THE PARADOX OF CONSUMER CREDIT

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Congress designed the 2005 amendments to the federal Bankruptcy Code to decrease consumer bankruptcy filings, but does history suggest that is a reasonable expectation for the new law? Using government data, this article examines the relationship between household debt and changes in the legal regime on bankruptcy filing rates. The author finds that the components of household debt have different relationships with bankruptcy filing rates over different time frames. Over both the short- and long-term, increased mortgage debt is associated with increased bankruptcy filing rates. Consumer debt, however, has a negative short-term relationship with bankruptcy filing rates but a positive long-term relationship. A run up in consumer credit seems to allow consumers to delay but not avoid bankruptcy. The relationships were statistically meaningful and robust to different specifications of statistical models.

Previous amendments to the federal bankruptcy law in 1938 and 1979 did not have any significant effect on bankruptcy filing rates. Rather, after each of these enactments, bankruptcy filings continued to move with overall macroeconomic trends unabated by changes in the legal regime. The 1984 amendments, however, were associated with an increase in filing rates, a rather surprising result given that the 1984 amendments—like the 2005 amendments—were meant to crack down on perceived overly generous bankruptcy laws. Others have noted that the 1984 amendments were followed by an expansion of consumer credit, which the other findings suggest are associated with a long-term increase in the filing rate. Taken together, these findings suggest the 2005 amendments may similarly lead to an expansion of consumer credit and a long-term increase in the bankruptcy filing rate.

Without consumer debt, there would be no consumer bankruptcy. Without debt to discharge, consumers would have no need for the fresh start. Without debt to collect, there would be no creditors to have common pool problems in the race for the debtor's assets. Although a society perhaps could have debt without a bankruptcy system, it cannot have a bankruptcy system without debt. In the most basic but perhaps most trivial sense, debt causes bankruptcy.

Observing that debt is a precondition to bankruptcy, however, does not tell us anything about how much debt causes how much bankruptcy. Stated alternatively, that observation tells us nothing about the shape of the curve—if it is a curve—that describes the relationship between bankruptcy filings and consumer debt. In part, this article discusses the shape of that curve, and the data suggest a counterintuitive relationship. In the short-term, more debt can actually lower bankruptcy filings.

Initially, this article started with a different research question. This symposium aims to discuss both consumer bankruptcy and credit after the 2005 enactment of the statute known as the Bankruptcy Abuse Prevention and Consumer Protection Act[1] to its friends and by less-flattering names to its detractors. At the doctrinal level, the new statute changes many things. The amendments enact a new means test for consumers in chapter 7, credit counseling requirements, paperwork and filing duties, notice rules, substantive changes to priorities and payouts, and a host of other doctrinal changes. At the big picture level, however, it is not clear that the law changes much of anything. There is a well-known macroeconomic trend of increasing consumer debt rising hand-in-hand with bankruptcy filings, and it is reasonable to ask whether the new statute will change this trend.

At the outset, this seemed like a fine research question. Did past changes in the regulatory regime affect bankruptcy filing rates? Not surprisingly, legal changes in 1938 and 1979 did not have any significant effect on bankruptcy filing rates.[2] Rather, after each of these enactments, bankruptcy filings continued to move with overall macroeconomic trends, unabated (or unaggravated) by changes in the legal regime.[3] Lawyers and law professors may spend endless hours debating the ramifications of the new chapter 7 means test, for example, but we are kidding ourselves if we think we are the machine rather than a cog within it.

The amendments in 1984, however, did have a statistically significant positive relationship with bankruptcy filings,[4] a somewhat surprising result given that the 1984 amendments were designed to restrict rules

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1. Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) of 2005, Pub. L. No. 109-8, 119 Stat. 23 (codified in scattered sections of 11 U.S.C.).
2. *See* discussion *infra* Part II.B.
3. *See infra* notes 74–75 and accompanying text.
4. *See infra* notes 75–78 and accompanying text.

that were perceived as too generous in the Bankruptcy Code.[5] The 1984 amendments may have led to a long-term increase in bankruptcy filings by encouraging more lending.[6] Because the 2005 amendments have been billed as the biggest changes since 1979 and are believed similarly to cut back on overly generous bankruptcy provisions, these amendments may have the same surprising effects as the ones in 1984.

In developing the data about changes in the bankruptcy regime, however, a startling pattern emerged. As should be expected, total household debt was positively associated with bankruptcy filings, although the results were not statistically meaningful. The separate components of total household debt, however, had opposing relationships with bankruptcy filing rates. Increases in mortgage debt were associated with increased bankruptcy filing rates, but increases in consumer debt were associated with decreased bankruptcy filing rates. The relationships for total household debt and mortgage debt were statistically meaningful and robust to different specifications of statistical models and are presented in detail below.

Taken together, these findings suggest an interesting paradox. Although consumer debt must lead to consumer bankruptcy filings in the long run, the short-term effect is just the opposite. In the short-term, increases in consumer credit lead to decreases in consumer bankruptcy filings. The run-up in consumer credit allows consumers to postpone the day of reckoning. The data also suggest that the long run relationship is what we would expect—long-term increases in consumer debt contribute to long-term increases in consumer bankruptcy filings.

Part I discusses the econometric literature on bankruptcy filing rates. Although there are many articles in the legal literature theorizing about the causes of bankruptcy, this Part examines only prior empirical work on the topic. Part II considers whether past legal changes have affected bankruptcy filing rates. Also, Part II lays out the sources and statistical methodology employed throughout this article. Part III turns to the paradox of consumer credit, finding that expansions in consumer credit have the short-term effect of lowering the bankruptcy filing rate. Part IV concludes with some thoughts about the implications of these findings for the consumer bankruptcy and credit system.

I. PAST EMPIRICAL WORK

There are numerous works discussing the causes of consumer bankruptcy in the United States. Much of this work builds on the foundation

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5. *See* Paul M. Black & Michael J. Herbert, *Bankcard's Revenge: A Critique of the 1984 Consumer Credit Amendments to the Bankruptcy Code*, 19 U. RICH. L. REV. 845, 845–52 (1985).

6. David A. Moss & Gibbs A. Johnson, *The Rise of Consumer Bankruptcy: Evolution, Revolution, or Both?*, 73 AM. BANKR. L.J. 311, 343–46 (1999) (finding an increase in bankruptcy filings, a profusion of credit into lower-income strata, and suggesting a possible link with stringent bankruptcy laws).

laid down by the empirical studies of Sullivan, Warren, and Westbrook.[7] Their work identified medical problems, divorce, and income interruption (e.g., layoff) as what has come to be called the Big Three, the three principal reasons that explain most bankruptcy filings.[8] Other legal scholars have done qualitative or normative work on the topic, drawing data from the court files of a broad group of individuals who have filed bankruptcy,[9] which is a statistically valid but different approach than taken here. Only a small subset of the literature takes the tack of this article and focuses on the statistical relationship between measurable macroeconomic variables and the bankruptcy filing rate. These articles generally find a strong connection between outstanding consumer debt and bankruptcy filing rates, although there is less agreement on the relationship with other macroeconomic variables such as personal income or the divorce rate.

As part of their comprehensive and important empirical study of bankruptcy sponsored by the Brookings Institution, Professors David Stanley and Marjorie Girth considered what they called the economics of bankruptcy.[10] Looking at data through 1970, they found a "dramatic increase in the rate of bankruptcy filings during the past twenty-five years" and clearly laid most of the blame on the "steady increase in aggregate personal indebtedness."[11] They also constructed a ratio of consumer debt-to-income and noted a positive relationship between that ratio and bankruptcy filing rates, although that relationship had begun to deteriorate toward the end of the time period under study.[12] Professors Stanley and Girth attributed this deterioration to rising unemployment rates, which they also saw as positively related to bankruptcy filings rates; however, they did not consider why debt-income ratios should be falling in a time of rising unemployment.[13] Although Professors Stanley and Girth considered the effect of wage garnishment statutes in bankruptcy filing rates among the different states, they noted that these statutes could not explain changes in filing rates over time as there had been very few changes to the statutes.[14] Completed in the days before the widespread availability of personal computers made statistical analyses easy to per-

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7. TERESA A. SULLIVAN, ELIZABETH WARREN & JAY LAWRENCE WESTBROOK, THE FRAGILE MIDDLE CLASS: AMERICANS IN DEBT (2000) [hereinafter SULLIVAN, WARREN & WESTBROOK, FRAGILE MIDDLE CLASS]; TERESA A. SULLIVAN, ELIZABETH WARREN & JAY LAWRENCE WESTBROOK, AS WE FORGIVE OUR DEBTORS (1989) [hereinafter SULLIVAN, WARREN & WESTBROOK, AS WE FORGIVE].

8. *See, e.g.*, SULLIVAN, WARREN & WESTBROOK, FRAGILE MIDDLE CLASS, *supra* note 7, at 239–43.

9. *See, e.g.*, Michelle J. White, *Personal Bankruptcy Under the 1978 Bankruptcy Code: An Economic Analysis*, 63 IND. L.J. 1 (1987).

10. DAVID T. STANLEY & MARJORIE GIRTH, BANKRUPTCY: PROBLEM, PROCESS, REFORM 18–40 (1971).

11. *Id.* at 20, 24.

12. *Id.* at 27.

13. *Id.* at 27–28.

14. *Id.* at 28–32.

form, Professors Stanley and Girth principally drew their conclusions from visual examinations of the patterns between bankruptcy filing rates and different economic variables.[15] Their most significant finding was the strong relationship they saw between outstanding debt and consumer bankruptcy filing rates.

Professors Buckley and Brinig compared district-level filing rates from 1980–91 to other district-level data over the same time period.[16] They found meaningful relationships between a series of legal, economic, and social variables and the run-up in bankruptcy filing rates after the 1984 amendments to the Bankruptcy Code.[17] Ultimately, they concluded that social variables played a role in increased bankruptcy filings.[18] Their district-level analysis, however, did not permit examination of debt levels, an omission that Buckley and Brinig viewed as a strength of their study.[19] They criticized previous studies for not considering the endogeneity problem of debt and consumer bankruptcy, what they called the "ex ante effect" of bankruptcy: lax bankruptcy laws may induce consumers to borrow more money rather than vice versa.[20] Having found a relationship between social variables and bankruptcy filing rates, Buckley and Brinig concluded that a shift in social norms contributed to the increased bankruptcy filing rate.[21] Still, their analysis fails to account for its own endogeneity problem. Their social variables may have captured only confounding effects from other variables. For example, they consider the ratio of both Roman Catholics and elderly in an area as indicative of populations with more respect for hierarchy and community networks.[22] However, even if this were true, those variables may capture nothing more than the propensity to borrow, as groups respecting hierarchy could be less likely to put a higher value on immediate consumption (buy now) versus postponed gratification (save and pay later). Also, regardless of the elderly's attitude toward hierarchy, the elderly would tend to borrow less because of the life cycle. Older Americans should be less likely to hold jobs that they can lose, less likely to pay for a new home, less likely to have high child-care or educational expenses, and less likely generally to need to stretch financially than Americans at an earlier part of their life cycle.

Two articles on bankruptcy filing rates appeared in a now-defunct publication of the Federal Deposit Insurance Corporation (FDIC).[23]

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15. *Id.* at 24.

16. F. H. Buckley & Margaret F. Brinig, *The Bankruptcy Puzzle*, 27 J. LEGAL STUD. 187 (1998).

17. *Id.*

18. *Id.* at 206.

19. *Id.* at 195–96.

20. *Id.* at 190.

21. *Id.* at 194.

22. *See id.* at 201.

23. Selected archived issues of the publication, *Bank Trends*, are available on the FDIC's Web site at http://www.fdic.gov/bank/analytical/bank/ (last visited Oct. 15, 2006). *Bank Trends* has been merged with another publication of the FDIC called *FYI*, which is an electronic bulletin of the FDIC.

First, Paul Bishop constructed a time series model of bankruptcy filing rates.[24] He found statistically significant positive relationships between bankruptcy filing rates and both the consumer household and mortgage household debt burdens.[25] Bishop also found that bankruptcy filing rates were negatively related to private nonfarm employment,[26] a finding consistent with the idea that bankruptcy filings rise and fall with the economic cycle. Bishop's paper fits with Stanley and Girth's work. Where Stanley and Girth used the consumer debt-to-income ratio,[27] Bishop used the comparable Federal Reserve's debt-service burden figures,[28] which also were sensitive to both consumer debt and income.[29] As Bishop himself noted, he did not intend the paper as a last word on the topic,[30] and his use of the debt-service burden ratios merits revisiting the paper. In a paper originally posted on the Internet, I questioned the Federal Reserve's construction of the household debt-service burden.[31] The measure likely underestimated the strain of consumer debt on families both because it assumed a minimum monthly payment of only 2.5% of the outstanding balance, when many families pay much more than that, and because it omitted obligations owing to nonfinancial institutions like health-care providers or landlords.[32] The Federal Reserve cited similar reasons in its decision to replace the debt-service burden data series with a different data series that should be more reflective of the total financial burden facing consumers.[33] Still, the data series that Bishop used (and which was the only data series available at the time) was not completely unreliable, and his findings of a relationship among debt, income, and bankruptcy filings fit well with other work.

See FDIC, FYI—An Update on Emerging Issues in Banking, http://www.fdic.gov/bank/analytical/fyi/index.html (last visited Oct. 15, 2006).

    24.   Paul C. Bishop, *A Time Series Model of the U.S. Personal Bankruptcy Rate*, BANK TRENDS, Feb. 1998, at 1, *available at* http://www.fdic.gov/bank/analytical/bank/bt_9801.pdf.

    25.   *See id.* at 6.

    26.   *See id.* at 5–6.

    27.   STANLEY & GIRTH, *supra* note 10, at 24–27.

    28.   Bishop, *supra* note 24, at 3–4.

    29.   The essence of the debt-service burden calculations were as follows:

    (1) Start with measures of total outstanding debt for a variety of different types of debts, separating the calculation into separate measures for consumer credit and mortgage debt.

    (2) From the total outstanding debt measures, employ a set of empirically determined estimations and assumptions to arrive at an estimated average monthly household debt payment.

    (3) Having estimated the average monthly household debt payment, then divide that payment by its measure of monthly household income.

See Robert M. Lawless, The Relationship Between Nonbusiness Bankruptcy Filings and Various Basic Measures of Consumer Debt (July 2001), *available at* http://ssrn.com/abstract=934798. Thus, the debt-service burden calculations were sensitive to both the total amount of outstanding debt and consumer income.

    30.   *See* Bishop, *supra* note 24, at 8.

    31.   *See* Lawless, *supra* note 29.

    32.   *Id.*

    33.   *See* Karen Dynan et al., *Recent Changes to a Measure of U.S. Household Debt Service*, 2003 FED. RES. BULL. 417.

In a second article from the FDIC, Diane Ellis found bankruptcy filings to be strongly linked to growth in consumer borrowing, especially in the lowest income brackets, and credit card charge-offs.[34] Noting that Canada had experienced an increase in bankruptcy filings contemporaneously with the United States, Ellis could not attribute the rise to a change in United States bankruptcy laws.[35] Ellis argued that the deregulation of interest rates, sparked by the Supreme Court's decision in *Marquette National Bank v. First of Omaha Service Corp.*,[36] led to the expansion in consumer borrowing and thus indirectly to the expansion in consumer bankruptcy.[37]

Professor David Moss and Mr. Gibbs Johnson picked up Ellis's theme and explored the distribution of consumer credit.[38] Working with data through 1997, Moss and Johnson found that the number of bankruptcies per $1 billion of consumer credit began to rise sharply in the mid-1980s.[39] With this rise in bankruptcies, they also found a changing distribution of those who receive credit.[40] Between 1983 and 1992, unsecured consumer debt rose sharply at the lowest income levels.[41] Thus, these findings fit quite well with Ellis's suggestion that interest-rate deregulation played a critical role in the rising bankruptcy rate.

Most recently, Todd Zywicki contended that rising consumer bankruptcy filing rates had no relationship to consumer indebtedness, income, housing costs, unemployment rates, divorce rates, or rising health-care costs.[42] Although there is not space to examine this article in depth, a few observations are in order. First, he based his argument principally on general characterizations of charts showing trend lines of various macroeconomic variables or bankruptcy filing rates. These characterizations are taken individually, without consideration of the effect of multiple variables at once. To be fair, Zywicki does not purport to undertake a rigorous statistical analysis of the variables, but many of his characterizations contradict his conclusions. An example of contradictory characterizations comes where he dismisses the Federal Reserve's household debt service ratio as a reliable predictor of bankruptcy filing rates but also says the ratio has a "slight relationship" with bankruptcy rates.[43] It is

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34. Diane Ellis, *The Effect of Consumer Interest Rate Deregulation on Credit Card Volumes, Charge-Offs, and the Personal Bankruptcy Rate*, BANK TRENDS, Mar. 1998, at 1, *available at* http://www.fdic.gov/bank/analytical/bank/bt_9805.pdf.

35. *See id.* at 9–10.

36. 439 U.S. 299 (1978) (holding that the National Bank Act allowed a national bank to use the state interest-rate cap where it was chartered even if that interest-rate cap was higher than the amount in other states where it was doing business).

37. Ellis, *supra* note 34, at 5–6.

38. Moss & Johnson, *supra* note 6.

39. *See id.* at 323–26.

40. *Id.* at 332.

41. *See id.* at 334 tbl.1.

42. Todd J. Zywicki, *An Economic Analysis of the Consumer Bankruptcy Crisis*, 99 NW. U. L. REV. 1463 (2005).

43. *Id.* at 1481–82.

not clear what measurements Zywicki is using to draw these conclusions other than a visual inspection of the data, nor is it clear what it means for there to be a "slight" relationship.

Another example comes a few pages later, where Zywicki presents a figure showing the amount of revolving and nonrevolving consumer credit expressed as a ratio of disposable personal income.[44] He interprets the different trend lines as evidence that consumers have increasingly substituted revolving credit for nonrevolving credit and indeed that appears to be the case. He fails to take note, however, that his figure shows the total level of consumer credit as a ratio of disposable personal income has risen from approximately 0.16 to 0.22. The precise ratios are 0.161 in 1959 and 0.237 in 2003, a rise of 47.2%.[45] In fact, if Zywicki had extended his analysis a little further back, he would have found an even more dramatic increase. The overall level of consumer credit as a ratio of disposable personal income was only 0.105 in 1950 and much lower (0.042) in the war year of 1943. As compared to the 2003 level of 0.237 consumer debt has as much as quintupled as a ratio of disposable income, but Zywicki does not consider the huge increase in this ratio as a factor in rising bankruptcy filing rates.

Instead, Professor Zywicki concludes rising bankruptcy rates were the result of a greater moral or psychological willingness among U.S. households to file bankruptcy.[46] By sidestepping data that demonstrate strong relationships between macroeconomic variables, especially the amount of outstanding consumer debt, and bankruptcy filing rates, Zywicki sustained his strong support for passage of the 2005 amendments.[47] His characterization of an increasing moral laxity that has increased bankruptcy filing rates fit well the arguments advanced in support of the bill.

In sum, the literature overall tells a story of rising bankruptcy rates going hand-in-hand with rising consumer debt. Despite the fixation of attorneys on the effect of legal regulation, it is reasonable to question whether legal regulation affects bankruptcy filing rates. Long-term macroeconomic trends might outweigh any effects that changes in the federal bankruptcy law have on filing rates. It is to this topic that the next Part turns.

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44. *Id.* at 1493 fig.8.
45. These figures are based on calculations of readily available data on personal disposable income provided by the Bureau of Economic Analysis and on consumer debt provided by the Federal Reserve.
46. Zywicki, *supra* note 42, at 1525–38.
47. Zywicki's zeal for the bankruptcy bill was singular among academics. At a time when scores of experts were pointing out many technical problems with the bill, Professor Zywicki famously testified before the Senate Committee on the Judiciary, "There is no word I would change in this particular piece of legislation." *See In re* Kane, 336 B.R. 477, 481 n.7 (Bankr. D. Nev. 2006) (commenting on Zywicki's testimony). Zywicki defended his testimony on a Web log at http://volokh.com/posts/1143601581.shtml (last visited Oct. 15, 2006).

II. LEGAL REGIME CHANGES AND BANKRUPTCY FILING RATES

With every new amendment to the bankruptcy law, scholars debate whether the amendment prospectively will affect or retrospectively have affected bankruptcy filing rates. Prior to 2005, the biggest changes in the bankruptcy law came in the 1978 enactment of the present-day Bankruptcy Code.[48] Because the Code actually went into effect on October 1, 1979,[49] the year 1980 is a useful starting point to measure its effects. Many scholars have noted that the Code appears to coincide with a rise in bankruptcy filings and often attribute this rise to the Code's enactment.[50]

Correlation is not causation, however, and other factors may have contributed to the rise in post-1980 bankruptcy filings. The previous literature suggests that both the amount of outstanding debt as well as current measures of ability to repay, such as current income, affect the number of consumer bankruptcy filings. For purposes of analysis, I assume null hypotheses that neither legal changes nor macroeconomic variables affect bankruptcy filing rates.

A.   Data and Methodology

Since permanent enactment of a federal bankruptcy law in 1898, there have been numerous amendments to the statute. Three of these amendments, however, made major changes that were most likely to have appreciable effects on bankruptcy filing rates. The first of these changes was the 1938 enactment of wage earner plans, then known as chapter XIII.[51] This legislative development gave wage earners the opportunity to pay debts from future income, a bankruptcy procedure that was previously available only to business debtors.[52] Because wage earner plans expanded the possible relief available to consumers, one might hypothesize that it led to an increase in bankruptcy filings. On the other hand, the 1938 statute could have deterred some consumer bankruptcy

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48. Bankruptcy Reform Act of 1978, Pub. L. No. 95-598, 92 Stat. 2549 (codified as amended in scattered sections of 11 U.S.C.).

49. *Id.* § 402, 92 Stat. at 2682.

50. For example, commenting on the political landscape in 2001 as it related to bankruptcy, Professor Skeel wrote, "The current struggles can be traced directly back to the 1978 Code itself. Almost as soon as the Code was enacted, the number of bankruptcy filings once again skyrocketed." DAVID A. SKEEL, JR., DEBT'S DOMINION 187 (2001).

51. Act of June 22, 1938, Pub. L. No. 74-696, 52 Stat 840, 930–39.

52. *See* 8 COLLIER ON BANKRUPTCY ¶ 1300.02 (15th ed. 2006); Charles J. Tabb, *The History of Bankruptcy Law in the United* States, 3 AM. BANKR. INST. L. REV. 5, 28–31 (1995). Section 74 of the Bankruptcy Act was the predecessor to chapter XIII. Act of March 3, 1933, Pub. L. No. 72-420, 47 Stat. 1467, 1467–70 (adding section 74 to the Bankruptcy Act of 1898). Its use in only a few judicial districts, *see* 8 COLLIER, *supra*, ¶ 1300.02, makes it less of a candidate for a sweeping change to the federal bankruptcy law. In any event, statistics on consumer bankruptcy filing dates are available going back only to 1933, *see infra* note 63 and accompanying text, making it impossible to perform a before-and-after analysis on the effects of section 74.

filers to the extent it forced consumers into an undesirable repayment plan from future income.

The 1979 effective date of the current Bankruptcy Code,[53] whose provisions are familiar to any current bankruptcy specialist, marks the next significant change to the bankruptcy laws. As a wholesale replacement of the previous bankruptcy law, even an overview of the Code's changes would require a short course in the entirety of bankruptcy law. But bankruptcy specialists generally believe the Code was more hospitable to debtors than the Bankruptcy Act it replaced.[54] As such, the Bankruptcy Code should have contributed to an increase in filings. In 1984, Congress acted to curb the perceived excesses of the Bankruptcy Code. For example, new provisions in 1984 barred repeat filings by debtors in some instances[55] and allowed the bankruptcy court to dismiss consumer bankruptcy petitions if they were a substantial abuse of chapter 7.[56] These new provisions, and the general tone of the 1984 legislation, should have acted to deter bankruptcy filers. Thus, the three dates most likely to have had an appreciable effect on bankruptcy filing rates are 1938, 1979, and 1984.[57]

To analyze whether these statutes affected bankruptcy filing rates, publicly available data were gathered going back to 1898. Pre-1940 bankruptcy filing data are available from the *Annual Report of the Attorney General of the United States*. Post-1940 data are available from statistical tables or annual reports of the Administrative Office of U.S. Courts. Historically, the federal government compiled bankruptcy filings over the government's fiscal year, which had a June 30 year end until 1976.[58] Consequently, this article reports and uses bankruptcy filing and other

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53. Bankruptcy Reform Act of 1978, Pub. L. No. 95-598, 92 Stat. 2549; *see also* Tabb, *supra* note 52, at 32 (characterizing the 1978 statute as the "first comprehensive reform of the federal bankruptcy law" in forty years).

54. *See* SULLIVAN, WARREN & WESTBROOK, AS WE FORGIVE, *supra* note 7, at 5–6.

55. Bankruptcy Amendments and Federal Judgeship Act of 1984, Pub. L. No. 98-353, § 301, 98 Stat. 333, 352 (adding 11 U.S.C. § 109(f)).

56. *Id.* § 312, 98 Stat. at 355 (adding 11 U.S.C. § 707(b)).

57. Although Congress amended the bankruptcy statute in 1986, these amendments were principally procedural and were not as likely to have had measurable effects on bankruptcy filing rates. The 1986 statute also created chapter 12, a specialized chapter for family farmers that may have affected the number of farm bankruptcies, but farmers have never been counted as consumer filers. *See* Bankruptcy Judges, United States Trustees, and Family Farmer Bankruptcy Act of 1986, Pub. L. No. 99-554, 100 Stat. 3088. In any event, the 1986 statute's close proximity to the 1984 enactment makes it difficult to separately measure its effects.

  Similarly, Congress made numerous changes in 1994. *See* Bankruptcy Reform Act of 1994, Pub. L. No. 103-394, 108 Stat. 4106. The most significant changes in 1994 applied to business bankruptcies, and its effects for consumer bankruptcy law were unlikely to have been meaningful.

58. The Act of August 26, 1842, ch. 207, 5 Stat. 536, changed the government's fiscal year from a calendar year to one that ended on June 30. It remained this way until Pub. L. 93-334 § 501, 88 Stat. 321 (1974), which changed the measurement of the fiscal year to October 1 through the following September 30 beginning with October 1, 1976. Despite this norm of reporting over the government's fiscal year, the data for the first six years the Bankruptcy Act of 1898 was in effect, 1899–1905, were reported for a twelve-month period ending September 30. *See infra* app. A (discussing data collection for bankruptcy filing rates).

data as of June 30 for each year under consideration.[59] Because of the difficulty in gathering these data and for the convenience of future scholars, appendix A presents the number of total bankruptcy filings going back to the effective date of the Bankruptcy Act of 1898.

To divide bankruptcy filings into consumer and business filings in 1980 and after, the exercise is simple: the Administrative Office of the U.S. Courts (AO) reports bankruptcy filings either as business or consumer.[60] Before 1980, the calculation is slightly more complex. The AO categorized debtors into occupational categories and considered them as consumer filers if they were categorized either as employees or "others not in business."[61] The AO considered all other categories of debtors (farmers, professionals, merchants, manufacturers, and others in business) to be business debtors.[62] Using the AO's categories, consumer filings can be calculated from 1933 to 1979, if one makes the assumption that the ratio of professionals to employees stayed relatively constant from 1934 to 1939 when those two categories were inexplicably lumped together. To calculate consumer filings before 1933 requires even more heroic (and probably unwarranted) assumptions about a category of filers the government simply labeled "others."[63] Because consumer filing data are not available before 1933, the analyses in this article begin in that year and run through 2004. Again for the convenience of future scholars, appendix B presents the official government counts of consumer filings since 1933. The government's official count of business filers would be the differences for each year between appendix A and appendix B.

Since the mid-1980s, these official government statistics have undercounted business filers. The rise of the high-volume consumer bankruptcy practice and the concomitant prevalence of computer software have meant that most every individual bankruptcy filing has come to be categorized (and counted by the government) by the computer's default selection of "consumer."[64] Instead of the government's count that only 2.3% of all bankruptcy filings are consumer cases, my coauthor and I es-

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59. Before World War II, consumer and mortgage debt figures were available only on a calendar year basis. A June 30 figure is computed by extrapolating and averaging the figures for the year immediately preceding and immediately following. Although this extrapolation assumes that consumer and mortgage debt had constant, linear growth throughout the year, there is no reason to believe that any distortions caused by this assumption would be more than de minimis and randomly distributed (and hence not affect the statistical analyses).

60. *See, e.g.*, ADMIN. OFFICE OF THE U.S. COURTS, JUDICIAL BUS. 2005, at 28, *available at* http://www.uscourts.gov/judbus2005/front/judicialbusiness.pdf.

61. *See, e.g.*, 1976 ANNUAL REPORT OF THE DIRECTOR OF THE ADMIN. OFFICE OF THE U.S. COURTS 75, 85; 1960 REPORT OF THE DIRECTOR OF THE ADMIN. OFFICE OF THE U.S. COURTS 61, 163.

62. 1976 ANNUAL REPORT OF THE DIRECTOR OF THE ADMIN. OFFICE OF U.S. COURTS 75, 85.

63. Before 1933, the government bankruptcy statistics did not have separate categories for "others not in business" and "others in business." In many years before 1933, the "other" category accounted for over 15% of all bankruptcy filings.

64. Robert M. Lawless & Elizabeth Warren, *The Myth of the Disappearing Business Bankruptcy*, 93 CAL. L. REV. 743, 764–65 (2005).

timated that 13.5% of all bankruptcies would be counted as business fil-ers under historical standards. In terms of absolute numbers, that under-count represents approximately 259,000 bankruptcy filers each year at pre-2005 levels of bankruptcy filings.[65]

If I adjusted for this undercount of business filings, statistical analy-ses were generally more robust. For example, forecasting errors were less if I adjusted for the undercount, a result which also supports our ear-lier findings that the official government data series on bankruptcy filings now contains systematic error. Consequently, throughout all of its analy-ses, this paper adjusts the government's filing data so that consumer fil-ings represent a constant ratio of 86.5% of all filings for each year begin-ning in 1988. Although this adjustment is a blunt instrument, it is a better estimate of consumer filings than the official government figures.

The prior literature suggests outstanding debt and current ability to repay are most closely associated with changes in the consumer bank-ruptcy filing rate.[66] Therefore, the Federal Reserve's figures for con-sumer debt and mortgage debt were gathered.[67] To capture current eco-nomic climate, the Bureau of Economic Analysis's (BEA) calculation of personal income was used.[68] The statistical analyses reached qualitatively similar results if measures of gross domestic product or unemployment were used as measurements of economic climate. Economic variables were inflation adjusted using the Consumer Price Index for Urban Con-sumers.[69] Next, Part II.B reports the results of tests to determine whether these economic variables influenced bankruptcy filing rates to the exclusion of changes in the legal regime.

B. Results

The bankruptcy filing and economic data represent time series. As the country gets bigger and wealthier over time, the figures in these time series grow. This growth still remains even if one adjusts for inflation or

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65. *Id.* at 782 (noting also that the true count of business filers could be as high as 18.6% of all filers).

66. *See supra* Part II.

67. Consumer debt data are from Fed. Reserve Bd., Federal Reserve Statistical Release: Con-sumer Credit Historical Data, http://www.federalreserve.gov/releases/g19/hist/ (last visited Nov. 12, 2006). The consumer debt data series covers most short- and intermediate-term credit extended to individuals, excluding loans secured by real estate.

Mortgage debt data are from various compilations of the Federal Reserve's *Flow of Funds Accounts of the United States: Annual Flows and Outstandings*, *available at* http://www.federalreserve.gov/releases/z1/Current/data.htm (last visited Oct. 15, 2006). Mortgage data are for home mortgages from table L.217.

Mortgage data before 1945 and consumer debt data before 1943 are taken from 2 BUREAU OF THE CENSUS, HISTORICAL STATISTICS OF THE UNITED STATES: COLONIAL TIMES TO 1970, H.R. DOC. NO. 93-78, pt. 2, at 989 tbl.X393–409 (1975), *available at* http://www.census.gov/prod/www/abs/statab.html.

68. Specifically, personal income can be found at table 2.1 of the BEA's national accounts com-putations. These data can be obtained at http://www.bea.gov (last visited Oct. 15, 2006).

69. The Consumer Price Index for Urban Consumers is complied by the Bureau of Labor Statis-tics and is available at http://www.bls.gov/cpi (last visited Oct. 15, 2006).

represents these data as ratios. For example, on a per capita basis people both owe more money and make more money today than they did seventy years ago, even after taking inflation into account. Innumerable pages of statistical textbooks can be summarized as follows: for purposes of ordinary regression analysis, these data characteristics are bad or, at least, not good. As one goes through time in the data series, the mean changes, for example, the mean income from 1933 to 1953 is smaller than the mean income from 1933 to 1993. In technical terms, the data are said to be nonstationary, indicating that ordinary regression analysis could produce misleading results.[70]

There are several techniques to deal with the undesirable characteristics of time series data. One of the most powerful techniques is ARIMA (autoregressive, integrated, moving average) analysis, which is also known as a Box-Jenkins regression.[71] Although a detailed discussion of ARIMA analysis is mercifully outside the scope of this article, a few comments about the specific techniques deployed in table 1 are in order.

First, the ARIMA models contain an autoregressive component, a separate regression that first expresses the dependent variable (bankruptcy filings) as a function of a certain number of previous observations of both the dependent and explanatory variables. Here, a visual inspection of the data suggested that it was appropriate to express each year of bankruptcy filing data as a function of each of the previous three years of bankruptcy filing data as well as the previous three years of the explanatory variables. The results of these three separate regressions then essentially become a sort of control variable in the ARIMA models and are reported in the table under the label "AR." Diagnostic plots produced by the ARIMA models confirmed that the three-year time frame was appropriate.

Second, the dependent variable (bankruptcy filings per thousand persons aged 25 to 64) was differenced by one time period. The dependent variable thus does not represent the absolute number of bankruptcy filings in a particular year but represents the year-to-year difference in filing rates. Because the dependent variable represents year-to-year differences, the explanatory variables were similarly differenced so that they represented annual changes rather than absolute values. The autoregressive and differenced components of the analysis solved the problems with the time series data, a result that was confirmed by a visual inspection of data plots produced as part of the ARIMA analysis output.

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70. Overviews of time series characteristics can be found in PETER KENNEDY, A GUIDE TO ECONOMETRICS 319–57 (5th ed. 2003) and in MICHAEL O. FINKELSTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS 417–33 (2d ed. 2001).

71. KENNEDY, *supra* note 70, at 320–21.

TABLE 1[72]

LEGAL CHANGES AND ECONOMIC EFFECTS ON
CONSUMER BANKRUPTCY FILINGS PER THOUSAND
25 TO 64 YEAR OLDS

Table 1 reports results for an analysis of consumer bankruptcy filings per thousand 25–64-year-olds from 1933–2004. Parameters are estimated using ARIMA (3,1,0) models. The continuous explanatory variables are differenced one time period. Results are interpreted similar to parameters in ordinary least-squares regression. Consumer debt and mortgage debt data are from the Federal Reserve. Personal income data are taken from the Bureau of Economic Analysis's National Accounts. These data are also entered on a per capita basis per 25–64-year-old person. The variables labeled "Post [year]" are dummy variables capturing the time of different amendments to the federal bankruptcy laws.

	(1)	(2)	(3)	(4)
AR Lags (Time Series Controls)				
Year -1	0.470***	0.488***	0.251**	0.237**
Year -2	-0.393***	-0.386***	-0.315***	-0.279**
Year -3	-0.343***	-0.364***	-0.558***	-0.606***
Explanatory Variables (Differenced Yr 0 to Yr -1)				
Consumer Debt Outstanding	-0.001**	-3.81E-4	-5.74E-4	6.06E-5
Consumer Debt Squared	1.29E-7**	-3.30E-7	4.77E-8	-3.16E-7*
Mortgage Debt Outstanding	0.001***	3.06E-4	5.40E-4***	3.12E-4
Mortgage Debt Squared	-1.03E-8**	-3.76E-8***	-1.24E-8***	-3.30E-8***
Consumer Debt * Mortgage Debt		2.35E-7**		1.82E-7**
Personal Income	-6.36E-5	-2.85E-5	6.68E-6	3.88E-5
Post 1938			-0.102	-0.066
Post 1979			0.121	0.114
Post 1984			0.194**	0.197**
Model Fitness Statistics				
Stationary R-squared	0.580	0.613	0.698	0.720
Mean Absolute Error	0.180	0.170	0.149	0.142

***-significant at the 1% level
**-significant at the 5% level
*-significant at the 10% level

Table 1 also contains a set of explanatory variables that the literature predicts will have a relationship with bankruptcy filing rates. The explanatory variables include variables that capture three different legal events, namely the three years in which significant legal changes were made to the federal bankruptcy law. These event variables take a value of one for years after the event occurred and zero before the event. Four different models are presented where different explanatory variables are entered or left out of the model. These models can be interpreted in a manner similar to ordinary regression with positive coefficients repre-

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72. Because some parameter estimates have extremely small values, they are reported using scientific notation. The negative sign in the notation indicates the decimal point should be moved that many places to the left. Thus, 1.29E-7 (the parameter estimate for consumer credit squared in regression (1)) represents the number 0.000000129, and -3.81E-4 (the parameter estimate for consumer debt outstanding in regression (2)) represents the number -0.000381.

senting positive relationships and negative coefficients signifying the opposite. Because bankruptcy filings predominately occur in the group ages 25–64, the filing rate data are expressed in terms of bankruptcy filings per thousand persons aged 25 to 64.[73] The economic data are similarly expressed on a per capita basis for persons aged 25 to 64. The final two rows of table 1 report statistics on the strength of the overall model. Models (3) and (4) analyze the effect of legal changes on bankruptcy filing rates. The sign on the 1938 amendments is negative, indicating they were related to a decline in bankruptcy filings. The result is not statistically significant, however, which might represent nothing more than the small number of observations (five) before 1938. Also, the negative sign is likely related to the trough in filings that occurred in the World War II years just after 1938. The sign for the 1978 enactment of the Bankruptcy Code is positive, which is in keeping with the popular perception that the Code led to a boom in filings, but it similarly lacks statistical significance.[74]

Surprisingly, the sign for the 1984 amendments is both positive and statistically significant. The 1984 amendments were meant to discourage consumer bankruptcy filings, but these findings are not the first to observe an increase in bankruptcy filings even after 1984.[75] In both models (3) and (4), the mortgage debt and interaction variables generally retain statistical significance. Consumer debt, however, loses explanatory power. Together, these results suggest that both the supposedly stricter 1984 amendments and total debt played a role in the subsequent run-up in bankruptcy filings.

Because the year 1984 represents a significant event for bankruptcy filings but the year 1979 does not, these findings undercut Ellis's suggestion that the 1978 *Marquette National Bank* decision played an immediately significant role in increased bankruptcy filings.[76] The more significant event was an event occurring nearer to 1984, presumably the 1984 amendments. It is possible that the increase in consumer credit that Ellis attributes to *Marquette National Bank* did not work its way into the system until later.

In contrast, these findings reinforce Moss and Johnson's data and observation that marginally more stringent bankruptcy laws can have a

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73. *See* SULLIVAN, WARREN & WESTBROOK, FRAGILE MIDDLE CLASS, *supra* note 7, at 41 fig.2.1 (showing that only approximately 10% of all filers are under 25 or over 64); Deborah Thorne, Teresa Sullivan, & Elizabeth Warren, *Young, Old and In Between: Who Files for Bankruptcy?*, NORTON BANKR. LAW ADVISOR, Sept. 2001, at 1 (same).

74. This finding is consistent with Jagdeep S. Bhandari & Lawrence A. Weiss, *The Increasing Bankruptcy Filing Rate: An Historical Analysis*, 67 AM. BANKR. L.J. 1 (1993), which similarly found no statistically meaningful relationship between the enactment of the Bankruptcy Code and rising bankruptcy rates. Instead, Professors Bhandari and Weiss found a stronger connection to rising levels of consumer debt.

75. *See* Buckley & Brinig, *supra* note 16, at 187–88.

76. *See* Ellis, *supra* note 34, at 1; *see also* text accompanying notes 34–37 (discussing Ellis's hypothesis).

perverse effect of increasing bankruptcy filings.[77] Extremely stringent bankruptcy laws certainly discourage filings just as extremely lenient bankruptcy laws encourage filings. A middle ground may exist, however, where slightly more stringent bankruptcy laws create expectations of higher creditor recoveries that encourage more lending, which in turn leads to more bankruptcies.[78] As shown in figure 1 below, the 1984 amendments seem to have done just that, increased consumer debt. The ARIMA analysis shows the 1984 amendments also were associated with increased bankruptcy filings.

What these findings mean for the 2005 amendments will depend on the eyes of the beholder. Those who believe the new law is a draconian step may find it exemplifies the extremely stringent bankruptcy law that truly discourages bankruptcy filings. Early reports suggest, however, that the 2005 amendments provide only marginally better recoveries for creditors.[79] If we have the middle ground, where the 2005 amendments provide incentives for lenders to increase lending at the margins, we may experience a dynamic similar to 1984 where a supposedly strict bankruptcy amendment led to increased bankruptcy filings.

Thus, table 1 suggests that some changes in the legal regime do contribute to changes in bankruptcy filings despite long-term trends tying filing rates to outstanding debt and ability to repay. This would be a fine point to end the article with some insightful observations about the relationship of legal and economic institutions. Table 1, however, also revealed a pesky negative relationship between consumer debt and bankruptcy filings. This effect was robust to different specifications of the ARIMA model, and the next Part of the article explores why consumer credit could have a negative short-term relationship with bankruptcy filings.

III. PARADOXICALLY THINKING ABOUT CONSUMER CREDIT

Generally, the relationship between bankruptcy filings is considered to have a direct relationship with outstanding consumer debt.[80] The

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77. *See* Moss & Johnson, *supra* note 6, at 344–45.

78. *Id.*

79. An early report from even before BAPCPA was passed suggested that it would cause only 3.6% of bankruptcy filers to pay any more than they did under the previous law. *See* Marianne B. Culhane & Michaela M. White, *Taking the New Consumer Bankruptcy Model for a Test Drive: Means Testing Real Chapter 7 Debtors*, 7 AM. BANKR. INST. L. REV. 27 (1999).

80. For example, in a mock debate over the merits of the 1978 Bankruptcy Code, Professors Klee and Brubaker focused on the relationship between consumer debt and rising bankruptcy filing rates. *See* Ralph Brubaker & Kenneth Klee, *Resolved: The 1978 Bankruptcy Code Has Been a Success*, 12 AM. BANKR. INST. L. REV. 273, 298–99 (2004); *see also* Owen Bar-Gill, *Seduction by Plastic*, 98 NW. U. L. REV. 1373, 1413 (2004) ("In addition, mounting credit card debt fueled by high interest rates is a major cause of consumer bankruptcy."); Bhandari & Weiss, *supra* note 74, at 2 (discussing the relationship between consumer debt and bankruptcy filings); Moss & Johnson, *supra* note 6, at 322–27 (same). Even the popular media has noted the relationship. The title of one article says it all: Jeff Kosseff & Julie Tripp, *As Credit Rises So Does Bankruptcy: Bill Aims to Tighten Rules for Chapter 7*,

more debt consumers owe, the more consumer bankruptcy filings there are. At one level, that statement suffers from gross overgeneralization by glossing over work that considers the effects for bankruptcy filings of falling income, rising interest rates, growth in subprime lending, and a host of other factors. Nevertheless, at the most basic level, the *raison d'être* for a consumer bankruptcy filing is to deal with debt problems of the debtor.

Yet, the ARIMA models tantalizingly suggest a counter-intuitive relationship between consumer debt and consumer bankruptcy filings.[81] In the ARIMA models, the coefficient for consumer debt outstanding is generally negative. Because both the dependent and explanatory variables in the ARIMA models are stated in terms of year-to-year changes, the negative coefficient means an annual increase in consumer debt outstanding is actually associated with an annual decrease in consumer bankruptcy filings.

In beginning to consider this interesting paradox, figures 1.A and 1.B allow for a visual inspection of the relationship. The bankruptcy filing data are adjusted to allow for the undercount of consumer debtors in the government's official statistics.[82] In both figures, consumer credit is the Federal Reserve's measure and does not represent debt secured by real estate. Figure 1.B presents the same information on a logarithmic scale, which is a simple transformation of the data that makes it easier to see variations in the earliest observations. In looking at the figures stated in a logarithmic scale, it is useful to keep in mind that the space between each point on the y-axis represents a ten-fold increase. Figures 2.A and 2.B plot the same relationships since enactment of the Bankruptcy Code, rather than going back to 1933.

Visually inspecting the data, bankruptcy filings often appear to move in opposite directions from changes in consumer credit. These effects are especially visible in the trough of filings during World War II and the immediately following years. Looking at the years after 1980 in figures 2.A and 2.B, there are several clear instances of consumer credit moving in the opposite direction of changes in the bankruptcy filing rate. In all of these instances, consumer credit rises (or falls) slightly as bankruptcy rates fall (or rise). In the long run, however, rising (or falling) consumer credit appears to be followed rather consistently by rising (or falling) bankruptcy rates several years later.

NEW ORLEANS TIMES-PICAYUNE, Mar. 27, 2005, at 6. *See also* Bryan Bender, *Democrats Push for Protections in Bankruptcy Bill*, BOSTON GLOBE, Mar. 1, 2005, at A2 (quoting Travis Plunkett, legislative director of the Consumer Federation of America). An economist with Wells Fargo recently noted, "[R]ising home values and home equity borrowing tend to lead to higher bankruptcies as consumers take on more debt than they can handle and spend more than they should." Thomas Lee, *Lenders Feel the Crunch: Recent Data Show That More Consumers Are Not Paying Their Debts on Time*, MINN. STAR TRIB., Feb. 8, 2006, at 1D (quoting Ed Kashmarek). Notably, he placed the effect of increased debt on rising bankruptcies in a one- to two-year time frame. *Id.*

   81.   *See* discussion *supra* Part II.B (explaining the ARIMA model).
   82.   *See supra* note 64–65 and accompanying text.

The graphs in figures 1 and 2 also suggest a cyclical trend. The cyclicality is especially evident in figures 1.B. and 2.B, where the logarithmic transformation smoothes year-to-year spikes in the data. From the figures, the time period in the cycle can be visually estimated to be approximately three to four years in length.

FIGURE 1.A

NONBUSINESS FILINGS AND $1000 OF CONSUMER CREDIT
PER THOUSAND 25 TO 64 YEAR OLDS 1933–2004

Figure 1.A presents nonbusiness/consumer bankruptcy filings and $1000 of consumer credit per thousand persons aged 25 to 64 for the time period 1933-2004. The bankruptcy filings represent government data adjusted for an overcount of consumer cases beginning in 1988. Consumer debt is from the Federal Reserve and captures most short-term and long-term credit extended to individuals *excluding* debts secured by real estate. Figure 1.B presents the same information on a logarithmic scale.

FIGURE 1.B
NONBUSINESS FILINGS AND $1000 OF CONSUMER CREDIT
PER THOUSAND 25 TO 64 YEAR OLDS
1933–2004, LOGARITHMIC SCALE

FIGURE 2.A
NONBUSINESS FILINGS AND $1000 OF CONSUMER CREDIT
PER THOUSAND 25 TO 64 YEAR OLDS 1980–2004

Figure 2.A presents nonbusiness/consumer bankruptcy filings and $1000 of consumer credit per thousand persons aged 25 to 64 for the time period 1980–2004. The bankruptcy filings represent government data adjusted for an overcount of consumer cases beginning in 1988. Consumer debt is from the Federal Reserve and captures most short-term and long-term credit extended to individuals *excluding* debts secured by real estate. Figure 2.B presents the same information on a logarithmic scale.
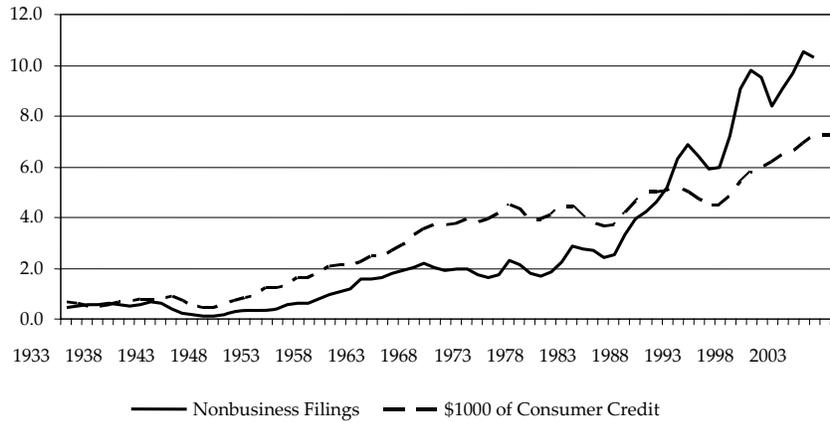
FIGURE 2.B
NONBUSINESS FILINGS AND $1000 OF CONSUMER CREDIT
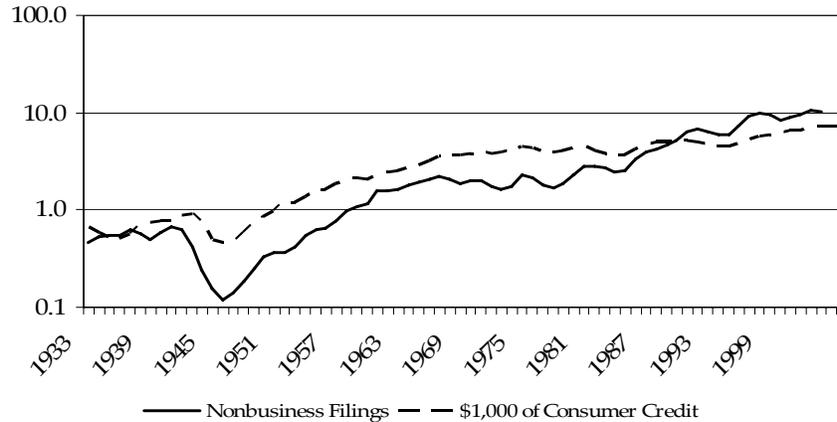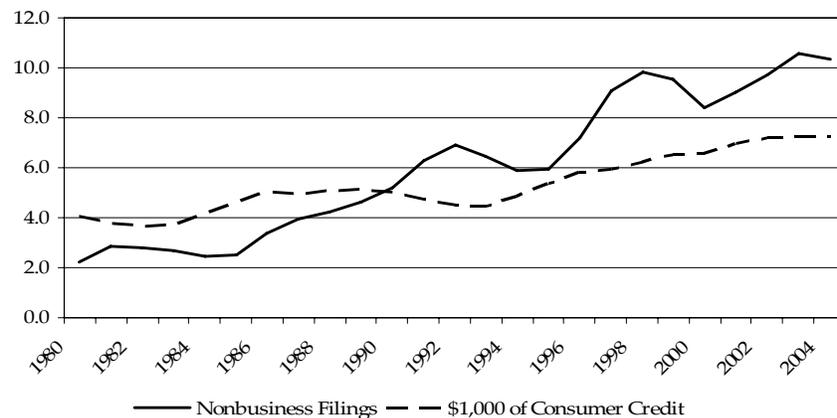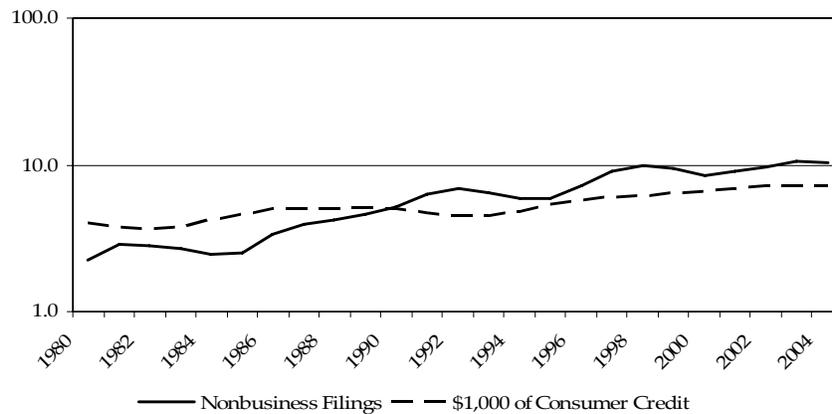PER THOUSAND 25 TO 64 YEAR OLDS
1980–2004, LOGARITHMIC SCALE

The ARIMA models also confirm this cyclicality. The necessity to auto-regress three years worth of the dependent and explanatory variables strongly suggests that the data have a three-year cyclical pattern.

Turning back to the ARIMA models in table 1, they strongly support the observations from a visual inspection of the data. In model (1), consumer debt outstanding has a negative relationship with bankruptcy filing rates, whereas the relationship for mortgage debt outstanding has a positive relationship. It is worth remembering that all of these variables are stated in terms of year-to-year change.

It makes sense that these two variables would affect bankruptcy filing rates differently. Consumer debt is most likely to represent funds available for consumers to repay past debts. Thus, some extensions of consumer debt can represent gambles by the consumer to postpone the day of reckoning in bankruptcy court, which often would be a rational decision by a consumer seemingly out of financial options. Because of the bankruptcy discharge, the consumer's downside is bounded. Further borrowing by the consumer cannot make them any more bankrupt, but it just might provide the necessary breathing space until they can turn things around. In this regard, the insolvent consumer is like the insolvent business betting its last free cash on a risky project that might return the business to solvency.

Some might object to this analysis on the grounds that further borrowing by an insolvent consumer might hinder their Bankruptcy Code

relief and hence would be considered in the decision to borrow.[83] These remote long-term consequences, however, would not completely offset the incentives to use further consumer borrowing in a desperate attempt to stave off a bankruptcy filing. It is not clear that many consumers are aware of the nuances of the Bankruptcy Code. Even if a vague aware-ness of such rules did exist, well-known decision-making heuristics, such as the optimism bias, would lead to systematic choices to borrow more rather than cutting losses and filing bankruptcy now.[84]

In contrast, mortgage debt is simply unlikely to represent funds that a consumer can use to stave off a bankruptcy filing. By definition, mort-gage debt is secured debt, often purchase money secured debt. Because of its revolving nature, a consumer can borrow money on a credit card to repay past debts without asking permission to do so. A consumer who wants to use new mortgage debt to repay old debts is less likely to find it available and more likely to find such debt more expensive if it is avail-able. For most consumers, mortgage debt simply represents more debt that the consumer has to repay to keep their residence, and it only serves to increase the consumer's bankruptcy risk.

Although recent years have seen an increase in consumers cashing out equity in their homes that might have gone toward debt repayment,[85] Federal Reserve data for home equity loans go back only until 1990 and do not allow for extensive analysis. As more data become available, fu-ture research may want to consider the effect of home equity loans, which should operate more like consumer credit than mortgage debt. As discussed below, the dynamics of bankruptcy filings and consumer credit appears to have changed after 1984, and the growth of home equity loans may be part of that change.

Having considered the evidence, the simplistic policy analysis is easy: lend to consumers. To deter bankruptcy filings, we need only allow consumers to borrow more and more money. Common sense would re-ject that solution out of hand, of course, and the ARIMA models in table 1 bear out that common sense. The ARIMA models include a term for the square of consumer debt, which has a positive relationship. Thus, the story of bankruptcy filings and consumer debt is not one of a linear rela-tionship where more consumer debt always leads to fewer bankruptcies. Rather, a graph of the relationship would be curved. At the highest lev-els, consumer debt has a positive relationship with bankruptcy filings.

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83. For example, 11 U.S.C. § 523(a)(2)(C) (2000) establishes a presumption that cash advances or spending on luxury goods and service not necessary for support are fraudulent and nondischarge-able in bankruptcy. Also, some prebankruptcy spending sprees immediately before bankruptcy might be grounds for denial of a discharge under 11 U.S.C. § 727(a)(5) (denying discharge for failure to ex-plain loss of assets). A bankruptcy court also has the power to dismiss a chapter 7 bankruptcy case if the court finds it would be an abuse of chapter 7. *See* 11 U.S.C. § 707(b)(1).

84. *See* Bar-Gill, *supra* note 80, at 1400–01 (discussing the role optimism bias might play in con-sumer borrowing decisions as they relate to credit cards).

85. *See* Akash Deep & Dietrich Domanski, *Housing Markets and Economic Growth: Lessons from the U.S. Refinancing Boom*, BANK FOR INT'L SETTLEMENTS Q. REV., Sept. 2002, at 37, 38.

Some consumer borrowing does decrease bankruptcy filings, but the effect tapers off as consumer borrowing increases.[86]

The ARIMA models also suggest that the total amount of debt has a positive relationship with bankruptcy filings. ARIMA models (2) and (4) include an interaction term that multiplies the consumer debt and mortgage debt parameters with each other. The sign on the interaction term is positive in the two models where it appears. Inclusion of the interaction term also takes away the statistical significance of the consumer debt parameters and the parameter for mortgage debt (but not mortgage debt squared). Together, these findings suggest that the consumer debt and mortgage debt interact with each other to produce more bankruptcy filings and that this interaction is more important in determining total bankruptcy filings than the individual components.

The ARIMA models also suggest a change over time in the relationship between debt and consumer bankruptcy filing rates. ARIMA models (3) and (4) introduce variables to control for legal changes in 1938, 1979, and 1984. Models (1) and (3) are the same except for the introduction of these legal change variables in model (3). When the legal change variables are introduced, statistical significance falls away from the consumer debt parameters. (The consumer debt squared parameter retains marginal significance in model (4)). In return, the variable for the 1984 legal change is significant. In both models (3) and (4), the interaction term for consumer and mortgage debt retains significance even in the face of the control variables for legal change. Together, these results suggest that overall level of debt retains its relationship to bankruptcy filing rates, but the nature of that relationship changed after 1984. These findings fit well with the findings of other scholars that consumer debt increasingly has expanded into subprime markets, with consumers more likely to file bankruptcy.[87] This expansion has changed the dynamic between consumer debt and bankruptcy filing rates.

To confirm further that consumer credit has different short-term and long-term effects on consumer bankruptcy filings, I ran ordinary least-squares regressions on leading year-to-year changes in mortgage debt and consumer debt and the year-to-year change in bankruptcy filing rates. Control variables for legal change and unemployment also are introduced. These results are presented in table 2. Although the ordinary

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86. Mortgage debt also has a curvilinear relationship with bankruptcy filing rates. The negative sign on the parameter for the square of mortgage debt indicates that the positive relationship between mortgage debt and bankruptcy filing rates tapers off at high levels of mortgage debt. This finding makes intuitive sense. Adding another $100,000 to a preexisting $100,000 mortgage more substantially increases the risk of bankruptcy than adding $100,000 to a preexisting $500,000 mortgage.

87. *See* Moss & Johnson, *supra* note 6, at 332–41; *see also* Jean Braucher, *The Two-Income Trap: Why Middle-Class Fathers & Mothers Are Going Broke*, 21 EMORY BANKR. DEV. J. 193 (2004) (book review) ("This prior body of work compellingly makes the case that the 'democratization of credit,' meaning a huge expansion in volume of available credit, particularly into sub-prime sectors at high rates of interest, is the single best explanation for the higher numbers of personal bankruptcy filings in recent decades.").

least-squares approach is problematic for these time series data, the ARIMA models did not allow me to isolate the effects of individual year-to-year changes. Also, the use of differenced, year-to-year changes (instead of absolute values) greatly improves the validity of the ordinary least-squares approach. Although the regression models in table 2 may be only moderately successful predictors of bankruptcy filing rates, I am confident that the coefficients on the regressions parameters capture the direction of the relationships, especially because the ARIMA models confirm the same relationships.

TABLE 2

OLS REGRESSIONS ON LEADING CHANGES IN OUTSTANDING CREDIT AND BANKRUPTCY FILING RATES CHANGES

Table 2 presents ordinary least squares regressions where the dependent variable is the year-to-year change in the bankruptcy filing rate per 25–64 year old. The independent variables are year-to-year changes in the amount of outstanding consumer debt and outstanding mortgage debt for the year preceding, two years preceding, and three years preceding the observed changed in the bankruptcy filing rate. The unemployment rate is used as a control variable for the current economic climate. To control for changes in the legal regime, dummy variables for years after significant amendments to the Bankruptcy Code (1938, 1979, and 1984) also are presented.

	(1)	(2)
Changes in Mortgage Debt		
Year -1	0.68***	0.53***
Year -2	-0.10	-0.02
Year -3	-0.29	-0.39**
Changes in Consumer Debt		
Year -1	-0.93***	-0.82***
Year -2	-0.50	-0.51
Year -3	0.87***	0.88***
Controls		
Change in Unemp. Rate, Year -1		-1.85
Post-1938		-50.97
Post-1979		258.79
Post-1984		72.46
Model Statistics		
Adjusted R^2	0.37	0.38
F	6.04***	5.03***
Durbin-Watson	1.26	1.35

***-significant at the 1% level
**-significant at the 5% level
*-significant at the 10% level

Looking at table 2, consumer credit has different short-term and long-term relationships with bankruptcy filing rates. At a one-year lag, consumer credit has the same negative relationship with bankruptcy filings as seen in the ARIMA models. The year-to-year change in consumer credit three years previous, however, has a positive relationship.

Although increases in consumer credit may postpone the day of reckoning for many consumers, table 2 suggests that postponement is only short-term. In the long run, increasing consumer credit leads to increased bankruptcy filings.

The policy implications are much more nuanced than the simple conclusion that household debt leads to more bankruptcy filings. The two components of household debt, mortgage and consumer debt, have different effects at different levels over different time periods. Moreover, they interact with each other such that more of both consumer and mortgage debt leads to more bankruptcy filings. In the short-term, consumer debt has a negative association with bankruptcy filings, but that is far different from suggesting that consumer debt lowers bankruptcy filings. The dynamics of how consumer and mortgage debt affect bankruptcy filings also appears to have changed in the last twenty years. That change, the curvilinear relationship between bankruptcy filings and debt, and the interaction effects deserve attention in future research.

IV. IMPLICATIONS AND CONCLUSION

This article's principal finding is that consumer credit has a paradoxical effect on bankruptcy filing rates. Despite previous data and intuition that rising consumer debt walks hand-in-hand with rising bankruptcy filing rates, increases in consumer debt are associated with short-term decreases in bankruptcy filing rates. The effect likely stems from desperate borrowing by financially strapped consumers postponing the day of reckoning. Like many short-term effects, this one also loses in the long run, as mounting consumer debt catches up with consumers and eventually leads to higher long-term filing rates.

The paradox of consumer credit—that it both decreases and increases bankruptcy filings depending on the time horizon—makes for a more complicated policy picture. Credit controls must be considered for both their short-term and long-term effects. Real-life policy decisions are never as straight forward as the literally formulaic analyses in this article. There are no ready answers. The lesson is the lesson of unintended consequence. Short-term expansions of credit may allow debtors to temporarily stave off bankruptcy filings just as marginally stringent amendments to the bankruptcy laws may actually lead to more bankruptcies.

Scholars should look for the paradox of consumer credit in other datasets. For example, a natural experiment may exist in the early 1980s where skyrocketing interest rates caused many legitimate lenders to run afoul of some state usury laws.[88] The result was an abrupt contraction of credit in some states but not others, although generally higher interest

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88. *See, e.g.*, Lisa Ryu, *Business Credit in 2001: More Available than in Past Recessions*, BANK TRENDS, Feb. 2002, at 1, *available at* http://www.fdic.gov/bank/analytical/bank/bt_0202.pdf.

rates led to slower growth in consumer credit nationally than otherwise might have occurred.[89] The paradox of consumer credit would predict that bankruptcy filings should have risen more dramatically in states where consumer credit contracted the most.

The paradox of consumer credit also has implications for the rise of consumer credit markets outside the United States. For example, Professor Jason Kilborn has recently written a series of articles detailing how the widespread availability of consumer credit transformed Western Europe's bankruptcy laws as countries adapted to overwhelming numbers of financially overburdened consumers.[90] One solution would be to restrict the supply of consumer credit, but the findings in this article suggest that the temptation to contract consumer credit as a measure to deal with bankruptcy may have the perverse effect of creating a rash of bankruptcy filings. At the same time, this article uses data from the United States, and the political and cultural institutions that create the paradox of secured credit may not occur in other countries. Another potential avenue of research for future scholars is to examine whether the paradox of consumer credit carries over to countries other than the United States.

Returning to the United States, the data in this article have implications for banking and credit regulation. Although the decision to borrow on the remote chance of avoiding bankruptcy may be a rational one for the consumer,[91] it is not apparent why it is a rational decision for the lender. Increasing consumer debt appears only to postpone the inevitable in most cases. In the long run, higher bankruptcy filing rates follow increases in consumer debt. Why do lenders lend under these circumstances? The indications of cyclicality in the data teasingly suggest that some other phenomenon may be driving changes in consumer debt. Find the cause of the cycle, and you might explain why consumer debt swings from periods of abundance to periods of scarcity. Explaining the consumer debt cycle would then seem to go a long way to explaining the variation in bankruptcy filing rates.

Explaining the consumer debt cycle was not this article's original goal. Rather, it set out to examine the effects of past legal changes on the bankruptcy filing rate. The statistically meaningful effect occurred not with the Bankruptcy Code in 1979, but instead with the 1984 amendments meant to curtail perceived but unpredicted abuses caused by the

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89. *Id.*

90. *See* Jason Kilborn, *Continuity, Change, and Innovation in Emerging Consumer Bankruptcy Systems: Belgium and Luxembourg*, 14 AM. BANKR. INST. L. REV. 69 (2006); Jason Kilborn, *The Hidden Life of Consumer Bankruptcy Reform: Danger Signs for the New U.S. Law from Unexpected Parallels in the Netherlands*, 39 VAND. J. TRANSNAT'L L. 77 (2006); Jason Kilborn, *La Responsabilisation de l'Economie: What the United States Can Learn from the New French Law on Consumer Overindebtedness*, 26 MICH. J. INT'L L. 619 (2005). Two articles in this symposium also address the rise of consumer credit markets outside the United States. *See* Iain Ramsay, *Comparative Consumer Bankruptcy*, 2007 U. ILL. L. REV. 241; Jacob Ziegel, *What Can the United States Learn from the Canadian Means Testing System?*, 2007 U. ILL. L. REV. 195.

91. *See supra* note 83 and accompanying text.

Code. Instead of decreasing the number of bankruptcy filings, the 1984 amendments are statistically associated with an increase. Amendments to curtail perceived abuses under the bankruptcy law? Sounds like a familiar (and recent) story.

APPENDIX A

TABLE 3

TOTAL BANKRUPTCY FILINGS 1899–2005

For the convenience of other researchers, table 3 lists U.S. bankruptcy filings since enactment of the Bankruptcy Act of 1898 and its successor, the Bankruptcy Code of 1978. Beginning with the 1907 data, the figures are for the twelve-month period ending June 30 of each year listed. From 1899 to 1905, the data are for the twelve months ending September 30. The 1906 data represent a transitional year, for the nine months ending June 30, 1906. The data are taken from annual reports of the Attorney General of the United States and, after 1940, annual reports or annual statistical compilations from the Administrative Office of U.S. Courts.

1899	20,610†	1926	46,374	1953	40,087	1980	277,899
1900	21,938	1927	48,578	1954	53,136	1981	360,329
1901	19,007	1928	53,064	1955	59,404	1982	367,866
1902	18,482	1929	57,280	1956	62,086	1983	374,734
1903	16,875	1930	62,845	1957	73,761	1984	344,625
1904	17,082	1931	65,335	1958	91,668	1985	364,536
1905	16,946	1932	70,049	1959	100,672	1986	477,856
1906	12,972‡	1933	62,256	1960	110,034	1987	567,266
1907	14,160	1934	58,888	1961	146,643	1988	594,567
1908	17,818	1935	69,153	1962	147,780	1989	642,993
1909	18,018	1936	60,624	1963	155,493	1990	725,484
1910	18,053	1937	57,485	1964	171,719	1991	880,399
1911	19,338	1938	57,306	1965	180,323	1992	972,490
1912	19,745	1939	50,997	1966	192,354	1993	918,734
1913	20,930	1940	52,577	1967	208,329	1994	845,257
1914	22,959	1941	56,332	1968	197,811	1995	858,104
1915	27,632	1942	52,109	1969	184,930	1996	1,042,110
1916	27,368	1943	34,711	1970	194,399	1997	1,316,999
1917	24,838	1944	19,533	1971	201,352	1998	1,429,451
1918	20,385	1945	12,862	1972	182,869	1999	1,391,964
1919	14,048	1946	10,196	1973	173,197	2000	1,276,922
1920	13,558	1947	13,170	1974	189,513	2001	1,386,606
1921	22,812	1948	18,510	1975	254,484	2002	1,505,306
1922	38,165	1949	26,021	1976	246,549	2003	1,649,660
1923	41,304	1950	33,392	1977	214,399	2004	1,635,725
1924	43,519	1951	35,193	1978	202,951	2005	1,637,254
1925	45,641	1952	34,873	1979	226,476		

†—The 1899 data represent filings for the eleven months after November 1, 1898, the first date on which involuntary petitions were allowed after the July 1, 1898, passage of the Bankruptcy Act of 1898, 30 Stat. 544, 566 (1898).

‡—Because of the transition in recordkeeping from a September 30 to a June 30 year end, the 1906 data are for the nine months ending June 30, 1906.

APPENDIX B

TABLE 4
CONSUMER BANKRUPTCY FILINGS 1933–2005

For the convenience of other researchers, table 4 presents the government's official count of consumer bankruptcy filings for the twelve months ending June 30 of each year since 1933. Consumer filings cannot reliably be calculated before that date. The difference between table 4 and table 3 in appendix A would represent the number of business filers.

Before 1980, the figures represent filers who were identified as employees or "others not in business." For the years 1934–39, the government lumped together employees with professionals, who the government considered business filers. Consequently, the figures for 1933–39 disaggregate employees from professionals by assuming they continued to file at the same ratios as they did in the ten years preceding 1934. In 1980 and after, the government simply reported business and nonbusiness filers without separate, underlying categories. Table 4 reports the official government figures despite substantial doubt they substantially undercount business filers (and thereby overcount consumer filers) beginning in the late 1980s.[92]

Before 1941, the sources are annual reports of the Attorney General of the United States. In 1941 and after, the sources are annual reports or statistical tables from the Administrative Office of U.S. Courts.

Year	Filings	Year	Filings	Year	Filings
1933	27,436	1958	80,264	1982	311,443
1934	31,960	1959	88,943	1983	304,916
1935	34,391	1960	97,750	1984	282,105
1936	34,882	1961	131,402	1985	297,885
1937	39,759	1962	132,125	1986	401,575
1938	36,011	1963	139,191	1987	478,988
1939	32,114	1964	155,209	1988	526,066
1940	39,076	1965	163,413	1989	580,459
1941	44,713	1966	175,924	1990	660,796
1942	42,251	1967	191,729	1991	812,685
1943	28,782	1968	181,266	1992	899,840
1944	16,752	1969	169,500	1993	852,306
1945	11,051	1970	178,202	1994	788,509
1946	8,566	1971	182,249	1995	806,816
1947	10,234	1972	164,737	1996	989,172
1948	13,537	1973	155,707	1997	1,263,006
1949	19,144	1974	168,767	1998	1,379,249
1950	25,040	1975	224,354	1999	1,352,030
1951	27,806	1976	211,348	2000	1,240,012
1952	28,331	1977	182,210	2001	1,349,471
1953	33,315	1978	172,423	2002	1,466,105
1954	44,248	1979	196,976	2003	1,612,582
1955	50,219	1980	241,450	2004	1,599,986
1956	52,608	1981	312,914	2005	1,604,848
1957	63,617				

92.   *See* Lawless & Warren, *supra* note 64, *passim*.