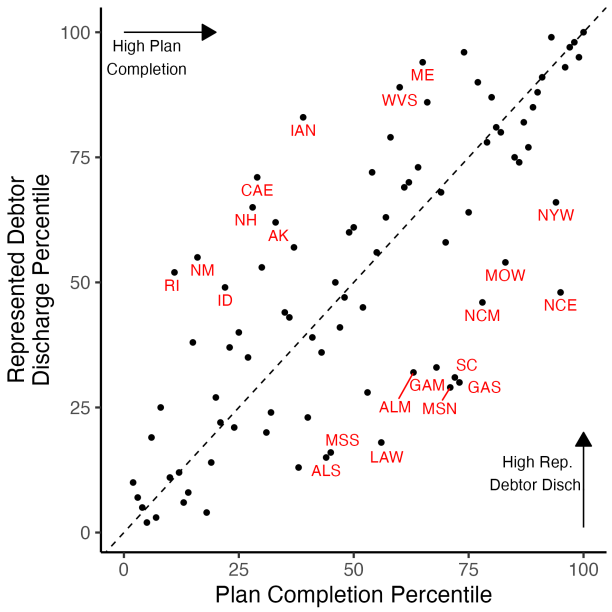


Figure 2: Correlation of Two Discharge Measures
Data: 2008-2014 Matched Case Name Sample. Each point shows a district's percentile in the distribution of Plan Completion Rates (horizontal axis) and Represented Debtor Discharge Rates (vertical axis).

5.2. 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.

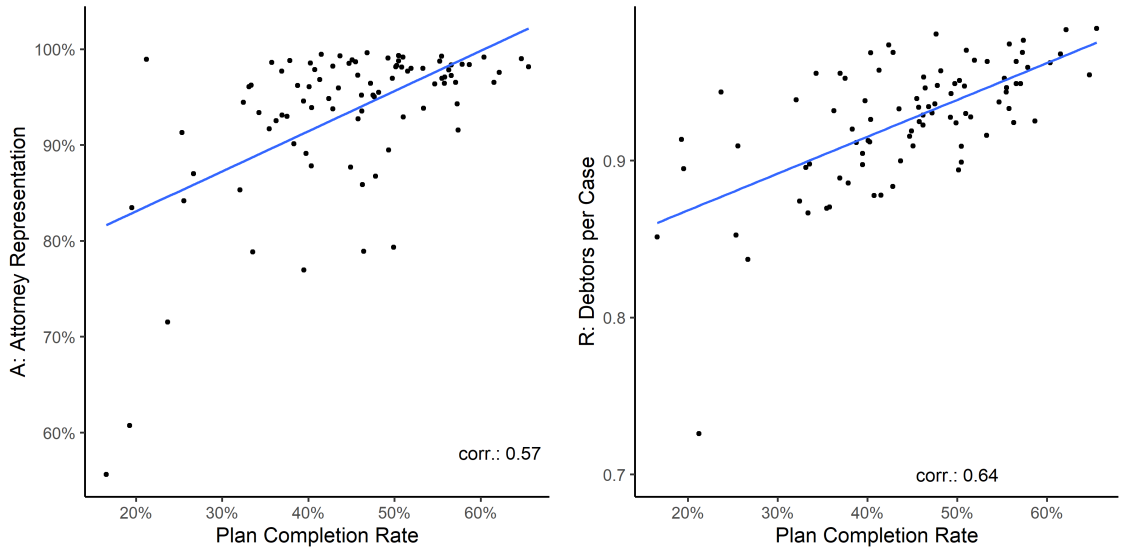
To assess the importance of attorney representation, repeat filing, and conversion rates in explaining why the rankings differ, recall that Section 3 shows that the relationship between the Plan Completion Rate and the Represented Debtor Discharge Rate depends mechanically on each of these factors. We 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

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

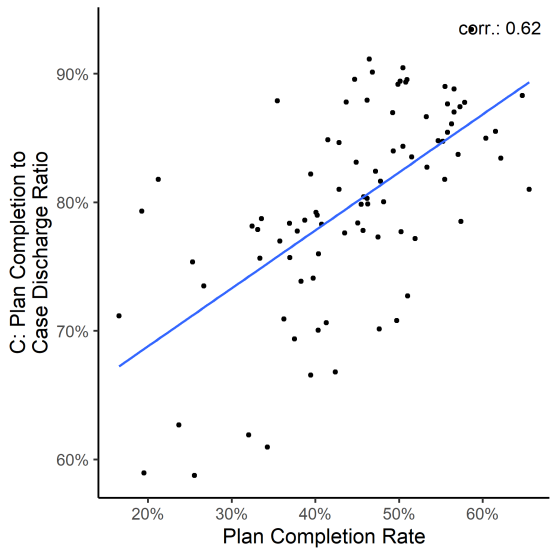
where the subscript d indicates that everything is computed at the district level. This equation demonstrates that a district's Plan Completion Rate, $\overline{D}_d^P$, reflects variation in these four possible sources.

Table 6 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, 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.

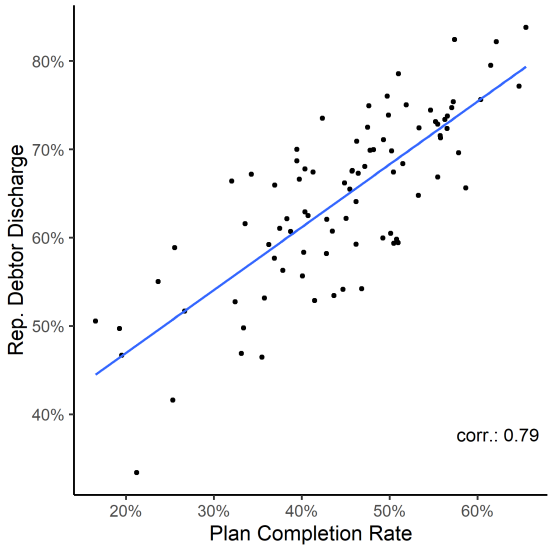


(a) $\mathbf{A}_d$

(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 4. The vertical axis for panels (b)-(d) show the district averages for the subsample of debtors with attorney representation.

Table 6: 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.	$\overline{D}_{Ad}^D$	0.60	0.33	0.84

Data: 2008-2014 Matched Case Name Sample. We also exclude U.S. territories. 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 caused by assuming the pro se discharge rate is zero.[30] 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,

[30] Another small source of error is that we restrict each filer to at most one discharge.

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%.[31]

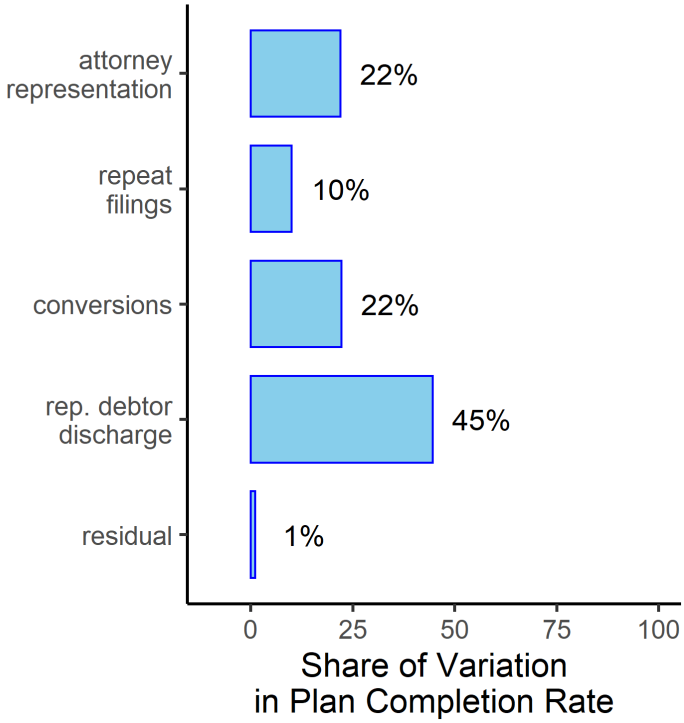


Figure 4: Decomposition of Districts' Plan Completion Rate Rate

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 44% of the variance in Plan Completion Rates across districts reflects differences in the probabilities that a represented debtor obtains a discharge. Thus, 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. That is, attorney representation, repeat filings, and conversion rates explain more than half of the observed variation in Chapter 13 Plan Completion Rates. Thus, when analyzing the geographic patterns of the most common

[31] 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).

measure of Chapter 13 success - the Plan Completion Rate - one is primarily seeing the effects of differences in district patterns of attorney representation, repeat filings, and conversions. Less than half of the variation in the Plan Completion Rate reflects whether a represented debtor is likely to obtain a discharge within six years.

6. 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 the data behind this statistic is mostly decades old, from small and geographically selective samples, and makes specific choices about how to define "discharge." 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. Second, empirically, recent discharge rates are higher than the oft-cited one-third statistic, ranging from 40% to 66% across different plausible definitions of discharge. 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 primary goal is to obtain a discharge, the debtor should file under Chapter 7 if eligible. But obtaining a discharge is rarely the primary goal of debtors who file under Chapter 13,[32] and so perhaps we should not be surprised by its relatively low discharge rate. 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 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.

[32] A survey of debtors with dismissed Chapter 13 cases found that just 5.0% listed "discharge unsecured debt" as their primary goal with another 5.9% listing "get a fresh start." (Porter, 2011)

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Appendix A. Tables and Figures

Table A1: Pending Cases

year	pending (all) (1)	pending (no prior) (2)	pending (prior) (3)
2008	0.25%	0.25%	0.25%
2009	0.2%	0.2%	0.22%
2010	0.17%	0.17%	0.17%
2011	0.16%	0.16%	0.14%
2012	0.15%	0.16%	0.14%
2013	0.14%	0.14%	0.15%
2014	0.13%	0.14%	0.13%
2015	0.23%	0.24%	0.22%
2016	0.61%	0.65%	0.55%
2017	2.09%	2.22%	1.88%

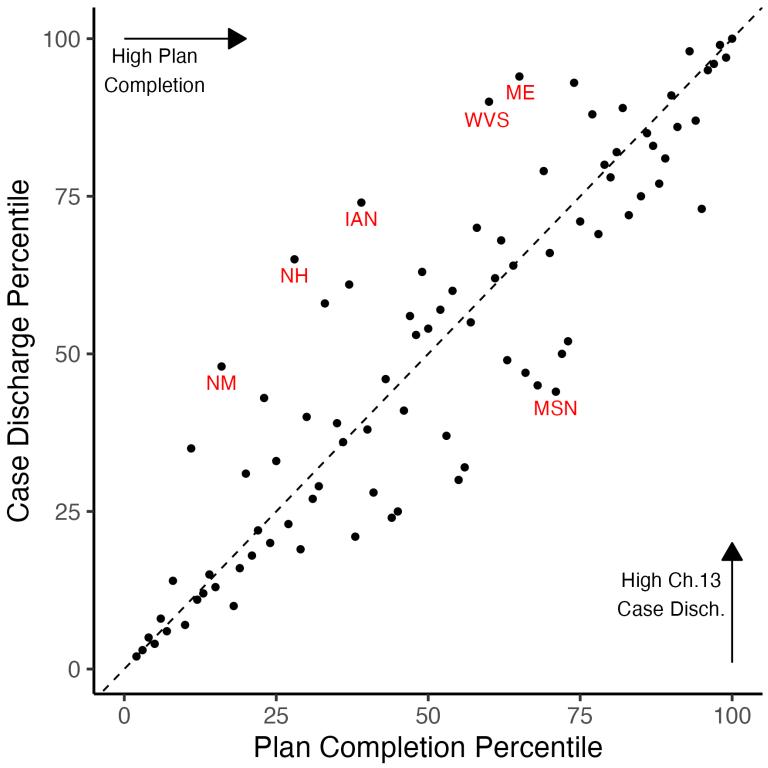
This table shows the share of Chapter 13 cases that are still pending at the end of our sample (September 2023) for each year included in Panel A of Table 1. Within each year, we report statistics for all cases, and those without (No Prior) and with (Prior) a prior filing.

Table A2: Final Disposition of Chapter 13 Cases

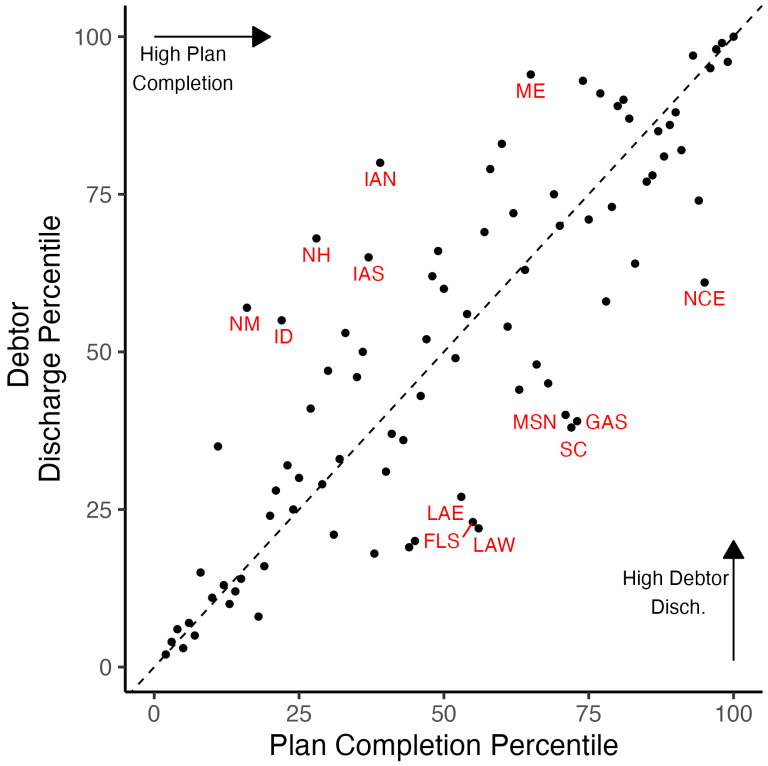
A: Full FJC Data: 2008-2017 Ch.13 Cases

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)
Case not closed	0.154	0.000	0.165	0.000	0.222	0.000
Closed in Error	0.002	0.000	0.003	0.000	0.000	0.000
Discharge Denied	0.143	0.045	0.408	0.100	0.024	0.044
Discharge Not Applicable	0.211	0.032	0.526	0.038	0.064	0.020
Discharge Revoked	0.002	0.007	0.005	0.006	0.001	0.002
Discharge Waived	0.025	0.005	0.076	0.005	0.003	0.002
Discharge Withheld for Other Reasons	0.385	0.019	0.780	0.031	0.073	0.016
Discharge Withheld: Failure to Comply with DSO	0.152	0.000	0.128	0.000	0.010	0.000
Discharge Withheld: Financial Management Course	0.334	0.236	0.323	0.243	0.029	0.254
Discharge Withheld: Financial Management Course and Pay DSO	0.218	0.002	0.233	0.001	0.013	0.002
Dismissed for Abuse	0.101	0.019	0.242	0.022	0.738	0.039
Dismissed for Failure to File Information	7.042	0.091	8.118	0.093	51.473	0.380
Dismissed for Failure to Make Plan Payments	22.719	0.003	30.010	0.003	6.427	0.002
Dismissed for Failure to Pay Filing Fee	1.395	0.017	2.188	0.022	5.448	0.074
Dismissed for Other Reason	16.169	0.572	21.224	0.792	28.684	2.041
Dismissed: Failure to Pay Filing Fee and to File Information	0.099	0.001	0.146	0.001	0.723	0.004
Filed in Error	0.034	0.000	0.044	0.000	0.071	0.001
Hardship Discharge	0.204	0.001	0.177	0.001	0.009	0.000
Homestead Exemption/Felony Conviction	0.000	0.000	0.001	0.000	0.000	0.000
Inter-District Transfer	0.036	0.001	0.032	0.000	0.070	0.002
Intra-District Transfer	0.000	0.000	0.000	0.000	0.000	0.000
Split or Deconsolidated	0.025	0.007	0.027	0.005	0.002	0.000
Standard Discharge	40.309	9.179	28.036	5.744	1.231	1.801
Total in Column	89.759	10.237	92.892	7.107	95.315	4.684

This table shows the share (in percentage points) of Chapter 13 cases end in each final disposition. Columns 1 and 2 show the outcomes for all Chapter 13 cases in the Matched Case Name Sample (2008-2014), where column 1 shows the outcomes for cases closed in Chapter 13 and column 2 shows the outcomes for converted cases. The total share in column 1 and column 2 combined add to 100%. Columns 3 and 4 show the outcomes for Chapter 13 cases with prior filings. Columns 5 and 6 show the outcomes for pro se cases.



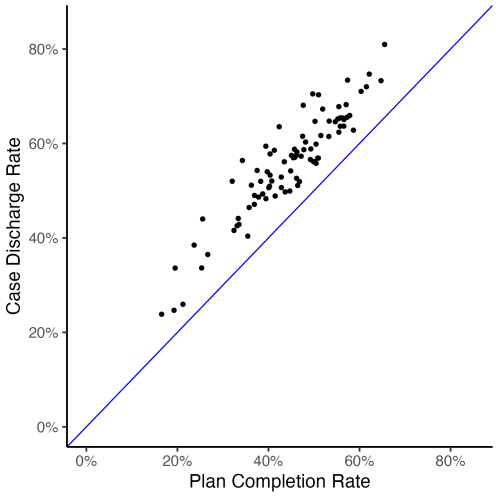
(a) Case Discharge Rate



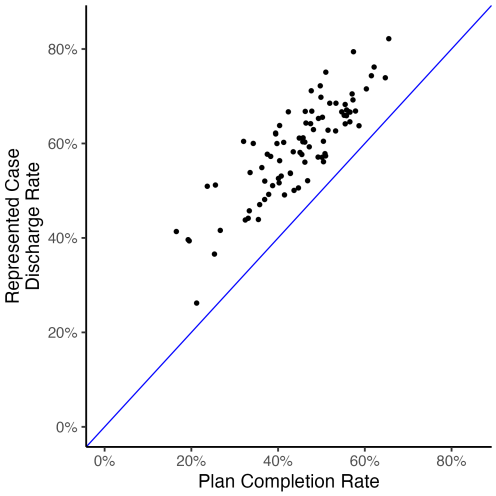
(b) Debtor Discharge Rate

Figure A1: Correlation of Two Discharge Measures

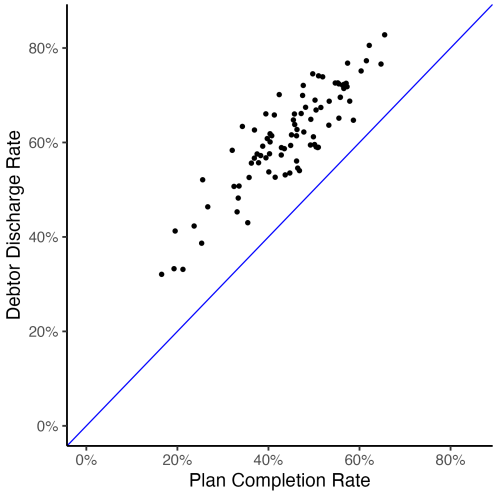
Data: 2008-2014 Matched Case Name Sample.



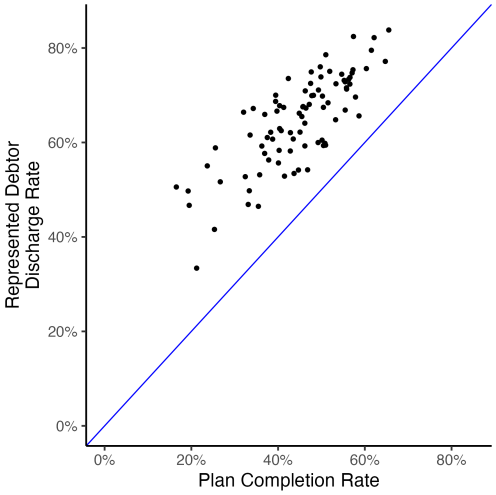
(a) Case Discharge Rate



(b) Represented Case Discharge Rate



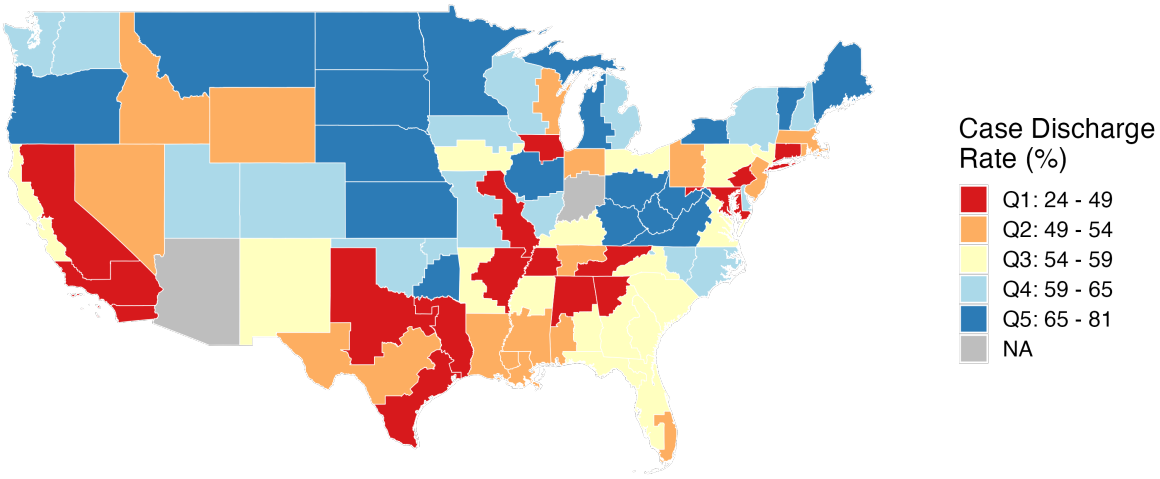
(c) Debtor Discharge Rate



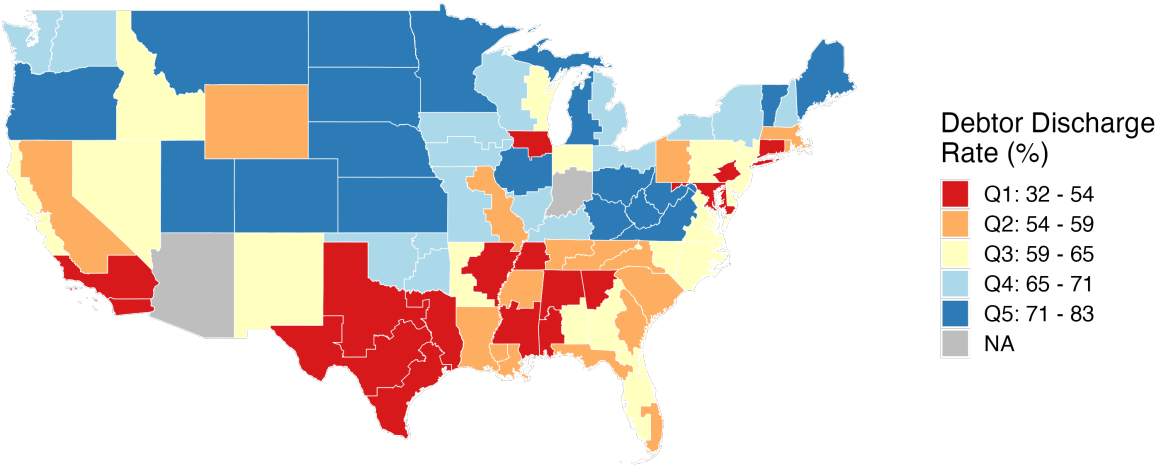
(d) Represented Debtor Discharge Rate

Figure A2: Comparison with Plan Completion Rate

Data: 2008-2014 Matched Case Name Sample. Each point represented 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 A3: Comparing Discharge Definitions

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

Appendix B. Deriving the Decomposition Formula

Combining the equations in Section 3, 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[33] 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

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

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 (B.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

[33] 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

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

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

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

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 (B.2) and (B.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. Empirically, we show that this approximation is nearly perfect, capturing almost all the across-district variation in the Plan Completion Rate.

Appendix C. Data Merging and Matching

Appendix 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.[34] We merge on court and docket number, except in FLM and CAC, where the unique identifiers are court, docket number, and office.[35]

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.

Appendix 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 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)

[34] More information on coverage is available on the Free Law Project's webpage: link.

[35] 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. In these cases, we keep cases that have completed case and fields and, if more than one does, the case which was terminated last.

- **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 name 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		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%			
mtb	59.8%	0.6%			

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. Sample is restricted to cases filed in 2017 or later.

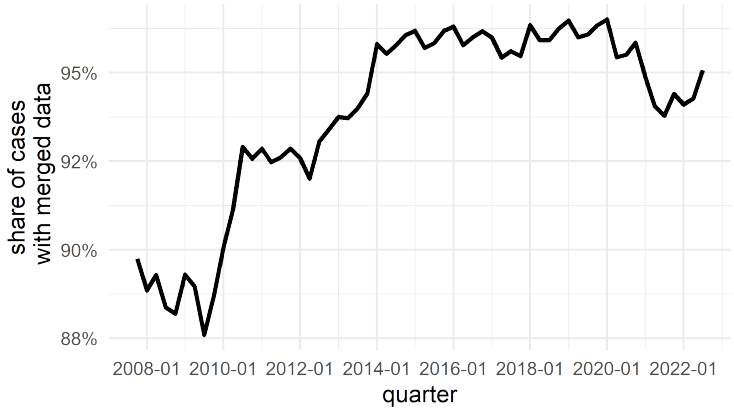
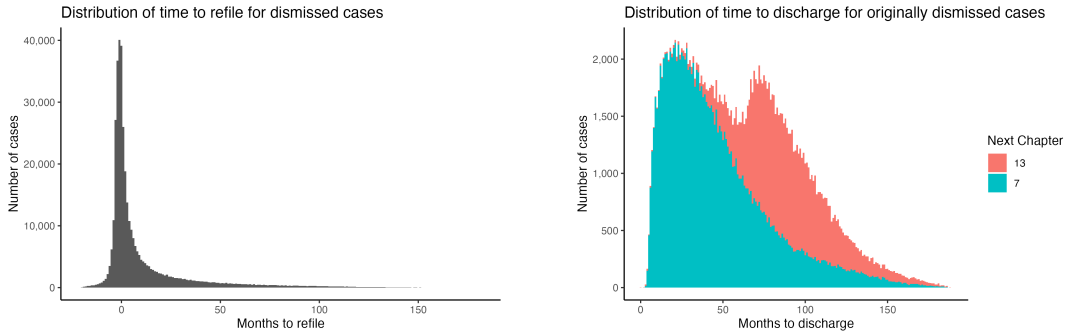


Figure C1: Merging Case Information

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

Appendix D. Timing

This Appendix provides additional analysis about the timing of repeat filings, discharges, and dismissals. First, Figure C1(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 C1(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.

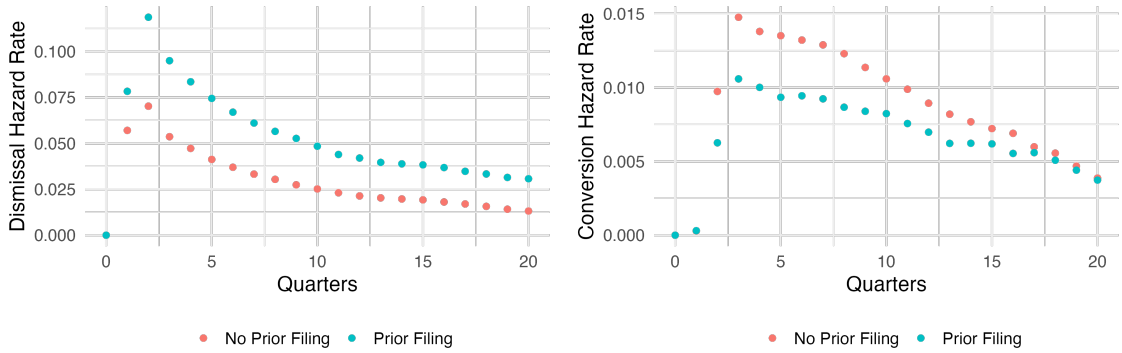


(a) Time to Refile (b) Time to Discharge

Figure C1: 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 C2 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 C1. 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 C2: Hazard Rate for Dismissals and Conversions

Data: FJC IDB: 2008-2014 Ch.13 Cases (Panel B of Table 1). 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 C1: 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 1). This table reports selected values from Figures C2 and C3. Odd years are omitted for brevity.

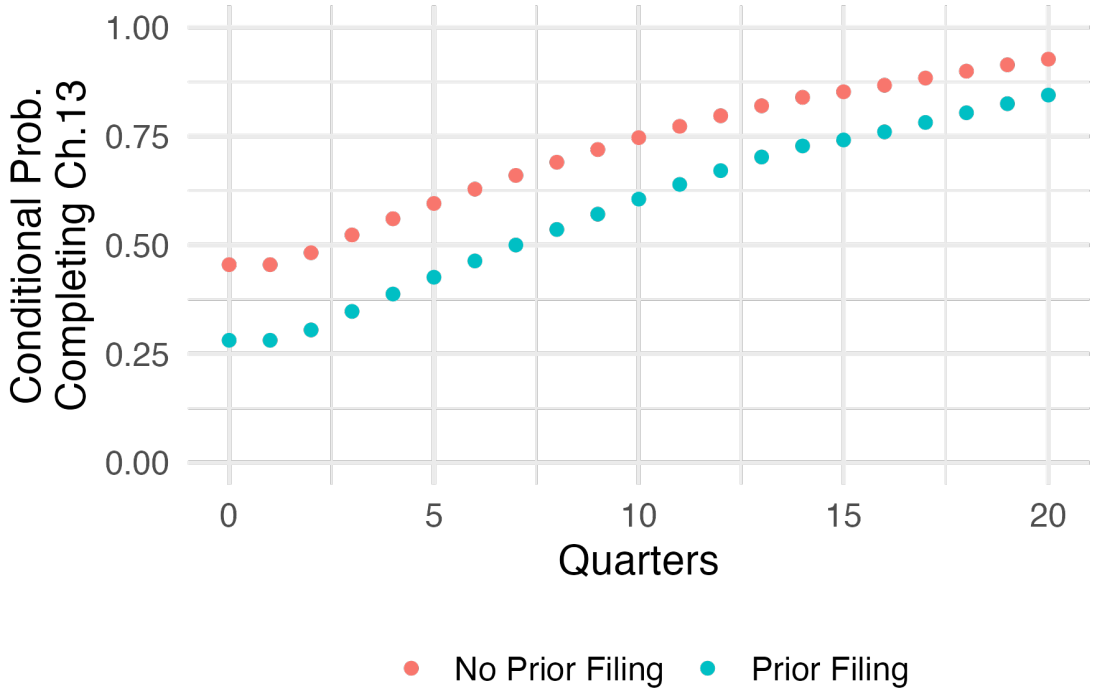


Figure C3: Conditional Completion Rate

Data: FJC IDB: 2008-2014 Ch.13 Cases (Panel B of Table 1). 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.