On the Relationship Between Asset Exemptions and Outstanding Tax Repayments in Chapter 7 Bankruptcy

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Under a Chapter 7 bankruptcy filing, assets are liquidated and used to repay debts, in order of a Court-established priority. If not repaid through the liquidation process, some of these debts (especially certain types of unpaid taxes) survive the bankruptcy proceedings and must still be repaid. The U.S. Bankruptcy Code allows individuals filing under Chapter 7 to exempt certain assets from the liquidation process. More generous exemptions lead to a lower value of assets liquidated and used to repay creditors. This leads to an interesting decision problem. Do filers with exempt assets and tax debts choose to retain their exempt assets and allow the tax obligations to survive the bankruptcy process? Or do they use the liquidation process to reduce outstanding tax obligations? This manuscript empirically explores this issue. We find no statistically significant evidence suggesting that households with greater exempt assets accumulate or repay a greater proportion of tax debts. However, filers who own businesses are more likely to accumulate and repay tax debts through bankruptcy.

Keywords: consumer bankruptcy, asset exemptions, taxes

INTRODUCTION

Consumer bankruptcy is a form of social insurance with major redistributive effects. This is especially true for households who, because their incomes are lower than their home state's median income, are allowed to file under Chapter 7 of the U.S. Bankruptcy Code (Jimenez, 2009; Zhu, 2011; Hackney & Friesner, 2015). Under a Chapter 7 filing, all non-exempt assets held by the debtor(s) are liquidated, and those funds (net of attorney and court costs) are used to repay creditors. All remaining debts that are eligible for discharge, are discharged (Loibl, Hira, & Rupured, 2006; Norberg & Compo, 2007). This allows the bankrupt household to quickly re-establish itself financially.

In most Chapter 7 filings, liquidated assets repay only a small portion of outstanding debts reported in the bankruptcy filing. Two key issues within the Chapter 7 bankruptcy process are noteworthy. First, several households file for bankruptcy protection with assets which may be exempt from liquidation (Mankart, 2014). In certain states, the exemptions are set by the state where a household files for bankruptcy. In other states (known as "debtor choice states"), households may choose to exempt assets under state or federal exemption rules (Jimenez, 2009). The more generous the exemptions (especially as they apply to the household's assets) the lesser is the value of assets liquidated and used to repay creditors. Second, the U.S. Bankruptcy Code allows for certain types of unsecured debts, especially outstanding tax debts, student loan payments, and domestic support payments, to be categorized as "priority unsecured debts" (Wedoff, 2007; Rudzik, 2015). These debts are not always dischargeable in the bankruptcy process and may survive a bankruptcy filing. Some of these priority unsecured debts, especially domestic support obligations, will continue to accrue over long periods regardless of whether the outstanding debts are repaid. However, tax debts are unique in that there is an outstanding amount that, once repaid, allows the debtor to be free of these obligations.

For households filing for bankruptcy protection under Chapter 7, this leads to an interesting decision problem, which has been insufficiently explored in the literature. Among filers with assets eligible for exemption and tax debts, do filers choose to retain their exempt assets and allow the tax obligations to survive the bankruptcy process, or do they choose to use the liquidation process to reduce outstanding tax obligations? The current study empirically investigates this issue. This study contributes to the literature's understanding of the Chapter 7 bankruptcy process outcomes by examining whether - and to what extent – the U.S. Bankruptcy Code produces the results anticipated by policymakers and expected by the debtors.

The remainder of this manuscript proceeds as follows. In the next section, we present a brief primer on the bankruptcy filing process, focusing specifically on those aspects of the process related to Chapter 7 filings, the exemption of assets from that process, and the resolution of tax debts in Chapter 7 filings. The third second contains a brief review of the academic literature on the possible drivers and consequences of bankruptcy filings, particularly as they relate to Chapter 7 asset case filings and the resolution of tax debts in those filings. This allows for the creation of the study's null and alternative hypotheses. Section four contains the empirical methodology used in this study to test its null hypotheses. The fifth section contains the data used in this study, which come from Chapter 7 asset cases filed in the Eastern Washington Bankruptcy Court from 2016-2021. The following section presents empirical results. The paper concludes by discussing the policy implications of those results, identifying study limitations, and postulating areas for future research on this topic.

A BRIEF PRIMER ON BANKRUPTCY AND TAX DEBT

Although consumer bankruptcy is a form of social insurance with major redistributive effects, the public policy objectives behind tax collections and bankruptcies are frequently in conflict. On one hand, Article I, Section 8 of the Constitution gives Congress the power to levy and collect taxes in the United States. Since taxes are essential for government operations and services, Congress has broad powers to enforce and collect taxes through liens, debt priorities, and civil and criminal penalties. On the other hand, bankruptcy was created to provide debtors with fresh starts and financial rehabilitation.

Despite the government's incredibly broad power to collect taxes, the U.S. Bankruptcy Code (https://www.law.cornell.edu/uscode/text/11) imposes several restrictions on the government throughout the bankruptcy process. The Bankruptcy Code is codified in title 11 of the United States Code and is the governing law of all bankruptcies in the United States. Within Title 11, commonly referred to as the "Bankruptcy Code", there are multiple chapters under which individuals may file for bankruptcy protection. Each of those chapters has different eligibility criteria and allows for liquidations and reorganizations of different debtors.

Most bankrupt households file under Chapter 7 of the U.S. Bankruptcy Code, which is reserved for debtors who pass the "means test" (Power, 2007). The purpose of the means test is "to help ensure that debtors who *can* pay creditors *do* pay them" (Coe, 2011; United States Supreme Court, 2011). The means

test is applied by assessing the debtor's monthly disposable income, after standardized adjustments for household size, allowable expenses, and other related factors. If the debtor's adjusted monthly income is below the median income for a household of the same size in the same state, then the debtor is eligible for Chapter 7 bankruptcy (Power, 2007; Wedoff, 2007). Under a Chapter 7 filing, the household lists all assets and liabilities. All non-exempt liabilities are liquidated and used to repay creditors in order of priority established by the U.S. Bankruptcy Code and the Bankruptcy Court. Alternatively, suppose the debtor's adjusted monthly income is above the median income. In that case, the debtor is presumed to have monthly disposable income (again, after deducting allowable expenses) that can be used to repay at least some portion of outstanding debt. In that case, the debtor is deemed ineligible for Chapter 7 bankruptcy. Instead, the debtor must file under a different chapter of the U.S. Bankruptcy Code (typically under Chapter 13), which may require the filer to establish a repayment plan (again, typically over a 36–60-month window) and repay a portion of their outstanding debts (Norberg & Velkey, 2006).

Despite the means test's application, the bankruptcy process's goal is, for most debtors, to discharge their debt. As defined in Section 524 of the Bankruptcy Code, the entry of a debt discharge acts as a complete and enforceable injunction prohibiting the commencement or continuation of any actions to collect or recover that (exempt) debt. Yet, discharge is not available for all types of debts, including certain tax-related debts (Wedoff, 2017; Rudzik, 2015). Whether an outstanding debt is dischargeable depends on whether that debt is entitled to priority status under Section 507 of the Bankruptcy Code. Multiple types of tax debts can receive priority status. These taxes generally include: income and gross receipts taxes, trust fund taxes, property taxes, employment taxes, excises taxes, and tax penalties. Different rules govern each group of taxes under Section 507. For the purpose of this paper, we focus on the most common taxes to Chapter 7 debtors: income taxes and property taxes.

Income and gross receipt taxes are generally subject to priority status and are not dischargeable subject to the "three-year rule". More specifically, priority status is granted for taxes owed on the tax returns filed within three years of the date of the debtor's filing of their bankruptcy petition. Thus, any income and gross receipts taxes being owed more than three years before the filing of the bankruptcy petition are dischargeable. However, the three-year rule has limitations regarding late returns and no return tax claims. If the debtor filed a late return, then at least two years must have lapsed from the date of the late return in order to be dischargeable in bankruptcy. Additionally, and more importantly, if the debtor did not file a required tax return, then the underlying tax debt is not dischargeable regardless of age.

Property taxes are generally subject to priority status and are not dischargeable if the property tax was assessed, and is payable without penalty, within one year of the debtor filing their bankruptcy petition. More generally, however, property taxes are not dischargeable because unpaid property taxes are recouped using liens assessed against the property. As such, unpaid property taxes are generally classified as secured claims, resolved either through debtor repayment or through the sale or foreclosure of the property.

Once a debtor files a Chapter 7 bankruptcy petition and passes the means test, the debtor must identify their assets and declare their exemptions. Exemptions exist only for individual debtors, and the role of the exemption is to allow debtors access to assets that are critical in ensuring that the debtor can generate sufficient income to pay reasonable expenses after the bankruptcy is resolved. Exemptions are allowed because they are critical in ensuring that the debtor can re-establish her/himself financially once the bankruptcy process concludes. Federal and state bankruptcy laws identify possible exemptions, and the debtor must elect which set of exemptions to use and declare. Examples of common exemptions include a certain dollar amount of homesteads, vehicles, clothing, jewelry, and household furniture and goods. Once the debtor declares all of her/his exemptions, the remainder of the debtor's estate is liquidated (usually by a Court-appointed trustee) and used to repay creditors in order of priority. Court administrator, trustee, and attorney payments receive top priority, followed by secured claims, priority unsecured claims, and unsecured claims. Priority unsecured debts include outstanding taxes, alimony, child support. Common non-priority unsecured debts include personal loans, credit card debt, and health care bills.

Priority unsecured debts, such as outstanding tax debts, are interesting to study because there are certain situations where a debtor may strategically use the exemption process to mitigate one or more types of priority unsecured debts. Suppose, for example, that an individual files for Chapter 7 bankruptcy protection,

listing both assets eligible for exemption and outstanding priority unsecured claims (in this example, outstanding income tax-related debt). Now the debtor has an interesting decision problem. The debtor may choose to exempt the asset from liquidation. In this case, the outstanding tax debt, if non-dischargeable, will likely survive the bankruptcy process and will ultimately be repaid by the debtor. Alternatively, the debtor may choose not to exempt the asset and allow it to be liquidated to repay the outstanding tax debt. Which option is chosen is a fundamentally empirical issue and depends on a host of factors, including (but not limited to) the value of the asset, the value of the outstanding tax debt, the existence of other debts with a higher priority level, and whether the debtor has a unique attachment to the asset over and above its market value (i.e., a family heirloom).

LITERATURE REVIEW

A considerable literature investigates the causes and consequences of consumer bankruptcy filings. However, the literature specifically examining the causes and consequences of Chapter 7 assets case filings is relatively thin. Jimenez (2009) provides a purely (descriptive) empirical analysis of Chapter 7 asset case filings, focusing specifically on the distribution of assets reported by individuals filing Chapter 7 bankruptcy petitions. The author finds that secured claims were listed in approximately 80% of cases. Total court administrative costs comprised over 40 percent of all funds recovered from the debtor and (re)paid by Court trustees. Only 15 percent of cases included priority unsecured claims, the majority of which were outstanding tax obligations, and obtained approximately 12 percent of funds recovered from the debtor and (re)paid by Court trustees. Only 11 percent of general unsecured creditors were repaid a positive sum, and at the median, general unsecured creditors received approximately eight cents per dollar owed. Jimenez (2009) further finds that the preponderance, if not the majority, of funds captured by the trustee were liquid assets, such as checking account deposits, cash on hand, and tax refunds. This is at least partly (but not entirely) due to the use of exemptions to shield assets from liquidation. Indeed, Jiminez finds that, in a substantial proportion of cases studied, most instances in which the trustee captured a tax return occurred in states where the filer could not choose between state and federal exemptions (the latter of which are typically more generous). Moreover, in most of these cases, the tax return was the only asset captured by the trustee.

A handful of studies have examined the relationship between asset exemptions and bankruptcy outcomes from a theoretical and/or predictive empirical perspective. Athreya (2006) provides both theoretical and simulation-based evidence suggesting that the relationship between asset exemptions and unsecured debt acquisition is u-shaped. Lower exemption levels reduce (the likelihood of) the acquisition of unsecured debt, reducing the likelihood of bankruptcy. However, as the generosity of asset exemptions increases, there is a point at which households are incentivized to start increasing unsecured debt, because the more generous asset exemptions shield the household's assets should unsecured debt payments force the household to file for bankruptcy protection. Overall, asset exemptions were found to enhance social welfare, although the welfare gain's magnitude was relatively small. Athreya's (2006) analysis, while illuminating, fails to make any distinction between the Chapter of the U.S. Bankruptcy Code under which households file, as well as the regulatory differences across states (particularly across states that set specific asset exemptions, or to choose between using state or federally specified exemptions). Lastly, Athreya (2006) fails to distinguish between the various types of debt households may accumulate, particularly unsecured and priority unsecured debts.

Grochulski (2010) builds a theoretical model of financial decision making that extends Athreya's (2006) work in several notable ways. First, Grochulski (2010) allows the consumer to accumulate both secured and unsecured debt, with bankruptcy allowing for partial relief from unsecured debts. The amount of assets eligible for exemption depends upon the consumer's initial level of wealth and income earned in the previous period. Unsecured creditors make loan offers to consumers based on the type of loan offered, interest rates in the market, consumer credit histories, expected loan demand, and expected default rates, among other factors. This leads to the identification of a market equilibrium, inclusive of an optimal bankruptcy filing decision on the part of the consumer. The author finds that the optimal bankruptcy filing

rule exhibits asset exemptions that are positively aligned with consumer wealth, but are decreasing as a proportion of overall wealth. As with Athreya (2006), Grochulski makes no attempt to account for chapter filing choices, federal/state exemption differences across states, or to address the accumulation of priority unsecured debts.

Mankart (2014) builds upon Athreya's study by examining asset exemptions' impact on social welfare. The author finds that the welfare gains from Chapter 7 bankruptcy filings are twice as high as those in European countries (where all debts are not discharged) when asset exemptions are accounted for in the analysis. However, asset exemptions are only welfare improving at low exemption levels. As a result, there is a very weak, positive relationship between asset exemption levels and default rates on debt. As with Athreya (2006), Mankart (2014) focuses on unsecured debt, rather than a mix of secured, priority unsecured, and secured debts. Additionally, Mankart (2004) focuses on a total dollar of asset exemptions, rather than specific categories of assets (regardless of value) that are available for exemption. Lastly, Mankart (2014) calibrates his model based on available bankruptcy data that was collected prior to the implementation of the Bankruptcy Abuse Prevention Consumer Protection Act of 2005, which fundamentally transformed the parameters underlying the consumer bankruptcy process, including the imposition of means test governing the chapter filing decision.

Instead of examining the dollar value of assets eligible for exemption, Hintermaier and Koeninger (2016) focus on the role of homestead exemptions in the Chapter 7 bankruptcy process. Homestead exemptions are interesting to study because they rank among the most widely used exemptions, and are typically the most valuable asset eligible for exemption. However, the dollar value of homestead exemptions allowed in consumer bankruptcy varies considerably across states. The authors find that the existence of homestead exemptions creates a small welfare loss. However, the homestead exemption amount does not noticeably impact the magnitude of the loss, because most households filing for Chapter 7 bankruptcy do not hold a level of home equity that exceeds the available homestead exemption.

Concomitantly, Davila (2020) focuses on all eligible asset exemptions, but (unlike Hintermaier and Koeninger (2016)) specifically examines how the relationship between asset exemptions and welfare gains attributed to the bankruptcy process vary by state. Overall, Davila finds that, on average, increasing the exemption level improves social welfare. However, there is considerable variation in the magnitude of the welfare gained by altering exemptions levels across states. Several southern states (Alabama, Georgia, Tennessee, and Louisiana) were identified as the states whose welfare is most improved through an increase in asset exemptions. Davila (2020) attributes the latter finding to the high likelihood of filing for bankruptcy in these states. Moreover, when bankruptcy filing is submitted, filers in these states are more likely to submit a filing with assets and claim the entirety of eligible exemptions.

The Davila (2020) study suggests that assessing the relationship between exemptions and bankruptcy outcomes varies considerably across states. This implies that any optimal decision – whether in terms of shielding assets through exemptions, or repaying creditors using liquidated assets – may also vary by state. Hackney, Friesner, and McPherson (2018) develop an empirical methodology to identify the optimal percentage of asset exemptions, expressed as a proportion of total court disbursements (i.e., assets retained by the bankruptcy filer are disbursed back to the filer by the Court), and relative to other court disbursements (each of which is expressed as a proportion of total disbursements). They find that the optimal proportion of asset exemptions should be approximately 9 percent of total disbursements. Additionally, the observed proportions of disbursed asset exemptions varied considerably across the 9 states in the 9th Federal Court District that were studied and compared to the optimum. This result suggests that these states have exemption structures that are either too lenient or too strict. Hackney, Friesner, and McPherson (2020) applied this methodology to data collected in Oregon between 2009 and 2017 to determine whether the state's decision in 2013 to move from one of allowing only state-designated exemptions, to one in which the filer can choose either federal or state exemptions, impacted the optimal proportion of asset exemptions. They find no concrete evidence to suggest that the policy change impacted the amount of assets retained through the exemption process. As an aside, the authors find that the optimal proportion of debts disbursed to priority unsecured creditors range from 6 to 10 percent.

Considered cumulatively, the literature review provides several important inferences. First, in the majority of Chapter 7 asset case filings, few non-liquid assets are liquidated and used to repay outstanding debts. Those assets that are liquidated are non-exempt assets with secured creditor claims. Thus, the availability of exemptions, combined with low filer incomes (a prerequisite to file under Chapter 7), indicate that asset exemptions are effective in shielding key debtor assets from liquidation. Second, priority unsecured claims, including but not limited to outstanding tax obligations, represent approximately 10-15 percent of outstanding obligations. While not the largest category of debts by any means, these debts are not insubstantial. Thus, there are at least some debtors who face an important tradeoff: to retain their exempt assets and allow the priority unsecured obligations to survive the bankruptcy process, or to use the liquidation process to give up potentially exempt assets and use the proceeds to reduce outstanding priority unsecured obligations. Third, the literature on Chapter 7 asset case filings does not provide any empirical or theoretical evidence that the typical filer chooses one course of action over the other in managing this tradeoff. This is especially true for outstanding tax obligations, which represent one of the primary types of priority unsecured claims, and one for which state or federal agencies have considerable resources at their disposal to collect upon those claims. Based on these considerations, this study adopts the following null and alternative hypotheses:

$\boldsymbol{H_0}$*: The dollar amount of a potentially exempt asset held by a typical filer has no significant impact on the presence (and, if a positive presence, the amount) of tax debt repaid through the bankruptcy process.*

$\boldsymbol{H_A}$**:** *Not* H_0

The null hypothesis is effectively one of ignorance about the relationship between asset exemptions and tax payments. Under the null hypothesis, the amount of assets exempted through the bankruptcy process is unrelated to the presence and/or amount of outstanding taxes that are repaid through that same bankruptcy process. While not explicitly addressed in the literature, the null hypothesis is generally consistent with the debtor profile described in Jimenez (2009), Hintermaier and Koeninger (2016), and Davila (2020). More specifically, debtors likely have very low asset levels and even lower equity in any assets that are eligible for exemption. Thus, the assets are easily shielded from the bankruptcy process, and the value of assets would be insufficient to repay the outstanding tax obligations, even if the exempt asset were liquidated and its proceeds (along with non-exempt assets) solely allocated to repaying any outstanding tax bills. Rejection of the null hypothesis indicates not only an improved financial position for the filer, but also a willingness to liquidate those more substantial assets to repay the debtor's tax obligations and other outstanding obligations.

ECONOMETRIC METHODS

This study aims to assess the empirical relationship between the amount of exempt and non-exempt assets and amounts of outstanding tax debts repaid by individuals filing for bankruptcy under Chapter 7. As noted in the previous section, the study operates under the null hypothesis of no relationship between the number of assets (whether exempt or non-exempt) and the presence or amount of tax debt.

To evaluate the null hypothesis, we specify a standard, reduced form, linear in parameters Tobit model with the following characteristics (Greene 2000, pp. 905-912):

$$Tax_{it}^{*} = \alpha + \sum_{j=1}^{J} \beta_j \, Asset_{it}^{j} + \sum_{k=1}^{K} \gamma_k Q_{it}^{k} + \sum_{t=2}^{T} \omega_t D_i^t + u_{it} \quad (1)$$

where: i = 1,…,n indicates the observations (bankruptcy filings) in the sample;
t = 1,…,T indicates the year in which a bankruptcy petition is filed;
Tax_{it}^{*} is the true, uncensored, real dollar value of outstanding taxes for bankruptcy filing i in time t;

$Asset_{it}^{j}$ represents a series of j = 1,…,J assets (exempt and non-exempt);
Q_{it}^{k} represents a series of k = 1,…,K debtor characteristics;
D_{i}^{t} represents a series of t = 2,…,T binary variables indicating the year in which a bankruptcy was filed;
u_{it} is a white noise error term; and
α, the β_js, the γ_ks, and the ω_ts are parameters to be estimated.

We observe a censored version (Tax_{it}) of the dependent variable (Tax_{it}^{*}). For non-normalized variables (for example, the dollar amount of taxes repaid), the censoring is one-sided, and occurs on the left-hand side of the distribution, starting at a value of zero:

$$Tax_{it} = 0 \; if \; Tax_{it}^{*} \leq 0$$
$$Tax_{it} = Tax_{it}^{*} \; if \; Tax_{it}^{*} > 0 \qquad (2a)$$

Alternatively, if the dependent variable is normalized as a proportion (for example, expressing the dollar value of taxes repaid as a proportion of total taxes (inclusive of fees, penalties, etc.) owed), the censoring becomes two sided:

$$Tax_{it} = 0 \; if \; Tax_{it}^{*} \leq 0$$
$$Tax_{it} = Tax_{it}^{*} \; if 0 < \; Tax_{it}^{*} < 1$$
$$Tax_{it} = 1 \; if \; Tax_{it}^{*} \geq 1 \qquad (2b)$$

Equations (1) and (2) assume that the dependent variable, as well as any regressors exhibiting properties consistent with continuous data, exhibit both time series and cross-sectional dimensions. This is consistent with the nature of bankruptcy data, where data on bankruptcy filings may be collected over multiple time periods, but the vast majority of individuals represented in the data set file for bankruptcy protection only once across all time periods. Within the context of the econometric methodology, this implies that the data exhibit primarily cross-sectional characteristics, since cross-sectional units are not repeated over time, and the econometric methodology should reflect this fact.

Given the model's specification, evaluation of the study's null hypothesis proceeds in a standard fashion. The overall statistical significance of the model can be tested using the likelihood ratio test. Under the null hypothesis for this test, the set of coefficient estimates (except for the Tobit disturbance model and the intercept) and jointly equal to zero. The model is distributed as chi-square with degrees of freedom equal to the number of restrictions (Greene 2000, pp. 390-391). It directly follows that the statistical significance of individual model parameter estimates can be evaluated using the traditional t-test. Under the study's null hypothesis, the parameter estimates for one or more β_js should be statistically insignificant from zero. If one or more of the more β_js are statistically different from zero (at a given level of significance), the study's null hypothesis is rejected. All hypothesis tests are conducted at 5% significance level, although statistical significance at the 10% level will be noted. Lastly, all empirical results are generated using the SAS Statistical Software, Version 9.4 (Cary, NC).

DATA

The data used in this study are drawn from the Public Access to Court Electronic Records (PACER) website Eastern Washington U.S. Bankruptcy Court District over the years 2016-2021 – the most recent 6 years of data available when the study was initiated. All bankruptcy filings are entered under penalty of perjury. All financial information reported by the filer must be justified using W-2 statements, tax returns, and other appropriate forms of documentation. Thus, any information included in the PACER database should (to the extent possible) be reported accurately and precisely. Because the PACER database is exclusively in the public domain, the data used in this study represent a secondary analysis of publicly

available information. As such, the institutional review boards associated with the authors' institutions did not consider this study to be classified as human subjects research.

The Eastern Washington U.S. Bankruptcy Court District is interesting to study for several reasons. First, it convers a large geographic area of roughly two-thirds of the State of Washington. The District also contains several large, urban metropolitan areas (including Spokane and the "Tri-Cities" of Kennewick, Richland, and Pasco) as well as an array of mid-sized communities, small rural communities, and remote rural areas. Agriculture, mining, and forestry represent the dominant economic sectors of rural communities and remote rural areas, while the large urban areas are home to diversified economies across a range of industries (Hackney, Friesner, & Johnson 2016, 2017, 2018). Employment and income in each of these areas and industries roughly track those for the U.S. economy as a whole. Thus, while no single U.S. Bankruptcy Court District's populace and economy are perfect reflections of the U.S. economy as a whole, the Eastern District of Washington State provides at least a very rough approximation. Thus, data drawn from this District's bankruptcy filings should provide a rough (albeit reasonable) approximation of trends in Chapter 7 asset filings nationwide.

The authors identified all Chapter 7 asset case filings in the District each year. For each of these filings, the authors coded the filer's entire bankruptcy petition, inclusive of assets and liabilities, income and court-approved expenditures, demographic information, and filing specific information (whether the bankruptcy filing is a repeated filing, whether the filing is joint or individual, etc.). When reporting data delineated in monetary terms, all nominal variables were converted to real 2016 dollars using the CPI for all urban consumers. The process yielded 363 cases in total, of which 22 cases (or 6.1 percent of the total) were eliminated from the sample due to missing information. This left a working data set consisting of 341 observations.

The data contain information on all outcomes of the consumer bankruptcy process, including the distribution of debtor assets either retained by the debtor through exemptions, or repaid to creditors. Several of these variables can be used to test this study's primary hypothesis. The variable RTPay denotes the real (2016) dollar value of all repayments made through the bankruptcy process. Additionally, the variable RIRSPay denotes the real (2016) dollar value of tax obligations paid to the U.S. Internal Revenue Service (IRS), while variable RWAPay characterizes the real (2016) dollar value of outstanding tax obligations paid to one or more Washington state agencies, including but not limited to the Department of Revenue and the Employment Security Department (WATaxR). Note that, because the outstanding tax obligation variables are measured in real dollar terms, they exhibit one-(left)- sided censoring at zero value. These variables must be modeled using the econometric specification depicted in equation (2a).

Several additional variables were created identifying the proportion of RTPay that was distributed to the IRS (propIRS), Washington state taxing agencies (propWA), secured creditors (propSec), court administrators (propAdm), and all other creditors (propOth). The outstanding tax obligation variables, combined with the variables identifying the proportional repayment variables, comprise the dependent variables used in this study. These proportional variables are bounded between zero and one, and thus exhibit two-sided censoring. Such variables must be modelled using the econometric specification identified in equation (2b).

The study also utilized precedents established in the consumer bankruptcy literature, along with the availability of information available in the PACER database, to identify the explanatory variables used in this study (Jimenez 2009; Coe, 2011; Zhu, 2011; Hintermaier and Koeniger 2016; Hackney, Friesner, & Johnson, 2016, 2017, 2018). Data were collected on the real (2016) dollar value of debtor assets (Rasset), as well as the real (2016) dollar value of exempt assets (RAssetE). Exempt assets were aggregated into three categories: homestead exemptions, automobile exemptions, and all other asset exemptions. For each exemption category, a binary variable was created indicating whether a given filer reported that given filer held that particular type of asset. Additionally, the real dollar value of the real dollar value of that asset that was exempted was reported. As an example, the variable HomeDV indicates whether a filer has a homestead eligible for exemption. The variable RHomeEx measures the real (2016) dollar value of the exempt homestead. Similar variables were created for the automobile and other exemptible asset categories.

Additional information was collected on a number of filer-specific characteristics. The real (2016) dollar value of the filer's monthly household income (RHHInc) and Court-allowed monthly household expenses (RHHExp) were recorded and included as explanatory variables. Additionally, information was collected on whether the filers did not own a business (HouseholdDV), owned a non-incorporated business (PropDV), or an incorporated business (CorpDV). These latter three variables are critically important covariates within the context of this study, because they identify the existence (or lack of existence) of specific types of assets and the general use of those assets, should they exist. Additional binary variables identifying whether a filer had previously filed for bankruptcy within the past seven years (PriorBK), or has outstanding legal actions (LegalDV) were constructed. The filer's home county of residence was noted, and used to create three binary variables identifying filers who live in Spokane County (SpokaneCnty), who live in Benton or Franklin Counties (BFCnty; which covers the majority of the Tri-Cities metropolitan area), and any other county in the District (OthCnty). Binary variables were also created to identify filers who were married (Married), those who support dependents (DepDV), and the year in which the filing occurred (DV2016 – DV2021). As noted earlier in this manuscript, most filers seek bankruptcy protection only once during the evaluation window. Hence, while the filings have variation by year, the data are more appropriately treated as cross-sectional data, rather than a balanced or unbalanced panel.

Several standard adjustments were made when including these data in the regression analysis embodied in equations (1) – (2b). First, when a researcher creates a series of K mutually exclusive and collectively exhaustive binary variables, it is standard practice to include only K-1 of these explanatory variables in the model to prevent the possibility of perfect multicollinearity. Second, to reduce the likelihood of heteroscedasticity in the regression results, all monetary variables were transformed using the natural logarithm before including them as regressors in the model.

RESULTS

Table 1 contains the variable names, definitions, and descriptive statistics for each of the variables used in the analysis. At the mean, the typical filer repaid $114,655.58 in debts through the bankruptcy process. However, the standard deviation of $833,343.14 indicates that there is substantial rightward skewing of the data; a few filers repaid substantially more than the mean, while the majority of filers paid less than the mean value. In terms of taxes repaid, at the mean, filers repaid only $2,325.49 to the IRS and $1,202.10 to Washington state agencies. Total payments to the IRS amounted to 4.4 percent of total repayments made through the bankruptcy process, while 1.9 percent of total repayments were made to Washington state tax debts. This compares to 6.7 percent of repayments to secured creditors, 39.8 percent to other types of creditors, and 47.2 percent to court administrators. Collectively these descriptive statistics indicate that at least some bankruptcy filers did use the bankruptcy process to repay outstanding tax obligations; however, such repayments were a small fraction of total repayments. Concomitantly, almost half of all repayments were captured by court administrators. Since court administrators and other court-appointed personnel received the highest priority in the bankruptcy repayment process, and they captured nearly half of repayments, this suggests a reduced opportunity to use bankruptcy to repay outstanding tax obligations.

At the mean (and in real 2016 dollars), the typical filer listed 142,438.29 in assets, of which $80,019.32 were eligible for exemption. Approximately 53.1 percent of filers listed a eligible homestead, and the mean value of the exempted homestead (again, if exempted, and in real 2016 dollars) was $49,969.24. Approximately 77.1 percent of filers listed an eligible automobile, and the mean value of the exempted vehicle (again, if exempted, and in real 2016 dollars) was $4,868.58. Lastly, 85.3 percent of filers listed another eligible exemption, and the mean value of the exempted homestead (again, if exempted, and in real 2016 dollars) was $25,181.49.

Table 1 also summarizes filer monthly incomes, court-approved monthly expenses, and various demographic information. At the mean (and in real, 2016 dollars), the typical bankruptcy filer reported $2,726.95 in monthly income and $2,998.21 in approved monthly expenses. This amounts to less than $35,000 in annual income, and (since income is less than approved monthly expenses) is not financially sustainable on a cash flow basis. The standard deviations for income and expenses are $2,185.03 and

$2,179.58, respectively. Thus, substantial variation exists in filer incomes and net incomes after expenses. Approximately 14.7 percent of filers had previously filed for bankruptcy during the seven years prior to the current filing, and 38.1 percent reported other legal actions at the time of the current filing. Over 40 percent of filers lived in Spokane County, 18.2 percent lived in Benton or Franklin Counties, and the reminder lived in another county in the District. Approximately 44.9 percent of filers were married at the time of filing, and 45.5 percent reported responsibility for one or more dependents. Approximately 9.4 percent of filers reported owning a small business as a proprietor, and 8.8 percent reported ownership of an incorporated business. Lastly, as few as 10.6 of observations were drawn from bankruptcy filings reported in 2021, and as many as 20.5 percent reported in 2018. As noted on the Court's webpage (https://ecf.waeb.uscourts.gov/ecfstatsdash/), these statistics closely track the total volume of Chapter 7 filings (including both asset and non-asset cases) by year.

TABLE 1
DESCRIPTIVE STATISTICS [n = 341]

Variable	Label	Mean/Proportion	Std. Dev.
Panel A: Debtor's Outstanding Tax Obligations and Payments			
RTPay	Real (2016) dollar value of total bankruptcy payments	$114,655.58	$833,343.14
RIRSPay	Real (2016) dollar value of tax obligation payments to the U.S. Internal Revenue Service	$2,325.49	$15,738.96
RWAPay	Real (2016) dollar value of tax obligation payments to the Washington State Department of Revenue, Department of Labor and Insurance, and the Employment Security Department	$1,202.10	$7,045.44
propIRS	RIRSPay expressed as a proportion of RTPaid	0.044	0.144
propWA	RWAPay expressed as a proportion of RTPaid	0.019	0.086
propSec	Proportion of RTPaid distributed to secured creditors	0.067	0.185
propAdm	Proportion of RTPaid distributed to court administrators	0.472	0.258
propOth	Proportion of RTPaid distributed to all other creditors	0.398	0.299
Panel B: Debtor's Assets Eligible for Exemption			
Rasset	Real (2016) dollar value of assets eligible for exemption	$142,438.29	$344,718.10
RAssetE	Real (2016) dollar value of assets actually exempted	$80,019.32	$176,970.23
HomeDV	Binary variable identifying debtors with homesteads eligible for exemption	0.531	
RHomeEx	Real (2016) dollar value of homestead assets actually exempted	$49,969.24	$136,331.80
CarDV	Binary variable identifying debtors with automobiles eligible for exemption	0.771	
RCarEx	Real (2016) dollar value of automobile assets actually exempted	$4,868.58	$8,263.51
OthAssetDV	Binary variable identifying debtors with other assets eligible for exemption	0.853	

ROthAssetEx	Real (2016) dollar value of other exemption-eligible assets actually exempted	$25,181.49	$86,174.14
Panel C: Debtor Income and Expense Information			
RHHInc	Real (2016) dollar value of average monthly household income	$2,726.95	$2,185.03
RHHExp	Real (2016) dollar value of average monthly household expenses	$2,998.21	$2,179.58
Panel D: Debtor Demographic Information			
HouseholdDV	Binary variable identifying debtors filing as non-business households	0.818	
PropDV	Binary variable identifying debtors filing as non-incorporated businesses	0.094	
CorpDV	Binary variable identifying debtors filing as incorporated businesses	0.088	
PriorBKDV	Binary variable identifying debtors with a previous bankruptcy filing in the past seven years	0.147	
LegalDV	Binary variable identifying debtors with outstanding legal actions (levies, garnishments, attachments, or other lawsuits)	0.381	
SpokaneCnty	Binary variable identifying debtors who resided in Spokane County during the filing process	0.425	
BFCnty	Binary variable identifying debtors who resided in Benton or Franklin counties during the filing process	0.182	
OthCnty	Binary variable identifying debtors who resided in a rural, outlying county (outside of Spokane, Benton, and Franklin counties) during the filing process	0.393	
Married	Binary variable identifying married filers	0.449	
DepDV	Binary variable identifying filers who claim dependents	0.455	
DV2016	Binary variable identifying debtors who completed the bankruptcy filing process in 2016	0.196	
DV2017	Binary variable identifying debtors who completed the bankruptcy filing process in 2017	0.123	
DV2018	Binary variable identifying debtors who completed the bankruptcy filing process in 2018	0.205	
DV2019	Binary variable identifying debtors who completed the bankruptcy filing process in 2019	0.185	
DV2020	Binary variable identifying debtors who completed the bankruptcy filing process in 2020	0.185	
DV2021	Binary variable identifying debtors who completed the bankruptcy filing process in 2021	0.106	

Tables 2 and 3 contain a series of regression analyses examining the total dollar of repayments made through the bankruptcy process. The first regression (Table 2) utilizes the natural logarithm of RTPay (the real 2016-dollar value of total bankruptcy disbursements), as the dependent variable. Interestingly, the chi-square test statistic for the joint significance of the explanatory variables (aside from the intercept and the

Tobit disturbance term) is 22.605, which is not statistically significant from zero at a 5 percent significance level. Thus, with 95 percent confidence, none of the regressors (besides the Tobit disturbance term and the intercept) jointly explained variation in the dependent variable.

TABLE 2
OUTSTANDING TOTAL TAX REPAYMENT RERESSION [n = 341]

Dependent Variable:	**ln(RTPay)**				
	Coeff.	**Std.**	**T-**		
Variable	**Est.**	**Err.**	**Stat.**	**Prob.**	
Intercept	8.941	0.424	21.110	<0.001	**
ln(Rasset)	0.036	0.081	0.440	0.660	
HomeDV	-0.409	0.458	-0.890	0.372	
ln(RHomeVEx)	0.021	0.039	0.540	0.587	
CarDV	0.896	0.415	2.160	0.031	**
ln(RCarEx)	-0.055	0.043	-1.300	0.194	
OthAssetDV	-0.694	0.661	-1.050	0.294	
ln(ROthAssetEx)	0.024	0.066	0.360	0.719	
ln(HHInc)	0.023	0.073	0.310	0.753	
ln(HHExp)	-0.002	0.105	-0.020	0.987	
PropDV	0.830	0.348	2.390	0.017	**
CorpDV	0.053	0.362	0.150	0.884	
PriorBKDV	0.381	0.297	1.280	0.200	
LegalDV	0.357	0.216	1.650	0.099	*
SpokaneCnty	0.090	0.235	0.380	0.702	
BFCnty	0.101	0.293	0.340	0.730	
Married	0.033	0.221	0.150	0.880	
Dependent Variable:	ln(RTPay)				
	Coeff.	**Std.**	**T-**		
DV2017	-0.031	0.364	-0.090	0.932	
DV2018	0.234	0.321	0.730	0.467	
DV2019	0.410	0.326	1.260	0.208	
DV2020	-0.134	0.333	-0.400	0.688	
DV2021	-0.245	0.400	-0.610	0.539	
Tobit Disturbance Term	1.796	0.070	25.820	<0.001	**
Unrestricted Log-Likelihood	-683.910				
Restricted Log-Likelihood	-695.213				
Chi-Square [21 degrees of freedom]			22.605	0.365	

** indicates statistical significance at the 5 percent level
* indicates statistical significance at the 10 percent level

The second and third sets of regression results are contained in Table 3. These regressions explained the natural logarithm of real (2016) dollar value of repayments to the IRS (RIRSPay). The chi-square test statistic for this regression (37.306) yields a probability value (0.016) statistically significant at the 5 percent level, indicating that the model's explanatory variables jointly explained a statistically significant amount of variation in the dependent variable. The parameter estimate for the Tobit disturbance term (coefficient estimate: 12.305; prob.: < 0.001) is also statistically significant from zero, indicating that the decision to control for incidental truncation in the model was appropriate.

Examining the t-statistic values for each of the individual parameter estimates yields inferences about which explanatory variables were critical in predicting the (natural logarithm of) real dollar value of IRS repayments. At the 10 percent significance level, the natural logarithm of the real 2016-dollar value of other exempted assets besides a home or vehicle was negatively related (coefficient estimate: -1.419; prob.: 0.088) to the natural logarithm of IRS repayment. Holding the other specified regressors in the model constant, exempting a greater dollar value of these assets lead to reduced IRS repayments. At the 10 percent significance level, this rejects the study's null hypothesis. Moreover, it implies that filers specifically used the bankruptcy process to avoid repaying the IRS.

Several additional parameter estimates in this regression were statistically significant. Filers who were sole proprietors of a business (coefficient estimate: 8.184; prob.: 0.018) and those who owned an incorporated business (coefficient estimate: 9.431; prob.: 0.004) were significantly associated with greater IRS repayments. Thus, filers who were business owners were more likely to repay outstanding tax debts (and repay a greater amount of those debts) than filers who were not business owners. At the 10 percent significance level, filers who resided in Spokane County were significantly less likely to repay a greater amount of outstanding IRS obligations (coefficient estimate: -4.602; prob.: 0.079) than filers who resided in other counties in the District. Lastly, several of the year-specific explanatory variables significantly differed from zero at the 5 (or ten) percent significance levels. Individuals who filed in 2019 (coefficient estimate: -8.600; prob.: 0.022) and who filed in 2018 (coefficient estimate: -5.888; prob.: 0.085) were significantly associated with lower IRS tax repayments, holding the other specified regressors in the model constant.

TABLE 3
OUTSTANDING TAX REPAYMENT RERESSIONS BY TYPE OF TAX [n = 341]

Dependent Variable:	ln(RIRSPay)					Ln(RWAPay)				
	Coeff.	**Std.**	**T-**			**Coeff.**	**Std.**	**T-**		
Variable	**Est.**	**Err.**	**Stat.**	**Prob.**		**Est.**	**Err.**	**Stat**	**Prob.**	
Intercept	-17.206	5.770	-2.980	0.003	**	-28.831	7.602	-3.790	<0.001	**
ln(Rasset)	0.950	0.913	1.040	0.298		0.738	1.109	0.670	0.506	
HomeDV	1.348	4.990	0.270	0.787		0.749	5.191	0.140	0.885	
ln(RHomeVEx)	-0.360	0.416	-0.860	0.388		-0.454	0.415	-1.100	0.274	
CarDV	-3.606	4.803	-0.750	0.453		-0.136	4.707	-0.030	0.977	
ln(RCarEx)	0.685	0.520	1.320	0.187		-0.008	0.511	-0.020	0.987	
OthAssetDV	7.690	7.914	0.970	0.331		-11.169	7.899	-1.410	0.157	
ln(ROthAssetEx)	-1.419	0.832	-1.700	0.088	*	0.805	0.797	1.010	0.313	
ln(HHInc)	-0.917	0.682	-1.340	0.179		-0.738	0.775	-0.950	0.341	
ln(HHExp)	1.115	1.091	1.020	0.307		1.432	1.345	1.060	0.287	
PropDV	8.184	3.453	2.370	0.018	**	11.163	3.975	2.810	0.005	**
CorpDV	9.431	3.278	2.880	0.004	**	18.094	3.991	4.530	<0.001	**
PriorBKDV	-1.580	3.361	-0.470	0.638		5.625	3.363	1.670	0.095	*
LegalDV	2.798	2.383	1.170	0.240		2.050	2.754	0.740	0.457	
SpokaneCnty	-4.602	2.617	-1.760	0.079	*	-3.137	2.981	-1.050	0.293	
BFCnty	3.615	3.074	1.180	0.240		0.446	3.367	0.130	0.895	
Married	0.543	2.369	0.230	0.819		-3.987	2.748	-1.450	0.147	
DV2017	-3.857	3.602	-1.070	0.284		5.400	4.204	1.280	0.199	
DV2018	-5.888	3.415	-1.720	0.085	*	6.783	4.038	1.680	0.093	*
DV2019	-8.600	3.742	-2.300	0.022	**	3.641	4.048	0.900	0.368	
DV2020	-3.306	3.367	-0.980	0.326		1.411	4.331	0.330	0.745	
DV2021	-6.002	4.429	-1.360	0.175		-3.947	6.962	-0.570	0.571	
Tobit Disturbance Term	12.305	1.528	8.050	<0.001	**	12.075	1.772	6.810	<0.001	**

Dependent Variable:	ln(RIRSPay)					Ln(RWAPay)				
	Coeff.	**Std.**	**T-**			**Coeff.**	**Std.**	**T-**		
Unrestricted Log-Likelihood	-274.386					-198.165				
Restricted Log-Likelihood	-293.039					-223.255				
Chi-Square [21 degrees of freedom]			37.306	0.016	**			50.181	<0.001	**

** indicates statistical significance at the 5 percent level
* indicates statistical significance at the 10 percent level

The final set of regression results in Table 3 explains the natural logarithm of the real (2016) dollar value of repayments to various Washington state taxing agencies (RWAPay). The chi-square test statistic for this regression (50.181) yields a probability value (< 0.001) that is statistically significant at the 5 percent level, indicating that the model's explanatory variables jointly explained a statistically significant amount of variation in the dependent variable. The parameter estimate for the Tobit disturbance term (coefficient estimate: 12.075; prob.: < 0.001) is, once again, statistically significant from zero, indicating that the decision to control for incidental truncation in the model was appropriate.

Unlike the previous regression, none of the parameter estimates for any bankruptcy exemption variables were statistically significant at the 5 (or the 10) percent level. Thus, we failed to reject the study's null hypothesis. However, the parameter estimates and t-test probability values for several individual parameter estimates yielded inferences about which explanatory variables were critical in predicting the (natural logarithm of) real dollar value of Washington state tax repayments. At the 10 percent significance level, filers who have previously filed for bankruptcy during the previous seven years were positively related (coefficient estimate: 5.625; prob.: 0.095) to the natural logarithm of Washington state tax repayments. Filers who were sole proprietors of a business (coefficient estimate: 11.163; prob.: 0.005) and those who owned an incorporated business (coefficient estimate: 18.094; prob.: < 0.001) were both positively and significantly associated with greater Washington state tax repayments. Thus, and similarly to the previous regression results, filers who were business owners were more likely to repay outstanding tax debts (and repay a greater amount of those debts) than filers who were not business owners. Lastly, several of the year-specific explanatory variables significantly differed from zero at the 5 (or ten) percent significance levels. At the 10 percent significance level, individuals who filed in 2018 (coefficient estimate: 6.783; prob.: 0.093) were significantly associated with greater Washington state tax repayments, holding the other specified regressors in the model constant.

Table 4 contains Tobit regressions that are analogous to those contained in Table 3, except that the dependent variables are the proportion of total filer repayments to the IRS (propIRS) and Washington state taxing agencies (propWA), respectively, instead of the dollar value of payments.[1] The first regression in Table 4 predicted the "propIRS" variable. The chi-square test statistic for this regression (37.192) yielded a probability value (0.016) that was statistically significant at the 5 percent level, indicating that the model's explanatory variables jointly explained a statistically significant amount of variation in the dependent variable. The parameter estimate for the two-sided Tobit disturbance term (coefficient estimate: 0.515; prob.: < 0.001) was also statistically significant from zero, indicating that the decision to control for incidental truncation in the model was appropriate.

Examining the t-statistic values for each parameter estimate yielded similar inferences to those identified in Table 3. At the 10 percent significance level, the natural logarithm of the real 2016-dollar value of other exempted assets besides a home or vehicle was negatively related (coefficient estimate: -0.067; prob.: 0.057) to the proportion of total Court distributions made to the IRS. That is, holding the other specified regressors in the model constant, exempting a greater dollar value of these assets lead to a smaller proportion of overall Court-ordered distributions to the IRS. At the 10 percent significance level, this rejected the study's null hypothesis. Moreover, it once again implies that filers were specifically using the bankruptcy process to avoid repaying the IRS, not just on total, but as a proportion of all distributions made through the bankruptcy process.

TABLE 4
PROPORTION OF OUTSTANDING TAX REPAYMENTS RERESSION [n = 341]

Dependent Variable:	**propIRS**					**propWA**				
	Coeff.	**Std.**	**T-**			**Coeff.**	**Std.**	**T-**		
Variable	**Est.**	**Err.**	**Stat.**	**Prob.**		**Est.**	**Err.**	**Stat.**	**Prob.**	
Intercept	-0.694	0.238	-2.920	0.004	**	-0.883	0.211	-4.190	<0.001	**
ln(Rasset)	0.043	0.038	1.110	0.269		0.009	0.030	0.300	0.763	
HomeDV	0.075	0.212	0.350	0.723		0.048	0.140	0.350	0.729	
ln(RHomeVEx)	-0.016	0.018	-0.930	0.353		-0.015	0.011	-1.340	0.180	
CarDV	-0.169	0.205	-0.820	0.410		0.059	0.128	0.460	0.647	
ln(RCarEx)	0.029	0.022	1.310	0.192		-0.008	0.014	-0.590	0.555	
OthAssetDV	0.357	0.336	1.060	0.287		-0.262	0.214	-1.220	0.221	
ln(ROthAssetEx)	-0.067	0.035	-1.910	0.057	*	0.027	0.022	1.270	0.204	
ln(HHInc)	-0.055	0.028	-1.980	0.048	**	-0.038	0.020	-1.940	0.052	*
ln(HHExp)	0.057	0.045	1.260	0.209		0.064	0.036	1.770	0.077	*
PropDV	0.356	0.145	2.450	0.014	**	0.310	0.107	2.890	0.004	**
CorpDV	0.328	0.139	2.360	0.018	**	0.504	0.106	4.760	<0.001	**
PriorBKDV	-0.057	0.143	-0.400	0.691		0.179	0.091	1.950	0.051	*
LegalDV	0.126	0.101	1.240	0.214		0.040	0.075	0.540	0.590	
RuralCnty	-0.177	0.111	-1.600	0.110		-0.016	0.080	-0.190	0.846	
SpokaneCnty	0.154	0.131	1.180	0.239		-0.002	0.093	-0.020	0.981	
BFCnty	0.067	0.101	0.670	0.503		-0.068	0.074	-0.910	0.360	
DV2017	-0.144	0.150	-0.960	0.337		0.208	0.113	1.840	0.066	*
DV2018	-0.263	0.144	-1.830	0.068	*	0.173	0.111	1.560	0.120	
DV2019	-0.401	0.160	-2.500	0.013	**	0.109	0.112	0.970	0.331	
DV2020	-0.155	0.142	-1.090	0.276		0.039	0.120	0.320	0.745	
DV2021	-0.287	0.188	-1.520	0.128		-0.046	0.181	-0.250	0.799	
Tobit Disturbance Term	0.515	0.061	8.430	<0.001	**	0.324	0.045	7.230	<0.001	**
Unrestricted Log-Likelihood	-112.650					-65.039				
Restricted Log-Likelihood	-131.246					-91.266				
Chi-Square [20 degrees of freedom]			37.192	0.016	**			52.454	<0.001	**

** indicates statistical significance at the 5 percent level
* indicates statistical significance at the 10 percent level

Several additional parameter estimates in this regression were statistically significant. The coefficient for the natural logarithm of household income was negative and statistically significant at the 5 percent level (coefficient estimate: -0.055; prob.: 0.048). This implies that a one percentage point increase in household income actually reduced the proportion of total Court disbursements to the IRS, holding the model's other explanatory variables constant. Additionally, filers who were sole proprietors of a business (coefficient estimate: 0.356; prob.: 0.014) and those who owned an incorporated business (coefficient estimate: 0.328; prob.: 0.018) were both significantly and positively associated with a greater proportion of total Court-ordered repayments being allocated to the IRS, holding the other explanatory variables in the model constant. Thus, filers who were business owners were more likely to have a greater proportion of outstanding repayments sent to the IRS than filers who were not business owners. Lastly, several of the year-specific explanatory variables significantly differed from zero at the 5 (or ten) percent significance levels. Individuals who filed in 2018 (coefficient estimate: -0.263; prob.: 0.068) and 2019 (coefficient estimate: -0.401; prob.: 0.013) were significantly associated with lower proportions of overall repayments to the IRS, holding the other specified regressors in the model constant.

The final set of regression results in Table 4 explain the proportion of total Court-ordered repayments allocated to Washington state taxing agencies (PropWA). The chi-square test statistic for this regression (52.454) yielded a probability value (< 0.001) that was statistically significant at the 5 percent level, indicating that the model's explanatory variables jointly explained a statistically significant amount of variation in the dependent variable. The parameter estimate for the two-sided Tobit disturbance term (coefficient estimate: 0.324; prob.: < 0.001) was also statistically significant from zero, indicating that the decision to control for incidental truncation in the model was appropriate.

Like the ln(RWAPay) regression, none of the parameter estimates for any bankruptcy exemption variables were statistically significant at the 5 (or the 10) percent level. Thus, we failed to reject the study's null hypothesis. Additionally, parameter estimates and t-test probability values for a number of individual parameter estimates yielded inferences about which explanatory variables were critical in predicting the proportion of Court-ordered repayments to Washington state taxing agencies. At the 10 percent significance level, filers who previously filed for bankruptcy during the previous seven years were positively related (coefficient estimate: 0.179; prob.: 0.051) to the proportion of total repayments made to Washington state tax agencies. Filers who were sole proprietors of a business (coefficient estimate: 0.310; prob.: 0.004) and those who owned an incorporated business (coefficient estimate: 0.504; prob.: < 0.001) were both positively and significantly associated with greater proportions of repayments to Washington state taxing agencies. Thus, and similarly to the previous regression results, filers who were business owners were not only more likely to repay outstanding tax debts (and repay a greater amount of those debts), but also to allocate a larger proportion of total bankruptcy proceeds to repaying outstanding Washington state tax obligations, compared to filers who were not business owners (and holding the effects of the model's other explanatory variables constant). A one percentage increase in the typical filer's monthly household income was negatively and significantly (at the 10 percent level) associated with an increased proportion of total repayments to Washington state taxing agencies (coefficient estimate:-0.038; prob.: 0.052), while a one percentage increase in Court-approved monthly household expenses (coefficient estimate:0.064; prob.: 0.077) was positively and significantly (at the 10 percent level) associated with an increased proportion of total repayments to Washington state taxing agencies (and holding the other specified regressors constant). The latter two results imply that filers with greater net incomes were less likely to have the Court allocate a larger proportion of total repayments to Washington state taxing agencies. This further implies that higher net income filers either did not accumulate such tax debts, or had larger debts with greater court-ordered repayment priority (leaving proportionally less to allocate to Washington state taxing agencies), compared to lower net income filers. Lastly, individuals who filed in 2017 (coefficient estimate: 0.208; prob.: 0.066) were significantly associated with greater proportions of total tax repayments allocated to Washington state taxing agencies, holding the other specified regressors in the model constant.

DISCUSSION AND CONCLUSIONS

The premise of this manuscript was to empirically assess Chapter 7 bankruptcy filers with outstanding assets and tax debts, and to determine whether these filers choose to retain their exempt assets and allow the tax obligations to survive the bankruptcy process or whether they choose to use the liquidation process to reduce outstanding tax obligations. The manuscript's objective was operationalized using Chapter 7 asset case filings in the Eastern District of Washington State, that closed between 2016 and 2021. The findings of the study were threefold. First, we found only limited evidence (and established only at the 10 percent significance level) to reject the study's null hypothesis of no statistical relationship between the ability to exempt assets through the bankruptcy process and the repayment of outstanding tax debt. Moreover, limited evidence suggests that individuals tended to shield their assets from liquidation (and allow the outstanding tax debt to survive the bankruptcy process), rather than proactively liquidate those potentially exempt assets and use the proceeds to repay outstanding tax debts. Additionally, those limited results applied only to non-home, non-vehicle assets eligible for exemption. We found no statistical evidence suggesting that home or vehicle-related asset exemptions were related to outstanding tax debt repayment.

Second, the analysis found that individuals who owned an incorporated or unincorporated business were (at a 5 percent significance level) statistically more likely than non-business owners to repay a larger amount of outstanding tax debt, both to the IRS and to Washington state agencies with taxing authority, holding constant all other explanatory variables in the model, including the existence and amount of exempt-eligible assets. Moreover, this relationship was significant for the overall amount of tax repayments and the proportion of total Court-ordered repayments arising from the bankruptcy process. Thus, it appears that the use of individual assets for business purposes plays a key role in the decision of whether to use the bankruptcy process to shield assets from liquidation (which would have allowed for the resolution of tax debts), or to allow liquidation in order to resolve tax (and other types) of debt.

Third, and at the 5 percent significance level, filers with higher monthly net incomes paid a significantly lower proportion of their Court-ordered repayments to the IRS. Similar evidence exists with regard to outstanding Washington state-level tax debts, but only at a 10 percent significance level. Thus, holding the other explanatory variables constant, higher income filers either accumulate lower tax debts than lower income filers, or they accumulate higher levels of other debts with higher order of priority in the repayment process.

The analysis also yields several important policy implications. First, the study's empirical results find, especially for non-business owners filing for Chapter 7 bankruptcy, that there is only a weak statistical relationship between asset exemptions and the decision to repay outstanding tax debt. The vast majority of Chapter 7 filers chose to utilize exemptions to shield those assets from liquidation (especially homes and vehicles), and allow outstanding tax debts, if any, to survive the bankruptcy process. This implies one of two things, neither of which is mutually exclusive. Either the magnitude of outstanding tax debts is relatively small, and thus may be managed outside of the bankruptcy process, or there are existing mechanisms available to individuals to manage tax debts post-bankruptcy (or both). In either case, if policy makers are interested in ensuring that outstanding tax obligations from non-business owners are repaid, then policy makers are advised to focus less on the use of bankruptcy as a lever to avoid repayment, and more on collection processes and practices of the agencies themselves.

A second policy implication is that, regarding filing a bankruptcy petition to manage outstanding tax claims, Chapter 7 filers who own a business are fundamentally distinct from those who do not own a business. Among these filers, it appears that the bankruptcy process is somewhat successful in incentivizing these individuals to repay some of their outstanding tax debts. This is true regardless of whether one is examining outstanding IRS obligations, or those owed to state agencies. This implication comes with a caveat related to the Chapter of the U.S. Bankruptcy code under which an individual files. With a Chapter 7 bankruptcy filing, the filer's assets, including the business' assets held by the filer, would be liquidated. This implies that the business would likely cease operations on or before the conclusion of the Chapter 7 bankruptcy process. Alternatively, (and if circumstances allowed) an individual with a strong incentive for their business to keep operating, may choose to filer under Chapter 11, which would have allowed the

business to reorganize itself and maintain operations while negotiating the bankruptcy process. In either case, the policy implication of the current analysis is that the relationship likely exists because the filer has likely already decided to close down the business prior to the bankruptcy filing, and in those cases reconciling the outstanding tax debt as the business closes is a strategically advantageous decision.

The study's empirical results were generally consistent regardless of whether one examined outstanding IRS claims or outstanding tax claims owed to a Washington state taxing agency. This is particularly interesting because the IRS effectively taxes corporate income, personal income, and capital gains. Concomitantly, Washington state does not levy either a personal income tax or a corporate income tax. Instead, it taxes a variety of alternative monetary flows, such as sales taxes, gross receipts, and capital gains. There are circumstances where an individual might file for Chapter 7 bankruptcy with outstanding state income taxes; for example, if the individual lives near the border of a state (for example, Idaho), and works in that other state. However, these circumstances are not the norm in the Eastern Washington Bankruptcy Court District, and the majority of tax obligations owed are not income taxes. Thus, consistency between the IRS and state-level tax payment regressions suggest (but do not prove) that the study's findings are likely robust to the type of taxes owed. Our study suggests that, if policy makers are interested in ensuring that outstanding taxes are repaid, policy reform should focus less on the type of taxes owed and more on the policies and procedures governing the collection of those taxes.

A final policy implication comes from the distribution of assets, once liquidated in a Chapter 7 bankruptcy process. The descriptive statistics in Table 1 indicate that only 4.4 percent of total Chapter 7 repayments were made to the IRS and only 1.9 percent were made to Washington state taxing agencies. Concomitantly, 47.2 percent of Court-ordered disbursements went to court administrators. The latter percentage is generally (but not perfectly) consistent with national studies of Chapter 7 asset cases, which found that the proportion of disbursements captured by Court personnel ranged from 37 to 40 percent (Friesner & Hackney, 2023). Disbursements to Court personnel receive the first priority in the repayment process. Thus, once Court expenses are repaid, there are often insufficient funds to repay the majority of other creditors, even if (as in the case of outstanding tax repayments) the value of the claim is small. Suppose policy makers want to ensure that a higher amount of outstanding tax obligations are repaid. In that case, it may be expedient to revisit the U.S. Bankruptcy Code and afford outstanding tax obligations a higher priority in the repayment process.

The results of this analysis yield several interesting results and policy implications. However, both the results and the policy implications that derive from those results, should be interpreted as preliminary. This study contains several major limitations that may impact its generalizability. The most glaring limitation of the current study is that it utilizes data drawn from a single U.S. Bankruptcy Court District, over a specific, five-year time frame. Data drawn from other time frames and other (and broader collections of) geographic regions may generate results that differ from those reported in the current study. The data also contain a limited number of tax debt variables and filer-specific variables. Data drawn from more expansive sources may further delineate the types of taxes owed, and account for a variety of filer-specific factors that were not available for analysis in this manuscript.

Additionally, more expansive data may yield insights on key differences between filers who own, or do not own a business. Lastly, filers may file under alternative chapters of the U.S. Bankruptcy Code. The results of the current study may not apply to filings made under Chapter 13 or Chapter 11. Future research is necessary to determine whether and how each of these aforementioned limitations impacts the generalizability of the current manuscript's empirical results and the policy implications arising from those results.

ENDNOTE

1. The proportion of Court-ordered repayments to the IRS and Washington state taxing agencies are not, by themselves, collectively exhaustive representations of the proportional distributions of court disbursements. To provide an exhaustive empirical analysis of the proportional distribution of Court disbursements, we refer the interested reader to the manuscript's Appendix. The Appendix Tables 1 and 2 contain regression results

that are identical to those contained in Table 3, but which utilize other proportional Court disbursement variables as the dependent variable in each regression in the table.

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APPENDIX

TABLE 1
PROPORTIONS OF OUTSTANDING REPAYMENTS RERESSION [n = 341]

Dependent Variable:	**propSec**					**propAdm**				
	Coeff.	**Std.**	**T-**			**Coeff.**	**Std.**	**T-**		
Variable	**Est.**	**Err.**	**Stat.**	**Prob.**		**Est.**	**Err.**	**Stat.**	**Prob.**	
Intercept	-0.675	0.216	-3.130	0.002	**	0.403	0.061	6.570	<0.001	**
ln(Rasset)	0.014	0.036	0.380	0.701		0.008	0.012	0.720	0.473	
HomeDV	-0.220	0.196	-1.120	0.261		0.059	0.067	0.890	0.375	
ln(RHomeVEx)	0.015	0.016	0.910	0.361		-0.008	0.006	-1.410	0.159	
CarDV	0.202	0.182	1.110	0.268		0.036	0.060	0.600	0.549	
ln(RCarEx)	-0.016	0.018	-0.860	0.391		-0.005	0.006	-0.870	0.386	
OthAssetDV	-0.552	0.297	-1.860	0.063	*	-0.003	0.096	-0.030	0.978	
ln(ROthAssetEx)	0.036	0.030	1.190	0.234		-0.007	0.010	-0.740	0.459	
ln(HHInc)	0.172	0.120	1.430	0.154		0.006	0.011	0.590	0.558	
ln(HHExp)	-0.116	0.123	-0.940	0.346		-0.006	0.015	-0.400	0.687	
PropDV	0.217	0.145	1.490	0.136		-0.083	0.050	-1.650	0.099	*
CorpDV	0.150	0.154	0.970	0.331		0.088	0.053	1.650	0.099	*
PriorBKDV	0.097	0.130	0.750	0.456		0.024	0.043	0.560	0.573	
LegalDV	0.191	0.096	2.000	0.046	**	-0.018	0.031	-0.570	0.569	
RuralCnty	-0.063	0.102	-0.620	0.538		0.061	0.034	1.780	0.075	*
SpokaneCnty	-0.112	0.139	-0.800	0.422		0.012	0.043	0.270	0.787	
BFCnty	-0.288	0.101	-2.840	0.005	**	0.014	0.032	0.450	0.653	
DV2017	-0.245	0.163	-1.500	0.133		-0.038	0.053	-0.730	0.467	
DV2018	-0.069	0.136	-0.510	0.610		0.033	0.047	0.700	0.482	
DV2019	-0.185	0.138	-1.340	0.181		0.060	0.047	1.270	0.203	
DV2020	-0.203	0.144	-1.410	0.158		0.068	0.048	1.410	0.158	
DV2021	-0.251	0.185	-1.360	0.174		0.084	0.058	1.450	0.148	
Tobit Disturbance Term	0.552	0.056	9.910	<0.001	**	0.260	0.010	25.120	<0.001	**
Unrestricted Log-Likelihood	-145.997					-45.484				
Restricted Log-Likelihood	-163.244					-56.341				
Chi-Square [20 degrees of freedom]			34.493	0.032	**			21.714	0.416	

** indicates statistical significance at the 5 percent level
* indicates statistical significance at the 10 percent level

TABLE 2
PROPORTIONS OF OUTSTANDING REPAYMENTS RERESSION, CONTINUED [n = 341]

Dependent Variable:	**propOth**				
	Coeff.	**Std.**	**T-**		
Variable	**Est.**	**Err.**	**Stat.**	**Prob.**	
Intercept	0.537	0.075	7.140	<0.001	**
ln(Rasset)	-0.022	0.014	-1.490	0.137	
HomeDV	-0.014	0.083	-0.170	0.865	
ln(RHomeVEx)	0.009	0.007	1.340	0.181	
CarDV	-0.079	0.074	-1.060	0.287	
ln(RCarEx)	0.007	0.008	0.940	0.348	
OthAssetDV	0.123	0.118	1.040	0.299	
ln(ROthAssetEx)	0.003	0.012	0.270	0.788	
ln(HHInc)	0.018	0.013	1.330	0.185	
ln(HHExp)	-0.026	0.019	-1.360	0.174	
PropDV	-0.116	0.062	-1.870	0.061	*
CorpDV	-0.324	0.068	-4.770	<0.001	**
PriorBKDV	-0.051	0.053	-0.960	0.338	
LegalDV	-0.035	0.039	-0.910	0.365	
RuralCnty	-0.047	0.042	-1.130	0.259	
SpokaneCnty	-0.028	0.052	-0.540	0.587	
BFCnty	0.014	0.039	0.340	0.731	
DV2017	0.100	0.066	1.520	0.129	
DV2018	0.040	0.058	0.690	0.490	
DV2019	0.051	0.058	0.880	0.377	
DV2020	0.038	0.060	0.640	0.523	
DV2021	0.033	0.071	0.460	0.645	
Tobit Disturbance Term	0.316	0.013	23.830	<0.001	**
Unrestricted Log-Likelihood	-123.332				
Restricted Log-Likelihood	-142.329				
Chi-Square [20 degrees of freedom]			37.994	0.013	**

** indicates statistical significance at the 5 percent level
* indicates statistical significance at the 10 percent level