Review of Economic Dynamics 15 (2012) 526–550

Contents lists available at SciVerse ScienceDirect

Review of Economic Dynamics

www.elsevier.com/locate/red

Information technology and the rise of household bankruptcy [☆]

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A R T I C L E I N F O

Article history:
Received 1 March 2010
Revised 13 June 2012
Available online 19 June 2012

JEL classification:
G14
E44
K35
E21

Keywords:
Consumer bankruptcy
Information and market efficiency
Rating agencies

A B S T R A C T

Several studies have attributed the rise of household bankruptcy in the past two decades to the decline of social stigma associated with default. Stigma explanations, however, cannot account for the large increase in the use of unsecured credit during this period. I explain the simultaneous increase in bankruptcy rates and unsecured credit as the result of improvements in credit-rating technologies. Using an environment where borrowers face heterogeneous default costs (unobservable by creditors), I show that such improvements will lead to agents with high default costs, i.e., "safe" borrowers, being able to borrow more. A quantitative example illustrates that this increased access to credit can be large enough to raise both equilibrium borrowing and default rates.

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1. Introduction

This paper provides an *informational* explanation for three major trends observed in the US unsecured consumer credit market since the 1980s: the rise of *household bankruptcy* filings, the increase of the average and the dispersion of *unsecured consumer credit card debt*, and the rise of the average and the dispersion of the *supply of unsecured consumer credit card limits* by credit card companies. The main focus is the improvement in creditors' information for assessing borrowers' *default costs* and the resulting change in the *allocation of credit*. Heterogeneity in borrowers' default costs not only generates heterogeneous propensity to default, but also heterogeneous utilization of available credit card limits. Therefore, when creditors offer more informed *credit contracts*, the supply of credit rises and borrowing increases. Interestingly, better allocation of credit allows more borrowers to accumulate large enough unsecured debt that default becomes the optimal option. In addition to the larger supply of unsecured credit and hence indebtedness, better informed credit contracts could result in higher default frequencies and larger amounts of debt discharged.

Household bankruptcy filings have been increasing in the US for the past twenty-five years. In 1984, 0.33% of American households filed for bankruptcy, which rose to 0.93% of households in 1991, and continued to increase up to 1.46% in 2003.[1]

[☆] A previous version of this paper appeared as Chapter 1 in my PhD dissertation at University of Texas–Austin. I am heavily indebted to Russell Cooper and Dean Corbae for their guidance and support. I am grateful for helpful comments from anonymous referees and a Coordinating Editor, and from Satyajit Chatterjee, Randal Watson, Tom Wiseman, Kenneth Hendricks, Faezeh Raei, seminar participants at the University of Texas at Austin, Brown University, the University of Illinois at Urbana–Chapmaign, Southern Methodist University, Rice University, Texas A&M, and the Federal Reserve Banks of New York, Richmond, Philadelphia, and Cleveland. Special thanks goes to Javad Yasari. All errors are mine.

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[1] Just before the sweeping changes to the US bankruptcy code took effect at the end of 2005, the number of bankruptcy filers jumped to 1.8% of American households. Unsurprisingly, the number of filers plummeted after the change went into effect. The number of filers has picked up again.

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http://dx.doi.org/10.1016/j.red.2012.06.002

Moreover, the debt discharge rate also increased, meaning that households were defaulting on larger unsecured debts.[2] This trend can also be seen in the Canadian data (Livshits, MacGee and Tertilt, 2010), suggesting that the increase should not be solely attributed to legal changes in the US.

During this period, the supply of unsecured credit for households flourished, mainly through credit cards. While in 1989, 56% of American households had a credit card and 29% of them carried positive balances on their credit card accounts, fifteen years later, 71% of them had a credit card and 40% carried debt on their accounts. Those with positive balances are referred to as *revolvers* in the literature. The average credit card debt of revolvers almost doubled from approximately $1800 in 1989 to about $3300 in 2004.[3] However, households' credit card debts were not subject to the same credit limits as before. During this period, the average credit card limit available for an American household more than doubled; it rose from about $7100 in 1989 to about $15,200 in 2004.[4]

The importance of credit card debt in a household's decision to file for bankruptcy has been well documented (e.g., Domowitz and Sartain, 1999 and Sullivan, Warren and Westbrook, 2000). Therefore, understanding the dynamics behind the expansion in the supply of credit cards and their usage is essential for the study of the rise of household bankruptcy.

Barron and Staten (2003) document that the expansion of the credit card industry would not have been possible without rapid improvements in information technology and consumer credit-rating. In 1997, credit bureaus issued some 600 million reports about credit seekers (Padilla and Pagano, 2000), and in the following decade, credit scores produced by the Fair Isaac and Company, known as FICO scores, became the industry's standard tool for the assessment of borrowers' credit worthiness. Edelberg (2003) shows that creditors increasingly used risk-based pricing of interest rates in consumer loan markets during the mid-1990s, and Berger (2003) reports that the improvement in lending capacity was due to improvements in information technology used by banks. Moreover, Musto (2004) documents the importance of creditors access to information on borrowers' riskiness for the supply of unsecured consumer credit.

This paper aims to explain the rise in the number of bankruptcy filings as the result of an improvement in the credit market's assessment of borrowers' riskiness. This may sound counterintuitive at first. When creditors separate borrowers according to their riskiness, they tighten their supply of credit for riskier borrowers, which will make them less likely to default. However, at the same time, safer borrowers receive larger borrowing limits, allowing them to borrow more and become more likely to default. This happens because even safer borrowers, *ceteris paribus*, are prone to default once they accumulate large enough unsecured debt.

The change of credit-rating technologies can have significant implications for the supply of unsecured consumer credit as well as household bankruptcy. If rating technologies do not work well and the credit market lacks information on borrowers' riskiness, then it will be difficult to separate different types of borrowers. I call this case the *pooling case*. The equilibrium supply of credit will be so tight that safer borrowers will borrow very little, and therefore, will not pay enough to cover losses made from lending to riskier borrowers.[5] Now, if rating technologies improve, then the credit market obtains information on borrowers' riskiness, which could be used to separate different types of borrowers. I call this case the *separating case*. If they can differentiate between borrowers, creditors will cut back their supply of credit for riskier borrowers. However, compared with the pooling case, the reduction will be small and their default rate will not fall significantly. On the other hand, creditors will significantly increase credit supply for safer borrowers, who are now separated from riskier ones. Safer borrowers will be able to borrow much more than the pooling case, and hence, will default more frequently.[6] I call this mechanism the *informational* explanation for the rise of household bankruptcy.

There are different sources of heterogeneity amongst borrowers, but this paper focuses on the heterogeneity in default costs. Default on unsecured debt and the resulting bad credit history not only limits future access to unsecured credit, but also has negative effects on the cost of receiving secured debts like a mortgage or car loan, as well as negative consequences for job opportunities, insurance costs, and rental costs (Chatterjee, Corbae and Rios-Rull, 2005). Moreover, as documented by White (1998), even after controlling for all different current and future pecuniary costs of filing for bankruptcy, borrowers show large unexplained heterogeneous propensities to default.[7] Other heterogeneities, such as heterogeneity in borrowers' income processes, also have clear implications for heterogeneity in borrowing and default decisions. However, this paper does not address other heterogeneities and assumes heterogeneity in a reduced form of non-pecuniary default costs[8]; that is, even with the same debt level, current income, and expected future income, default is more costly for some borrowers than others. This could be due to their higher dependency on using job, insurance, or rental markets, which makes the negative consequences of default more severe for them, or it could be simply due to a higher stigma of default for them. Regardless, a higher cost of default makes borrowers safer for lending.

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[2] See Sullivan, Warren and Westbrook (2000).

[3] All dollar amounts are in 1989 constant prices.

[4] A household's credit card limit is defined as the sum of the limits on all of the household's credit cards.

[5] For example, if riskier borrowers are much riskier than safer ones and there are a lot of them in the pool of borrowers, borrowing and default will be mostly done by riskier borrowers, and safer ones will be almost inactive in the credit market.

[6] Borrowers' responsiveness to terms of credit contracts, and specifically, credit limits, is well documented by Gross and Souleles (2002b).

[7] See also Gross and Souleles (2002a) and Fay, Hurst and White (2002).

[8] Note that with constant relative risk aversion, all pecuniary default costs could be represented by a non-pecuniary cost as long as they are proportional to the defaulter's consumption. Most increases in defaulters' cost of living, such as higher renting cost or car insurance rate are proportional to living costs.

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