The Impact of Unemployment Benefits on Personal Bankruptcy Filings: Evidence from Pandemic Unemployment Benefit Expiration

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Abstract

In response to the COVID-19 pandemic, the US federal government expanded unemployment benefits and extended coverage to previously ineligible workers. I study the impact of pandemic era unemployment benefit expiration on personal bankruptcy filings in states that ended these federal programs early. Using nonlinear difference-in-differences, I find that Chapter 13 filings increased between 14-15% on average. These findings are consistent with previous work that documented an increase in employment and a decrease in household financial security associated with the termination of pandemic unemployment insurance programs.

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1 Introduction

The COVID-19 pandemic brought about large levels of unemployment and financial insecurity in the United States. In response to the crisis, the federal government passed the CARES Act at the end of March 2020 which created Pandemic Unemployment Assistance (PUA) and Federal Pandemic Unemployment Compensation (FPUC). These programs both expanded unemployment benefits and extended coverage to previously ineligible individuals. The Census Bureau estimates that PUA and FPUC prevented 4.7 million people from falling into poverty, with the largest effects coming from Black and Hispanic individuals (US Census Bureau, 2022a). In addition, the Bureau of Labor Statistics found that compared to people who applied for UI benefits during the pandemic and did not receive them, those that received UI benefits were less likely to have difficulty with household expenses, experience food insecurity, be behind on mortgage or rent payments, and be experiencing symptoms of anxiety or depression (Bureau of Labor Statistics, 2022).

While there were temporary lapses in 2020, these UI programs were authorized to be in place for all states from January through September 6, 2021. However, in May of 2021 concerns that PUA and FPUC were hurting employment recovery resulted in 26 states ending at least one of the programs between June and August, with 18 states ending both in June. The remaining 24 states and the District of Columbia continued the programs until their official expiration in September. I use nonlinear difference-in-differences to estimate the impact of ending these UI programs on personal bankruptcy filings.

The theoretical impact of ending PUA and FPUC on personal bankruptcy filings is ambiguous, as losing UI benefits can have a variety of income effects. If an individual who loses UI benefits does not become employed, they experience an immediate loss of income which could result in the person either filing for bankruptcy or not depending on their level of debt and personal resources. If instead the loss of UI benefits leads to employment, then the change in their income relative to their UI benefits could be positive, negative, or negligible depending on their new wage. While the literature on UI benefits pre-pandemic has typically

found that increases in UI benefits lead to longer unemployment durations (Schmieder and von Wachter, 2016), the context of UI benefit receipt during the pandemic differs from that of standard UI benefit receipt. States that ended PUA and FPUC did so while the pandemic was still ongoing, and fear that working could increase the probability of contracting the virus could have altered the typical employment response. However, recent work on the employment effects resulting from the termination of PUA and FPUC has found increases in employment. Coombs et al. (2022) follow a group of individuals with a UI deposit in April of 2021 and who were not employed by the end of the month and find that unemployed individuals saw a 4.4 percentage point (20 percent) increase in the probability of having found a job through the first week of August. Similarly, using the Current Population Survey Holzer, Hubbard and Strain (2021) find that ending the programs led to a 14 percentage point increase in the unemployment-to-employment flow.

While both papers find increases in employment, however, they also find evidence of decreases in financial health. Using the Household Pulse Survey Holzer, Hubbard and Strain (2021) find a two percentage point (five percent) decrease in the share of respondents that report having no difficulty in meeting their expenses in the past seven days. Coombs et al. (2022) find that the average UI benefits of the individuals in states that ended PUA and FPUC dropped by $278 per week while earnings only rose by $14 per week, and thus only 5% of the loss in UI benefits was offset by earnings.

In my analysis I find only weak evidence that Chapter 7 filings increased, but I find strong evidence that Chapter 13 filings increased. Specifically, across my specifications I find that Chapter 13 filings increased between 14-15%. Since workers typically have to be employed to file for Chapter 13 and ending the pandemic UI benefits should not have had an effect on filings for workers who were employed before benefit termination, my results suggest that the increase was driven by newly employed individuals. I verify this finding by showing that individual filings in common law states increased, which rules out strategic joint filing by married couples with an unemployed spouse as the main driver of the effect. While filing for

Chapter 13 allows workers to restructure their debt, it also prevents creditors from garnishing wages. Given the recent concern that wage garnishment could impede economic recovery (National Consumer Law Center, 2021), I investigate whether garnishment drove the increase in Chapter 13 filings. Federal law dictates that weekly income below thirty times the federal minimum wage cannot be garnished, and some states have passed stricter protections. If prevention of wage garnishment was the main mechanism behind the increase in filings, then workers whose wages were not subject to garnishment should not have been affected. I therefore analyze filings for workers whose income is below their state's garnishment cutoff. I find that this group saw a significant increase in filings, and thus I do not find evidence that wage garnishment was the sole driver of the increase in bankruptcy filings that I observe.

Recent work has found that the negative employment effects resulting from the pandemic were worse in urban areas relative to rural areas (Brooks, Mueller and Thiede, 2021; Dobis, Krumel and Sanders, 2022). I therefore rerun my main analysis on counties in metro areas and counties in non-metro areas separately. I find that my main results are mostly driven by metro areas, indicating that labor markets which faired worse during the pandemic also experienced higher Chapter 13 bankruptcy filings after PUA and FPUC were terminated.

My findings point to increases in employment but decreases in financial stability, which adds to the evidence of such effects found in the previous literature. In addition, my results highlight a new channel of financial instability caused by the end of the pandemic era UI programs. It is important to note that during the period I consider, there were still many protections in place that benefited debtors. For example, student loan payments and interest were frozen through the end of 2021 and the federal government, along with many private lenders, offered special mortgage forbearance periods for home loans. I find that even with these protections, newly employed individuals entering expanding labor markets were experiencing a significant amount of financial distress. Financial distress need not always lead to bankruptcy, as bankruptcy comes at a high cost to future credit and therefore is typically a last resort for debtors. Therefore, while other papers have found a decrease in

financial health caused by the termination of PUA and FPUC, I show an increase in this more extreme form of financial insecurity. My results thus underscore the importance of considering metrics other than employment rates when evaluating economic recovery.

My paper contributes to the literature on public assistance programs and personal bankruptcy filing. Large medical bills have been closely associated with bankruptcy filing, and previous work has found that access to health insurance can significantly reduce filings (Gross and Notowidigdo, 2011; Mazumder and Miller, 2016; Brevoort, Grodzicki and Hackmann, 2017; Blascak, Mikhed et al., 2018; Miller et al., 2021) while loss of health insurance can increase filings (Argys et al., 2020). Other work has found that Aid to Families with Dependent Children (AFDC) and child support also reduce personal bankruptcy filings (Fisher, 2005). This paper is most closely related to the empirical literature on unemployment insurance and personal bankruptcy filing which has found a negative association between UI benefits and filings (Fisher, 2005; Legal-Cañisá, 2019). However, these papers look at increases in benefits rather than reductions in benefits that are more common during economic recoveries following recessions. I therefore add to this literature by analyzing this alternative and policy relevant setting.

The rest of the paper is structured as follows. Section 2 gives an overview of personal bankruptcy, the federal UI programs implemented during the pandemic, and previous work on bankruptcy and unemployment insurance. Section 3 describes the data used in my analysis. Section 4 lays out the empirical strategy, Section 5 describes the results, and Section 6 concludes.

2 Background

2.1 Bankruptcy

Bankruptcy is the legal process through which debtors can discharge debt and/or restructure debt payments. Nearly all consumer bankruptcies fall under either Chapter 7 or

Chapter 13. During a Chapter 7 bankruptcy, a debtor's nonexempt assets are liquidated to repay creditors and all remaining debt is discharged. If a debtor's current monthly income is above the state median, in order to qualify for Chapter 7 the debtor must pass a means test which compares their last 5 years of income to their amount of unsecured debt (United States Courts, 2022b).

Chapter 13 bankruptcy, sometimes called a 'wage earner's plan', allows debtors with regular income to create a plan to repay some or all of their debts (United States Courts, 2022a). To initiate a Chapter 13 bankruptcy, a debtor submits a repayment plan to the court that outlines how the debtor will repay their creditors. In most cases if a debtor's monthly income is less than the state median the plan must be for three years, if it is greater the plan must be for five years. Under their proposed plan, debtors pay off secured debt (ex: mortgage, taxes, auto loans) and partially pay unsecured, non priority debt (ex: medical bills and credit cards). All remaining debts that are part of the bankruptcy filing are then dismissed.

The bankruptcy process was modified during the pandemic beginning in March of 2020. Under the CARES Act (signed into law March 27, 2020), COVID related payments from the federal government were excluded from current monthly income calculations to prevent these payments from making debtors ineligible for filing under either chapter. This was especially impactful for Chapter 13 filers as a filer's disposable income is used to determine their repayment plan. In addition, debtors whose bankruptcy filing was confirmed before March 27, 2020 were allowed to extend their repayment plans up to seven years if they could show that they experienced 'material financial hardship' due to COVID-19. These provisions were set to sunset after one year, but the COVID-19 Bankruptcy Relief Extension Act of 2021 (signed into law on March 27, 2021) extended them for an additional year[1].

Under both forms of bankruptcy, filing automatically stays most collection actions against

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[1]The extension allowed debtors whose Chapter 13 bankruptcy filing was confirmed before March 27, 2021 to extend their plans to up to seven years. These provisions were not extended further, and therefore expired on March 27, 2022.

debtors and their property. This means that creditors are not allowed to initiate or continue lawsuits, contact debtors asking for payments, or garnish wages (United States Courts, 2022b,a). However, while both Chapter 7 and Chapter 13 can help debtors who are behind on payments, they differ in their form of relief. Chapter 7 allows debtors to quickly discharge most of their debt, but this form of bankruptcy does not allow them to catch up on payments. This means that debtors cannot avoid foreclosure or the repossession of their assets, as all of their non exempt assets can be sold to pay back creditors. Chapter 7 also remains on a filer's credit for up to 10 years. While Chapter 13 does not allow debtors to discharge most of their debt, the repayment plan allows them to catch up on payments such as mortgages and car payments which allows them to keep their property. In addition, a Chapter 13 filing only remains on a filer's credit for up to 7 years.

Figure (1) shows the number of Chapter 7 and Chapter 13 filings for the 12 months ending June 30 of every year from 2009 to 2022. Bankruptcy filings peaked during the Great Recession for both chapters, though the impact on Chapter 13 filings was more muted. This would be expected during a period with low employment since unemployment typically makes a debtor ineligible for filing Chapter 13. Figures (2) and (3) highlight the period just before the pandemic through June of 2022. Bankruptcy filing remained relatively flat for both chapters in the years leading up to the pandemic, but decreased sharply in 2020 and 2021. While Chapter 7 filings have not rebounded, Chapter 13 filings increased from June 30, 2021 to June 30, 2022, the first time since the beginning of the pandemic.

2.2 PUA and FPUC

The CARES Act created several temporary UI programs that both expanded UI benefit eligibility and increased weekly payments to UI recipients. Pandemic Unemployment Assistance (PUA) extended unemployment benefits to previously ineligible individuals including the self-employed, independent contractors, gig economy workers, and those not able to telework who were not receiving any paid leave. It also extended benefits to individuals

that were unemployed, partially unemployed, or unable to work due to a specific COVID-19 related reason (Congressional Research Service, 2021). Federal Pandemic Unemployment Compensation (FPUC) supplemented all UI benefits (including for those claiming benefits through PUA) by providing an additional $600 per week. Under the CARES Act FPUC was authorized through July 25, 2020, however it was temporarily replaced by the Lost Wages Assistance Act which provided a $300 per week supplement to individuals receiving at least $100 in weekly UI benefits through September 6, 2020 [2].

Beginning December 26, 2020, the Continued Assistance Act reauthorized FPUC at $300 per week. These benefits were set to expire on March 14, 2021, but both PUA and FPUC were reauthorized by the American Rescue Plan which extended both programs through September 6, 2021. However, 26 states decided to end at least some of the temporary benefits before September citing lowering state unemployment rates, elimination of many industry shutdowns, reopened child care facilities, and worker shortages (Congressional Research Service, 2021). Of these states, 18 ended both PUA and FPUC in June of 2021, two states ended both programs in July, four states ended FPUC and not PUA, and Maryland and Indiana attempted to end both programs but were required by court order to continue them (Congressional Research Service, 2021). The CARES Act required that states sign agreements with the Department of Labor (DOL) to administer these programs, and the agreements specified that a state needed to provide at least 30 day notice to the DOL before terminating either PUA or FPUC. Table 1 shows the date that each state publicly announced it was dropping PUA and FPUC as well as the actual date that the programs were dropped for the states used in my analysis.

2.3   Bankruptcy and UI

Filing for bankruptcy has been tightly linked to loss of income (Sullivan, Warren and Westbrook, 2000; Himmelstein et al., 2019), and has been shown to significantly increase

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[2]Some states provided additional weekly supplements on top of the federal benefits (Congressional Research Service, 2022).

after job displacement (Keys, 2018). This is unsurprising given that 59% of Americans live paycheck to paycheck and 44% typically have a credit card balance or struggle to keep up with bills (Charles Schwab, 2019). Unemployment insurance therefore may play a key role in mitigating the prevalence of bankruptcy filing. Previous empirical work examining the interaction between UI benefits and Chapter 7 bankruptcy filings has found a negative association (Fisher, 2005; Legal-Cañisá, 2019). This work, however, focuses on gaining benefits rather than losing benefits. In addition, since individuals typically need to be employed to file for Chapter 13, these papers do not consider the response of Chapter 13 filing to changes in UI benefits.

Understanding how reductions in UI benefits affect bankruptcy filing is important when considering economic recoveries. Take, for example, the Great Recession. During the Great Recession the federal government implemented the Emergency Unemployment Compensation (EUC) program which provided additional UI benefits to states. EUC was modified multiple times, but for most of the program's duration it provided more benefits to states with higher unemployment rates in order to ease the impact of the recession on households. EUC was phased out beginning in 2012, and was completely ended by January 1, 2014. Understanding the impact of this reduction in benefits could inform the implementation and ultimate termination of future recession era UI programs, as finding the optimal rate of benefit termination during an economic recovery could help policy makers accelerate the return to pre-recession economic conditions. However, while the impact of this phase out is extremely policy relevant, the endogeneity of the program to state level unemployment rates makes it difficult to leverage the reduction in benefits to estimate causal effects[3].

While the pandemic created a unique economic climate, PUA and FPUC benefits were not determined by economic conditions within a state and states that dropped these programs opted out of the same expanded benefits. Thus, given the uniformity of PUA and FPUC

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[3]The appropriate way to control for this endogeneity is an active area of debate in the employment effects literature, as different methods typically lead to significantly different results (Hagedorn, Manovskii and Mitman, 2019, 2016; Dieterle, Bartalotti and Brummet, 2020; Boone et al., 2021).

across states, this setting provides a novel opportunity to better understand the impact of UI benefit reduction during an economic recovery.

3   Data

I construct monthly bankruptcy filings for each county using the Federal Judicial Center's Integrated Database (IDB). The IDB contains all US bankruptcy filings from fiscal year 2008 to present, and I extract data from January through August of 2021 for all Chapter 7 and Chapter 13 filings. The distributions of Chapter 7 and Chapter 13 monthly filings are shown in Figures (4) and (5), respectively. The data are heavily skewed with a large number of monthly counts of zero, which supports my use of the Poisson regression that I describe in the next section. PUA and FPUC termination dates come from Congressional Research Service (2021), and Figure (6) shows the states used in my analysis. I include states that ended both PUA and FPUC in June of 2021 and the 24 states along with the District of Columbia that kept both programs until the federal expiration in September of 2021.

Labor market and population controls come from the Bureau of Labor Statistics (BLS) and the Census Bureau. I obtain monthly county unemployment rates from the BLS Local Area Unemployment Statistics (LAUS) program, and I create three month lags to account for changes in unemployment due to the termination of PUA and FPUC. I also obtain county level population data from the Census Bureau's Population Estimates Program (US Census Bureau, 2022b). The Census provides annual population estimates, and I log-linearly interpolate these to construct monthly estimates.

I create COVID-19 related controls using data from the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2022). The OxCGRT contains daily indices on the stringency of state level COVID-19 policies for both vaccinated individuals and unvaccinated individuals. I average these daily indices to obtain monthly indices for each month in my sample. I also include data on the number of new state level COVID-19 cases.

4   Empirical Strategy

In order to examine the impact of ending PUA and FPUC on bankruptcy filings, I run nonlinear difference-in-differences regressions. Given that my data are monthly county level counts, I estimate the following Poisson difference-in-differences model:

$$Filings_{ct} = exp\{\beta^{pois} EndBenefits_{ct} + \delta_c + \phi_t + \epsilon_{ct}\} \tag{1}$$

where $Filings_{ct}$ is the number of filings in county c in month t. $EndBenefits_{ct}$ is an indicator that takes the value of 1 if county c in month t no longer provides PUA and FPUC. Since all of the states in my sample ended PUA and FPUC between June 12 and June 26, in my main specification I drop the month of June. However, my results are robust to including June as a treated month, though they are slightly attenuated as one would expect given that states still had the programs in place for much of June. The results with June are provided in the appendix.

Let $Y_{c,t}(0)$ denote the untreated potential outcome for county c in period t. In my setting, $Y_{c,t}(0)$ is the potential outcome for county c in period t if PUA and FPUC are both still in place. Then the parallel trends assumption required for a causal interpretation of β^{pois} is:

$$\text{For } t \geq 2, \; \frac{\mathbb{E}[Y_{c,t}(0)]}{\mathbb{E}[Y_{c,t-1}(0)]} \text{ is constant across } c \tag{2}$$

In the case of a balanced panel with no covariates, the β^{pois} obtained from (1) is the same as that in a regression of the same form as (1) only replacing the county fixed effects δ_c with an indicator equal to one if a county is in the treated group and zero otherwise, and the time fixed effects ϕ_t with an indicator equal to one once the treatment has begun and zero otherwise (Wooldridge, 2022). Let D represent the indicator that an observation is in the treated group and $Post$ represent the indicator that takes the value of one once treatment

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begins. Then under the parallel trends assumption, we have

$$\beta^{pois} = log(\mathbb{E}[Y|D=1, Post=1]) - log(\mathbb{E}[Y|D=1, Post=0])$$
$$- (log(\mathbb{E}[Y|D=0, Post=1]) - log(\mathbb{E}[Y|D=0, Post=0]))$$

Note that we can rewrite β^{pois} as

$$\beta^{pois} = log\left(\frac{\mathbb{E}[Y|D=1, Post=1]}{\mathbb{E}[Y|D=1, Post=0]} \cdot \frac{\mathbb{E}[Y|D=0, Post=0]}{\mathbb{E}[Y|D=0, Post=1]} \right) \tag{3}$$

Let q denote the last period before treatment and let T denote the last period in the sample. Then there are q pre-treatment periods and $T-q$ post treatment periods. Let n_0 denote the number of units that never receive treatment and let n_1 denote the number of units that become treated in period $q+1$. Using the plug in estimators for the expectations in (3) yields

$$\hat{\beta}^{pois} = log\left(\frac{\frac{1}{(t-q)n_1} \sum\limits_{\substack{t>q, \\ D=1}} y_{ct}}{\frac{1}{qn_1} \sum\limits_{\substack{t\leq q, \\ D=1}} y_{ct}} \cdot \frac{\frac{1}{qn_0} \sum\limits_{\substack{t\leq q, \\ D=0}} y_{ct}}{\frac{1}{(t-q)n_0} \sum\limits_{\substack{t>q, \\ D=0}} y_{ct}} \right)$$

Notice that the weights cancel and the ratios are made up of only sums over the outcome counts. Then note that since dropping observations with an outcome of zero (i.e. $y_{ct} = 0$) does not affect the sums and the corresponding weights have canceled, one can calculate $\hat{\beta}^{pois}$ from only the observations with a positive count. Therefore observations for which $y_{ct} = 0$ provide no identifying information in computing $\hat{\beta}^{pois}$.

Compared to a linear regression model which does not require variation within the dependent variable to estimate unit fixed effects, the fixed effects Poisson model requires that

at least one y_{ct} differs from zero for a county c in order to estimate the unit fixed effect for county c (Greene, 2004). Since these observations are not required to estimate $\hat{\beta}^{pois}$, this poses no problem in my empirical design with no covariates. In the case with covariates, however, removing observations that have a count of zero in every period removes identifying information and alters the interpretation of the estimate. Therefore, when I include covariates in the Poisson specification I replace county fixed effects with state fixed effects. With covariates (1) becomes

$$Filings_{ct} = exp\{\beta^{pois} EndBenefits_{ct} + \delta_s + \boldsymbol{X}'_{ct}\gamma + \phi_t + \epsilon_{ct}\} \tag{4}$$

where δ_s are state fixed effects and $\boldsymbol{X}_{ct}$ are the population, unemployment, and COVID-19 controls described in the previous section. Adding covariates comes at the expense of controlling for time invariant county level factors. However, since all states in my sample have counts greater than zero in each period, I keep all observations in the estimation of $\hat{\beta}^{pois}$ while still controlling for time invariant state level factors. In spite of this drawback, my results are similar across these two specifications.

In order to test the parallel trends assumption, I run event study regressions where I replace $EndBenefits_{ct}$ in (1) with $\sum_{t \neq May} \beta_t Treat_{ct}$, where $Treat_{ct}$ is equal to one in period t if county c is in the treated group. In this regression the β_t's capture the log ratio of the number of filings between states that ended PUA and FPUC and those that did not each month, relative to the log ratio in May of 2021.

The event study coefficients for the regression for Chapter 7 filings with no controls are shown in Figure 7. While there is not evidence against the parallel trends assumption, this is not robust to the inclusion of controls. Therefore care needs to be taken in interpreting results for Chapter 7 filings. The event study coefficients for the Poisson regression for Chapter 13 filings with no controls are shown in panel (a) of Figure 8, and I cannot reject that the two groups of states had parallel trends. Given the short time span that I am

considering, the county fixed effects in my regression specification should control for many county level differences. However, I also run an event study including the time varying controls mentioned above. The results are shown in panel (b) of Figure 8, and again there is no evidence of a violation of the parallel trends assumption.

5   Results

My main results are given in Table 2. Row 1 gives the results for Chapter 7 filings. Column 1, the estimate from the Poisson regression with no controls, indicates that ending PUA and FPUC increased the number of monthly Chapter 7 bankruptcy filings by 5.7%[4]. This coefficient is only marginally significant, and as noted in the previous section parallel trends do not hold after adding controls. Therefore this result is suggestive of a small increase in Chapter 7 filings, but provides only weak evidence for such an effect. Row 2 gives the results for Chapter 13 filings. The estimate from the Poisson regression with no controls in column 1 indicates that ending PUA and FPUC increased the number of monthly Chapter 13 bankruptcy filings by 15%. Column 2 adds controls, and slightly reduces the estimate to a 14.2% increase. Both results for Chapter 13 filings are significant at the 1% level, and given the tenuous results for Chapter 7 filings, I focus on Chapter 13 filings for the rest of the paper.

My results indicate that ending PUA and FPUC increased Chapter 13 filings. Since ending these programs did not change the circumstances of the already employed, and those who remained unemployed after the programs ended were in general not eligible to file for Chapter 13 bankruptcy, my results suggest that newly employed workers explain the increase in filings. However, there is one channel through which the effect could be driven by workers who lost unemployment benefits and did not find a job. Married couples are allowed to make a joint bankruptcy filing, and both individuals' incomes are used to determine eligibility for Chapter 13 and the repayment plan. Therefore, it could be the case that the increase in

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[4]The exact percentage effect is obtained by computing $exp(\beta) - 1$.

filings that I find is driven by one spouse losing their unemployment benefits, which reduces household income, and then filing for Chapter 13 bankruptcy using the working spouse's income. While spouses can also file individually, the non-filing spouse's debt will not be included in the payment plan and therefore their debt will not be restructured/discharged. This means that if the effect is mostly driven by married couples with a working spouse and an unemployed spouse, ending PUA and FPUC should have had little impact on individual filings.

I observe joint filing status in my data and I use this to test whether my results are driven by married couples with one working and one non-working spouse. I remove joint filings to construct counts of monthly county level individual filings, and I drop common property states as individual filings in these states cover more of the non filing partner's debt[5]. My regression results are given in Table 3. The coefficient from the Poisson regression without controls in column 1 indicates a 13.3% increase in individual filings. Adding controls in column 2 yields a 15.4% increase. These results provide evidence that individual filings increased during this period to a similar extent as in the full sample, and thus strategic filings by married couples with one employed partner and one unemployed partner are not driving the results. While I cannot rule out the possibility that this type of filing is occurring, I can conclude that newly employed workers are an important group of new filers after the termination of PUA and FPUC.

Aside from direct changes in income as a result of the end of PUA and FPUC, another factor may have contributed to the rise in personal bankruptcies: wage garnishment. The National Consumer Law Center produced a report in 2021 which argued that weak garnishment exemption laws were leading those struggling to recover financially from the pandemic to "face seizure of wages and essential property due to a wave of debt collector lawsuits" (National Consumer Law Center, 2021). Newly employed workers in states ending PUA and FPUC may have been subject to wage garnishment from debt collectors. While a few

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[5]The common property states in my data are California, Idaho, Nevada, New Mexico, Texas, Washington, and Wisconsin.

states had protections against various forms of garnishment (only Texas and South Carolina had protection against most forms of wage garnishment in the states that ended PUA and FPUC), there were no pandemic specific federal protections against garnishment during this time period. Since unemployment benefits typically cannot be garnished, a new job may not offer a large financial improvement for workers in debt if wage gains over UI benefits are garnished.

I explore wage garnishment as a potential mechanism driving the increase in filings that I observe. Federal law dictates that only the lesser of 25% of one's weekly income or the amount of weekly income that exceeds 30 times the federal minimum wage can be garnished. In other words, an individual working 30 hours a week or less at the federal minimum wage cannot have any of their wages garnished. While all states are subject to this federal minimum, some states have increased their own protections over time by increasing the multiplier from 30, decreasing the percent of income subject to garnishment to lower than 25%, tying the calculation to their own state minimum wage, or some combination of these changes[6]. For state s denote the number of weekly hours used in the calculation as h_s, the minimum wage used in the calculation as MW_s, and the percent of weekly income protected as λ_s. Then the general structure for garnishment across all states can be written as[7]:

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\begin{matrix} \text{Weekly Income} \\ \text{Subject to} \\ \text{Garnishment in} \\ \text{State } s \end{matrix} \quad \begin{cases} 0 & \text{if } Income \leq MW_s \cdot h_s \\ \\ min\{Income - MW_s \cdot h_s, \ \lambda_s \cdot Income\} & \text{if } Income > MW_s \cdot h_s \end{cases}
$$

While I do not directly observe wage garnishment in my data, individuals are required to report their current monthly income with their bankruptcy filing. I therefore create monthly county counts of bankruptcy filings from individuals making less than their applicable state

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[6]California is currently the only state that not only ties the minimum wage to the state minimum wage, but also mandates that the local minimum wage is used in areas with higher minimum wages than the state's.

[7]California's formula differs in that only 50% of the amount by which an individual's income exceeds $MW_s \cdot h_s \cdot 4.35$ is subject to garnishment if it is less than 25% of their income.

income garnishment cutoff, and who are therefore not subject to any wage garnishment. If garnishment is the main driving factor behind the increase in bankruptcy filings that I observe, then this group should not be affected by the end of PUA and FPUC.

The results from my regression specifications with and without controls are given in Table 4. The estimate from the Poisson regression with no controls, given in Column 1, shows that the impact of ending PUA and FPUC on the filers who were not subject to garnishment was a 21.3% increase in monthly county filings. Column 2 gives the estimate with controls, however, North Dakota, South Dakota, and Wyoming did not have any filings from individuals with incomes below their respective income cutoffs during this period. This specification uses state fixed effects, and when all observations within a state have a zero count for all periods, they do not contribute to the estimation of the coefficient of interest. As stated above, this changes the interpretation of the coefficient, which now gives the impact of ending PUA and FPUC on the filers who were not subject to garnishment in all analysis states except the three that are dropped. This coefficient is not entirely comparable to the coefficient from the other specification, however, the interpretation in this case is similar enough that I still report it for completeness. In the sample without the three states with zero filings, the estimate from the Poisson with controls is a 15.1% increase in monthly county filings. These results provide evidence that while wage garnishment may have led to some individuals filing for bankruptcy, this was not the sole explanation for the increase in filings.

Loss of labor income during the pandemic due to high unemployment levels left many individuals in a vulnerable position. Since I show that neither joint filings from married couples with one unemployed spouse nor wage garnishment can fully explain the increase in Chapter 13 filings, my results indicate that employment driven by the reduction in pandemic UI benefits did not alleviate this condition. Further, while filing for Chapter 7 would discharge debt quickly, this could lead to the liquidation of an individual's assets which leaves no recourse to keep one's home (for homeowners) or car. A newly employed individual can

instead file for Chapter 13 and can restructure their debt, allowing them to keep their assets. Thus, given that many newly employed filers could choose between Chapter 7 and Chapter 13, the increase in Chapter 13 filings shows that keeping these assets was important to filers during this time.

Finally, I investigate whether bankruptcy filing changed differentially in response to ending PUA and FPUC across urban and rural areas. Recent work has found that the employment effects of the pandemic tended to be worse for urban areas (Brooks, Mueller and Thiede, 2021; Dobis, Krumel and Sanders, 2022), and therefore these areas may have experienced a larger change in bankruptcy filings due to the reduction in pandemic UI benefits. I rerun my main analysis separately for metro and non-metro areas as defined by the Office of Management and Budget, and the results are given in Table 5. Columns 1 and 2 give the results for metro areas using the Poisson model with and without controls. Both models indicate a greater than 15% increase in bankruptcy filings after the end of PUA and FPUC. Columns 3 and 4 give the results for non-metro areas, and indicate an insignificant 5.2% increase in the model without controls and an insignificant 6.3% increase in the model with controls. Thus my results are mostly driven by metro areas whose labor markets were more impacted by the pandemic.

6   Conclusion

In this paper I study the impact of early termination of pandemic era unemployment insurance programs on personal bankruptcy filings. I use nonlinear difference-in-differences and find little evidence that Chapter 7 filings increased, but strong evidence that Chapter 13 filings increased. While individuals typically have to be employed to file for Chapter 13, unemployed individuals with an employed spouse can submit a joint filing using the working spouse's income for the repayment plan. The increase in filings I find could therefore have been the result of unemployed individuals remaining unemployed and filing in response

to the drop in UI benefits after the end of PUA and FPUC. I explore this possibility by examining the impact on individual filings in common law states. I find a significant increase in these filings of similar magnitudes to the full sample, indicating that newly employed individuals helped drive the increase in filings. This is consistent with previous literature which documents both an increase in employment and a decrease in household financial health after states ended PUA and FPUC early (Coombs et al., 2022; Holzer, Hubbard and Strain, 2021).

Given the recent concern that wage garnishment could impact workers returning to the labor market (National Consumer Law Center, 2021), I also explore wage garnishment as a driving factor for the increase in Chapter 13 filings. The federal government stipulates that those working for 30 hours per week or less at the federal minimum wage are exempt from wage garnishment. While all states are subject to this minimum, some states have created their own laws to increase the amount of income exempt from garnishment. I use these state income cutoffs to examine filings made by individuals not subject to wage garnishment. I find that filings in this category also saw a significant increase, and therefore factors other than wage garnishment helped lead to the overall increase in filings.

Lastly, I estimate the impact of ending PUA and FPUC on metro and non-metro counties separately. I find large and significant results for metro areas and smaller, insignificant results for non-metro areas. Thus my main results are driven by metro areas, whose labor markets have been found to have been more negatively impacted by the pandemic.

One distinctive feature of this time period compared to more typical periods of labor market recoveries was the special circumstances being afforded to many types of debt payments. During my sample period there were protections in place that allowed households to delay some debt payments. For example, federal student loan payments were paused and their interest rates held to 0% beginning in January of 2020 (White House Briefing Room, 2021). This relief was in place for the entirety of 2021, and the January announcement of the freeze on payments and interest initially had no end date. It was not until August 6, 2021

that the White House specified an end date of January 31, 2022. In addition, for those facing financial hardship due to the pandemic, the CARES Act allowed for mortgage forbearance of up to 180 days, with the possibility of an additional 180 day extension on all federally backed mortgages. Private mortgage lenders offered various forms of mortgage forbearance as well. The increase in bankruptcy filings occurred in spite of these lingering pandemic protections which are not in place in typical recoveries, which speaks more generally to the importance of considering financial health as well as employment prospects when incentivizing labor market transitions.

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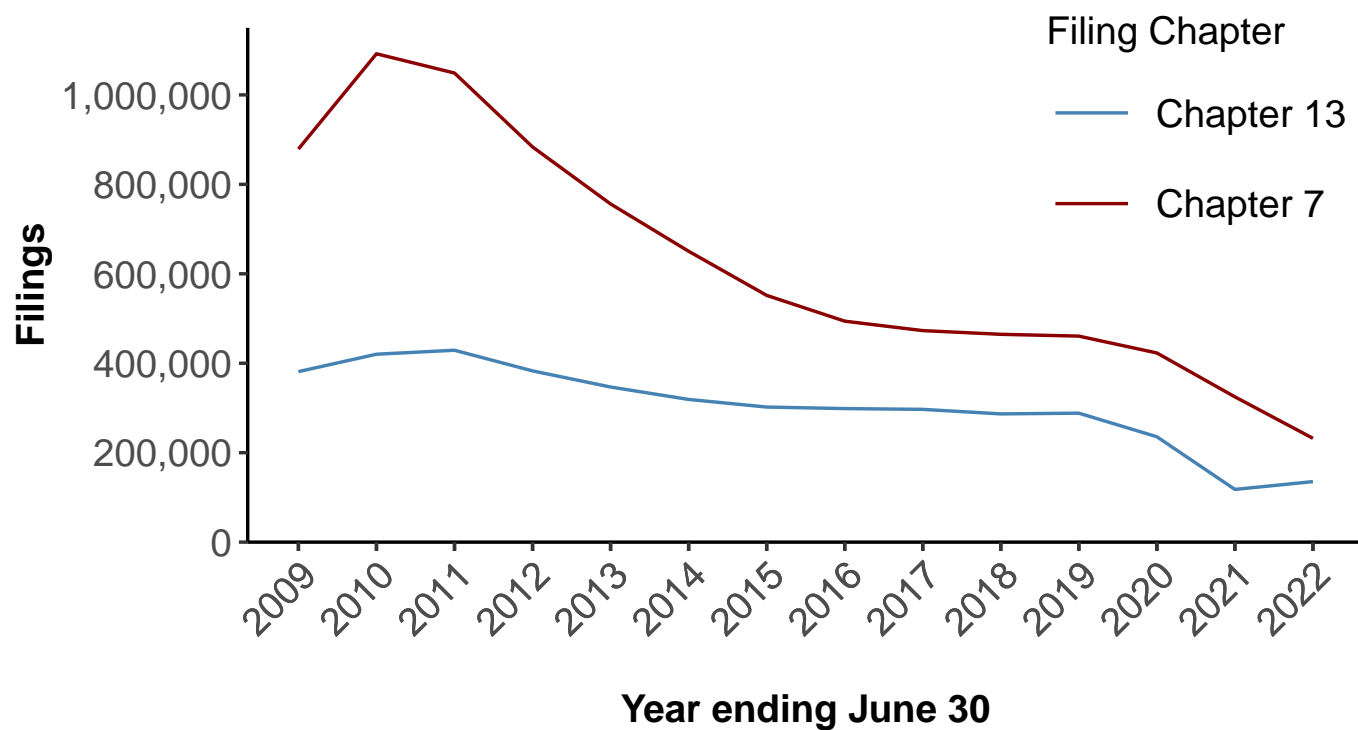**Wooldridge, Jeffrey M.** 2022. "Simple Approaches to Nonlinear Difference-in-Differences with Panel Data." Available at SSRN. https://ssrn.com/abstract=4183726.

Figures

Figure 1: Chapter 7 and Chapter 13 filings for the 12 months ending June 30 of each year.
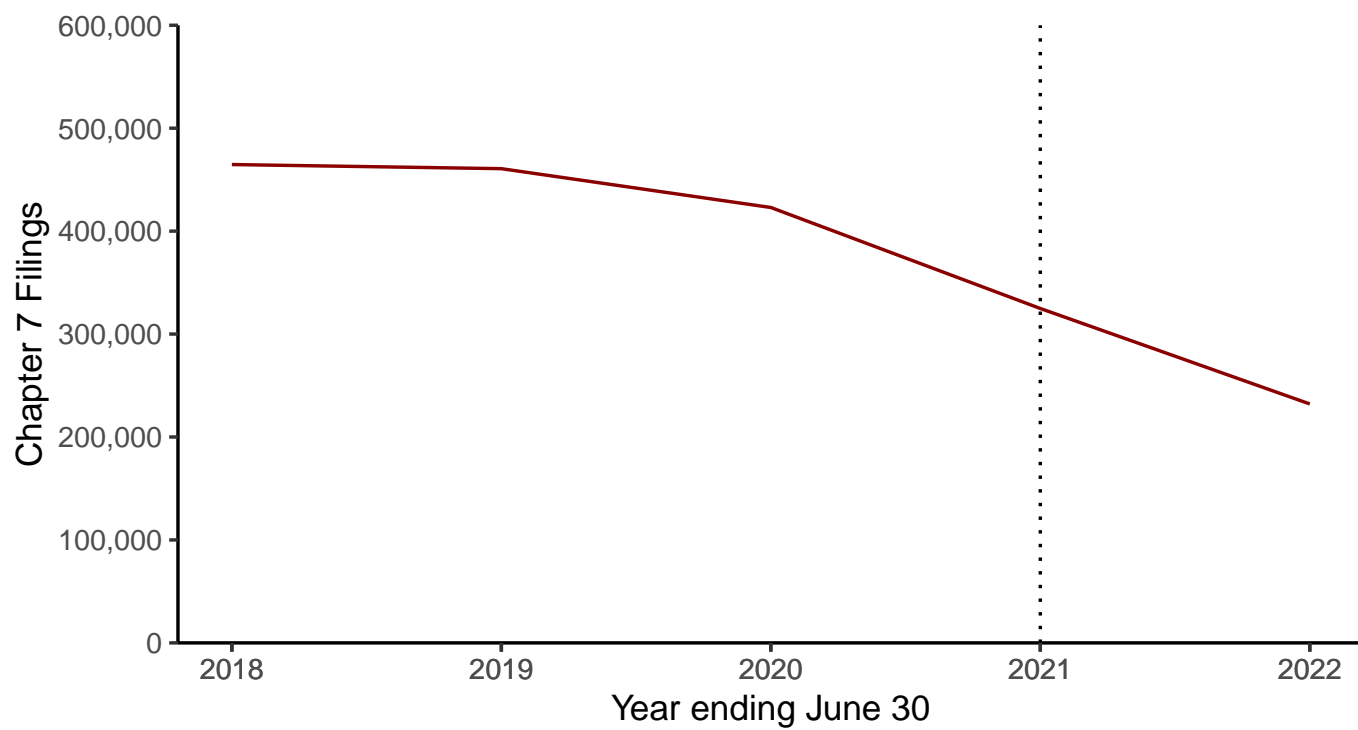
Figure 2: Chapter 7 filings for the 12 months ending June 30 of each year.
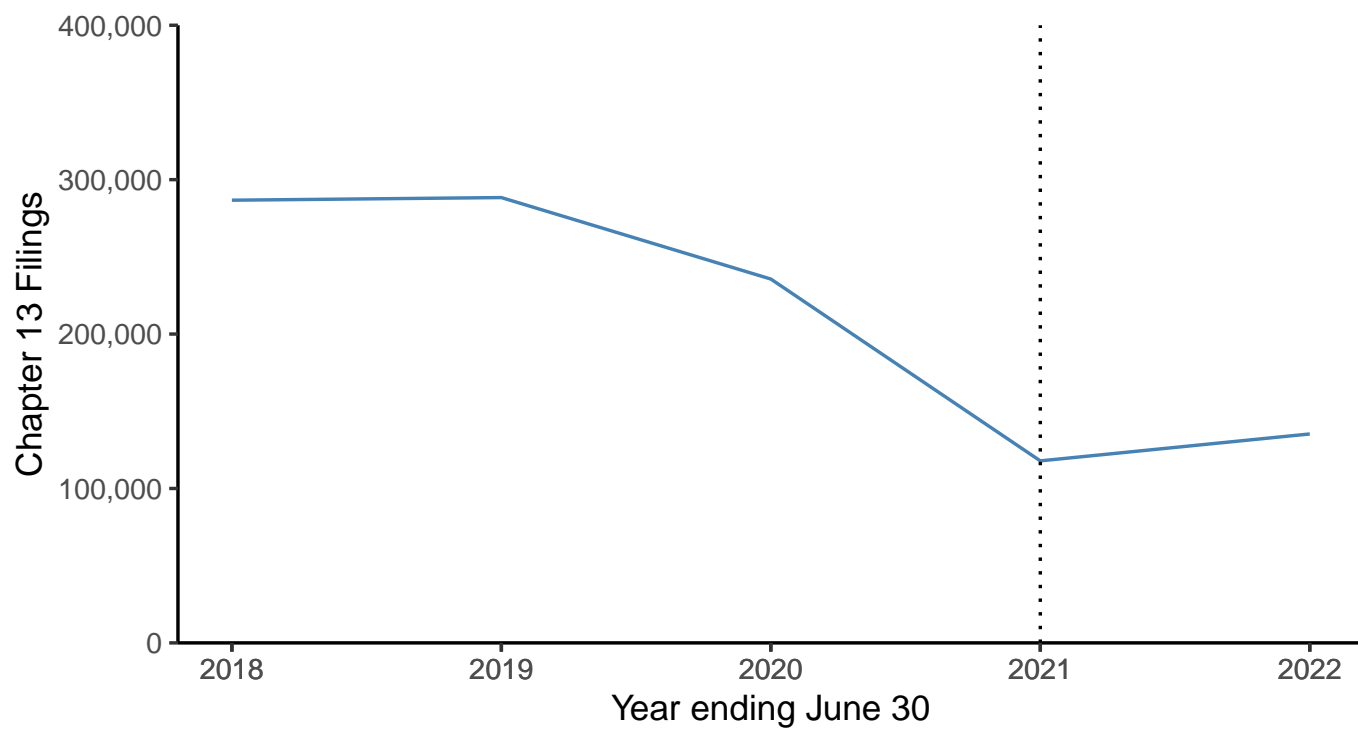
Figure 3: Chapter 13 filings for the 12 months ending June 30 of each year.
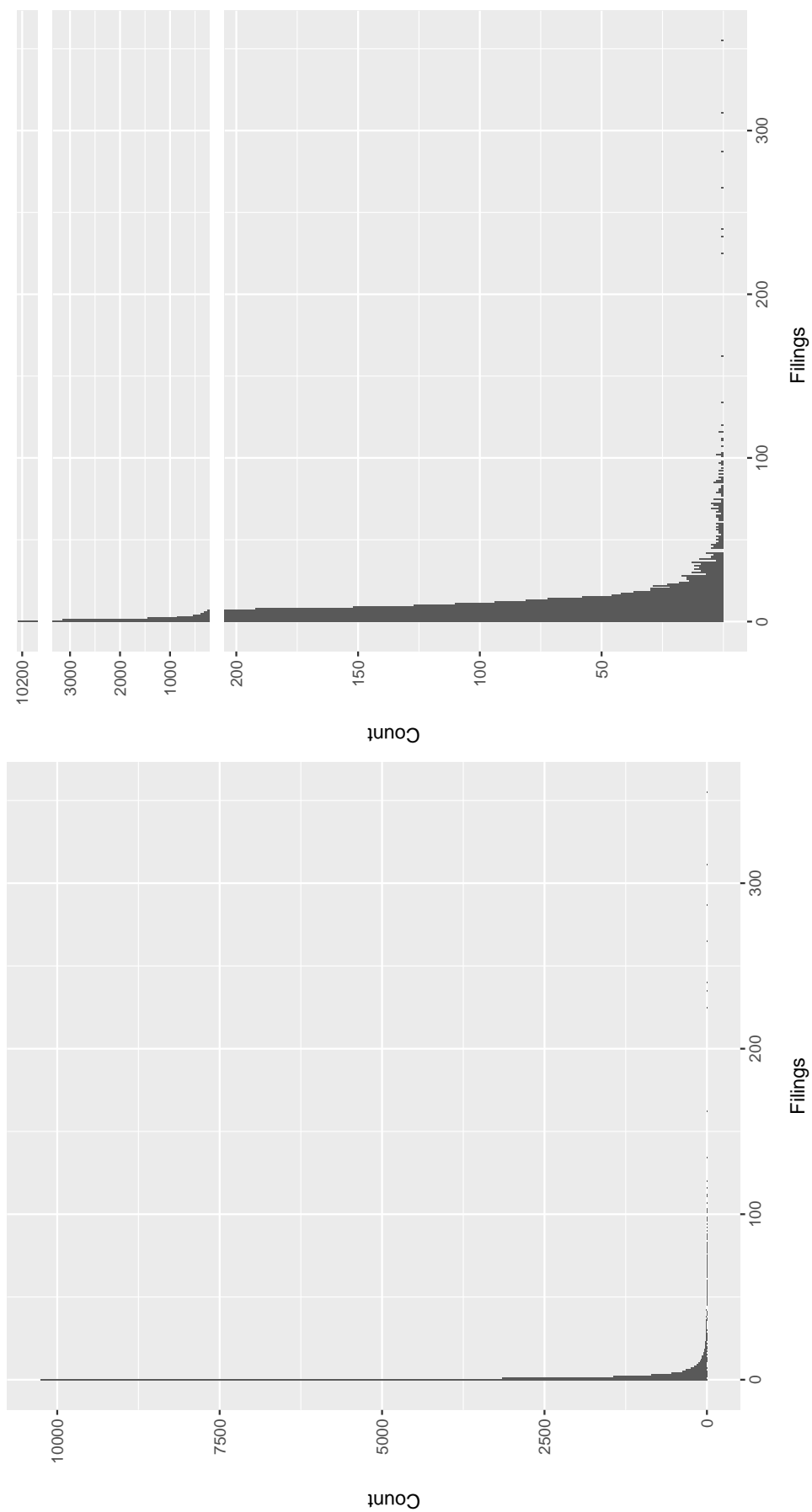
Figure 4: Histograms of Chapter 7 filings. The left panel shows the raw histogram, while the right panel breaks the y-axis into three pieces to better display the right tail of the distribution.
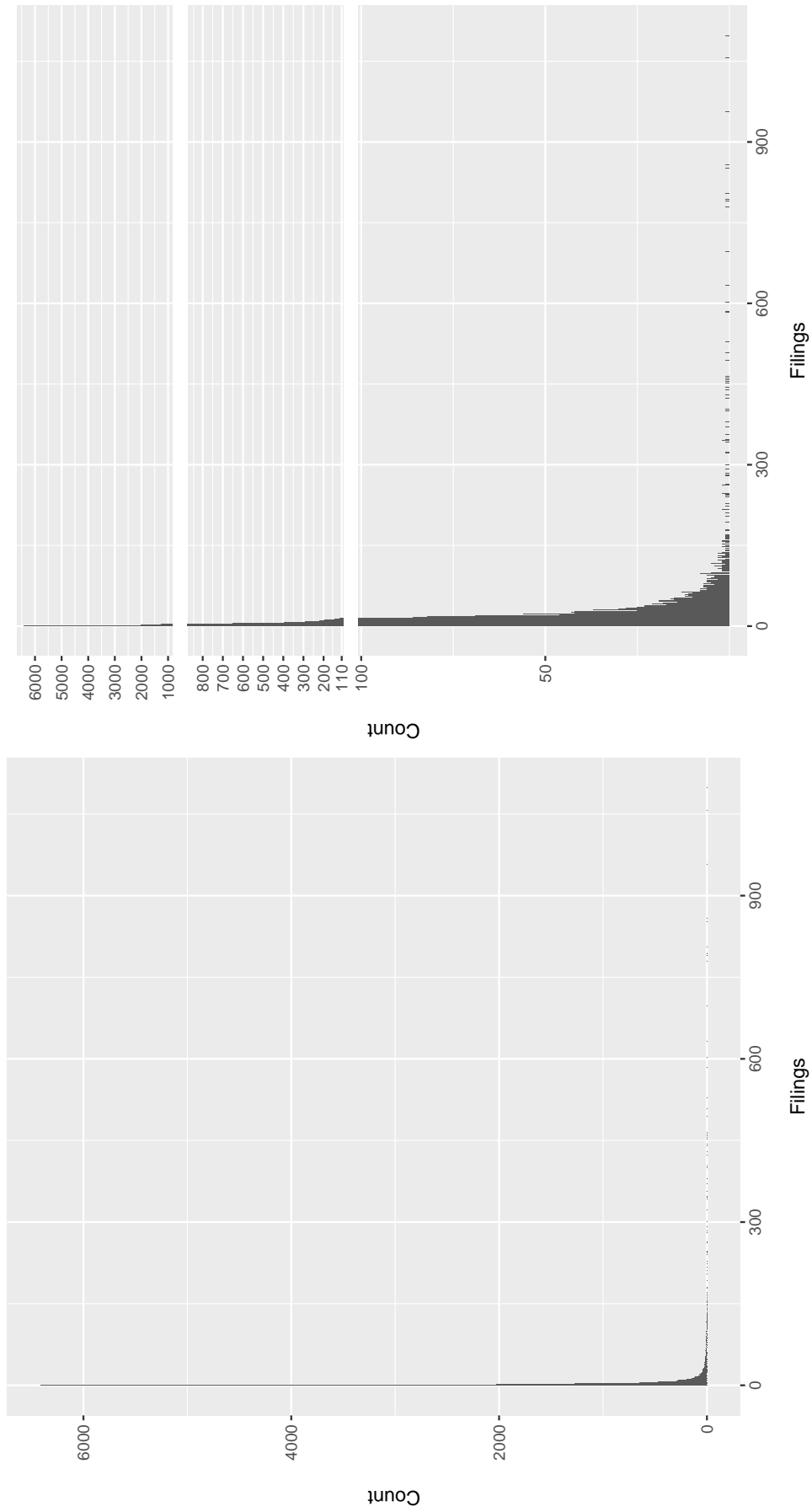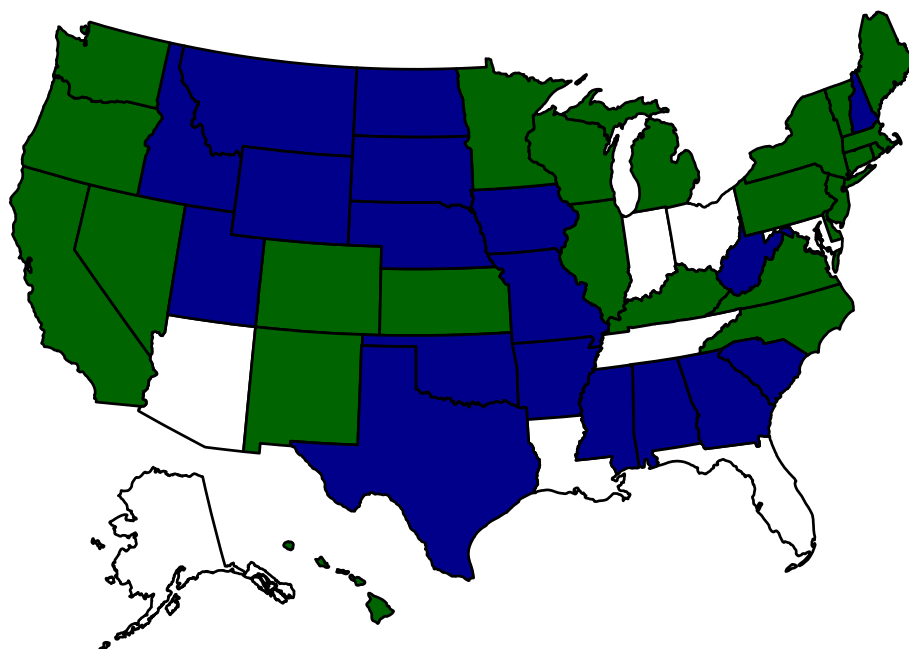
Figure 5: Histograms of Chapter 13 filings. The left panel shows the raw histogram, while the right panel breaks the y-axis into three pieces to better display the right tail of the distribution.

Figure 6: States in blue ended both PUA and FPUC in June of 2021 while states in green kept both programs in place until their expiration on September 6, 2021.
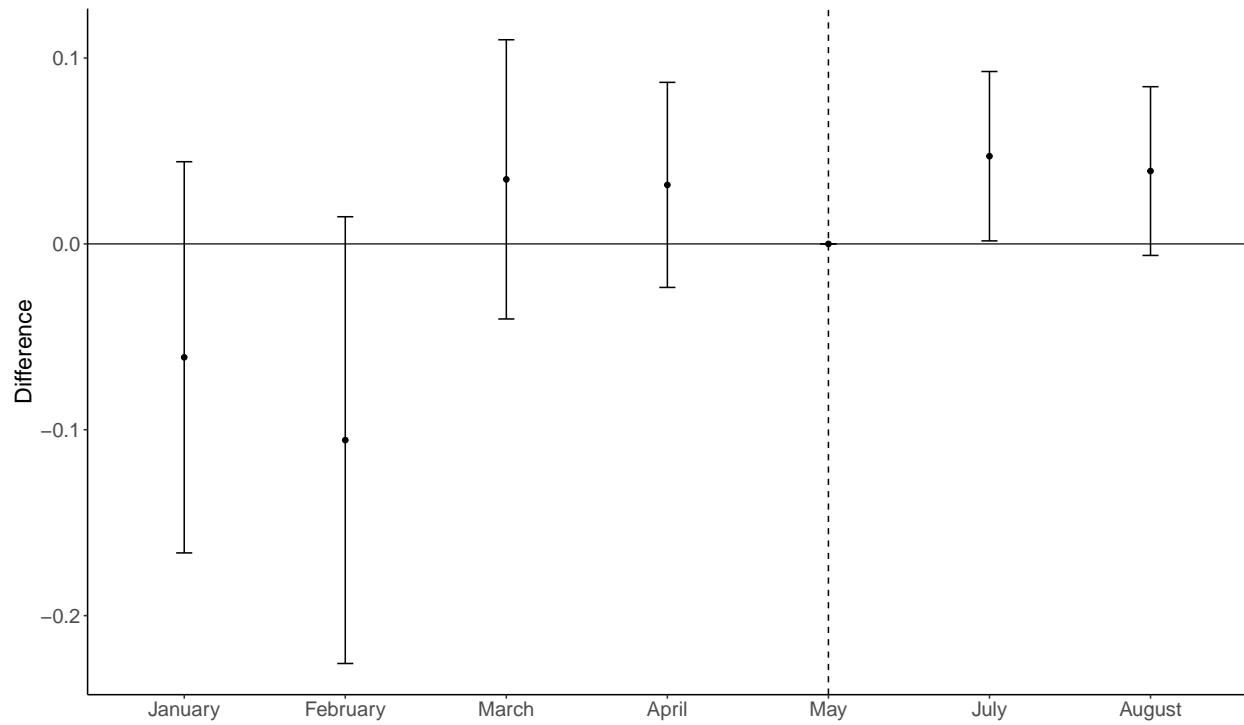
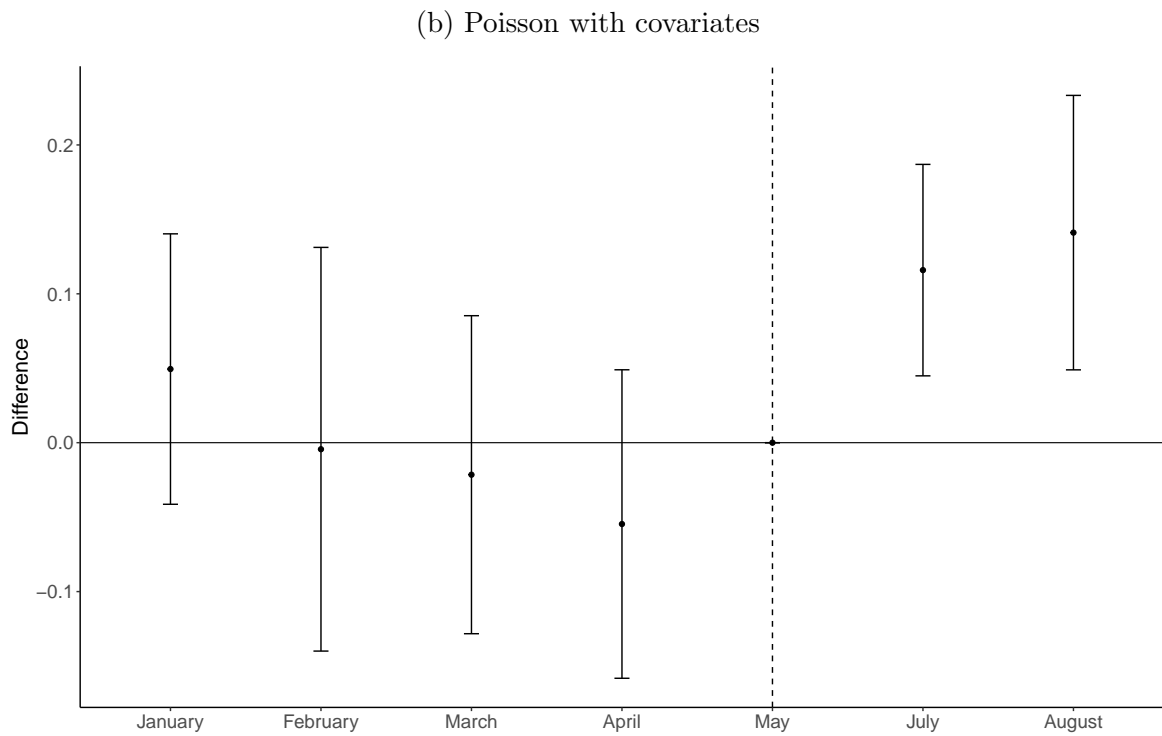Figure 7: Chapter 7 filings event study for the Poisson regression without covariates. Standard errors are clustered at the state level.
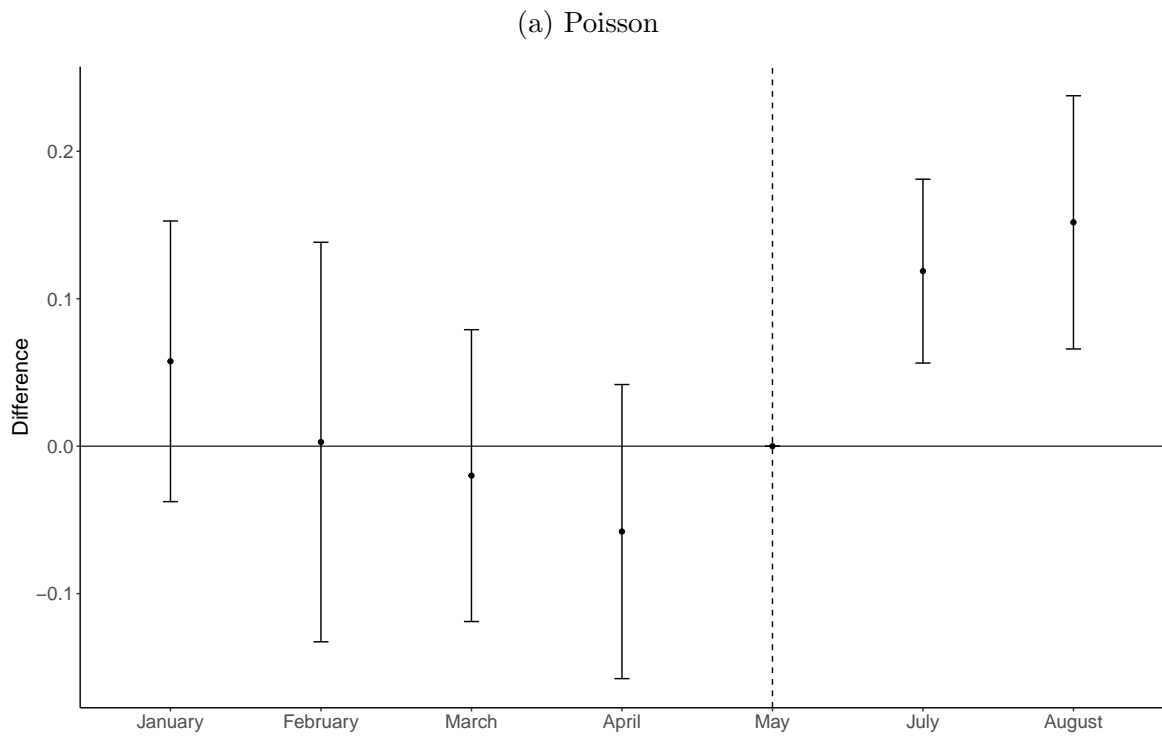
(a) Poisson

(b) Poisson with covariates

Figure 8: Chapter 13 filings event study graphs for the Poisson regression with and without covariates. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
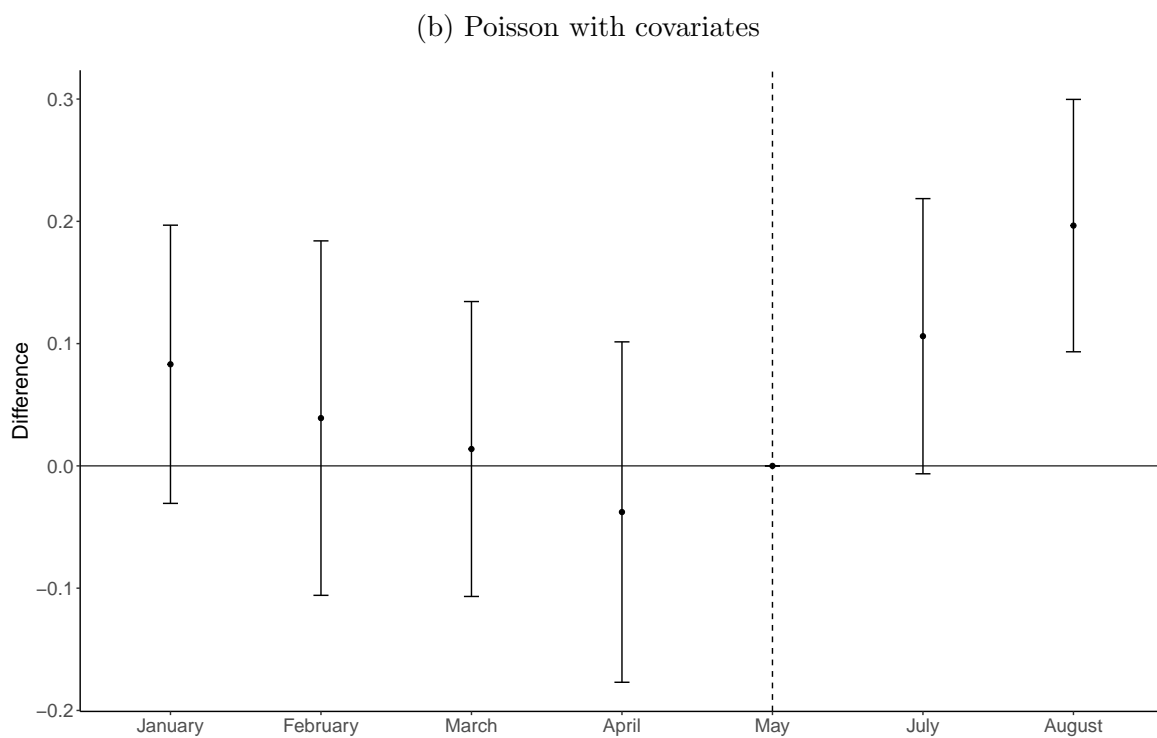
(a) Poisson
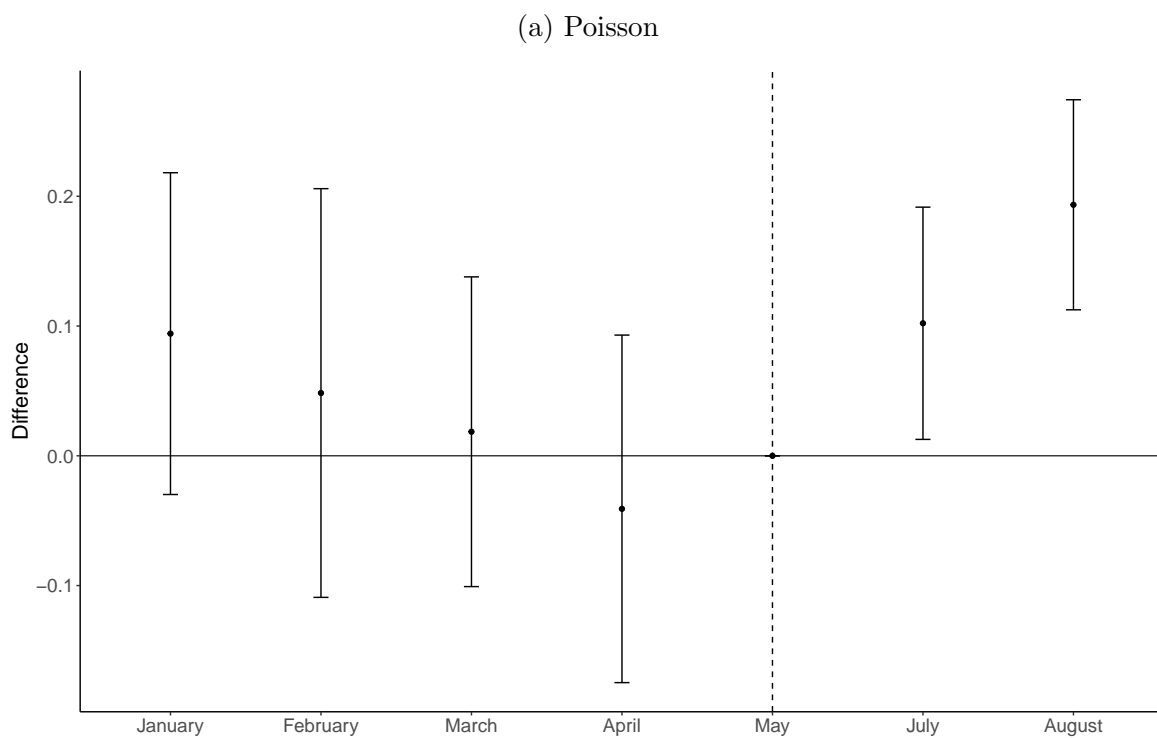

(b) Poisson with covariates

Figure 9: Joint filing analysis chapter 13 filings event study graphs for the Poisson regression with and without covariates. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
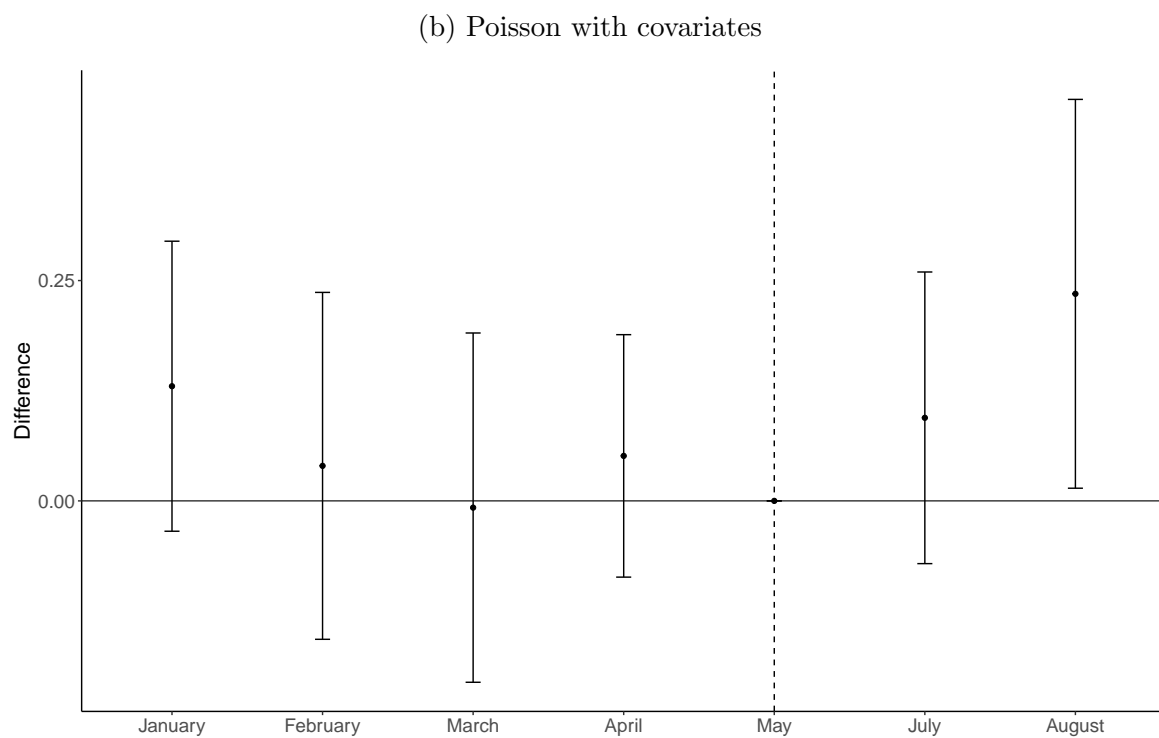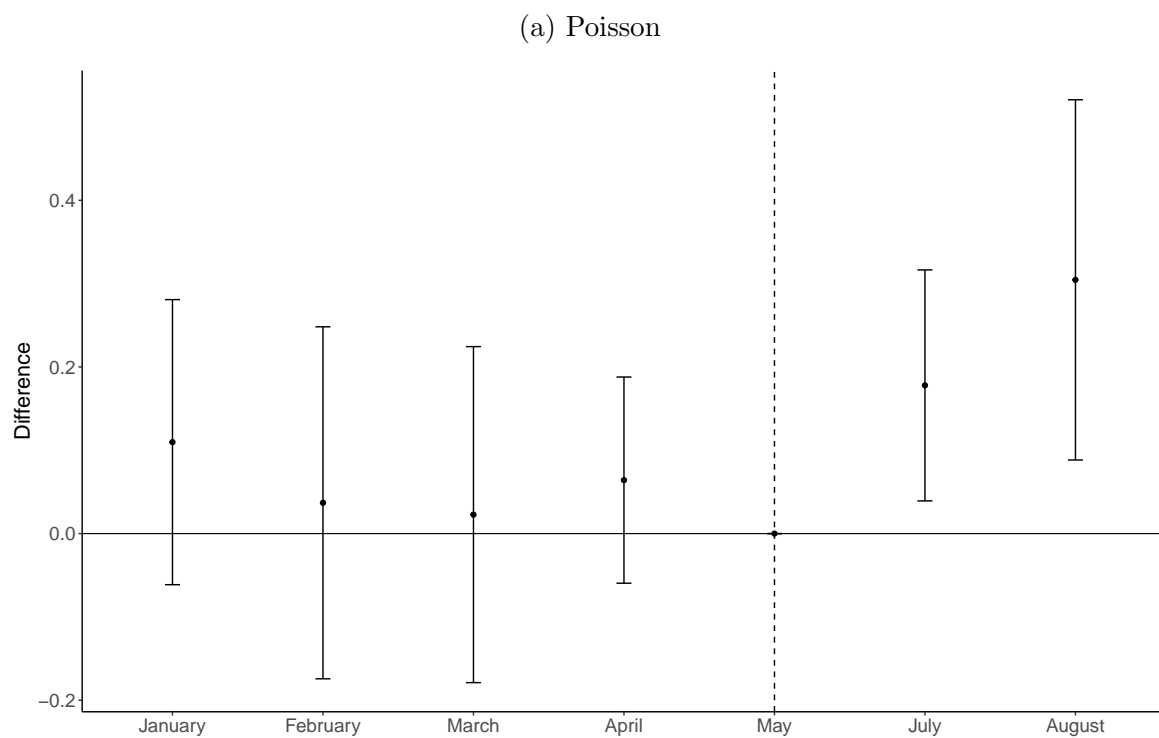
(a) Poisson

(b) Poisson with covariates

Figure 10: Wage garnishment analysis chapter 13 filings event study graphs for the Poisson regression with and without covariates. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
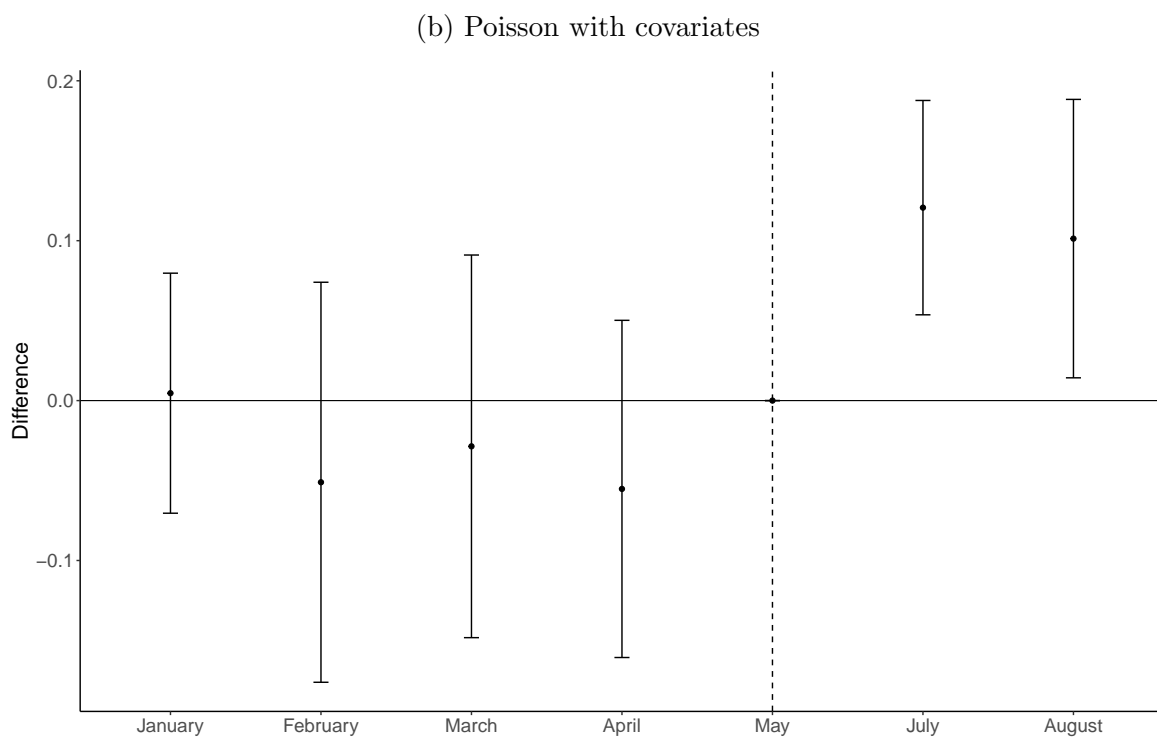
(a) Poisson

(b) Poisson with covariates

Figure 11: Chapter 13 filings in metro areas event study graphs for the Poisson regression with and without covariates. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
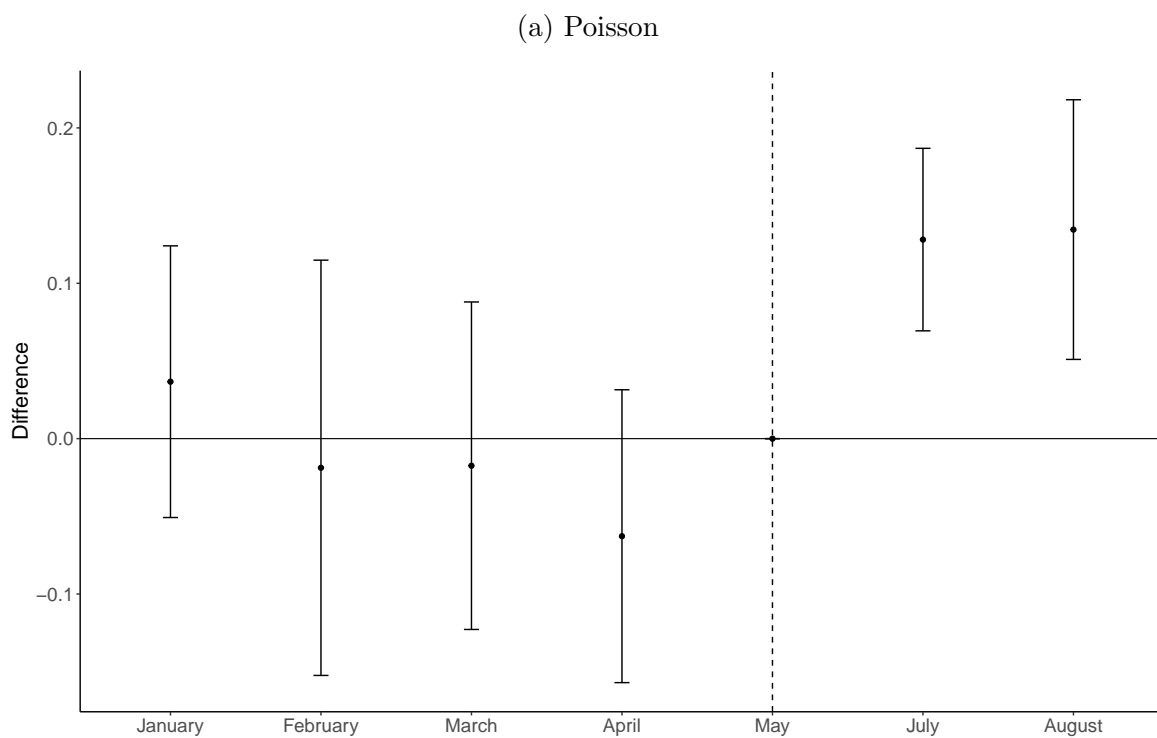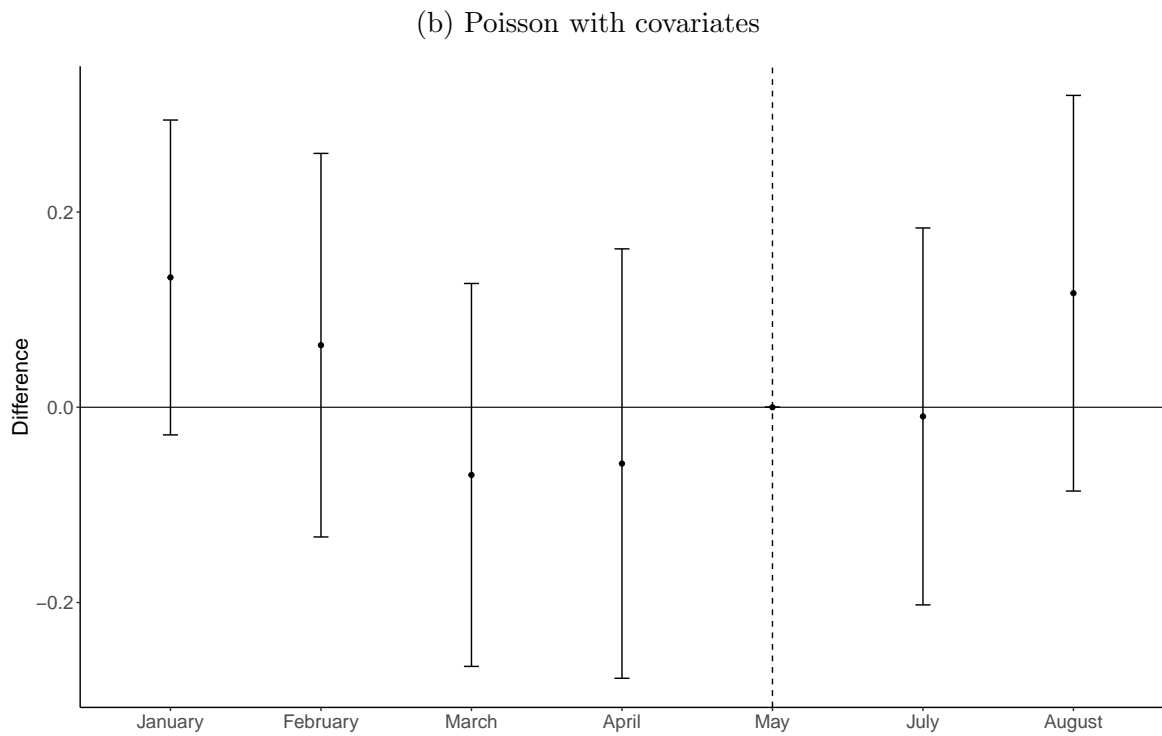
(a) Poisson

(b) Poisson with covariates
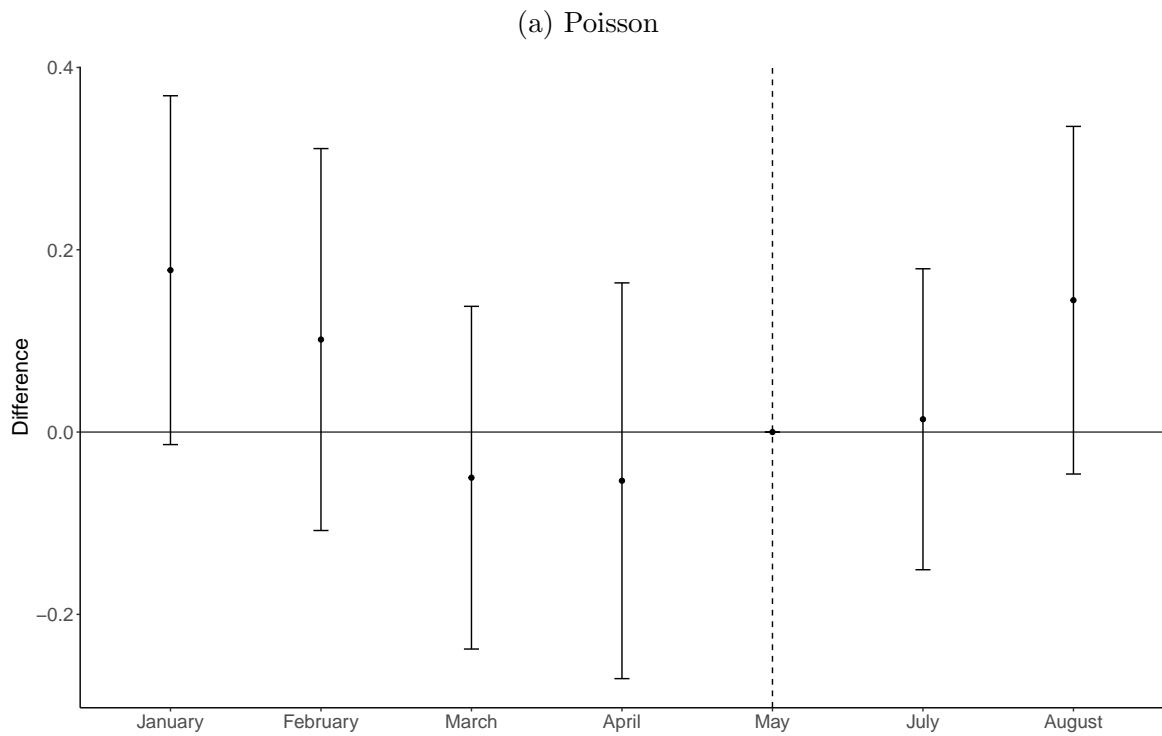
Figure 12: Chapter 13 filings in non-metro areas event study graphs for the Poisson regression with and without covariates. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
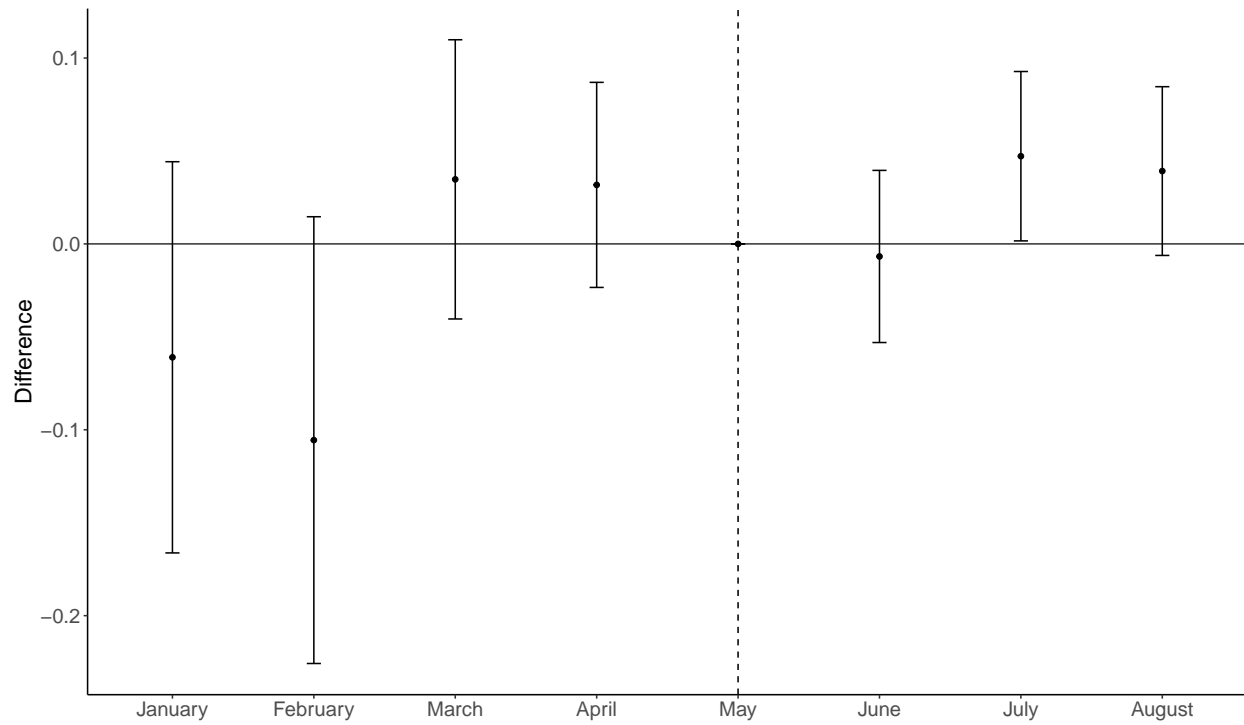
Figure 13: Chapter 7 filings event study for the Poisson regression without covariates including June. Standard errors are clustered at the state level.

(a) Poisson

(b) Poisson with covariates

Figure 14: Chapter 13 filings event study graphs for the Poisson regression with and without covariates including June. Panel (a) gives the coefficients from the regression without covariates and panel (b) gives the coefficients from the regression with covariates. Standard errors are clustered at the state level in both specifications.
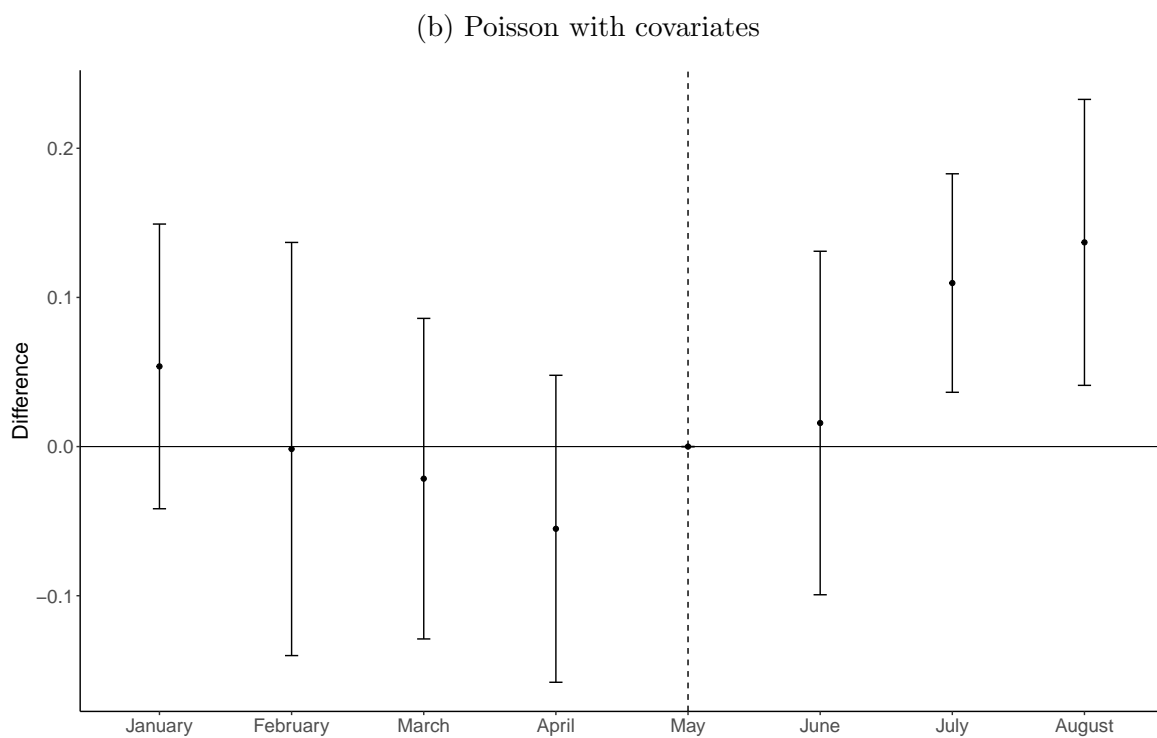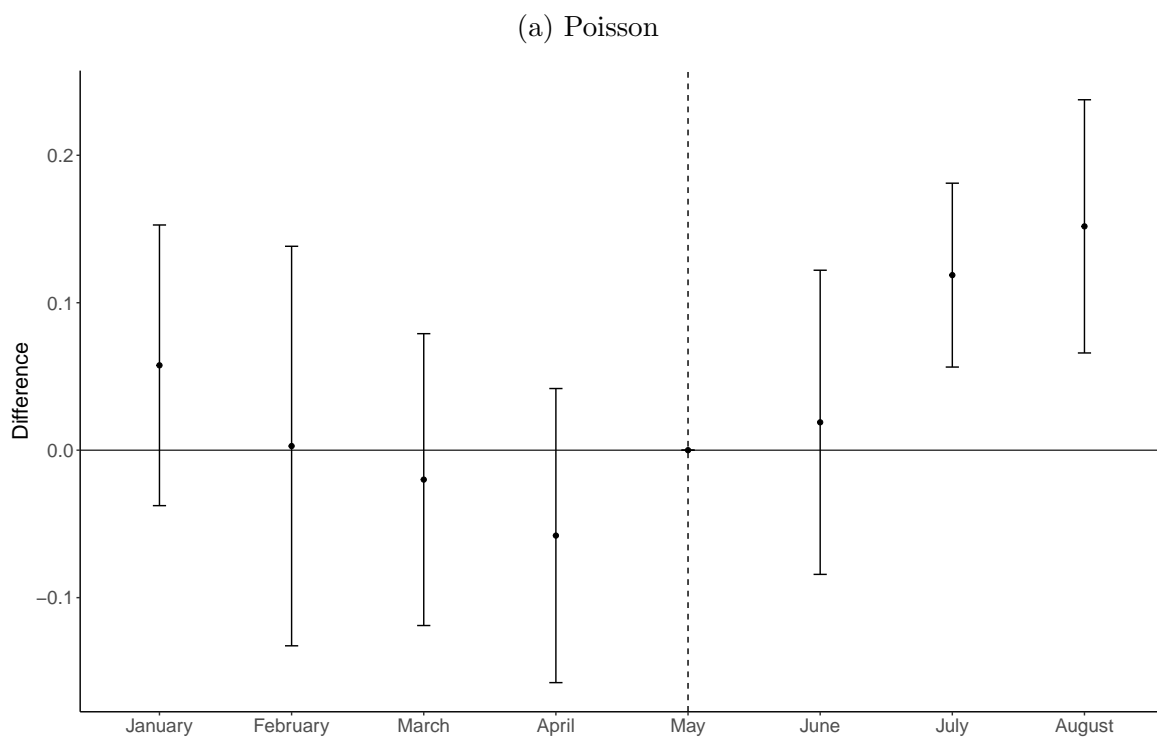
Tables

State	Public Announcement Date	Drop Date
Alabama	May 10, 2021	June 19, 2021
Arkansas	May 7, 2021	June 26, 2021
Georgia	May 13, 2021	June 26, 2021
Idaha	May 11, 2021	June 19, 2021
Iowa	May 11, 2021	June 12, 2021
Mississippi	May 10, 2021	June 12, 2021
Missouri	May 11, 2021	June 12, 2021
Montana	May 4, 2021	June 26, 2021
Nebraska	May 24, 2021	June 19, 2021
New Hampshire	May 18, 2021	June 19, 2021
North Dakota	May 10, 2021	June 19, 2021
Oklahoma	May 17, 2021	June 26, 2021
South Carolina	May 6, 2021	June 26, 2021
South Dakota	May 12, 2021	June 26, 2021
Texas	May 17, 2021	June 26, 2021
Utah	May 12, 2021	June 26, 2021
West Virginia	May 14, 2021	June 16, 2021
Wyoming	May 12, 2021	June 19, 2021

Table 1: This table shows the date that each state in the analysis announced that it would be dropping both PUA and FPUC, and the date that both programs were officially dropped.

	Poisson	Poisson with Controls
Chapter 7	0.055+	0.048
	(0.030)	(0.036)
Chapter 13	0.140***	0.133***
	(0.029)	(0.030)
Number of Observations	18,676	18,676
Month Fixed Effects	X	X
County Fixed Effects	X	
State Fixed Effects		X
Clustered Std. Errors	State	State

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 2: Results for full sample. Column 1 gives the Poisson results with no covariates and Column 2 adds covariates. Standard errors are clustered by state in all specifications.

	Poisson	Poisson with Controls
Chapter 13	0.125***	0.143***
	(0.036)	(0.040)
Number of Observations	18,676	18,676
Month Fixed Effects	X	X
County Fixed Effects	X	
State Fixed Effects		X
Clustered Std. Errors	State	State

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 3: Results for individual filings in common law states. Column 1 gives the Poisson results with no covariates and Column 2 adds covariates. Standard errors are clustered by state in all specifications.

	Poisson	Poisson with Controls
Chapter 13	0.193**	0.141*
	(0.059)	(0.058)
Number of Observations	18,676	17,682
Month Fixed Effects	X	X
County Fixed Effects	X	
State Fixed Effects		X
Clustered Std. Errors	State	State

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 4: Results for filings with current monthly income below state garnishment income cutoffs. Column 1 gives the Poisson results with no covariates and Column 2 adds covariates. Standard errors are clustered by state in all specifications.

	Poisson (Metro)	Poisson with Controls (Metro)	Poisson (Non-Metro)	Poisson with Controls (Non-Metro)
Chapter 13	0.144***	0.141***	0.051	0.061
	(0.026)	(0.033)	(0.065)	(0.080)
Number of Observations	6,601	6,601	12,075	12,075
Month Fixed Effects	X	X	X	X
County Fixed Effects	X		X	
State Fixed Effects		X		X
Clustered Std. Errors	State	State	State	State

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 5: Results for individual filings in metro and non-metro areas. Columns 1 and 2 give the results for metro areas and Columns 3 and 4 give the results for non-metro areas. Columns 1 and 3 are results from the Poisson model with no covariates and Columns 2 and 4 are results from the Poisson model with covariates. Standard errors are clustered by state in all specifications.

	Poisson	Poisson with Controls
Chapter 7	0.037	0.034
	(0.028)	(0.032)
Chapter 13	0.103***	0.089**
	(0.027)	(0.031)
Number of Observations	21,344	21,344
Month Fixed Effects	X	X
County Fixed Effects	X	
State Fixed Effects		X
Clustered Std. Errors	State	State

+ p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

Table 6: Results for full sample including June. Column 1 gives the Poisson results with no covariates and Column 2 adds covariates. Standard errors are clustered by state in all specifications.