

The Ticket to Easy Street? The Financial Consequences of Winning the Lottery^{*}

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Abstract

A fundamental question faced by policymakers is how best to help individuals who are in financial trouble. This paper examines the consequences of the most basic approach: giving people large cash transfers. To determine whether this prevents or merely postpones bankruptcy, we exploit a unique dataset of Florida Lottery winners linked to bankruptcy records. Results show that although recipients of \$50,000 to \$150,000 are 50 percent less likely to file for bankruptcy in the two years after winning relative to small winners, they are equally more likely to file three to five years afterward. Furthermore, bankruptcy records indicate that even though the median winner of a large cash prize could have paid off all of his unsecured debt or increased equity in new or existing assets, he chose not to do either. Consequently, our results suggest that some skepticism regarding the long-term effect of cash transfers may be warranted. In addition, our findings are more consistent with the strategic model of bankruptcy than the negative shock model, though we note we cannot rule out the importance of behavioral issues such as high discount rates.

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1. Introduction

During economic downturns, an important question governments face is whether and how to help individuals who are struggling financially. The central issue in determining the appropriate policy is whether the assistance will have a permanent impact or will merely postpone financial distress. The goal of this paper is to determine whether the simplest solution to helping indebted individuals—giving them cash—enhances longer-term financial stability and helps them avoid bankruptcy. In doing so, this paper also offers insight into the long-running debate about whether bankruptcy is caused by moral hazard or by negative shocks (Fay, Hurst, and White, 2002).

While it might seem unambiguous that cash transfers that are large relative to debt should prevent bankruptcy, there are reasons to be doubtful. For example, individuals may simply have high discount rates that lead them to consume the resources in the short run.¹ Individuals may also engage in mental accounting (Thaler, 1990), treat the cash as “house money” and use it to take on additional risks (Thaler and Johnson, 1990), make consumption commitments that make it more difficult to overcome future negative income shocks (Chetty and Szeidl, 2007; Zhu, 2008), or develop a taste for luxury goods that outlasts the money. Finally, individuals may lack the knowledge to handle large amounts of cash wisely; surveys have consistently shown that U.S. adults have relatively low levels of financial literacy (e.g., Higerth, Hogarth, and Beverly, 2003; Lusardi and Mitchell, 2007). The perceived importance of these considerations has been partly responsible for the shift in the legal field from lump-sum payments to structured settlements,² a trend that Pryor

¹ This behavior could be rational or it could be at odds with the long-run selves’ preference against spending in the short run. For more on the latter, see DellaVigna (forthcoming); Frederick et. al (2002); and O’Donoghue and Rabin (1999).

² This concern is reflected by the words of Judge Joseph Weiss of the United States Court of Appeals for the Third Circuit, who stated that “Lump-sum payments all too often are improvidently invested or squandered by unsophisticated recipients and so fail to provide for the lifetime of medical bills and unemployment faced by victims of serious injury.” Judge Weiss also calls the reliance on lump sum awards one of the “enduring weaknesses of the common law tort system” (*Jacquette v. Continental*, 1999).

(2002) states is “perhaps the most striking development in the tort payment structure over the last 25 years.” However, to our knowledge the only research on the general question of whether large cash transfers improve the longer term financial outcomes of struggling individuals consists of informal surveys of lump-sum settlement recipients.

This study also contributes to the debate on whether personal bankruptcy is primarily caused by strategic behavior or by negative shocks (e.g., Fay et al., 2002; Himmelstein, Thorne, Warren, and Woolhandler, 2009; White, 2006). Since recipients of large cash transfers have the option of filing bankruptcy later on, indebted recipients may strategically consume all of the transfer in the expectation that they will later file for bankruptcy anyway. Consequently, to the extent that receiving transfers large enough to pay off all unsecured debts does not reduce bankruptcy rates over the longer term, it suggests support for the moral hazard model of bankruptcy rather than the negative shock model.

To answer these questions, we apply a straightforward research design to a unique dataset. Specifically, we link winners of the Florida Lottery to bankruptcy records and compare recipients of \$50,000 to \$150,000 to those who won less than \$10,000. By exploiting the randomness of the lottery, we can distinguish the effect of cash transfers from confounding factors typically associated with receipt of such awards. We rely on the identifying assumption that conditional on winning for the first time, the amount won is uncorrelated with the recipients’ underlying propensity for bankruptcy. Tests support this assumption: we find no difference in either the demographic characteristics or the bankruptcy rates of large winners versus small winners in the years prior to winning the lottery.

The results indicate that giving \$50,000 to \$150,000 to people only postpones bankruptcy. Specifically, while these recipients are 50 percent less likely than small winners to file for bankruptcy

immediately after winning, they are equally *more* likely to file for bankruptcy three to five years after winning. Furthermore, bankruptcy petitions filed in the 5 years after winning reveal that the net assets and unsecured debt of large winners are no different from those of small winners. This implies that even though the median winner of a large cash prize could have paid off all of his unsecured debt or increased equity in new or existing assets, he did neither. Bankruptcy records also yield little evidence that large winners later filed for bankruptcy due to increased housing consumption commitments or in order to game the unlimited homestead exemption in Florida bankruptcy law, suggesting that the recipients consumed their winnings. Since large winners experienced no more negative shocks than the small winners due to the randomness of the prize magnitude, we interpret our findings as more consistent with the strategic model of bankruptcy than the negative-shock model. In addition, our results indicate that policymakers should be cautious in offering cash assistance to heavily indebted individuals with the hope of increasing their longer-term financial security.

2. Data

Data on lottery winners were obtained from the Florida Lottery. The data include every winner of the Fantasy 5 lottery game in Florida from April 29, 1993 through November 27, 2002. These winners represent all individuals who won more than \$600, the minimum amount for which Federal Law mandates that records be kept and reported to the Internal Revenue Service. For each lottery winner, we observe the individual's name and home zip code, the amount won (which we adjust for inflation), and the date of the drawing.

Because we ultimately link bankruptcy records to winners using their first and last names and county of residence, we attempt to identify the set of unique names so as to minimize the number of individuals falsely linked to bankruptcy. Toward that end, we exclude all names that appeared more

than once in 2008 phone records for that county. In addition, if lottery records indicated that an individual with a unique name from a given county won more than once, we then use only the first time that individual won.³ We do this because while the largest amount an individual won over this time period would undoubtedly be correlated with her financial condition (e.g., low-income individuals may play more and thus win more large prizes over time), the amount won the *first* time should be random. We also limit the sample to individuals who won less than \$150,000 since only 153 Fantasy 5 winners won more than that during this time period. As shown in Table 1, this limits the sample to 34,987 individuals. While these amounts represent pre-tax winnings, the Internal Revenue Service requires that the Florida Lottery withhold 25 percent of amounts greater than \$5,000.

Bankruptcy records were obtained from the Public Access to Court Electronic Records database (PACER) maintained by the Administrative Office of the U.S. Courts. In total, there were 1,433,243 personal bankruptcy records filed in Florida from 1985 to November 27, 2007. These records represent all of the Chapter 7 and Chapter 13 personal bankruptcy petitions filed in the three district U.S. bankruptcy courts in Florida. While we note that not all petitions were approved by bankruptcy judges, for ease of exposition we will subsequently refer to winners' bankruptcy rates rather than the more cumbersome "bankruptcy filing rates".

Included in the data are the first and last name of the filer along with his or her residential address, the date filed, and the chapter under which the bankruptcy case was filed. In addition, we also obtained more detailed data from bankruptcies filed between January 1, 2004 and November 27, 2007 since this information was available electronically. These data are discussed in more detail in Section 6.

³ Results are unchanged when these individuals are excluded from the analysis.

Bankruptcy represents an important outcome for several reasons. First, filing for bankruptcy is arguably the most extreme signal of financial distress. In addition, preventing bankruptcy may be socially desirable both because it is bad for creditors and because by affecting a filer's credit score, it can affect the availability and price of future consumer loans as well as her employment prospects.

The lottery winners were linked to bankruptcy filings on the basis of first and last name and county of residence, with results shown in Table 2. Each winner was linked to any bankruptcy case filed up to five years prior to winning the lottery and within five years after winning the lottery. In all, 1,934 Fantasy 5 winners were linked to a bankruptcy in the five years after winning. This match implies a one-year bankruptcy rate among lottery players of just over 1 percent, which is similar to the filing rate of 1.0 percent for all adults in Florida from 1993 through 2001.⁴

While it is possible that type I or type II errors were made in linking lottery winners to bankruptcy records, neither type of error should invalidate the research design. Due to the randomness with which amount won is determined, we should be no more or less likely to match winners of large sums than winners of small sums except for the causal effect of amount received on bankruptcy rates.

3. Fantasy 5 and Identification Strategy

To identify the effect of large cash transfers on bankruptcy rates, we compare the bankruptcy rates of large cash prize recipients to those of small prize recipients. This strategy is similar to those employed in other papers to examine the effect of income shocks on health and mortality (Lindahl, 2005) and on labor earnings, savings, and consumption (Imbens et al., 2001).

⁴ Source: U.S. Census and authors' calculations.

The identifying assumption in our analysis is that conditional on winning at least \$600 in Fantasy 5 for the first time, the amount won is uncorrelated with underlying propensity for bankruptcy. We emphasize that we focus only on the *first* time an individual is observed to win rather than assuming whether or not an individual *ever* wins a large prize (conditional on winning \$600 or more at least once) is random, given that the latter would clearly depend on frequency of play.

In order to gauge the validity of our identifying assumption, some background regarding the Fantasy 5 game is necessary. Fantasy 5 is a pari-mutuel lottery game in which amount won depends on how many numbers were matched, how many winning tickets were sold, and how many people played. The largest prizes were given for matching five of five numbers and ranged from less than \$10,000 to more than \$200,000. The amount won depended not only on the number of winning tickets and total plays but also on the structure of the game. From April 29, 1993 through July 15, 2001, individuals who matched five of five numbers won an average of \$20,000, though depending on the number of winners the amount varied from \$1,300 to \$132,000. Beginning on July 16, 2001 the game changed such that the average amount won for matching 5 numbers increased to \$120,000. On days in which no one matched five of five numbers, people who matched 4 numbers won an average of \$900. Consequently, because the number of small and large winners changed over time, it is important for our main analysis to control for that as well as for year fixed effects. Finally, while it is possible for individuals to play up to ten times on each card, no lottery winners in the data played the same 5 numbers multiple times. This implies that although some people are more likely to enter our data than others (i.e., those who play the lottery more frequently or play more numbers on a card), conditional on winning \$600 the amount won is unaffected by the number of plays paid for on a given card.

An important advantage of this identification strategy is that it can be empirically tested in two ways. First, in results available upon request, we show that amount won is not explained by winners' neighborhood characteristics. Second, and more importantly, we show that recipients of large cash prizes were no more or less likely to file for bankruptcy *before* they won than were recipients of small cash prizes. This implies that except for the difference in amount won, we would not expect bankruptcy rates to differ systematically after winning the lottery either. Collectively these tests suggest that any difference between the post-winning bankruptcy rates of large winners and small winners is properly interpreted as the causal effect of the lottery winnings. In addition, in Section 5.3 we report similar findings when we restrict the sample to those who won after the game changed in 2001 and compare players who matched 5 numbers and won an average of \$80,000 to players who matched 4 numbers and won just over \$1,000.

In assessing the external validity of our estimates, it is important to point out that lottery players are much more representative of the population than some might think. For example, Kearney (2005) reports that over half of the adults in the U.S. have played the lottery in the last year. Even more importantly, annual spending (i.e., frequency of play) is also approximately equal across the income distribution, though college-educated individuals play approximately 40 percent less than high school graduates (Kearney, 2005). In addition, in results available from the authors we find that our results are unchanged when we exclude individuals who won multiple times over the time period examined. This indicates that the results are not driven by individuals who play most frequently. Consequently, while we are unaware of any surveys that ask about both lottery-playing behavior and other characteristics that might be targeted by government bailouts such as subprime, adjustable rate, or Alt-A mortgages, we would expect there to be considerable overlap between these populations. As a result, while our study may be less helpful in predicting the impact of a cash transfer to highly educated people not near the bankruptcy margin—though for the sake of science

we would be happy to participate in that field experiment—we do think it is informative regarding the likely effect of bailouts to people in financial trouble.

4. Methodology

Given the intuitive research design, the simplest way to determine the effect of receiving large cash transfers is to compare large prize winners to small prize winners. In addition to comparing the bankruptcy rates of these groups graphically before and after winning the lottery, we also do so using ordinary least squares regression, though results are similar when estimating a probit.⁵ Specifically, we estimate:

$$\begin{aligned} \text{Bankruptcy}_i = & a_i + \beta_0 (\text{After Change in Game Structure})_i + \beta_1 (\$10,000 \leq \text{Amount} < \$50,000)_i \\ & + \beta_2 (\$50,000 \leq \text{Amount} < \$150,000)_i + \varepsilon_i \end{aligned}$$

where Bankruptcy_i is a dummy variable equal to one if individual i filed for bankruptcy within a given number of years after winning, a_i is a set of fixed effects for the year in which the individual won, $(\text{After Change in Game Structure})_i$ is a dummy variable equal to one if the individual won after the structure of the game was changed on July 16, 2001, and the remaining variables are dummy variables for various ranges of amounts won where the excluded group is less than \$10,000. While one may object that winning \$10,000 may have its own effect on bankruptcy rates, we choose that as the cutoff because prior to July 16, 2001 there were relatively few winners of less than \$3,000. However, in Section 5.3 we show that the results are robust to using smaller cash prizes as the omitted group.

⁵ Although probit or logit estimations can be preferable to ordinary least squares when most values are near zero or one, there are also disadvantages that one might expect to be especially worrisome in this context. For example, omitted variables can cause bias in probit or logit estimations even if they are orthogonal to the treatment variable. In addition, even classical measurement error in the dependent variable can result in inconsistent estimates (Hausman, 2001; Hausman et al, 1998).

Finally, for ease of exposition, we will hereafter refer to recipients of less than \$10,000 as “small winners,” winners of \$10,000 to \$50,000 as “medium winners,” and winners of \$50,000 to \$150,000 as “large winners.”

5. Results

5.1 Tests of the Identification Strategy

To demonstrate that the size of the income shock is random and thus uncorrelated with underlying financial well-being, we provide two tests. First, we check whether amount won is explained by the winners’ neighborhood characteristics. Specifically, we regress amount won on 13 variables measuring zip code income, race gender, marital status, and educational attainment, and find that only one is significant at the 5% level.⁶ More importantly, all 13 variables explain only 0.1% of the total variation in amount won.

Second, we examine the extent to which filing for bankruptcy *prior to* winning the lottery is predicted by the amount later won. So long as the amount won is uncorrelated with one’s underlying propensity to file for bankruptcy, there should be no difference between the bankruptcy rates of individuals who later win large or small cash prizes.

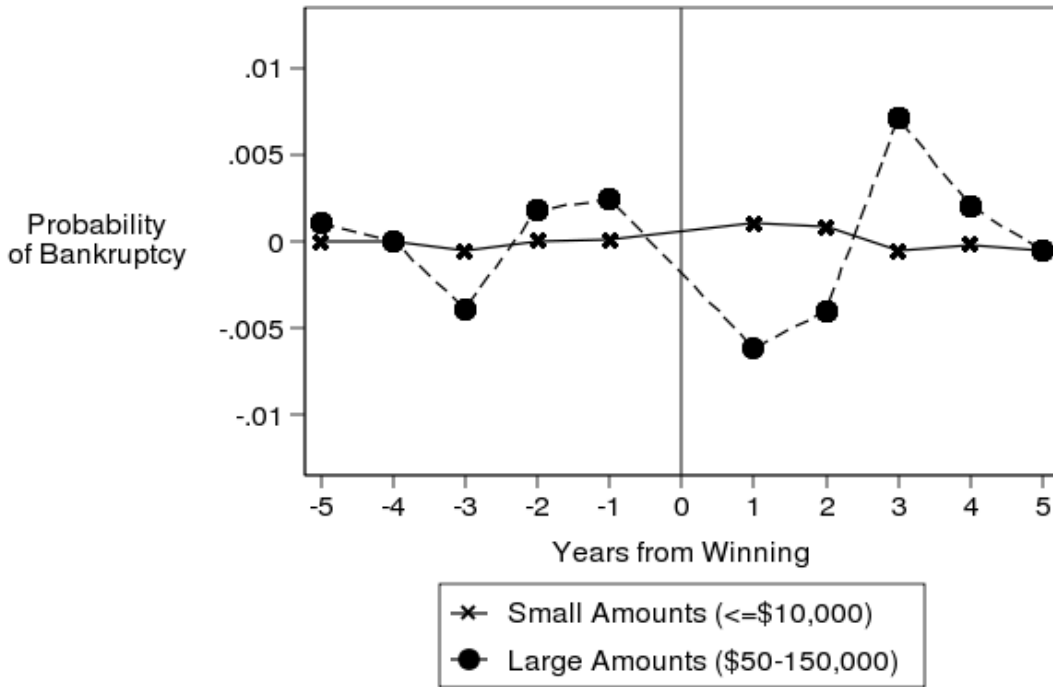
This is shown graphically in Figure 1a, which plots flows into bankruptcy before and after winning for both small and large winners. While the pre-winning bankruptcy rates of medium and large winners appear lower than those of small winners, this could be due to change in the game in 2001 that shifted the relative number of large versus small winners. To the extent that macroeconomic determinants of bankruptcy also varied over time, small winners could on average

⁶ That variable is median household income, the coefficient of which implies that a \$10,000 increase in neighborhood income is associated with a prize that is \$400 smaller, which is quite small relative to the prize examined in this paper.

be more or less exposed to those forces than large winners. To determine if this is the case, in Figure 1b we graph residual bankruptcy rates after partialing out year fixed effects. The results show that this eliminates the pre-winning rate differences.

This is confirmed more formally in Table 3. Although the unconditional means in specification 1 suggest that medium and large winners were *less* likely to file for bankruptcy than small winners before winning, this difference is dramatically diminished and is no longer statistically significant once one controls for either the change in game structure (specification (2)), year fixed effects (specification 3), or both (specification 4). This indicates that once one accounts for the fact that large and small winners were on average exposed to different macroeconomic forces due to the change in the game, there is little correlation between the size of the cash prize and one's underlying propensity to file for bankruptcy.

Figure 1b: Flows into Bankruptcy Before and After Winning the Lottery (After Removing Year Fixed Effects)



5.2 The Effect of Lottery Winnings on Bankruptcy Rates

We now turn to estimating the impact of receiving large cash prizes on future bankruptcy rates. Figures 1a and 1b show the flows into bankruptcy for large and small winners after winning the lottery and indicate that large winners are much less likely to file for bankruptcy in the two years after winning. This pattern reverses from years three through five, however, during which time large winners are more likely to file for bankruptcy than are small winners.

To investigate this pattern more rigorously, we estimate the impact of winning large lump sums on bankruptcy rates within two years, from three to five years, and within five years after winning. Results are shown in Table 4, where specification 1 shows unconditional differences, specification 2 controls for the change in the game structure, specification 3 controls for year fixed effects, and specification 4 controls for both the change in the game structure and year fixed effects. Consistent with Figures 1a and 1b, we find statistically significant decreases in bankruptcy rates in the two years after winning, a result that is robust across all of the specifications. Our preferred specification in specification 4 shows that the bankruptcy rates of medium and large winners fall 0.87 and 1.63 percentage points in the first two years, which represent relative declines of 27 and 50 percent. These declines are offset, however, by increases of 0.5 and 1.21 percentage points three to five years after winning, respectively, although the increase is only statistically significant for large winners. The net result is that within five years after winning, medium and large winners are no more or less likely to file for bankruptcy than are small winners. This is true despite the fact that the median large winner won a cash prize (\$65,000) that was sufficient to pay off all of the unsecured debt owed by the most financially distressed lottery players (\$49,000) at the time of winning.⁷

⁷ This figure comes from the bankruptcy filings of lottery players who filed for bankruptcy in the year prior to winning the lottery. These data are discussed in more depth in Section 6.

In order to show that this pattern is not driven by the admittedly arbitrary definitions of small, medium, and large winners, we also show how bankruptcy rates over these time periods vary across the full distribution of earnings. Figures 2, 3, and 4 show the bankruptcy rates of all individuals within two years, from three to five years, and within five years of winning the lottery. The graphical evidence is consistent with the results in Table 4: Figure 2 shows that the likelihood of filing for bankruptcy within the first two years after winning is smaller for winners of large cash prizes while Figure 3 shows that this trend reverses three to five years after winning. Finally, Figure 4 shows there is little evidence that winning larger cash prizes affects overall bankruptcy rates in the five years after winning.

5.3 Robustness of the Results

We investigate the robustness of these results in several ways. First, while we defined the omitted group as amounts less than \$10,000 in order to ensure reasonable numbers of small and large winners in each year, one might be concerned that winning up to \$10,000 has its own effect on bankruptcy rates. Consequently, we examine whether the effect is different when estimated relative to winning less than \$2,500. Results are shown in specification 2 of Table 5, where the first specification serves as a reference by showing the preferred result from specification 4 of Table 4. Results show similar declines in bankruptcy rates for medium and large winners in the two years after winning and statistically significant increases in bankruptcy rates for medium and large winners three to five years after winning. In addition, in order to define the control group even more conservatively, in specification 3 of Table 5 we include winners from Florida Lotto⁸ and control for

⁸ Florida Lotto is similar to Fantasy 5 except that individuals can match up to 6 numbers and win a maximum prize of several million dollars. We use data on individuals who matched 5 of 6 numbers and thus won between \$600 and \$20,000.

game fixed effects and find similar results when comparing large winners to those who received less than \$1,000.

To further test the validity of our identification strategy we allow for the possibility that the pool of players in a given drawing may change depending on the size of the pot and the size of the largest prize won in the previous drawing. To the extent that these changes are correlated with expected prize size, estimates could be biased. Consequently, we include controls for both the total amount paid out in the previous drawing⁹ and the maximum prize won in the previous drawing (specification 4) as well as the total amount paid out in the current drawing (specification 5). Results in Table 5 and indicate that these controls make little difference.

Perhaps a more worrisome possibility is that while the total number of players (and thus prize pot) is exogenous, the number of individuals who match all 5 numbers on a given day is not. For example, one might be worried that certain individuals play “more random” numbers than others and thus win more, conditional on matching all 5 numbers. While we showed earlier that this was unlikely since large and small winners come from the same neighborhoods and did not file for bankruptcy at different rates *prior* to winning, here we offer an additional test. After the game structure changed on July 16, 2001, the prize size was determined largely by whether the individual matched 5 of 5 numbers or matched 4 of 5 numbers when no one else matched all 5. Individuals who matched 5 numbers won an average of \$80,000, while those who matched 4 numbers during this time period won just over \$1,000. Consequently, we instrument for being a large winner using an indicator for whether the individual matched 5 of 5 numbers.

⁹ This excludes amounts less than \$600, which we do not observe.

Results are shown in specification 6 of Table 5 and show that large winners (as proxied by having matched 5 of 5 numbers) are 1.2 percentage points less likely to file for bankruptcy in the first two years ($p=0.081$) but are 1.9 percentage points more likely to file three to five years afterward ($p=0.058$). Given whether an individual matches 5 rather than 4 numbers is purely random, we interpret this as compelling evidence in support of our identification strategy.

Finally, we examine whether differential exposure of large and small winners to bankruptcy reform is driving the results. The Bankruptcy Abuse Prevention and Consumer Protection Act (BAPCPA) was signed on April 20, 2005 and went into effect on October 17, 2005. In anticipation of the change, bankruptcy filings increased beginning in March of 2005 and peaked in October before the law went into effect. While we would expect that year fixed effects would control for much of the effect of bankruptcy reform, we also construct two control variables that capture exposure to these effects more precisely. The first measures the number of months during the time period in question in which the individual faced a greater incentive to file for bankruptcy given the expectation that BAPCPA would take effect. The second control variable measures the number of months during the time period in question in which the lottery winner faced a reduced probability of filing for bankruptcy due to the tougher bankruptcy laws. For example, an individual who won on June 1 of 2001 was exposed to all 7.5 months (from March 1 of 2005 through October 16, 2005) in which consumers expected a tougher bankruptcy law in the future and 7.5 months facing the new bankruptcy law (from October 17, 2005 when the new law went into effect through May 31, 2006, exactly five years after winning).

Results are shown in the specification 7 of Table 5 and are consistent with the findings reported earlier. Together with results from specifications 2 through 6, this implies that the results are unaffected by the choice of control group, the current or previous drawing's prize pool, the

previous drawing's maximum prize won, or bankruptcy reform. In addition, the results are robust to comparing the subset of large and small winners for whom the variation in winnings is unquestionably random. In addition, in results available upon request we find that similar estimates result when estimating the effect of the cash transfers using a probit instead of ordinary least squares.¹⁰

5.4 Attrition

As noted earlier, individuals were linked to bankruptcy based on first and last name as well as county of residence. Given this approach, attrition will cause a problem for identification under two conditions: 1) the amount won is correlated with propensity to move out of the county, and 2) some of the individuals who moved out of the county on the basis of amount won filed for bankruptcy in the next five years. In other words, if migration is orthogonal to amount won, then there will be no bias. Similarly, if none of the individuals who move out of the county file for bankruptcy, then there is no error in who is ultimately matched to a bankruptcy.

Migration is perhaps less likely to be an issue in Florida than in other states for two reasons. First, counties in Florida represent relatively large geographic areas. For example, the average county in Florida (by population) is 1,866 square miles, or more than six times the size of New York City.¹¹ In addition, Florida is a net in-migration state over this time period. Consequently, one might expect that exiting the county after winning \$50,000 to \$150,000 would be less likely in Florida than it would be in other states.

¹⁰ Specifically, marginal effects from probit estimations indicate that large winners are 1.3 percentage points ($p=0.000$) less likely to file within 2 years of winning and are 1.16 percentage points ($p=0.117$) more likely to file 3 to 5 years afterward.

¹¹ Sources: www.fl-counties.com and www.census.gov/popest.

We can offer an empirical test of whether receiving large amounts of cash causes people to leave the county. Specifically, we examine whether the amount won is correlated with the likelihood that the individual will be found in the 2008 phone book 1, 2, 3, 4, 5, and 6 years after winning. While this is an imperfect test due to the fact that some households no longer have landlines, some individuals in a household with a landline are not listed in the phone book, and winning the lottery could potentially enable individuals to afford a landline, the exercise is instructive nonetheless. One might especially be concerned if large winners were much less likely to show up in the phone book in the first two years after winning the lottery, but then were much more likely to show up in the phonebook three to five years after winning. In that case, one might worry that the results were being driven by selective migration out of the county.

The results from this exercise (available upon request) show no evidence of such a pattern. Specifically, we find that large winners were a statistically insignificant 3.0 percentage points more likely to show up in the phone book within two years of winning the lottery relative to small winners, of whom 30.4 percent were listed in the county phone book. The difference in years three through five is a similarly insignificant 3.1 percentage points. Collectively, this provides suggestive evidence that the pattern seen in bankruptcy rates is not driven by selective migration out of the county.

6. Discussion

There are several potential explanations of the result that in the aggregate, receiving large financial windfalls only delays bankruptcy rather than prevents it. Perhaps the simplest interpretation is that bankruptcy is postponed at the individual level. For example, while indebted individuals may use financial windfalls to continue to make payments to creditors and/or increase their consumption in the near term, they may not pay down debt sufficiently to avoid bankruptcy in

the longer term. This could occur if individuals have high discount rates, engage in mental accounting, or struggle with financial literacy. Alternatively, recipients of large cash windfalls may find it optimal to game the bankruptcy system by consuming or protecting their windfall in the expectation that they will later file for bankruptcy anyway. In fact, Florida bankruptcy law allows for an unlimited homestead exemption, which provides an incentive for individuals to increase their equity in real estate as a way of protecting their winnings from creditors in bankruptcy court.

A different interpretation of the results is that receiving large cash windfalls does *not* delay bankruptcy at the individual level. Instead, it may be that some individuals use their winnings to avoid bankruptcy while others make consumption commitments with their cash such as buying a house. In the years afterward, a fraction of those winners will be subjected to a negative income shock that would not have pushed them into bankruptcy had they not bought a house (Zhu, 2008).

To help distinguish between these interpretations and to address whether large winners who subsequently file for bankruptcy have less debt than small winners, we acquired data on cases filed after 2004, the year at which details of bankruptcy filings became available electronically. Specifically, we retrieved data for a random sample of people who won less than \$1,500 and 1) filed in the 5 years prior to winning, or 2) filed zero to two years after winning, or 3) filed three to five years after winning. In addition, we retrieved and coded data from the case filings of all recipients of more than \$25,000 who filed after 2004 and for whom the filing was up to five years *before* winning, zero to two years after winning, or three to five years after winning. We emphasize that many of these lottery winners were not in our original dataset since we could only acquire detailed data for cases filed after 2004.

The descriptive statistics for this sample of filers are shown in Table 6 and show the levels of debt, assets, income, expenditures and real estate averaged over all individuals in each group,

including those who reported zeros. Panel A shows that there is no economically or statistically significant difference between the assets, debts, income, and expenditures of larger and smaller winners who filed for bankruptcy *before* winning the lottery. While larger winners were somewhat more likely to be homeowners than smaller winners (75% vs. 56%), despite that difference larger winners as a group owned slightly less property and had less equity in that property. None of the differences are statistically significant at conventional levels, which is consistent with the falsification exercises in Table 3 and provides further support for the identifying assumption.

Panel B shows the characteristics of individuals who filed for bankruptcy within 2 years after winning. Figures there show evidence consistent with multiple interpretations. Larger winners who did not avoid bankruptcy in the near term were those who had the highest level of debt. This suggests that in the short term, large cash windfalls do reduce bankruptcy filings by those with the least to gain from filing. However, large winners who file in the near term also have significantly higher housing commitments; seventy-four percent owned their homes compared to fifty-two percent of small winners who filed.

Panel C shows the characteristics of individuals who filed 3 to 5 years after winning the lottery and provides some evidence on whether the increase in the rate 3 to 5 years later is due to consumption commitments. If such commitments were responsible, then one might expect large winners who filed during this time to be more likely to be homeowners and to live in more valuable homes. However, we find no evidence that this is the case.¹²

¹² In checking the sensitivity of the figures in Table 6 to outliers, we found one larger winner who filed 3 to 5 years afterward and who reported living in a house worth over \$1 million. Consequently, we excluded this individual when calculating the average real estate market value and equity in Panels C and D in Table 6. Including this individual changes average equity and market value to \$27,810 and \$92,023 in Panel C and to \$24,940 and \$109,152 in Panel D.

Panel D shows the characteristics of winners who filed at some point within 5 years after winning. There, it is striking that the net assets of recipients of \$25,000 to \$150,000 were only \$8,000 higher than those of people who won less than \$1,500. Furthermore, small winners who filed reported having unsecured debt of \$58,438 while large winners reported a similar amount of \$51,993. We also find that although large winners live in somewhat more expensive houses than small winners, they are no more likely to own a home and have no more equity in their homes than small winners. This suggests that larger winners are not gaming the homestead exemption in Florida bankruptcy law. While this may surprise some economists, it did not surprise bankruptcy lawyers with whom we spoke¹³ and is consistent with other evidence more supportive of a notion of bounded rationality among lottery players (Guryan and Kearney, 2008).

In short, we find little evidence that the increase in the bankruptcy rates of large winners three to five years after winning is due to consumption commitments. The data also provide no support for the interpretation that large winners game the bankruptcy system by taking advantage of Florida's unlimited homestead exemption in bankruptcy since there is no difference in the real estate equity of large and small winners who subsequently file for bankruptcy. However, we are ultimately unable to distinguish whether large winners delay rather than prevent filing for bankruptcy due to impatience (rational or otherwise) or some other reason.

Finally, we find that the net assets of recipients of \$25,000 to \$150,000 are no different from those who received less than \$1,500. This suggests that whatever the recipients did with their cash, they did not use it to either pay down debt or increase their assets. This result is roughly consistent with that of Agarwal, Liu, and Souleles (2007) who find that although consumers initially used

¹³ One in particular commented that this type of behavior is so unlikely that "only economists would be concerned about that."

federal rebate checks to reduce debt, eventually debt levels returned to their pre-rebate levels. The fact that the same appears to be true even when consumers receive vastly larger cash transfers is, however, striking.

7. Conclusion

We investigate the extent to which receiving large lump sums of cash affect bankruptcy in the short- and long-term. To distinguish the effect of the transfer from other confounding factors, we compare lottery players who won between \$10,000 and \$50,000 or between \$50,000 and \$150,000 to those who won less than \$10,000. Consistent with the identifying assumption that the magnitude of the prize won is randomly assigned conditional on winning, we find no statistical difference between these groups' bankruptcy rates prior to winning or in the assets, debts, incomes, or expenditures of those winners who did file prior to winning the lottery.

The results indicate that while the lump-sum payments reduce the probability of bankruptcy in the first two years after winning in an economically and statistically significant way, this reduction is followed by statistically significant increases of similar magnitude three to five years after winning. Furthermore, a deeper examination of the bankruptcy filings shows that not only are the rates of bankruptcy not different overall, but recipients of \$25,000 to \$150,000 who later filed for bankruptcy did so with similar levels of net assets and unsecured debt. Bankruptcy records also reveal little evidence that large winners filed for bankruptcy due to increased housing consumption commitments or in order to game the unlimited homestead exemption in Florida bankruptcy law. This indicates that receiving cash transfers that are sufficiently large to pay off all of one's unsecured debt only enables individuals to postpone rather than prevent bankruptcy.

These results are broadly consistent with the strategic or opportunistic model of bankruptcy rather than the negative-shock model, though we note that we are unable to distinguish between

opportunism and other behavioral issues such as high discount rates. In addition, our findings suggest that some skepticism regarding the long-term effects of financial aid targeted at indebted individuals may be warranted.

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Table 1: The Sample of Unique, First-Time Lottery Winners in Florida from May 1993 – December 2002

Amount	All Fantasy 5 Winners		Unique in Phone Book		First Time Winners	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
<\$1,000	8,494	15.08	5,670	14.56	4,888	13.93
\$1,000 - \$2,500	15,239	27.06	10,190	26.17	8,657	24.68
\$2,500 - \$5,000	413	0.73	295	0.76	274	0.78
\$5,000 - \$7,500	577	1.02	404	1.04	373	1.06
\$7,500 - \$10,000	728	1.29	513	1.32	476	1.36
\$10,000 - \$15,000	3,028	5.38	2,144	5.51	1,964	5.60
\$15,000 - \$20,000	5,682	10.09	4,038	10.37	3,760	10.72
\$20,000 - \$25,000	6,298	11.18	4,460	11.45	4,177	11.91
\$25,000 - \$30,000	5,418	9.62	3,836	9.85	3,610	10.29
\$30,000 - \$35,000	3,911	6.95	2,764	7.10	2,583	7.36
\$35,000 - \$40,000	2,183	3.88	1,582	4.06	1,499	4.27
\$40,000 - \$45,000	1,446	2.57	1,042	2.68	975	2.78
\$45,000 - \$50,000	802	1.42	574	1.47	539	1.54
\$50,000 - \$60,000	837	1.49	553	1.42	512	1.46
\$60,000 - \$70,000	393	0.70	287	0.74	271	0.77
\$70,000 - \$80,000	209	0.37	150	0.39	134	0.38
\$80,000 - \$90,000	124	0.22	77	0.20	69	0.20
\$90,000 - \$100,000	130	0.23	90	0.23	79	0.23
\$100,000 - \$150,000	248	0.44	167	0.43	147	0.42
Total	56,160	100	38,836	100	34,987	100

Table 2: Lottery Players Linked to Bankruptcy Petitions

Amount Won	Within 2 Years			Between 3 & 5 Years			Within 5 Years		
	No Bankruptcy	Bankruptcy	% Bankruptcy	No Bankruptcy	Bankruptcy	% Bankruptcy	No Bankruptcy	Bankruptcy	% Bankruptcy
<\$1,000	4,742	146	2.99	4,767	121	2.48	4,621	267	5.46
\$1,000 - \$2,500	8,367	290	3.35	8,399	258	2.98	8,109	548	6.33
\$2,500 - \$5,000	264	10	3.65	264	10	3.65	254	20	7.30
\$5,000 - \$7,500	367	6	1.61	357	16	4.29	351	22	5.90
\$7,500 - \$10,000	467	9	1.89	462	14	2.94	453	23	4.83
\$10,000 - \$15,000	1,937	27	1.37	1,886	78	3.97	1,859	105	5.35
\$15,000 - \$20,000	3,705	55	1.46	3,628	132	3.51	3,573	187	4.97
\$20,000 - \$25,000	4,112	65	1.56	4,026	151	3.62	3,961	216	5.17
\$25,000 - \$30,000	3,554	56	1.55	3,474	136	3.77	3,418	192	5.32
\$30,000 - \$35,000	2,548	35	1.36	2,494	89	3.45	2,459	124	4.80
\$35,000 - \$40,000	1,476	23	1.53	1,433	66	4.40	1,410	89	5.94
\$40,000 - \$45,000	959	16	1.64	946	29	2.97	930	45	4.62
\$45,000 - \$50,000	532	7	1.30	514	25	4.64	507	32	5.94
\$50,000 - \$60,000	507	5	0.98	493	19	3.71	488	24	4.69
\$60,000 - \$70,000	269	2	0.74	255	16	5.90	253	18	6.64
\$70,000 - \$80,000	132	2	1.49	129	5	3.73	127	7	5.22
\$80,000 - \$90,000	69	0	0.00	66	3	4.35	66	3	4.35
\$90,000 - \$100,000	77	2	2.53	75	4	5.06	73	6	7.59
\$100,000 - \$150,000	146	1	0.68	142	5	3.40	141	6	4.08
Total	34,230	757	2.16	33,810	1,177	3.36	33,053	1,934	5.53

Table 3: Falsification Test: The Effect of *Later* Winning the Lottery on Bankruptcy Rates

	1	2	3	4
Panel 1	Bankruptcy Rate in the 2 Years <i>prior</i> to Winning			
Won \$10,000 - \$50,000	-0.0061*** (0.0015)	-0.0011 (0.0035)	-0.0028 (0.0031)	-0.0006 (0.0036)
Won \$50,000 - \$150,000	0.0002 (0.0041)	0.0037 (0.0046)	0.0026 (0.0045)	0.0041 (0.0046)
Panel 2	Bankruptcy Rate 3 to 5 Years <i>prior</i> to Winning			
Won \$10,000 - \$50,000	-0.0134*** (0.0016)	0.0024 (0.0039)	0.0043 (0.0033)	0.0041 (0.0039)
Won \$50,000 - \$150,000	-0.0123*** (0.0044)	-0.0013 (0.0051)	-0.0001 (0.0049)	-0.0002 (0.0051)
Panel 3	Bankruptcy Rate in the 5 Years <i>prior</i> to Winning			
Won \$10,000 - \$50,000	-0.0195*** (0.0022)	0.0013 (0.0052)	0.0015 (0.0045)	0.0035 (0.0052)
Won \$50,000 - \$150,000	-0.0121** (0.0060)	0.0024 (0.0068)	0.0025 (0.0066)	0.0039 (0.0068)
Number of Observations	34,987	34,987	34,987	34,987
Controls for Change in Game Structure?	No	Yes	No	Yes
Includes year fixed effects?	No	No	Yes	Yes

Effects reported are relative to winning less than \$10,000. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 4: The Effect of Winning the Lottery on Bankruptcy Rates

	1	2	3	4
Panel 1	Bankruptcy Rate within 2 Years after Winning			
Won \$10,000 - \$50,000	-0.0166*** (0.0016)	-0.0086** (0.0038)	-0.0106*** (0.0033)	-0.0087** (0.0038)
Won \$50,000 - \$150,000	-0.0215*** (0.0043)	-0.0160*** (0.0050)	-0.0176*** (0.0048)	-0.0163*** (0.0050)
Panel 2	Bankruptcy Rate 3 to 5 Years after Winning			
Won \$10,000 - \$50,000	0.0084*** (0.0020)	0.0040 (0.0047)	0.0081** (0.0041)	0.0050 (0.0047)
Won \$50,000 - \$150,000	0.0143*** (0.0054)	0.0113* (0.0062)	0.0143** (0.0059)	0.0121** (0.0062)
Panel 3	Bankruptcy Rate within 5 Years after Winning			
Won \$10,000 - \$50,000	-0.0082*** (0.0025)	-0.0046 (0.0059)	-0.0025 (0.0051)	-0.0036 (0.0060)
Won \$50,000 - \$150,000	-0.0072 (0.0068)	-0.0047 (0.0078)	-0.0034 (0.0075)	-0.0042 (0.0078)
Number of Observations	34,987	34,987	34,987	34,987
Controls for Change in Game Structure?	No	Yes	No	Yes
Includes year fixed effects?	No	No	Yes	Yes

Effects reported are relative to winning less than \$10,000. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5: Robustness Checks

	1	2	3	4	5	6	7
Panel 1							
	Bankruptcy Rate within 2 Years after Winning						
Won \$10,000 - \$50,000	-0.0087** (0.0038)	-0.0116* (0.0067)	-0.0080** (0.0040)	-0.0102** (0.0032)	-0.0087** (0.0039)	-	-0.0087** (0.0038)
Won \$50,000 - \$150,000	-0.0163*** (0.0050)	-0.0184*** (0.0064)	-0.0152*** (0.0044)	-0.0172*** (0.0037)	-0.016*** (0.0041)	-0.0119* (0.0068)	-0.0163*** (0.0050)
Panel 2							
	Bankruptcy Rate 3 to 5 Years after Winning						
Won \$10,000 - \$50,000	0.0050 (0.0047)	0.0117 (0.0084)	0.0127*** (0.0048)	0.0083* (0.0043)	0.0045 (0.0049)	-	0.0053 (0.0047)
Won \$50,000 - \$150,000	0.0121** (0.0062)	0.0171** (0.0080)	0.0187*** (0.0071)	0.0145** (0.0068)	0.0114 (0.0071)	0.0192* (0.0101)	0.0122** (0.0062)
Panel 3							
	Bankruptcy Rate within 5 Years after Winning						
Won \$10,000 - \$50,000	-0.0036 (0.0060)	0.0002 (0.0106)	0.0046 (0.0062)	-0.0019 (0.0053)	-0.0041 (0.0062)	-	-0.0034 (0.0060)
Won \$50,000 - \$150,000	-0.0042 (0.0078)	-0.0014 (0.0101)	0.0035 (0.0083)	-0.0027 (0.0076)	-0.0048 (0.0080)	0.0073 (0.0120)	-0.0041 (0.0078)
Excluded Group	<\$10,000	<\$2,500	<\$1,000	<\$10,000	<\$10,000	4-of-5 number matchers	<\$10,000
Lottery Game/Sample	Fantasy 5	Fantasy 5	Fantasy Five and Florida Lotto	Fantasy 5	Fantasy 5	Fantasy 5 (after game change in July of 2001)	Fantasy 5
Controls for the maximum prize and total payout from previous	No	No	No	Yes	No	No	No
Controls for total payout from current drawing	No	No	No	No	Yes	No	No
Instruments for actual payout with whether matched 5 of 5 numbers	No	No	No	No	No	Yes	No
Controls for quadratic of the months of exposure to bankruptcy	No	No	No	No	No	No	Yes
Number of Observations	34,987	34,987	109,121	34,987	34,987	13,874	34,987

Each column controls for year fixed effects and the change in the structure of the Fantasy 5 game. Column (3) also includes game fixed effects. Estimates reported in column (1) are the same as those reported in column (4) of Table 4. Column (7) includes a quadratic of the months exposed to the anticipation of bankruptcy reform during March 1, 2005 through October 16, 2005 as well as a quadratic of the months exposed to the new bankruptcy law which took effect on October 17, 2005. Robust standard errors are in parentheses. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 6: Debts, Assets, Expenditures, and Income of Lottery Winners Who File for Bankruptcy

Panel A: 0-5 Years <i>Prior</i> to Win								
Debt and Assets	Large Winners			Diff	Income, Expenditures, and Real Estate	Small Winners		Diff
	N=20	N=52				N=20	N=52	
Unsecured Debt (\$)	44,717	50,921	-6,204	% Homeowner	75%	56%	19	
Secured Debt (\$)	63,556	66,972	-3,416	Equity in Real Estate (\$)	20,771	31,209	-10,438	
Total Debt (\$)	108,274	117,893	-9,620	Market Value of Real Estate (\$)	79,505	84,592	-5,087	
Total Assets (\$)	93,395	94,529	-1,133	Annual Household Income (\$)	16,213	17,529	-1,316	
Net Assets (\$)	-14,878	-23,364	8,486	Annual Expenditures (\$)	23,519	23,955	-436	

Panel B: 0-2 Years <i>Post</i> Win								
Debt and Assets	Large Winners			Diff	Income, Expenditures, and Real Estate	Small Winners		Diff
	N=17	N=61				N=17	N=61	
Unsecured Debt (\$)	76,813	60,752	16,061	% Homeowner	76%	52%	24	
Secured Debt (\$)	131,708	63,487	68,220**	Equity in Real Estate (\$)	18,861	17,621	1,240	
Total Debt (\$)	208,521	124,239	84,282**	Market Value of Real Estate (\$)	145,425	73,170	72,255**	
Total Assets (\$)	164,406	93,971	70,434**	Annual Household Income (\$)	24,714	23,409	1,304	
Net Assets (\$)	-44,115	-30,268	-13,847	Annual Expenditures (\$)	35,124	31,122	4,002	

Panel C: 3-5 Years <i>Post</i> Win								
Debt and Assets	Large Winners			Diff	Income, Expenditures, and Real Estate	Small Winners		Diff
	N=36	N=44				N=36	N=44	
Unsecured Debt (\$)	40,273	55,230	-14,957	% Homeowner	53%	45%	8	
Secured Debt (\$)	74,938	73,113	1,825	Equity in Real Estate (\$)	22,903	33,827	-10,924	
Total Debt (\$)	115,211	128,343	-13,132	Market Value of Real Estate (\$)	62,367	95,261	-32,894	
Total Assets (\$)	113,571	114,303	-733	Annual Household Income (\$)	17,395	20,510	-3,115	
Net Assets (\$)	-1,641	-14,040	12,399	Annual Expenditures (\$)	22,300	26,717	-4,417	

Panel D: 0-5 Years <i>Post</i> Win								
Debt and Assets	Large Winners			Diff	Income, Expenditures, and Real Estate	Small Winners		Diff
	N=53	N=105				N=53	N=105	
Unsecured Debt (\$)	51,993	58,438	6,445	% Homeowner	60%	50%	10	
Secured Debt (\$)	93,147	67,521	25,627	Equity in Real Estate (\$)	21,582	24,412	-2,831	
Total Debt (\$)	145,141	125,959	19,182	Market Value of Real Estate (\$)	89,521	82,427	7,093	
Total Assets (\$)	129,876	102,491	27,385	Annual Household Income (\$)	19,742	22,194	-2,452	
Net Assets (\$)	-15,265	-23,468	8,203	Annual Expenditures (\$)	26,413	29,276	-2,863	

Note: Each panel shows average characteristics of lottery winners who filed for personal bankruptcy. Asterisks *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Source: PACER.

Figure 1a: Flows into Bankruptcy Before and After Winning the Lottery

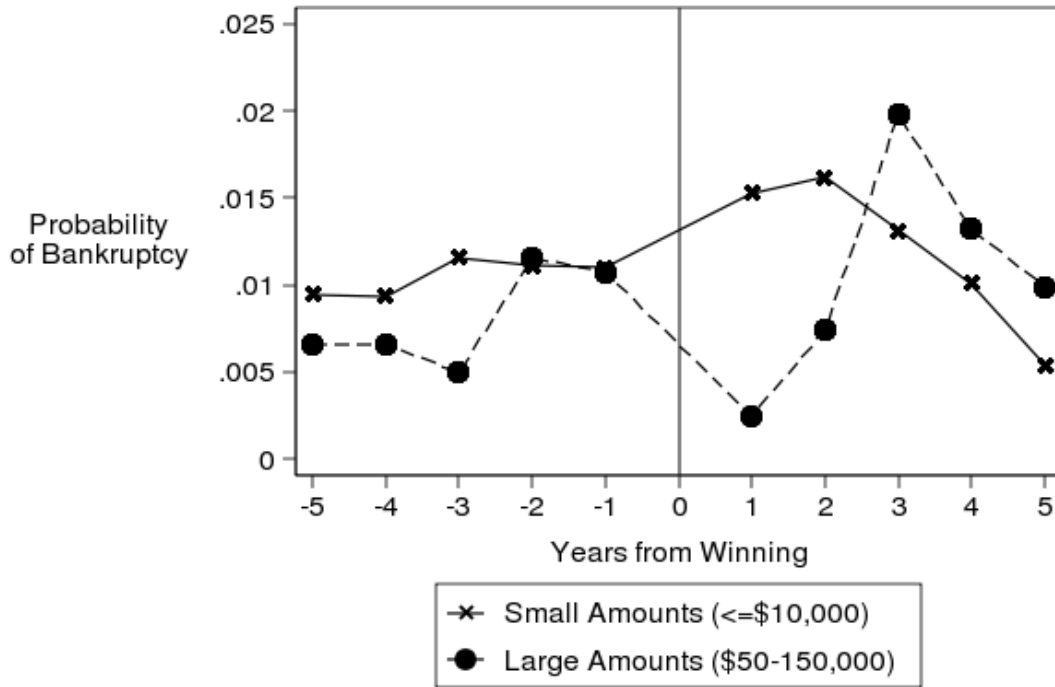


Figure 1b: Flows into Bankruptcy Before and After Winning the Lottery (After Removing Year Fixed Effects)

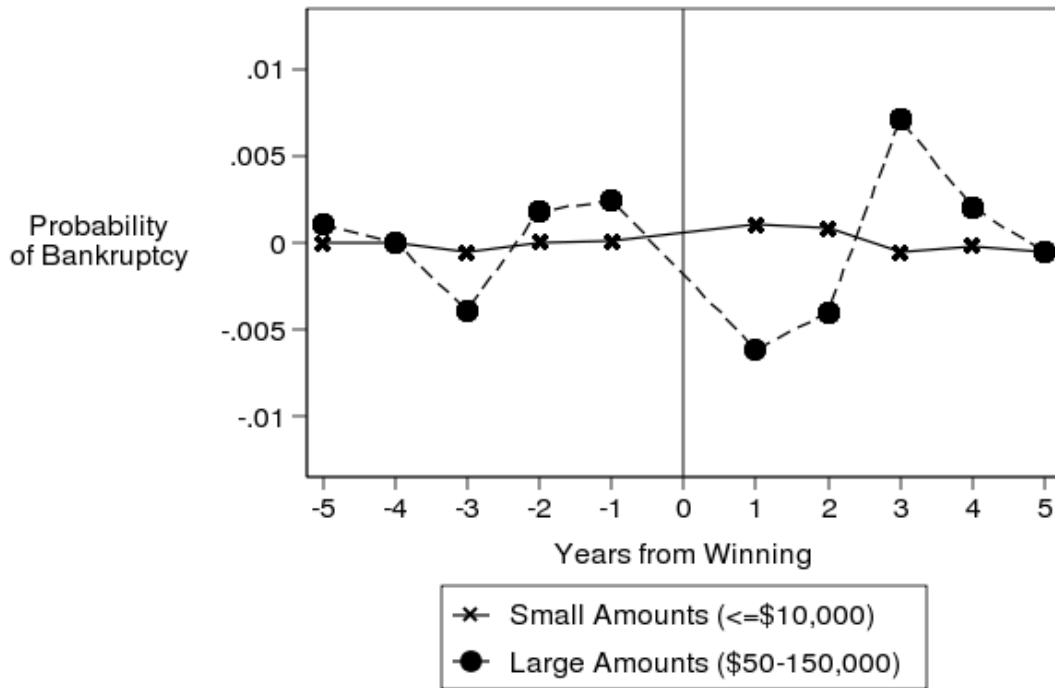


Figure 2: Bankruptcy Rates in the First 2 Years after Winning the Lottery

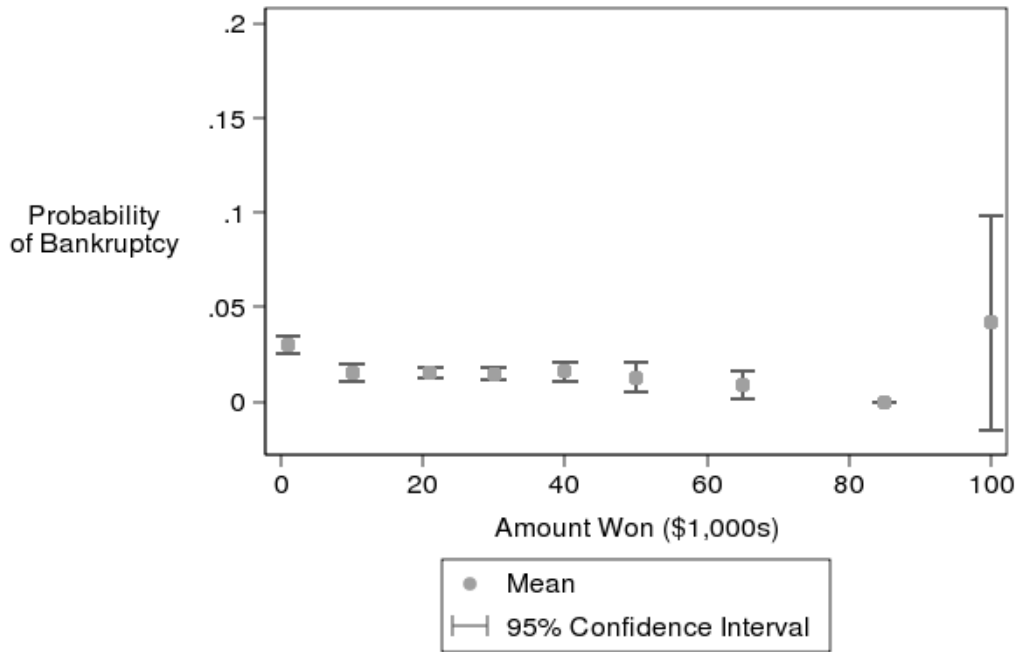


Figure 3: Bankruptcy Rates 3 to 5 Years After Winning the Lottery

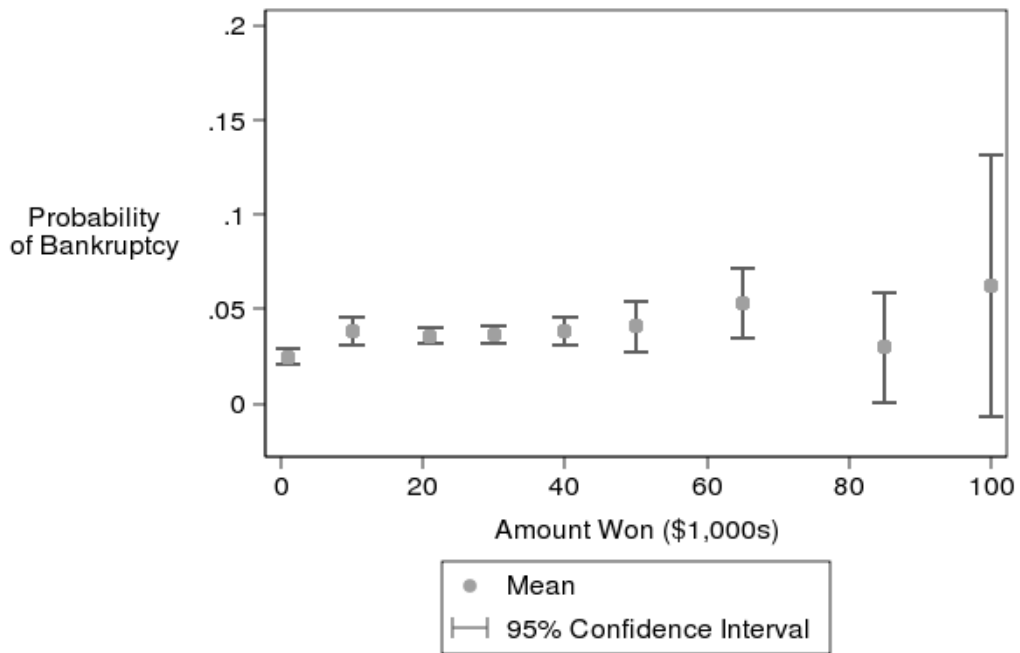


Figure 4: Bankruptcy Rates in the 5 Years After Winning the Lottery

