Online Appendix for "The Economic Consequences of Bankruptcy Reform"

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A Model Derivations and Extensions

For simplicity, we often omit subscript i in this section, and all of the expressions can be interpreted as holding for each i.

A.1 Interest Rate Comparative Statics

As a benchmark, we assume that the credit market is perfectly competitive. We thus define the equilibrium interest rate, r_i, implicitly by setting the amount recovered by lenders to be equal to the amount of borrowing: $R_i(r_i) = b_i$.[54] To calculate the effect of changes in e and c on interest rates, we first define $R(r_i)$:

$$R(r) \equiv \int_0^{e+(1+r)b-c} (\max\{0, y-e\}) f(y) dy + \int_{e+(1+r)b-c}^{\infty} ((1+r)b) f(y) dy,$$

$$= \underbrace{\int_e^{e+(1+r)b-c} (y-e) f(y) dy}_{\text{Recovered from bankruptcy filers}} + \underbrace{\int_{e+(1+r)b-c}^{\infty} b(1+r) f(y) dy}_{\text{Recovered from non-filers}}.$$

We begin by stating a formal proposition that summarizes the effects of bankruptcy reform on interest rates:

Proposition 1. *Under perfect competition, the effect of a change in the exemption level or a change in filing costs on interest rates is given by:*

$$dr/de = \frac{cf(y^*) + (F(y^*) - F(e))}{-bcf(y^*) + b(1-p)},$$

$$dr/dc = \frac{-cf(y^*)}{-bcf(y^*) + b(1-p)},$$

In each case, the sign of the numerator is unambiguous. Both dr/de and dr/dc include $cf(y^*)$, the additional amount of debt discharged rather than repaid by marginal filers who are induced to file by changes in the exemption level or cost of filing. For intuition on this term, recall that filers repay $y - e$ and non-filers repay $(1+r)b$ in full, and at $y^* = e + (1+r)b - c$, this difference is c. Therefore, c represents the amount that is not repaid to creditors by marginal filers, whose prevalence is represented by $f(y^*)$. Naturally, increases in filing costs and exemptions have opposite effects on the decision to file.

The second term in the numerator of dr/de represents the additional amount discharged rather than paid back to creditors due to changes in repayment behavior for *infra-marginal* filers. If this group is small (for example, because not many filers lie in the mass between e and y^*), then the

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second term becomes less important. Changes in the cost of filing have no effect on the amount recovered by creditors for infra-marginal filers.

Both expressions have the same denominator, which has an ambiguous sign due to the negative first term. It is counter-intuitive that the sign of dr/dc is ambiguous—one would expect a less generous bankruptcy code to unambiguously lead to lower interest rates. However, there is an additional indirect effect that complicates such a prediction. An increase in c and e changes the decision rule, causing fewer individuals to file for bankruptcy. Thus r increases until the share of individuals filing, p, increases to restore $R(r) = b$. The sign is determined by the share of non-filers $(1 - p)$ who repay in full against the additional repayment c from marginal filers.

The derivation of the above result is given in the next subsection.

A.2 Derivations

We derive the following proposition.

Proposition 1. *Under perfect competition, the effect of a change in the exemption level or a change in filing costs on interest rates is given by:*

$$
\begin{aligned}
dr/de &= \frac{cf(y^*) + (F(y^*) - F(e))}{-bcf(y^*) + b(1 - p)}, \\
dr/dc &= \frac{-cf(y^*)}{-bcf(y^*) + b(1 - p)}.
\end{aligned}
$$

Recall, with the assumption of perfect competition, we can implicitly define the interest rate r by setting the repayment rate to creditors equal to the amount of borrowing $(R(r) = b)$. Observing that $R(r) - b = 0$, we can take partial derivatives in order to apply the implicit function theorem to derive dr/de and dr/dc. The direct effects of e and c are straightforward, but the effect of r on $R(r)$ is ambiguous:

$$
\frac{\partial R}{\partial c} = \underbrace{cf(y^*)}_{\text{Reduces filings}} > 0
$$

$$
\frac{\partial R}{\partial e} = \underbrace{-cf(y^*) - F(y^*) + F(e)}_{\text{Increases filings \& reduces recovery (among filers)}} < 0
$$

$$
\frac{\partial R}{\partial r} = \underbrace{-bcf(y^*)}_{\text{Increases filings}} + \underbrace{b(1 - p)}_{\text{Increases recovery among non-filers}} \lessgtr 0
$$

Using the partial derivatives above, the proposition follows by the implicit function theorem, and

$$
\begin{aligned}
\frac{dr}{dc} &= -\frac{\partial R/\partial c}{\partial R/\partial r} = \frac{-cf(y^*)}{b(1 - p - cf(y^*))} \\
\frac{dr}{de} &= -\frac{\partial R/\partial e}{\partial R/\partial r} = \frac{cf(y^*) + F(y^*) - F(e)}{b(1 - p - cf(y^*))}.
\end{aligned}
$$

We also want to derive the total derivatives for $\frac{dp}{de}$ and $\frac{dp}{dc}$, which we use to derive the empirical

object of interest (i.e., $\frac{dr/dc}{dp/dc}$ and $\frac{dr/de}{dp/de}$). To obtain $\frac{dp}{de}$, we can make the following substitutions:

$$dp/de = \partial p/\partial e + \partial p/\partial r * dr/de$$
$$= f(y^*) + \frac{dr}{de}bf(y^*)$$
$$= f(y^*)\frac{1 - F(y^*)}{1 - p - cf(y^*)}.$$

We can do the same for $\frac{dp}{dc}$:

$$dp/dc = \partial p/\partial c + \partial p/\partial r * dr/dc$$
$$= -f(y^*) + \frac{dr}{dc}bf(y^*)$$
$$= -(f(y^*)\frac{1 - F(y^*)}{1 - p - cf(y^*)}.$$

We can use the total derivatives for $\frac{dp}{dc}$, $\frac{dr}{dc}$, $\frac{dp}{de}$, and $\frac{dr}{de}$ to define:

$$\frac{dr/dc}{dp/dc} = \frac{c/b}{1 - p}$$
$$\frac{dr/de}{dp/de} = \frac{cf(y^*) + F(y^*) - F(e)}{bf(y^*)(1 - F(e))},$$

as desired.

A.3 Incorporating Insolvency

We can extend the model in the previous section to incorporate insolvency; that is, the case where we require income of at least c to file bankruptcy so that individuals with income $y < c$ are insolvent and unable to file for bankruptcy.

The filing rule now becomes
$$c \leq y \leq e - c + (1 + r)b.$$

The filing probability is now $p = F(e - c + (1+r)b) - F(c) = F(y_h^*) - F(y_l^*)$, where y_h^*, y_l^* are upper and lower bounds of filers' income. We assume individuals who cannot afford to file for bankruptcy repay the debt. This reflects wage garnishment or aggressive debt collection. We will assume that whenever $y < c$, individuals repay y. As before, individuals with $y > e - c + (1 + r)b$ repay $(1+r)b$.

Assuming perfect competition, the equilibrium interest rate is implicitly defined by $R(r) = b$, and the new expression for the expected amount recovered from the population $R(r)$ is

$$R(r) = \underbrace{\int_0^c yf(y)dy}_{\text{Recovered from insolvent}} + \underbrace{\int_e^{e+(1+r)b-c} (y - e)f(y)dy}_{\text{Recovered from bankruptcy filers}} + \underbrace{\int_{e+(1+r)b-c}^\infty (1 + r)bf(y)dy}_{\text{Recovered from non-filers}}.$$

We can walk through the propositions and empirical object derivations to see how incorporating insolvency changes the expressions. We will find that, while it adds another group of marginal filers, the expressions are qualitatively similar as in the model without insolvency.

Proposition 2 *The direct effect of a change in the exemption level on probability of filing*

bankruptcy, and the effect of a change in the cost of filing on probability of filing bankruptcy are given by the following

$$\partial p/\partial e = f(e + (1+r)b - c)$$
$$= f(y_h^*) > 0,$$
$$\partial p/\partial c = -f(e + (1+r)b - c) - f(c)$$
$$= -f(y_h^*) - f(y_l^*) < 0.$$

The signs are the same as those in the model without insolvent individuals, but a change in the cost of filing now affects two marginal groups: those on the margin of insolvency ($y_l^* = c$); and, the margin in the main model at the asset exemption level: ($y_h^* = e + (1-r)b - c$). An increase in the cost of filing shifts both groups from filing to non-filing.

We can also derive the effects of changes to the bankruptcy code (i.e., c, e) on interest rates, by re-deriving Proposition 1.

Proposition 3 *The total effect of a change in exemption level or cost of filing on interest rates are given by the following:*

$$dr/de = \frac{cf(y_h^*) + F(y_h^*) - F(e)}{b(1 - F(y_h^*) - cf(y_h^*))},$$
$$dr/dc = \frac{-c(f(y_l^*) + f(y_h^*))}{b(1 - F(y_h^*) + cf(y_h^*))}.$$

To derive these expressions, first note that $R(r) - b = 0$, then

$$\partial R/\partial r = b(y - e)f(y)|_{y=e+(1+r)b-c} - b(1+r)bf(y)|_{y=e+(1+r)b-c} + \int_{e+(1+r)b-c}^{\infty} bf(y)dy$$

$$= b(1 - F(y_h^*) - cf(y_h^*)),$$

$$\partial R/\partial c = yf(y)|_{y=c} - (y - e)f(y)|_{y=e+(1+r)b-c} - (1+r)bf(y)|_{y=e+(1+r)b-c}$$

$$= c(f(y_l^*) + f(y_h^*)),$$

$$\partial R/\partial e = (y - e)f(y)|_{y=e+(1+r)b-c} - (y - e)f(y)|_{y=e} - (1+r)bf(y)|_{y=e+(1+r)b-c} + \int_{e}^{e+(1+r)b-c} -f(y)dy$$

$$= -cf(y_h^*) - F(y_h^*) + F(e).$$

We can apply the implicit function theorem to obtain our desired total derivatives:

$$dr/de = -\frac{\partial R/\partial e}{\partial R/\partial r}$$
$$= \frac{cf(y_h^*) + F(y_h^*) - F(e)}{b(1 - F(y_h^*) - cf(y_h^*))},$$
$$dr/dc = -\frac{\partial R/\partial c}{\partial R/\partial r}$$
$$= \frac{-c(f(y_l^*) + f(y_h^*))}{b(1 - F(y_h^*) - cf(y_h^*))}.$$

The signs and intuition of these total effects are the same as those in the model without insolvent

individuals, with additional terms to reflect the filers on the margin of insolvency.

Before we derive the empirical object ($\frac{dr/dc}{dp/dc}$, we again calculate the total derivatives on the filing probability:

$$dp/de = \partial p/\partial e + \partial p/\partial r * dr/de = f(y_h^*) + \frac{dr}{de}bf(y_h^*)$$
$$= f(y_h^*)\frac{1 - F(e)}{1 - F(y_h^*) - cf(y_h^*)}$$
$$dp/dc = \partial p/\partial c + \partial p/\partial r * dr/dc = -f(y_h^*) - f(y_l^*) + \frac{dr}{dc}bf(y_h^*)$$
$$= -(f(y_h^*) + f(y_l^*))\frac{1 - F(y_h^*)}{1 - F(y_h^*) - cf(y_h^*)}.$$

The intuition is similar to cases discussed above. Deriving the empirical objects without approximation,

$$\frac{dr/de}{dp/de} = \frac{cf(y_h^*) + F(y_h^*) - F(e)}{bf(y_h^*)(1 - F(e))}.$$

$$\frac{dr/dc}{dp/dc} = \frac{c/b}{1 - F(y_h^*)}.$$

As before, if we are willing to assume $F(y_h^*) \approx F(e)$, then

$$\frac{dr/de}{dp/de} \approx \frac{cf(y_h^*)}{bf(y_h^*)(1 - F(y_h^*))} = \frac{c/b}{1 - F(y_h^*)}.$$

B Data Appendix and Supplementary Analyses

B.1 PACER Bankruptcy Records

Gross et al. (2014) contacted every bankruptcy court in the US and requested a waiver of PACER fees; 81 districts granted the research team a waiver. They downloaded the dockets for each court from the 1990s through 2011.

For the purposes of this paper, we validated that dataset by comparing the annual counts of bankruptcies to administrative records. We discarded three districts if their annual counts scraped from the PACER database diverged from the official administrative record by more than 10 percent in any year between 2004 and 2007.[55] The final sample consists of 78 districts over that time period.

For Appendix Figure A5, we also use an additional subset of cases from 2001 and 2008 for which we observe the income of the filer. For Appendix Figure A6 Panel A, we present the income in the year before bankruptcy filing for PACER records merged into Census or American Community Survey (ACS) records in the Census Research Data Center. We merge based on the filer's name and last four digits of their Social Security Number. We match about 25 percent of PACER records to income data from the ACS or 2000 Census.

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[55]Those three districts were MOE, MTB, and NYN.

B.2 Consumer Financial Production Bureau Consumer Credit Panel (CCP) Data and Supplementary Analyses

B.2.1 Bankruptcy Filing Rates

The Consumer Financial Protection Bureau Consumer Credit Panel (CCP) is a 1-in-48 random sample of U.S. consumers with credit records. We use the CCP for three separate pieces of analysis in the paper. We use the CCP to estimate the bankruptcy-filing risk for each credit-score segment. To do so, we combine all public-record snapshots in the CCP. We eliminate any duplicate public records to obtain a clean index file, which we merge with the full credit-score archives for consumers. Consumers without a credit score are dropped. We assign each consumer to a credit-score segment, defined using 10-point bins. The small number of consumers with credit scores below 440 are allocated to the lowest score segment. At each point in time, we estimate the share of consumers in each credit-score segment who file for bankruptcy over the subsequent 12 months.

B.2.2 Loan-Level Delinquency and Default Rates

We also use the CCP to estimate loan-level delinquency and default rates by the month the loan was opened and credit score at origination. While the CCP is reported at the tradeline level (i.e., each loan is reported individually), this analysis nevertheless requires complex data processing. The CCP is archived quarterly, and within each archive the tradeline data includes a string variable called the "payment grid." Each character in the payment grid represents the status of the trade during a given calendar month, covering up to 84 months of payment history going backward from the most recent reporting month as of the archive date. The payment status string variable includes categories ranging from "current" through "180 days past due date," and also includes various categories representing default such as "bankruptcy," "collection," and "charge off." If a trade is not updated by the lender in between archive dates, the reporting month and reported data stay the same even if the archive date changes, introducing duplicated data. We deduplicate and reconcile any differences in the payment grid status for each tradeline in each month to construct a tradeline-by-calendar-month panel starting in the month each account is opened, which we refer to as the "payment-grid panel."

We also create variables for the balance and other characteristics of each tradeline in each month. While the CCP is archived quarterly, the data are often reported with a lag. In order to accurately reflect the timing of the observation, we use the reporting date rather than the archive date to construct variables indicating account balance, open status, credit limit, and other trade characteristics. We drop observations in any period that has not been reported within the last 12 months and forward-fill key trade characteristics in between reporting months. We merge this "trade panel" with the "payment-grid panel."

Because new trades are often not reported for 6 to 12 months after account opening, this process ensures that we accurately capture the date of each account's opening and measure a trade's payment status in the calendar month the payment occurred as opposed to the month it was reported. These steps are particularly important given our interest in newly opened trades. Finally, we collapse the tradelines to a monthly panel for each loan cohort by month of origination, additionally splitting by whether the credit score at the time of origination was prime or subprime. To address outliers in that panel, we calculate month-to-month changes in delinquency and default rates, and re-assign changes to the median if the change is greater than 4 times the standard deviation. We track these loans over the following 18 months in Appendix Figure A11 and use 12-month default and delinquency rates in Table 1 and Appendix Table A1.

B.2.3 Bankruptcy-Filer Repayment Rates

In addition to altering the decision to file for bankruptcy, BAPCPA may have affected how much bankruptcy filers repay when they file for bankruptcy. BAPCPA generally made bankruptcy relief less generous which we expect would increase bankruptcy-filer repayment rates, but it may not have increased repayment rates if filers suppressed their income to lower repayment obligations or the selection of filers changed.

We implement two approaches using the CCP to study how intensive-margin repayment rates changed among bankruptcy filers around the implementation of BAPCPA. First, we use tradeline-level data generated using the process described above to track tradelines that are open before the account holder files for bankruptcy to see how they are eventually resolved. Specifically, we take the set of open trades four months before an individual files for bankruptcy and calculate an overall repayment rate based on the *final* payment status of those accounts. The results are insensitive to the choice of four months prior to bankruptcy as the baseline pre-filing month.

We assign a recovery rate of zero percent to an account if its final status is 90 days past due or worse. For the relevant sample of credit-card trades that remain open going into bankruptcy, the vast majority of trades we assign to a zero percent recovery rate have a final payment status for which we feel reasonably confident recoveries are minimal, such as "bankruptcy" or "charge off." We assign accounts with a final payment status of "current" or less than 90 days past due a 100 percent recovery rate and weight trades by the balance on the account four months prior to bankruptcy to obtain our final recovery rate estimate. A limitation of relying solely on payment status is that, based on detailed inspection of the data, many accounts disappear within six months of bankruptcy but report a final payment status of current or less than 90 days past due. We believe this is due to lenders failing to update trades with the credit bureau once they are discharged. Thus, we assign a zero percent recovery rate to trades that close within six months before or after bankruptcy filing but whose final status is better than 90 days past due.[56]

Due to the incompleteness of credit-reporting information, we implement a second approach by comparing each individual filer's open credit-card balances at four months before and after bankruptcy. We calculate the recovery rate as the ratio of post-filing open balances to pre-filing balances, assuming that any reduction in balances is discharged in the intervening bankruptcy. One limitation of this approach is that we cannot tell whether credit-card balances decrease because they are discharged through bankruptcy or repaid by the filer's assets.[57] In addition, this approach does not distinguish between new credit that is originated after filing from existing credit that is retained through bankruptcy.

Both approaches yield very little change in estimated repayment rates for bankruptcy filers around BAPCPA. Comparing the six months before and six months after BAPCPA, excluding the two-month window around the implementation date, the first approach yields a pre-BAPCPA weighted average repayment rate of 6.4 percent and a post-BAPCPA repayment rate of 5.5 percent. The second approach yields a pre-BAPCPA repayment rate of 9.0 percent and a post-BAPCPA recovery rate of 8.1 percent. These results are insensitive to the estimation window chosen, or the exclusion of the two months just around BAPCPA.[58] Given that the second approach includes

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[56]Assigning these trades a 100 percent recovery rate increases estimated filer repayment rates in both the pre- and post-BAPCPA periods but does not affect the relative comparison before and after BAPCPA.

[57]Roughly two-thirds of filings are Chapter 7 filings and, based on our PACER data, seven percent of Chapter 7 filings report assets (six percent before BAPCPA and 8 percent after). Virtually all (99 percent) of Chapter 13 filings report assets and this is unchanged by BAPCPA.

[58]Analogous results using twelve months of filings before and after BAPCPA (again excluding the two-month window) are 6.7 percent pre-BAPCPA and 4.7 percent post-BAPCPA under the first approach and 9.4 percent pre-BAPCPA and 7.1 percent post-BAPCPA under the second approach. We document the same small declines in

some new credit originations after filing, it is also re-assuring that it yields recovery rates that are slightly higher than the first approach. The small decline in repayment rates of bankruptcy filers we observe is somewhat surprising. Nevertheless, any differences in intensive-margin repayment among bankruptcy filers appear to be second-order relative to the extensive-margin decline in bankruptcy-filing rates, which justifies the paper's emphasis on the extensive margin.

An important assumption in our model and benchmarking estimates is that the marginal bankruptcy filer repays very little, while the marginal potential filer deterred from filing for bankruptcy repays a meaningful share of their debts. The analysis here suggests that the former assumption is a plausible one: very few debts are repaid through bankruptcy based on the approaches above.

B.3   Mintel Comperemedia (Mintel) Data and Supplementary Analyses

B.3.1   Mintel Data

Data on credit-card offers are from Mintel Comperemedia, accessed through the Consumer Financial Protection Bureau. Mintel Comperemedia conducts proprietary market research by surveying United States households, who forward all incoming marketing mail. We focus on credit-card offers. The data include rich information on each credit-card offer, including card categories (Affinity Cards, Co-Branded, Credit Cards, Lifestyle Cards, Retail Cards, Secured Cards), application type (Confirmed, General, Guaranteed Approval, Pre-Approved, Pre-Qualified, Pre-Selected), and the lender. They additionally include information on the offered interest rate, and whether (and for how long) an introductory ("teaser") rate might be applied. Importantly for our purposes, the offers are coupled with information on the consumer who received the offer, including their credit score and state of residence. We drop offers associated with consumers who are missing credit scores and offers for which interest rates are missing. The data is a repeated cross-section, surveying around 2,500 individuals each month and include between 5,900 and 12,079 credit-card offers over our sample period (with both the mean and median number of offers around 8,000 per month).

B.3.2   Extensive-Margin Credit Supply

Our primary analyses are at the level of the credit-card offer, but for Appendix Table A11 we also estimate whether BAPCPA increased the extensive margin of offers. Survey respondents are included in the Mintel data only in months when they forwarded at least one mailing they received. Qualified mailings also include loan offers for products other than credit cards (auto loans, education loans, home equity loans, mortgages and reverse mortgages, and unsecured loans). We follow Han et al. (2018) in constructing an individual-level outcome variable for whether an individual receives a credit-card offer which takes the value of 1 if they receive an offer and 0 if they receive any mailing (a condition for inclusion in the Mintel data) *but not a credit-card offer*. The number of individuals with an offer that is not a credit card varies over the sample period from 60.4 to 76.3 percent for all borrowers and from 44.8 to 68.0 percent for subprime borrowers. We run a version of our equation (4) at the individual level including the fixed effects measured at the level of the individual, rather than the loan. While the effects (presented in Appendix Table A11) are in the direction one would expect, we encourage caution in interpreting these results because of the structure of the Mintel data. These concerns do not apply to our analysis of interest rates, which estimate effects at the level of the offer and condition on the exhaustive set of contract terms described in Section 6.

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inferred repayment rates for both Chapter 7 and Chapter 13 filings.

B.3.3 Heterogeneity in Interest-Rate Pass-through by Lender

Our primary regression specifications for interest-rate pass-through all include lender fixed effects. In this subsection, we perform an additional heterogeneity analysis by examining how the response to the reform varies by lender. Figure 5 and Table 2 demonstrate that lenders lowered the interest rates on new credit-card offers in anticipation of a decline in the generosity of bankruptcy. Examining heterogeneity in the responses of lenders may serve to both clarify the mechanism behind those lower interest rates and reveal some information about the structure of the subprime credit-card market during our sample period. The Mintel data include the name of the lender that issued each offer, which we partial out in regression equation (4). To understand how the responses to the change in bankruptcy law varied by lender, we run equation (4) separately for each lender.

Appendix Figure A15 plots the lender-specific estimates on the vertical axis against the share of the firm's offers that are made to subprime consumers on the horizontal axis. The size of each circular marker corresponds to the number of credit-card offers extended to subprime consumers over our sample period. The pass-through estimates are quite heterogeneous by lender and the effects we estimate in Table 2 are largely driven by the two prominent subprime lenders: Capital One and HSBC. These two lenders are well known to be leaders in the expansion of credit to subprime consumers. HSBC was additionally on the frontier of expanding credit to those with recent bankruptcy filings, which suggests a familiarity with the relationship between the bankruptcy system and repayment behavior (Jurgens and Wu, 2007). These results are also consistent with the high levels of heterogeneity in risk-based pricing documented by Stango and Zinman (2015), who show that variation in internal modeling across lenders results in substantial price dispersion based on differential treatment of identical customer characteristics.

B.4 Hospitalizations Data

For the analyses in Section 7, we use hospital discharge data from the California Office of Statewide Health Planning and Development (OSHPD). The hospitalizations data are merged with credit reports and vital records using social security numbers as described in the Online Appendix of Dobkin et al. (2018a). All data production and analysis happened on-site at OSHPD's Sacramento office and all output was reviewed by OSHPD staff to confirm privacy was protected.

The hospital discharge data includes a unique identifier, dates of admission and discharge, details about the health event (e.g., diagnosis codes), and demographic information. It also includes an indicator for insurance coverage which includes Medicaid, private insurance, and "self-pay." We use the primary payer of the index admission to define insurance coverage.

We sample non-pregnancy-related admissions with a non-missing social security number from 2003 through 2007. We additionally use hospitalizations from 2000 to 2010 to limit the sample to admissions which were the first in three years for the individual, in order to isolate health "shocks." We select the universe of "self-pay" (uninsured) hospitalizations. For those insured with Medicaid or private coverage (insured), we sample a random 20 percent of individuals whose admission originated through the Emergency Department, and a random 10 percent of individuals whose admission was not through the Emergency Department. We construct weights according to the inverse probability an individual was sampled. We restrict to individuals aged 25 to 64 at the time of their hospitalization. For additional sample selection and summary statistics, see Dobkin et al. (2018a).

We convert the credit-report variable for bankruptcy filings from a flow into a stock by defining a cumulative indicator variable based on whether the individual has filed for bankruptcy since entering the sample in 2002. This allows the event-study specification to exploit variation in the

timing of the hospitalization to identify the effect of the hospitalization on the likelihood of filing for bankruptcy.

Finally, we define whether hospitalizations were exposed to the "pre-BAPCPA" or "post-BAPCPA" bankruptcy regime. We define those hospitalized between January 2003 through December 2004 as facing the pre-BAPCPA bankruptcy code and hospitalizations between October 2005 through December 2007 for the post-BAPCPA sample. Most hospitalization-induced bankruptcies occur in the first 18 months following the hospitalization. In order to limit the impact of intertemporally substituted bankruptcies filed during the rush-to-file period just before BAPCPA went into effect, we limit the pre-BAPCPA sample to those hospitalized by the end of 2004. Any individuals hospitalized in or after October 2005 faced the post-BAPCPA bankruptcy code.

C Appendix Tables

Table A1. Benchmarking Interest Rate Pass-through

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Credit Score	Pop. %	Bkrt. Rate	APR	APR +Fees	Default Rate % X Days Past Due				Pass-through Calibration APR				APR + Fees			
					30+	60+	90+	Def	30+	60+	90+	Def	30+	60+	90+	Def
500	6.5	4.1	12.5	24.0	63.3	60.6	58.6	50.7	0.43	0.46	0.49	0.58	0.47	0.51	0.54	0.64
510	1.5	4.3	12.2	22.6	44.3	40.6	37.9	29.8	0.65	0.70	0.73	0.82	0.71	0.76	0.80	0.90
520	1.5	4.2	13.3	24.7	39.3	35.6	32.7	25.0	0.72	0.76	0.80	0.89	0.79	0.84	0.88	0.98
530	1.5	4.1	13.8	24.5	34.0	30.2	27.4	19.8	0.78	0.83	0.86	0.95	0.86	0.91	0.94	1.04
540	1.5	3.7	14.0	24.9	29.7	25.7	22.8	15.8	0.83	0.88	0.91	1.00	0.91	0.96	1.00	1.09
550	1.6	3.4	13.9	23.6	24.9	21.0	18.3	12.3	0.88	0.93	0.96	1.03	0.96	1.01	1.04	1.12
560	1.6	3.0	13.9	23.7	21.1	17.3	15.0	9.6	0.93	0.97	1.00	1.06	1.01	1.05	1.08	1.15
570	1.6	2.5	13.9	22.7	17.7	14.1	11.9	7.3	0.96	1.00	1.03	1.08	1.04	1.08	1.11	1.17
580	1.7	2.3	13.8	22.6	14.6	11.4	9.4	5.3	0.99	1.03	1.06	1.10	1.07	1.11	1.14	1.19
590	1.7	1.9	13.9	21.7	12.1	9.1	7.3	4.0	1.02	1.06	1.08	1.12	1.09	1.13	1.15	1.19
600	1.7	1.8	14.4	22.5	9.9	7.3	5.7	3.0	1.05	1.08	1.10	1.13	1.12	1.16	1.18	1.21
610	1.8	1.6	14.1	21.0	8.1	5.7	4.5	2.2	1.07	1.09	1.11	1.13	1.13	1.16	1.18	1.20
620	2.0	1.5	13.7	20.4	6.5	4.5	3.5	1.7	1.08	1.10	1.11	1.13	1.14	1.17	1.18	1.20
630	2.0	1.3	13.4	19.0	5.2	3.6	2.7	1.3	1.09	1.11	1.12	1.14	1.14	1.16	1.17	1.19
640	2.2	1.2	13.2	18.7	4.0	2.7	2.0	0.9	1.10	1.12	1.12	1.14	1.15	1.17	1.18	1.19
650	2.4	1.1	13.0	17.4	3.2	2.1	1.6	0.7	1.11	1.12	1.12	1.13	1.15	1.16	1.17	1.18
660	2.6	1.0	12.3	16.5	2.5	1.7	1.2	0.6	1.11	1.12	1.12	1.13	1.15	1.16	1.16	1.17
670	2.6	0.9	11.6	14.7	2.1	1.4	1.0	0.5	1.10	1.11	1.12	1.12	1.13	1.14	1.15	1.15
680	2.8	0.8	11.1	14.0	1.4	0.9	0.7	0.3	1.10	1.11	1.11	1.12	1.13	1.14	1.14	1.15
690	2.9	0.6	10.8	13.6	1.1	0.7	0.5	0.2	1.10	1.11	1.11	1.11	1.13	1.14	1.14	1.14
700	3.4	0.5	10.3	12.9	0.9	0.6	0.4	0.2	1.10	1.10	1.10	1.11	1.12	1.13	1.13	1.13
710	3.6	0.3	10.1	12.5	0.6	0.4	0.3	0.1	1.10	1.10	1.10	1.10	1.12	1.12	1.13	1.13
720	3.6	0.3	9.8	12.1	0.5	0.3	0.2	0.1	1.09	1.10	1.10	1.10	1.12	1.12	1.12	1.12
730	3.8	0.2	9.7	12.0	0.4	0.2	0.1	0.1	1.09	1.10	1.10	1.10	1.12	1.12	1.12	1.12
740	4.2	0.1	9.5	11.7	0.3	0.2	0.1	0.1	1.09	1.09	1.10	1.10	1.11	1.12	1.12	1.12
750	3.9	0.1	9.5	11.6	0.2	0.1	0.1	0.0	1.09	1.09	1.09	1.10	1.11	1.12	1.12	1.12
760	4.1	0.1	9.4	11.5	0.2	0.1	0.1	0.0	1.09	1.09	1.09	1.09	1.11	1.12	1.12	1.12
770	4.2	0.0	9.4	11.4	0.1	0.1	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11
780	4.9	0.0	9.3	11.3	0.1	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11
790	4.7	0.0	9.4	11.4	0.1	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11
800	4.9	0.0	9.4	11.5	0.1	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11
810	4.6	0.0	9.5	11.5	0.1	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.12	1.12	1.12
820	3.3	0.0	9.5	11.5	0.0	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.12	1.12	1.12
830	1.9	0.0	9.4	11.4	0.0	0.0	0.0	0.0	1.09	1.09	1.09	1.09	1.11	1.11	1.11	1.11
840	1.2	0.0	9.6	11.6	0.0	0.0	0.0	0.0	1.10	1.10	1.10	1.10	1.12	1.12	1.12	1.12
Average		1.0	11.0	15.5	8.9	7.8	7.2	5.6	1.02	1.03	1.04	1.06	1.05	1.07	1.08	1.10

Notes: This table reports pass-through estimates for each credit-score segment and using different default measures to proxy for the repayment rates of marginal non-filers. The lowest credit-score segment combines all credit scores below 500. The APR column comes from Mintel data on credit card offers, scaled up to include fees as specified in the main text, and the bankruptcy and default rates (in both cases measured over the next 12 months) come from the Consumer Credit Panel (CCP). 12-month default rates represent loans originated between January 2003 and June 2004. The pass-through estimate comes from combining the estimates in columns according to equation (1), using the default rate to proxy for one minus the recovery rate, which is the first term in equation (1).

Table A2. Percentage of Total Filings Covered by PACER Sample

Year	Quarter	(1) All Bankruptcy Filings	(2) Chapter 7	(3) Chapter 13
2004	1	86.2	89.6	74.1
	2	85.5	89.2	74.2
	3	86.1	90.6	74.5
	4	86.0	90.6	74.1
2005	1	86.1	89.8	74.4
	2	86.2	89.3	74.4
	3	87.2	90.1	75.1
	4	88.1	90.0	75.4
2006	1	82.8	87.6	74.8
	2	83.1	87.5	75.0
	3	83.6	89.0	74.9
	4	84.5	91.0	74.8
2007	1	85.5	91.2	75.3
	2	86.4	92.1	75.7
	3	86.3	92.8	75.4
	4	86.6	93.1	75.5

Notes: The table presents the percent of the total administrative counts of bankruptcies which are included in the PACER sample in each year and quarter of the data. Administrative counts are provided by the Administrative Office of the United States Courts.

Table A3. Summary Statistics for Credit Card Offers

	(1)	(2)	(3)
	Prime	Subprime	All Borrowers
APR	11.50	14.52	11.88
Adjusted APR	6.61	10.67	7.12
Introductory APR	5.46	8.76	5.87
Rate Spread	4.85	7.58	5.19
Adjusted Rate Spread	-0.04	3.73	0.43
Pre-Approved	61.6%	74.1%	63.2%
Annual Fee	11.0%	52.5%	16.2%
Rewards	59.5%	16.7%	54.1%
Annual Fee, No Rewards	4.6%	49.8%	10.2%
Has Introductory APR	56.3%	43.6%	54.7%
Late Fee	$36.05	$34.73	$35.88
Credit Score	750	566	727
Mean Offers Per Month	3.33	2.77	3.26
N (Individual-Months)	105,941	13,982	119,923
N (Offers)	352,589	38,690	391,279

Notes: The sample consists of credit card offers made to households from January 2004 through December 2007, collapsed to the individual-month. The table presents mean features of credit card offers, weighted by the mail volume of the campaign.

Table A4. Summary Statistics for Hospitalizations

	(1)	(2)	(3)	(4)
Insurance Coverage:	Uninsured		Insured	
Hospitalization Period:	Pre	Post	Pre	Post
Age	44	45	48	49
	(11)	(11)	(10)	(10)
Asian	0.046	0.046	0.066	0.070
	(.21)	(.21)	(.25)	(.25)
Black	0.11	0.11	0.077	0.077
	(.31)	(.31)	(.27)	(.27)
Hispanic	0.24	0.27	.18	.19
	(.43)	(.44)	(.38)	(.39)
White	0.56	0.53	.64	.62
	(.5)	(.5)	(.48)	(.48)
Male	0.62	0.61	.45	.45
	(.49)	(.49)	(.5)	(.5)
Chronic Diagnosis	0.78	0.82	0.84	0.87
	(.41)	(.38)	(.36)	(.34)
Zip Code Median Income	59,146	58,957	66,652	67,307
	(22,013)	(21,866)	(24,307)	(24,505)
Any Collection in Last 12 Months	0.34	0.38	.16	.17
	(.47)	(.49)	(.36)	(.38)
Collection Balance	2,869	3,994	1,068	1,341
	(9,181)	(11,528)	(5,834)	(6,481)
Any Bankruptcy in Last 12 Months	0.014	0.012	.014	.011
	(.12)	(.11)	(.12)	(.1)
Credit Limit	13,366	16,368	30,164	43,741
	(39,116)	(51,555)	(51,750)	(80,580)
Credit Score	655	655	727	734
	(111)	(109)	(119)	(120)
N	53,611	62,912	164,207	145,502

Notes: The sample consists of individuals aged 25–64 who are hospitalized in California, additionally split by the timing of the hospitalization (January 2003 through December 2004 for the pre-BAPCPA sample, October 2005 through December 2007 for the post-BAPCPA sample) and insurance coverage (uninsured or insured which includes those with private insurance or Medicaid coverage). Age and demographics are defined at admission. Financial outcomes reflect the credit report observation 13 to 24 months preceding the hospitalization. Insurance status is defined at the index admission and denotes coverage by Medicaid or private insurance. The universe of qualifying uninsured hospitalizations are included in the sample; estimates for the insured are weighted to adjust for individuals' sampling probabilities. Standard deviations are in parentheses.

Table A5. Difference between Realized and Predicted Filings

Weeks relative to implementation	Index Date	(1) Predicted Filings	(2) Realized Difference	(3) Cumulative Net Difference
-30	March 21, 2005			
0	October 17, 2005	911,656	762,192	762,192
30	May 15, 2006	879,729	-656,284	105,909
60	December 11, 2006	857,796	-481,442	-375,533
90	July 9, 2007	889,823	-445,607	-821,140
114	December 24, 2007	659,619	-256,539	-1,077,679

Notes: This table presents a running sum of the net change in filings due to BAPCPA: the difference between actual bankruptcies observed each week and the number of bankruptcies that would have been predicted based on the counterfactual by estimating equation (2) from the beginning of the sample until BAPCPA was approved by the Senate in March of 2005. Index date for each row refers to the end of the 30 weeks period presented. The overall numbers are inflated to reflect the nation as a whole, based on our PACER sample coverage (see Appendix Table A2).

Table A6. Net Change in Filings through 2007 (Robustness to Counterfactual Specifications)

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Main Sample Period 2004-2007					
Total	-1,077,679	-1,085,106	-1,549,640	-1,529,728	-1,637,479	-1,618,761
Chapter 7	-946,148	-948,801	-1,444,828	-1,419,240	-1,533,578	-1,509,383
Chapter 13	-160,950	-173,816	-157,715	-158,298	-153,844	-154,385
	Panel B. Extended Sample Period 2002-2007					
Total	-1,295,671	-1,004,011	-1,419,555	-1,235,450	-1,454,378	-1,291,416
Chapter 7	-1,020,592	-803,129	-1,164,463	-1,051,657	-1,202,152	-1,109,564
Chapter 13	-270,176	-203,171	-255,165	-192,227	-252,285	-190,006
Date Used	Senate	Senate	House	House	Signed	Signed
Unemployment Rate		✓		✓		✓

Notes: This table presents robustness to results presented in Table A5. In each column, we estimate the total deviation from the predicted number of bankruptcy filings through the end of 2007. We estimate equation (2) from the beginning of the sample until BAPCPA until the date indicated in the "Date Used" row. The Senate passage date is March 10, 2005, the House passage date is April 14, 2005, and the date signed is April 20, 2005. We additionally include the national unemployment rate in estimating equation (2) where indicated. The overall numbers are inflated to reflect the nation as a whole, based on our PACER sample coverage (see Appendix Table A2).

Table A7. Defining δ_b: Change in Prospective Filing Risk

(1)	(2)	(3)	(4)
Credit Score	Pre-BAPCPA	Post-BAPCPA	$\hat{\delta}_b$
	Subprime		
440	0.0554	0.0193	-0.0361
450	0.0459	0.0170	-0.0289
460	0.0412	0.0154	-0.0259
470	0.0393	0.0156	-0.0236
480	0.0392	0.0162	-0.0229
490	0.0402	0.0179	-0.0224
500	0.0425	0.0189	-0.0235
510	0.0442	0.0206	-0.0236
520	0.0431	0.0212	-0.0218
530	0.0418	0.0201	-0.0217
540	0.0373	0.0183	-0.0191
550	0.0341	0.0167	-0.0174
560	0.0294	0.0149	-0.0145
570	0.0252	0.0127	-0.0125
580	0.0223	0.0115	-0.0109
590	0.0186	0.0101	-0.0086
600	0.0167	0.0089	-0.0078
610	0.0151	0.0081	-0.0070
620	0.0132	0.0075	-0.0057
	Prime		
630	0.0123	0.0069	-0.0055
640	0.0112	0.0064	-0.0049
650	0.0105	0.0058	-0.0047
660	0.0091	0.0051	-0.0040
670	0.0085	0.0048	-0.0037
680	0.0070	0.0038	-0.0032
690	0.0060	0.0034	-0.0026
700	0.0043	0.0025	-0.0018
710	0.0032	0.0018	-0.0014
720	0.0025	0.0015	-0.0010
730	0.0017	0.0010	-0.0007
740	0.0011	0.0007	-0.0004
750	0.0010	0.0006	-0.0004
760	0.0007	0.0005	-0.0002
770	0.0005	0.0003	-0.0001
780	0.0003	0.0002	-0.0001
790	0.0002	0.0001	-0.0001
800	0.0001	0.0001	<.0001
810+	<.0001	<.0001	<.0001

Notes: The sample consists of individuals with a non-missing credit score in the CFPB CCP from September 2003 through December 2007. Columns 2 and 3 present the average 12-month prospective bankruptcy filing probabilities before and after bankruptcy reform, respectively. Column 4 presents the difference.

Table A8. Pass-through: Robustness to Federal Funds Rate

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:			Regular Interest Rate			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	-101.3***	-100.3**	-100.5**	-69.55**	-61.61**	-61.87**
	(35.70)	(38.53)	(38.43)	(26.81)	(23.60)	(23.53)
R^2	0.43	0.61	0.61	0.43	0.61	0.61
Fixed Effects:						
Month-Year, Credit Score, Lender	✓	✓	✓	✓	✓	✓
Category, Contract, Application		✓	✓		✓	✓
State			✓			✓
Subprime-x-FFR				✓	✓	✓
N	391,153	379,967	379,382	391,153	379,967	379,382

Notes: The sample consists of credit card offers made to households from January 2004 through December 2007. All columns report effects based on OLS estimates of equation (4) and include month-year, credit-score-segment, and lender fixed effects in addition to the other fixed effects listed. Subprime-x-FFR indicates the inclusion of controls for the Federal Funds Rate separately for prime and subprime borrowers, which replace separate month-year fixed effects for prime and subprime borrowers in our baseline specification. The outcome variable is the interest rate on credit card offers. Standard errors (two-way clustered by credit-score segment and lender) are in parentheses. Offers are weighted by the mail volume of the campaign. Asterisks indicate significance at the 1 percent (***), 5 percent (**), and 10 percent (*) level, respectively.

Table A9. Loan Performance by Origination Period and Prime/Subprime

			(1)	(2)	(3)	(4)
	Origination Period	Months of	Subprime		Prime	
Origination	(Months to	Post-BAPCPA	60+ Days		60+ Days	
Period	BAPCPA Signing)	Exposure	Past Due	Default	Past Due	Default
Jan. 2003 to Sep. 2003	-27 to -19	0	19.9%	14.5%	1.0%	0.4%
Oct. 2003 to Mar. 2004	-18 to -13	0	20.8%	15.4%	1.0%	0.4%
Apr. 2004 to Sep. 2004	-12 to -7	0 to 6	20.9%	15.4%	1.5%	0.7%
Oct. 2004 to Mar. 2005	-6 to -1	6 to 12	18.5%	12.8%	1.4%	0.6%
Apr. 2005* to Sep. 2005	0* to 6	12 to 18	19.4%	12.3%	1.7%	0.6%
Oct. 2005** to Mar. 2006	7** to 12	18	19.4%	12.3%	1.6%	0.6%
Apr. 2006 to Sep. 2006	13 to 18	18	23.3%	13.7%	2.1%	0.7%
Oct. 2006 to Mar. 2007	19 to 24	18	22.9%	13.4%	2.5%	0.9%

Notes: The sample consists of 10,339,471 newly originated credit-card tradelines from September 2003 through December 2007 associated with a valid credit score at the date of origination in the Consumer Credit Panel (CCP). Columns 1 and 3 (2 and 4) present the share of loans originated in the specified period which are 60 or more days past due (in default) after 18 months. See Appendix B.3.1 for details on sample construction.
* Month BAPCPA was signed into law (April, 2005).
** Month BAPCPA went into effect (October, 2005).

Table A10. Pass-through: Credit-Card Contract Features

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable:			Panel A. Has Annual Rate			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	-0.026	-0.021	-0.021	-0.023	-0.021	-0.021
	(0.037)	(0.030)	(0.030)	(0.030)	(0.027)	(0.026)
R^2	0.33	0.46	0.46	0.33	0.46	0.46
Dependent variable:			Panel B. Has Rewards Program			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	-0.072***	-0.050**	-0.050**	-0.057**	-0.033	-0.034
	(0.021)	(0.021)	(0.021)	(0.026)	(0.025)	(0.025)
R^2	0.34	0.53	0.53	0.34	0.53	0.53
Dependent variable:			Panel C. Has Introductory Rate			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	-0.017	-0.031	-0.031	-0.018	-0.034	-0.034
	(0.043)	(0.043)	(0.044)	(0.034)	(0.042)	(0.042)
R^2	0.28	0.33	0.33	0.28	0.34	0.34
Dependent variable:			Panel D. Adjusted APR			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	-73.1**	-61.5*	-61.5*	-63.7	-47.5	-48.0
	(32.9)	(32.0)	(32.1)	(37.9)	(35.1)	(35.4)
R^2	0.36	0.44	0.44	0.36	0.44	0.44
Dependent variable:			Panel E. Late Fee			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	0.69	0.81	0.81	1.16	1.15	1.15
	(0.62)	(0.65)	(0.65)	(0.99)	(1.01)	(1.01)
R^2	0.14	0.16	0.16	0.15	0.16	0.16
Dependent variable:			Panel F. Annual Fee			
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	0.34	1.12	1.15	0.23	0.88	0.91
	(2.24)	(1.62)	(1.63)	(1.91)	(1.38)	(1.39)
R^2	0.44	0.52	0.52	0.44	0.52	0.52
Fixed Effects:						
Month-Year, Credit Score, Lender	✓	✓	✓	✓	✓	✓
Category, Application		✓	✓		✓	✓
State			✓			✓
Month-Year by Subprime				✓	✓	✓
N	391,153	390,975	390,381	391,153	390,975	390,381

Notes: The sample consists of credit card offers made to households from January 2004 through December 2007. All columns report effects based on OLS estimates of equation (4) and include month-year, credit-score-segment, and lender fixed effects in addition to the other fixed effects listed. The outcome variables are the whether the offer included an annual fee, rewards program, or introductory rate, the weighted average of the regular and introduction rate for the first 12 months ("Adjusted APR"), and the fees for late payment and annual membership. Standard errors (two-way clustered by credit score segment and lender) are in parentheses. Offers are weighted by the mail volume of the campaign. Asterisks indicate significance at the 1 percent (***), 5 percent (**), and 10 percent (*) level, respectively.

Table A11. Pass-through: Any Credit-Card Offer

	(1)	(2)	(3)	(4)
Dependent variable:		Any Credit Card Offer		
$\hat{\delta}_b \times \mathbb{1}\{\text{Post-BAPCPA}\}$	0.052***	0.051***	0.040***	0.039***
	(0.0053)	(0.0052)	(0.0094)	(0.0093)
R^2	0.013	0.017	0.014	0.018
Fixed Effects:				
Credit Score Bin	✓	✓	✓	✓
Month-Year	✓	✓	✓	✓
State		✓		✓
Month-Year by Subprime			✓	✓
N	159,808	159,586	159,808	159,586

Notes: The sample consists of survey respondents in the Mintel data who received either a credit-card or non-credit-card mailing from January 2004 through December 2007. All columns report effects based on OLS estimates of equation (4) estimated at the level of the individual and include month-year, credit-score-segment, state, and month-year-by-subprime fixed effects as listed. The outcome variable is whether the survey respondent received a credit-card offer in the month. Additional variable construction details are are available in Appendix B.3.1. Standard errors (clustered by credit score segment) are in parentheses. Offers are weighted by the mail volume of the campaign. Asterisks indicate significance at the 1 percent (***), 5 percent (**), and 10 percent (*) level, respectively.

Table A12. Implied Effects of Hospitalization on Other Credit Report Outcomes

	(1)	(2)	(3)	(4)
Insurance Coverage:	Uninsured		Insured	
Hospitalization Period:	Pre-BAPCPA	Post-BAPCPA	Pre-BAPCPA	Post-BAPCPA
Panel A. Credit Limit				
Implied Effect at 12 Months	-610**	-557*	121	-1,197***
	(302)	(299)	(332)	(366)
Implied Effect at 24 Months	-786	-747	457	-1,533**
	(555)	(551)	(623)	(677)
Pre-Hospitalization Mean	13,366	16,368	30,164	43,741
Panel B. Credit Card Balances				
Implied Effect at 12 Months	41	-555***	49	-876***
	(177)	(192)	(186)	(238)
Implied Effect at 24 Months	30	-1,090***	100	1,122***
	(296)	(333)	(326)	(427)
Pre-Hospitalization Mean	4,415	6,069	8,761	13,518
N	53,611	62,912	164,207	145,502
Hospitalization Period:	Pooled		Pooled	
Panel C. Home Equity Line of Credit				
Implied Effect at 12 Months	-0.24***		-0.17**	
	(0.06)		(0.07)	
Implied Effect at 24 Months	-0.44***		-0.39***	
	(0.09)		(0.11)	
Pre-Hospitalization Mean	6.37		17.78	
N	153,617		383,718	

Notes: The sample consists of individuals aged 25–64 who are hospitalized in California, additionally split by the timing of the hospitalization (January 2003 through December 2004 for the pre-BAPCPA sample, October 2005 through December 2007 for the post-BAPCPA sample) and insurance coverage (uninsured or insured which includes those with private insurance or Medicaid coverage). All columns report effects based on OLS estimates of equation (6). Standard errors (clustered on the individual) are in parentheses. The universe of qualifying uninsured hospitalizations are included in the sample; estimates for the insured are weighted to adjust for individuals' sampling probabilities. Asterisks indicate significance at the 1 percent (***), 5 percent (**), and 10 percent (*) level, respectively.

[a] The implied effect at 12 months is calculated from equation (6) as $144 \times \beta_2 + 1,728 \times \beta_4$

[b] The implied effect at 24 months is calculated from equation (6) as $576 \times \beta_2 + 13,824 \times \beta_4$

D   Appendix Figures

Figure A1. Years Since Last Chapter 7 Filing

Years since Last Bankruptcy Filing
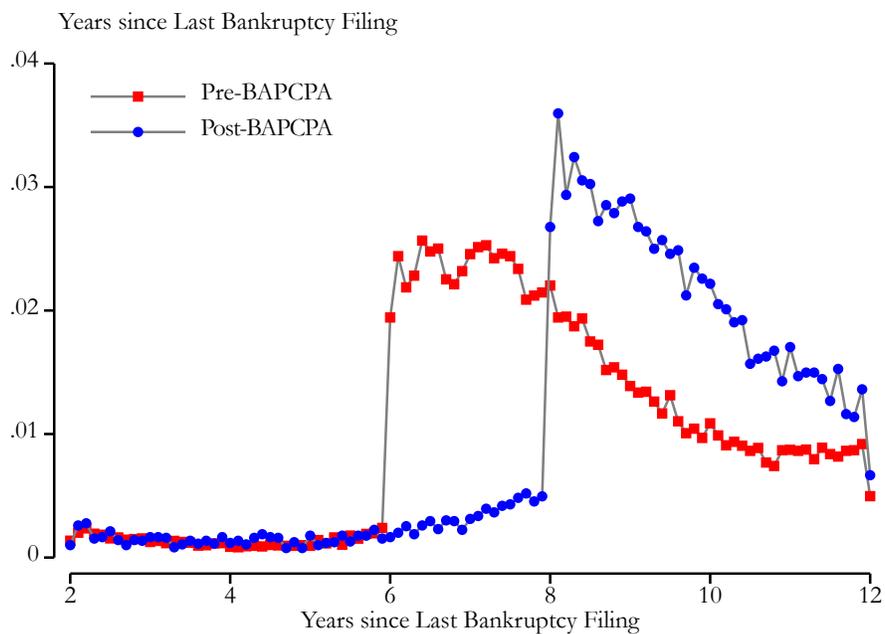

Notes: The sample consists of Chapter 7 consumer bankruptcy filings included in the PACER sample from January 2004 through December 2007. We match filings for the same individual over time using name, last four digits of Social Security number, and district. The figure plots the distribution of "years since last Chapter 7 filing" for bankruptcies filed before and after BAPCPA was implemented (October 17, 2005).

Figure A2. Excess and Missing Mass of Bankruptcy Filings: Extended Pre-Period
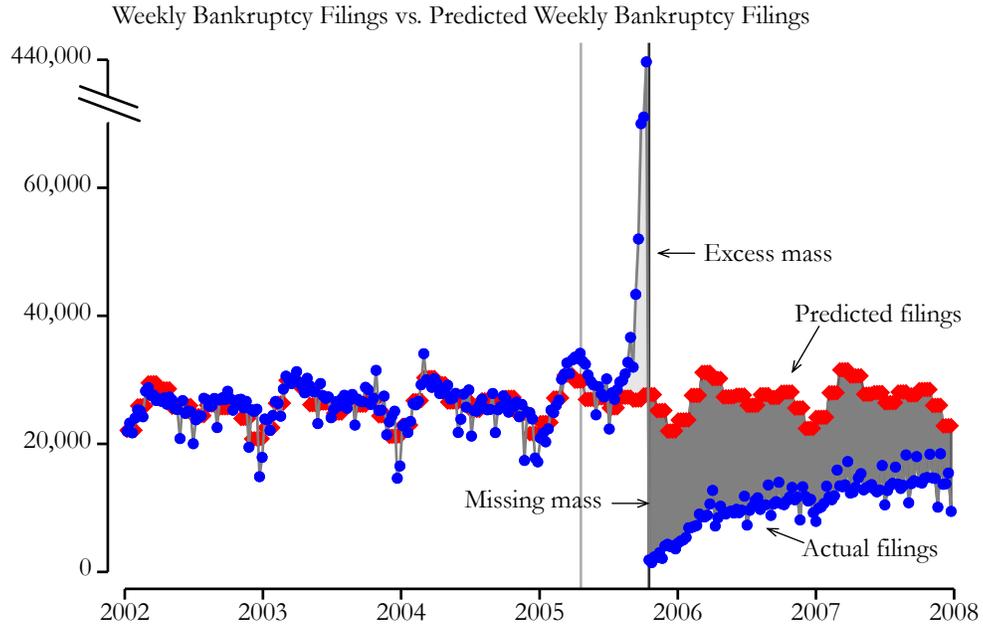
Weekly Bankruptcy Filings vs. Predicted Weekly Bankruptcy Filings

Notes: The sample consists of all consumer bankruptcy filings included in the PACER sample from January 2002 through December 2007. The total count of filings for each week is plotted against the predicted number of filings for the week. The predicted number of filings are the result of estimating equation (2) on the total count of filings from January 2002 through the day that BAPCPA was signed into law (April 20, 2005). The three data points before the implementation of BAPCPA are the three largest values in the time series: there were 70,457 filings during the week that began on September 26, 2005; 108,745 filings during the week that began on October 3, 2005; and 427,947 filings during the week that began on October 10, 2005.

Figure A3. Time Series for Chapter 7 and Chapter 13 Filings
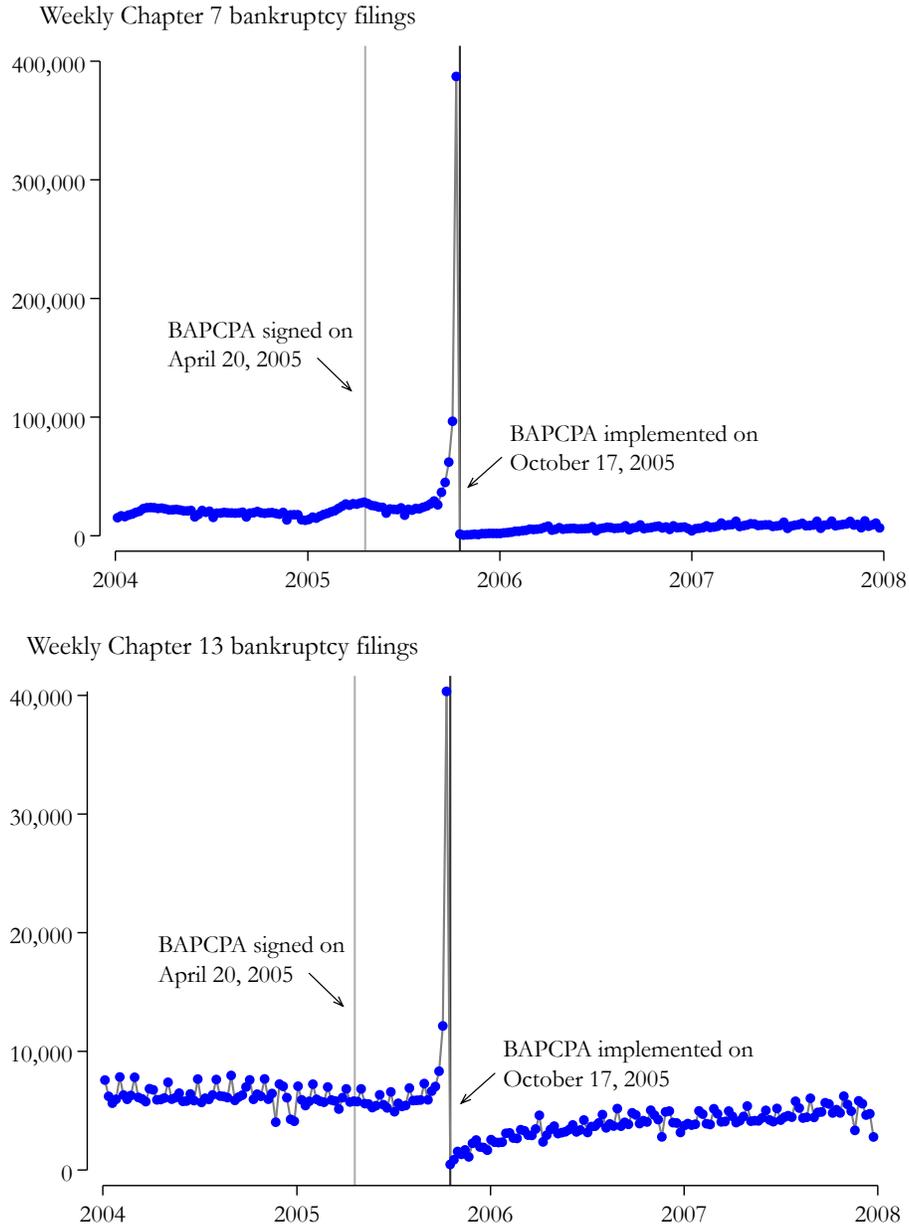
Weekly Chapter 7 bankruptcy filings

Weekly Chapter 13 bankruptcy filings

Notes: The sample consists of all consumer bankruptcy filings included in the PACER sample from January 2004 through December 2007. Each dot in the figure represents the total count of filings for that week, separately for Chapter 7 filings (top figure) and Chapter 13 filings (bottom figure).

Figure A4. Share Chapter 13
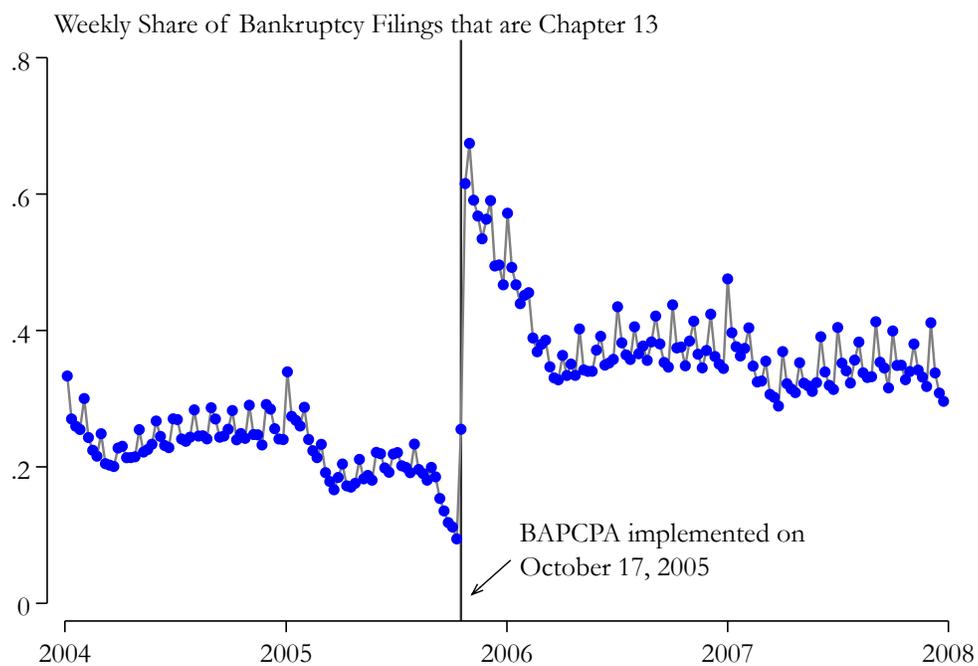
Weekly Share of Bankruptcy Filings that are Chapter 13

*Notes:* The sample consists of all consumer bankruptcy filings included in the PACER sample from January 2004 through December 2007. Each dot in the figure represents the share of consumer filings in that week (Chapter 7 or Chapter 13) which were Chapter 13. The vertical line indicates the date when BAPCPA was implemented, October 17, 2005.

Figure A5. Household Income Distribution from PACER PDFs
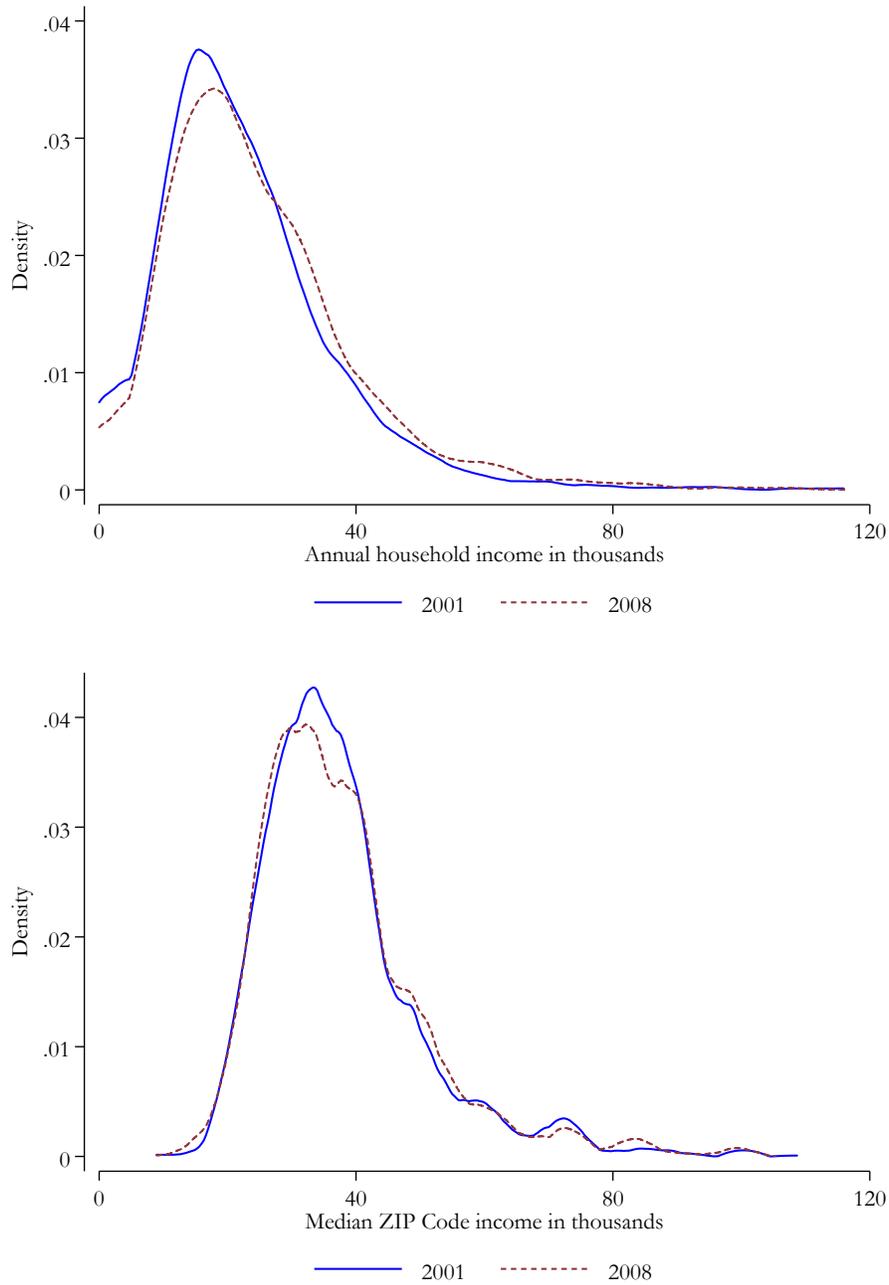
Notes: The sample consists of a random sample of 2,132 Chapter 7 filings in 2001 and 4,355 in 2008 from ten bankruptcy districts (approximately 250 per district in 2001 and 500 per district in 2008) from Gross, Notowidigdo, Wang (2014).

Figure A6. Income of Bankruptcy Filers

(a) Mean Income among Bankruptcy Filers by Year
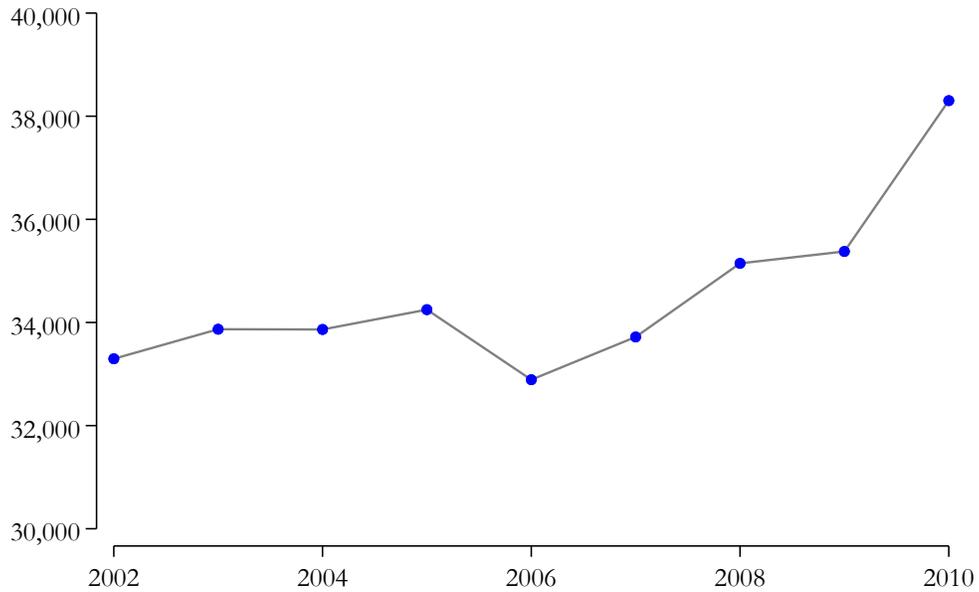
(b) Average Median ZIP Code Income among Bankruptcy Filers by Week
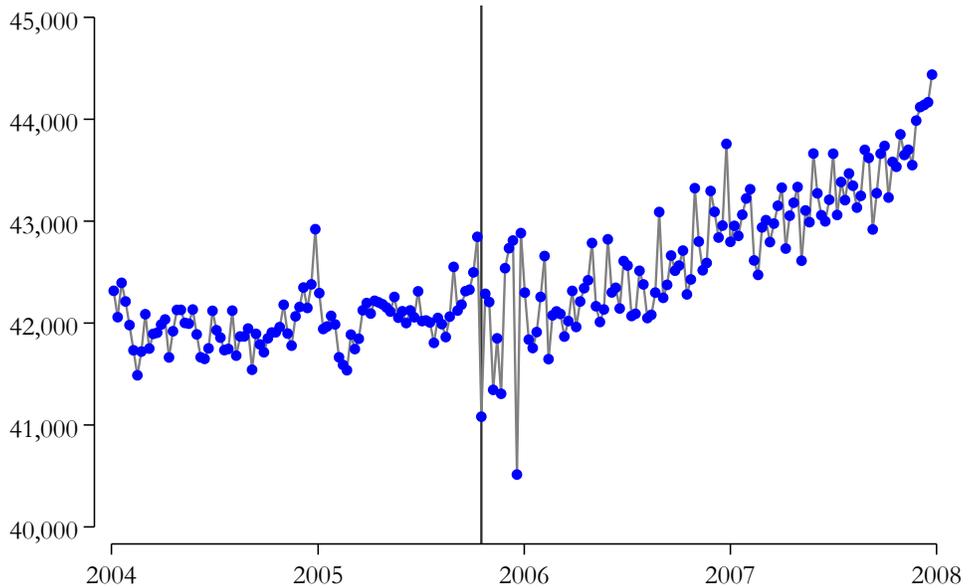
Notes: Panel A presents the mean income of bankruptcy filers in the year prior to filing by year of filing using a sample of bankruptcy filers from 2002 to 2010 merged to their response to the American Community Survey and Decennial Census. Panel B presents all consumer bankruptcy filings included in the PACER sample from January 2004 through December 2007, matched with the ZIP Code median household income measured in the 2000 decennial census. The vertical line indicates the date BAPCPA was implemented.

Figure A7. Income Distribution of Filers by Chapter

Zip Code Income Percentiles among Ch 7 Bankruptcy Filers by Year

Zip Code Income Percentiles among Ch 13 Bankruptcy Filers by Year
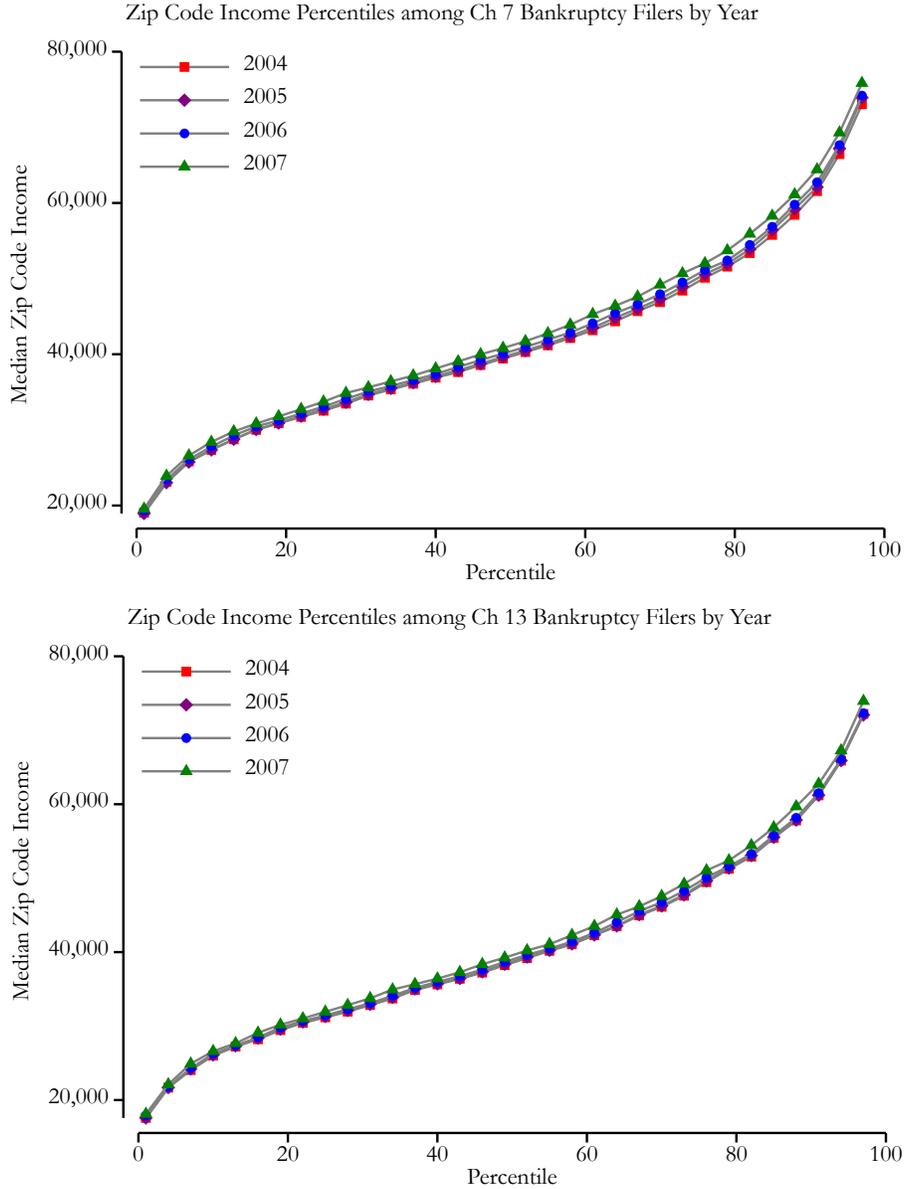
Notes: The sample consists of all Chapter 7 and 13 consumer bankruptcy filings included in the PACER sample from January 2004 through December 2007, matched with the ZIP Code median household income measured in the 2000 decennial census. The figure plots the percentiles of ZIP Code median household income among filers, separately for Chapter 7 and Chapter 13, for each year of 2004 through 2007.

Figure A8. Stability of Credit Score Distribution

Credit Score Distribution by Year
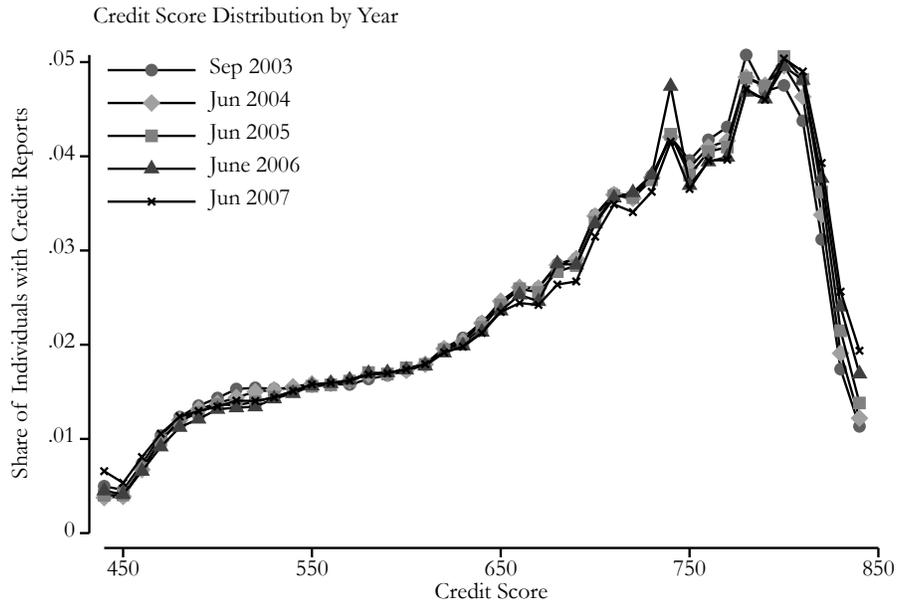
Notes: The sample consists of individuals with a non-missing credit score in the Consumer Credit Panel (CCP). The points represent the share of consumers with a credit score in the 10-point credit score bin at each point in time specified in the legend.

Figure A9. Raw Time Series in Mintel Data

(a) APR

Mean APR of Credit Card Offer by Prime / Subprime

(b) Rate Spread

Mean Rate Spread of Credit Card Offer by Prime / Subprime
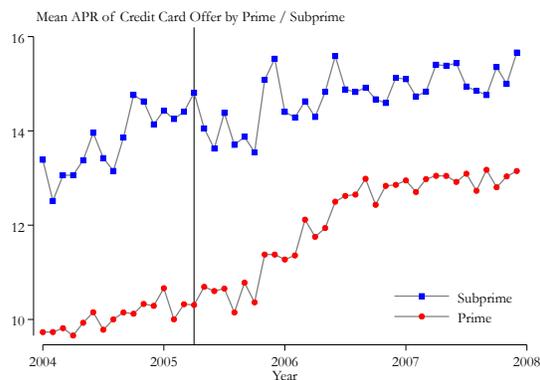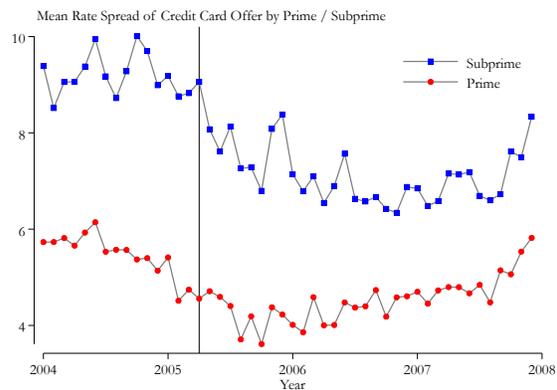
(c) Mean APR Difference between Subprime and Prime
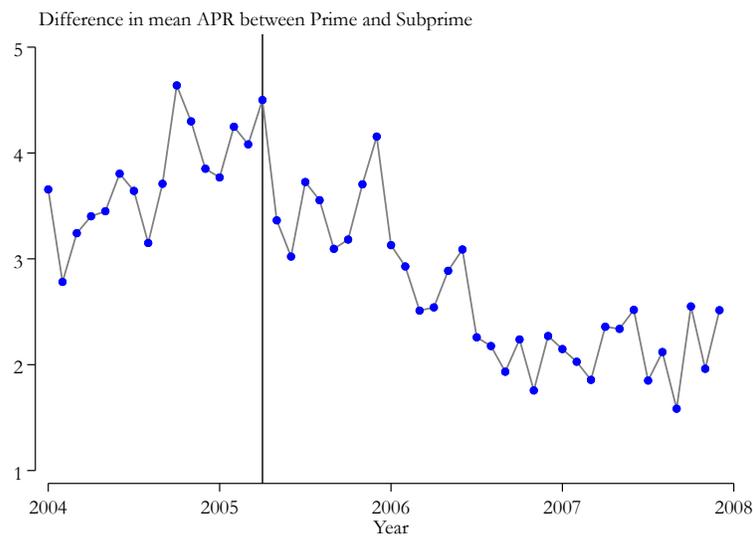
Difference in mean APR between Prime and Subprime

Notes: The sample consists of credit card offers made between January 2004 and December 2007 included in the Mintel data. Panels A and B plot the average interest rate (APR and rate spread, respectively) offer made to prime and subprime borrowers (defined as a credit score 620 or below). Panel C presents the difference between the average interest rate offered to subprime and prime borrowers.

Figure A10. Effect of Decline in Filing Probability on Offered Interest Rates: Robustness to Inclusion of Subprime-by-Year-Month FEs
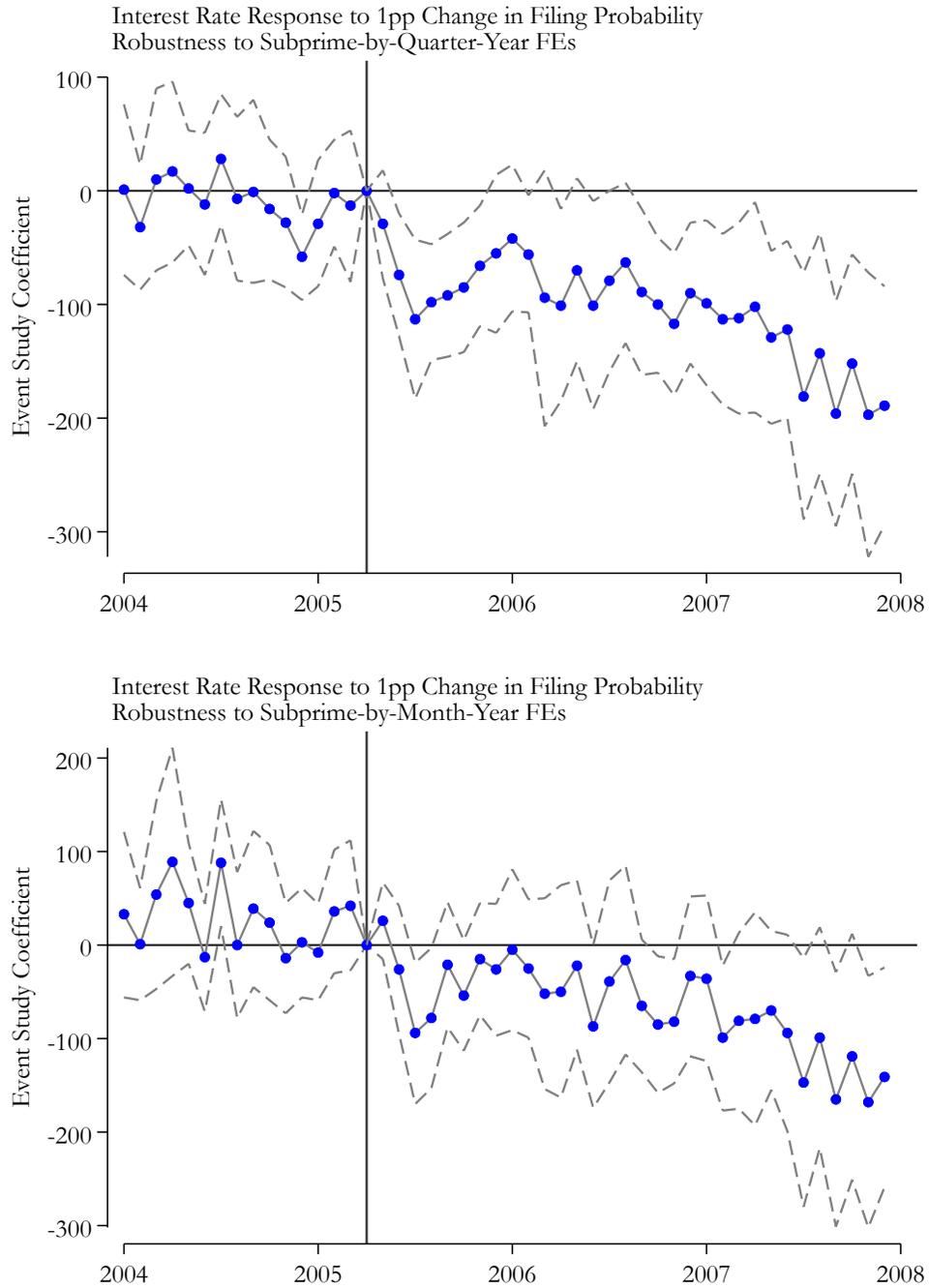

Interest Rate Response to 1pp Change in Filing Probability
Robustness to Subprime-by-Quarter-Year FEs

Interest Rate Response to 1pp Change in Filing Probability
Robustness to Subprime-by-Month-Year FEs

Notes: The sample consists of credit card offers made between January 2004 and December 2007 included in the Mintel data. The points represent estimates of the β^m parameters in equation (3) with additional controls for subprime-by-year-quarter and subprime-by-year-month FEs, respectively. Standard errors are two-way clustered by credit-score segment and lender and the dashed lines provide the 95-percent confidence interval for each point. The dependent variable is the regular offered interest rate.

Figure A11. Loan Performance By Origination Month

(a) 60-Plus-Day Delinquencies (All Borrowers)
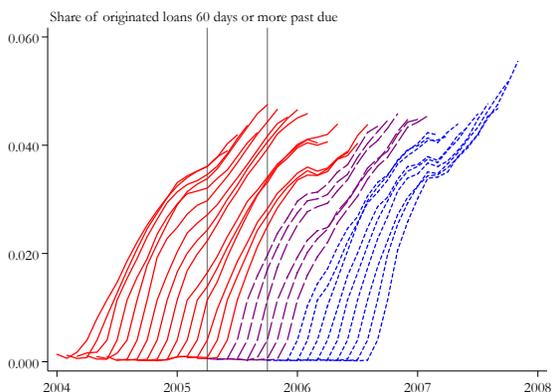
(b) Defaults (All Borrowers)
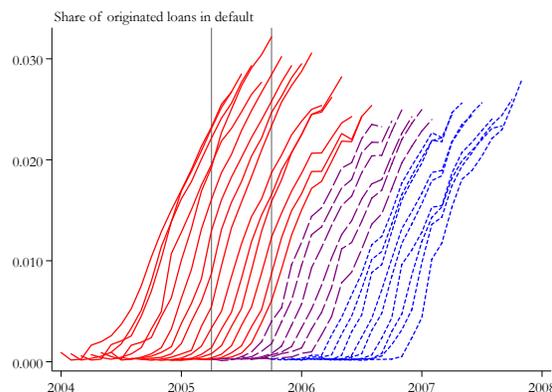
(c) 60-Plus-Day Delinquencies (Subprime)
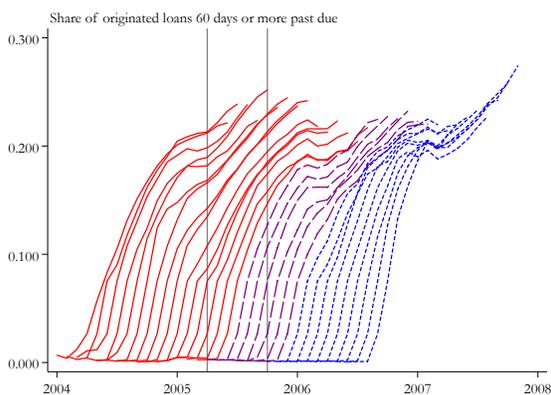
(d) Defaults (Subprime)
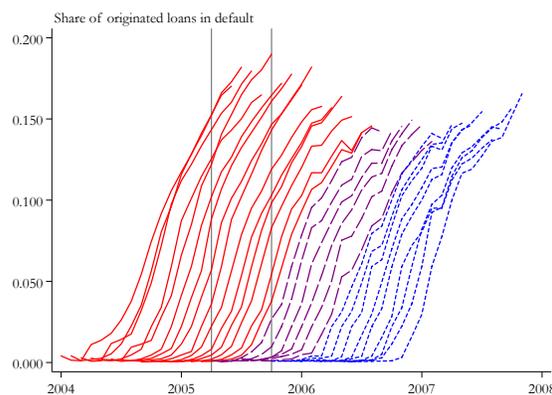
(e) 60-Plus-Day Delinquencies (Prime)
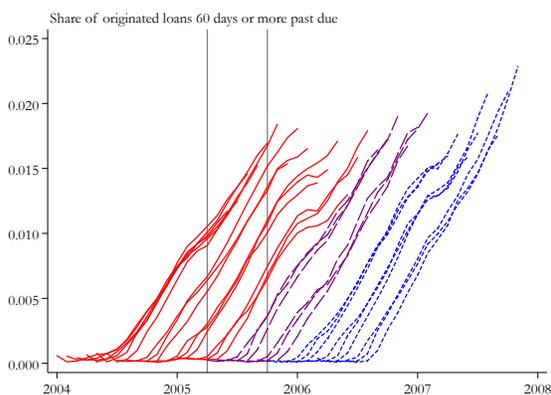
(f) Defaults (Prime)
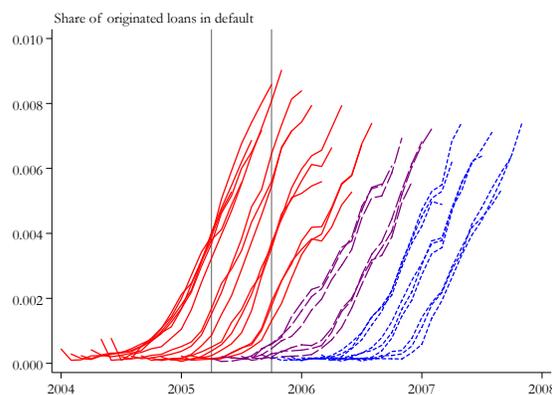
Notes: These figures plot 60-plus-day delinquencies and default rates for cohorts of newly opened credit-card tradelines by their month of origination using tradeline-level data from the Consumer Credit Panel (CCP). Outcomes are plotted over the first 18 months after the loan is originated; the y-value at the end of the line indicates the share of that cohort's loans that are in default or delinquent after 18 months. The first vertical line in each figure indicates when BAPCPA was signed into law and the second vertical line indicates BAPCPA's implementation. Solid red lines represent loans originated before BAPCPA was signed, dashed purple lines represent loans opened between when BAPCPA was signed and implemented, and dotted blue lines represent loans opened after BAPCPA was in effect.

Figure A12. Effect of Decline in Filing Probability on Contract Features
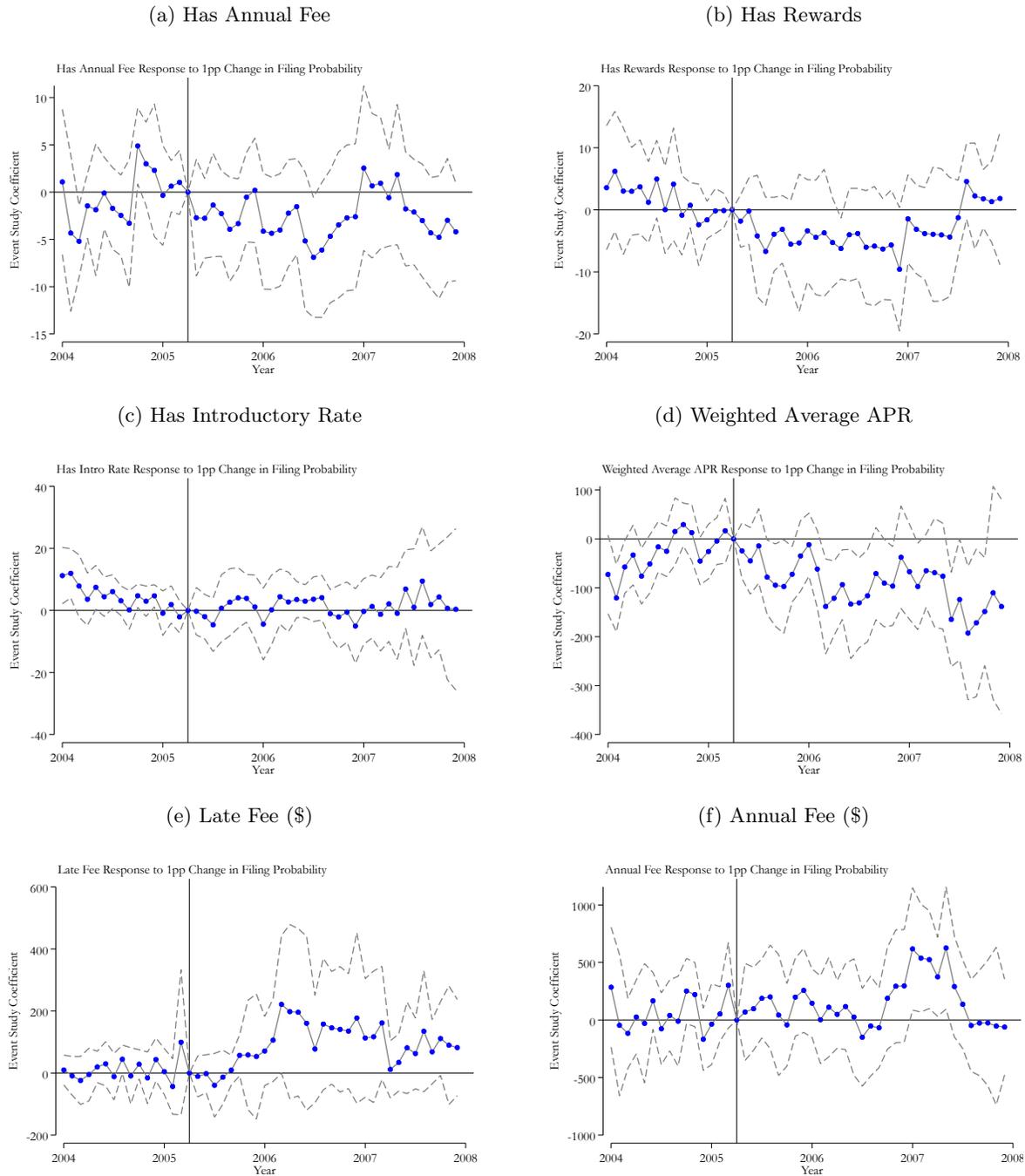
(a) Has Annual Fee

(b) Has Rewards

(c) Has Introductory Rate

(d) Weighted Average APR

(e) Late Fee ($)

(f) Annual Fee ($)

Notes: The sample consists of credit card offers made between January 2004 and December 2007 included in the Mintel data. The points represent estimates of the λ_t's in equation (3). Standard errors are two-way clustered by credit-score segment and lender and the dashed lines provide the 95-percent confidence interval for each point. The dependent variables are whether the contract requires an annual fee, has rewards, has an introductory interest rate, the weighted average interest rate (regular interest rate adjusted for the introductory rate), and the amount of late and annual fees.

Figure A13. Effect of Hospitalization on Bankruptcy Filing for Insured

Effect of Insured Hospitalization on Bankruptcy Filing
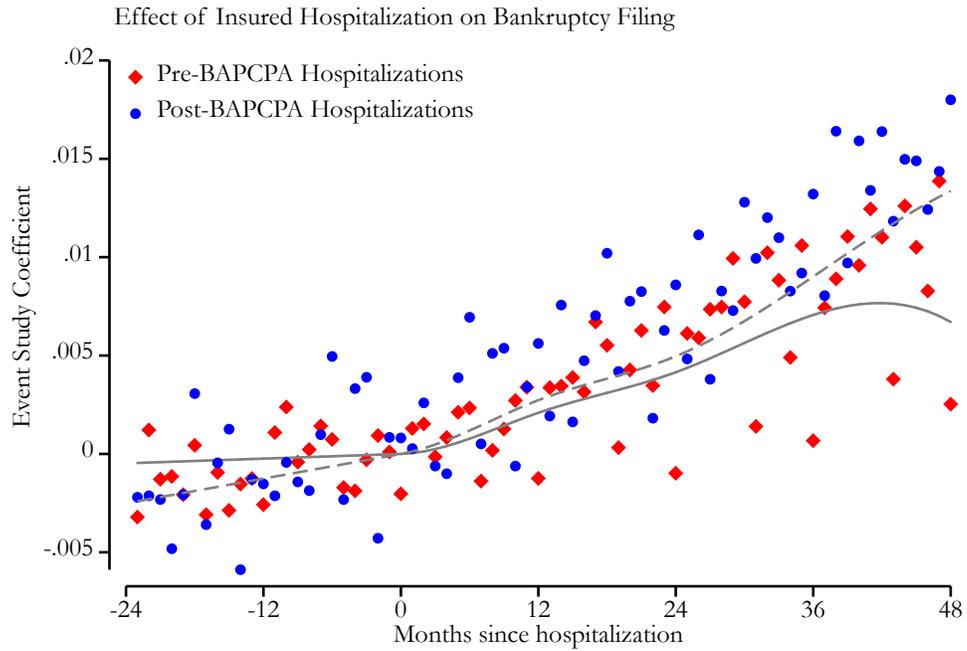
Notes: The sample consists of individuals aged 25–64 who are hospitalized with insurance in California, additionally split by the timing of the hospitalization (January 2003 through December 2004 for the pre-BAPCPA sample, October 2005 through December 2007 for the post-BAPCPA sample). The points represent the estimated effects of event time (i.e., the μ_rs from the non-parametric event study in equation (5)) and the lines represent the parametric event study in equation (6) with the pre-trends normalized between the two periods for ease of visual comparison.

Figure A14. Probability of Filing for Bankruptcy by Credit Report Measures

(a) Debt in Collections
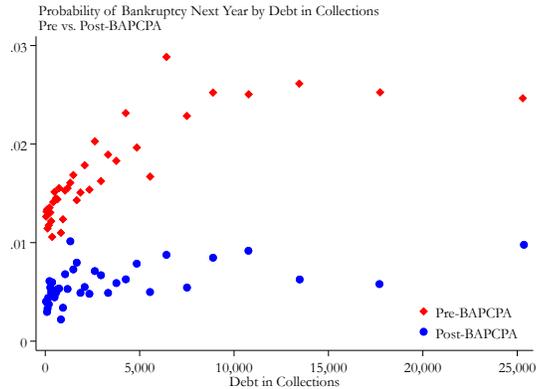
(b) Revolving Balance
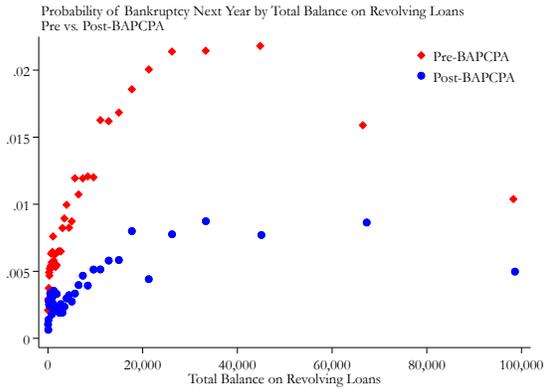
(c) Auto Loan Balance
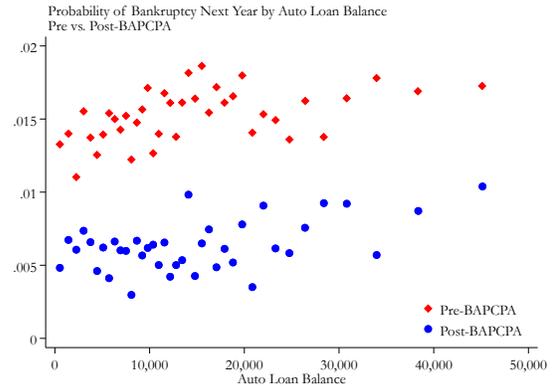
(d) Credit Utilization
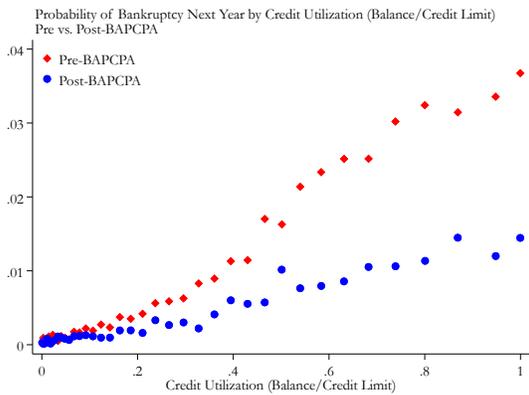
(e) Credit Limit
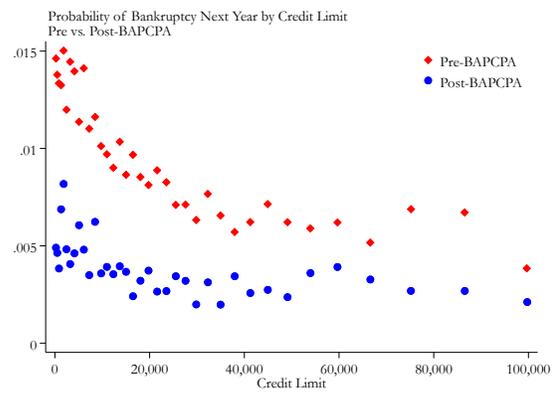
Notes: The sample consists of California residents with a non-missing credit score observed each January from 2002 to 2008. Those ineligible to file for bankruptcy (those with an existing bankruptcy flag) are excluded. These figures plot the probability of filing for bankruptcy in the next 12 months by 40 equal-sized quantiles of the specified variable, separately for pre-BAPCPA years (bankruptcy filings in 2002, 2003, 2004, and 2005) and post-BAPCPA years (2006 and 2007). Distributions are conditional on a positive value for the variable and top-coded at the minimum of $100,000 or the 99th percentile.

Interest Rate Response to 1pp Change in Filing Probability by Lender

Notes: The sample consists of credit card offers made between January 2004 and December 2007 included in the Mintel data. The figure plots the coefficient β^{DD} from the estimation of equation (4) separately by each lender, which denotes the change in the interest rates on credit card offers for a 1-percentage-point change in the probability an individual in a given credit-score segment files for bankruptcy. The horizontal axis denotes the share of credit card offers by a firm which are made to subprime consumers, while the size of the circle is determined by the total number of subprime offers made during the sample period. All offers are weighted by the mail volume of the campaign.