C E U

The Public Defense
of the Doctoral Thesis in Economics

by

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on

EMPIRICAL ANALYSES ON THE DEMAND
OF UNSECURED CREDIT

will be held on

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Nádor street 9, Budapest

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The doctoral thesis is available for inspection
at the CEU Economics Department

Abstract

“Send me a bill that stops credit card companies from taking advantage of consumers, and do it by month’s end” – demanded President Barack Obama the Congress on the 9th of May, 2009. In the middle of the subprime mortgage crisis, the speech of the president of the United States has several interesting implications. First, he no longer speaks only about a mortgage bill. It is now clear that the current turmoil has broad implications to the whole consumer credit industry through various channels. The demand for unsecured consumer credit has expanded as a result of job losses and salary cuts. At the same time, the supply for credit has shrunk as banks want to mitigate losses due to previously accumulated risky assets, and this tension led to higher prices on the credit market. Second, President Obama points towards credit card providers “ripping off” U.S. households through shrouded product attributes communicated in “fine prints that hide the truth” so households would “need a magnifying glass and a reference book to read a credit card application”. The president thus states that customer protection acts need to be strengthened, as households are hurt by the tricks and traps of credit cards as well as by the tighter credit rationing in the midst of the crisis.

Obama’s speech gives a strong retrospective motivation for the current research. It suggests that U.S. households can not follow their long term interest while exposed to unsecured lending, and this is a likely component of the depth and length of the current subprime crisis. In the economics literature, there is a long debate whether borrowing decisions can be described by neoclassical (profit maximizing) rules or whether behavioral considerations (such as time-inconsistency, self-control or mistakes) are necessary building blocks of a model that aims to explain the choices of households. Joining this debate, this thesis provides empirical evidence on the neoclassical versus behavioral drivers of unsecured household indebtedness. This thesis consists of three largely independent chapters: two about credit cards and one about unsecured personal loans. The two credit card related chapters carry out empirical analysis of the pre-crisis U.S. market, while the third analyzes a unique banking dataset from a developed European country, hence, its implications can be also relevant for the U.S.

Chapter 1 demonstrates that while recent economic papers show that the rich save more and should have lower debt burden, in the case of credit cards the relationship is empirically non-monotonic: credit card borrowing (measured by proportion of debt holders or by the debt-to-income ratio) is the highest in the case of households with medium permanent income. Quantitatively, the middle-class holds credit card debt almost twice as likely as the poor, leading to a higher debt-to-income ratio by half month permanent income in average. Notable empirical aspects of this chapter are the correct treatment of income imputation in the 2007 Survey of Consumer Finances and the usage of alternative definitions of perma-

nent income (income, present and future consumption or education). Motivated by the non-monotonicity, the chapter then reviews the related literature, which is at the intersection of two broad topics: existing research on how income drives savings and previous research on credit cards. By starting with the review of neoclassical models, it is shown that the role of liquidity constraints is smaller than expected: according to a conservative estimate, relaxing credit rationing would increase the probability to be indebted by maximum 7% in the case of the poor. This difference is not satisfactory to rationalize why the middle-class borrows so much more, which finding is strengthened by several supplementary analyses as well. Intuitively, in the pre-crisis U.S. credit card market, vast majority of those who wanted to have a credit card got accepted by a bank sooner or later, even if rejected several times before. Also, it is shown that the impact of risk-based-pricing – i.e., the fact that the poor are charged with higher interest rates as a result of their higher bankruptcy risk, is existing but small. Consequently, the analysis suggests that the explanation of credit card indebtedness is primarily demand driven. Precautionary savings or non-fungible consumption prove to be important determinants of demand, but it will be shown that the life cycle model together with its neoclassical extensions is likely to explain only about half of the peaking credit card debt of middle income households. This motivates the need to incorporate behavioral models into the analysis (e.g., animal spirits, investment mistakes or social preferences) to explain the empirical fact. Providing empirical evidence about the existence of these latter theories, the paper suggests that future research needs to embrace both schools to understand credit card related decisions.

Chapter 2 contributes to the emerging literature of the transactional use of credit cards. The chapter formalizes the advantages of credit cards as payment tools and investigates empirically the behavior of transactional credit card users. First, a simple neoclassical model of convenience use is presented in which households use credit card if the marginal benefit from the usage is higher than the marginal cost. In terms of the benefits, the credit card user may receive an immediate cash back and he/she may delay or even avoid the costly liquidation of his/her interest bearing investments. In terms of the costs, if the household revolves with its credit card balances, a marginal interest rate has to be paid. Afterwards, the model is extended to incorporate uncertainty and present biased preferences, and it is shown that this latter extension leads to the divergence of *ex ante* and *ex post* behavior. Using the 2004-2007 waves of the Consumer Expenditure Survey and the 2007 wave of the Survey of Consumer Finances, the second part of this chapter presents an empirical analysis that supports the previous transactional use model. To disentangle the current model's predictions from the implications of the life cycle model, only those households are analyzed that have sufficiently large financial assets (these households are called individual investors). First, it is shown that consumption in general is a main driver of credit card balances and of debt, but unexpected consumption shocks (e.g., a health expenditure shock) have an even larger impact. Second, a novel finding of the chapter is that stock owner investors hold higher credit card debt. While these findings are fully in line with the neoclassical version of the model, several other empirical examples point towards potential biases and mistakes in the transactional use decision. The fact that investors charge their credit cards in the holiday seasons less often but they revolve more frequently with their accumulated balances, is analogous with the existence of sophisticated present-biased preferences. Also, investors with more credit cards revolve more often, which indicate that they may forget the payback. Finally, previous gains on the stock market lead to more frequent credit card use, which points towards the irrational projection of high past stock returns to the future.

Contributing to the literature of advertising, Chapter 3 uses a unique data set of an anonymous European bank to analyze the impact of personal loan advertising on loan demand. The data set consists of a highly accurate measure of advertising exposure (Gross Rating Points) gathered on a weekly basis through three media, namely television, internet and newspapers and a highly accurate measure of consumer demand for personal loan. In the reviewed literature, such detailed financial services advertising data is not available on these media types. Using the appropriate time series models, the chapter reports that television commercials have higher impact on loan applications than internet or newspaper advertising. Furthermore, certain customer segments, namely rich or young individuals react to TV advertising more than poorer or older individuals, respectively. Motivated by these empirical facts, the chapter develops a life cycle consumption model with three potential channels through which advertising alters borrowing. First, advertising may provide information about the existence of the brand. Second, commercials may provide information about the interest rates. Finally, advertising may act as a taste shifter. The empirical facts are in line with the latter persuasive view of advertising, and among other plausible explanations, the facts point towards the importance of internal self-control mechanisms.

In sum, this thesis has found in all chapters some evidence in favor of both neoclassical and behavioral mechanisms to be important in the determination of unsecured credit demand. Consequently, both schools have to be integrated to fully explain economic business cycles, such as the subprime mortgage crisis. Also, governmental regulation and customer protection on the borrowing market is essential, just as highlighted by the worries of President Obama. Presumably, the empirical results and conceptual frameworks used in the three chapters contribute to the exciting and very timely research of household indebtedness.

CURRICULUM VITAE

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Education

2003–	PhD student at the Central European University, Budapest, Hungary. Department of Economics
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Languages

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Professional Experience

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