Regulation of Consumer Credit with Over-Optimistic Borrowers

Research Proposal for NBER Household Finance Grant

Florian Exler* Igor Livshits† Jim MacGee† Michèle Tertilt*

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There is increased debate over whether regulation of unsecured consumer lending products is required to protect certain consumers from "over-borrowing." Proponents of regulation argue that consumers are over-borrowing when they take out too much unsecured debt and, consequently, might not only have difficulties repaying their unsecured debt but also trouble meeting other financial obligations such as rent, mortgage payments, utility bills, etc. Thus, over-borrowing leads to financial distress and thereby reduces consumers' welfare.

If consumers are not fully rational, regulation can mitigate negative welfare effects from over-borrowing. For example, if consumers borrow large sums because they do not fully take potential adverse effects into account, restricting access to unsecured loans protects consumers from too much debt and its negative consequences.

We plan to assess the benefits of regulating unsecured lending in a framework with two types of consumers: "realists" with accurate beliefs of their future income process and "over-optimists" whose beliefs of their future income are higher than the true values. Because they expect persistently higher income, over-optimists expect financial distress to be less likely and less severe than it actually is. Both agents borrow from competitive lenders. Loans are unsecured and subject to limited commitment so that borrowers can default. Lenders price loans competitively which means that loan prices reflect expected repayment rates. Lenders cannot directly observe borrower types and thus form beliefs over potential types by observing borrowing behavior and income. This setup allows for both, loan contracts that pool rational and over-optimistic borrowers and loan contracts that separate the two types.

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In a first paper, we plan to theoretically set up the framework and analyze the fundamental mechanism. The framework extends Heidhues and Koszegi[1] by including an option to default and by endogenizing credit prices to reflect default premia. We analyze two important cases: Firstly, when lenders pool consumers, there is cross-subsidization between rational and over-optimistic borrowers. We analyze the welfare effects of this cross-subsidization and establish conditions under which over-optimistic borrowers suffer from being pooled with rational borrowers and vice versa. Secondly, when lenders separate consumers, we investigate whether lenders exploit over-optimists and extract resources from these borrowers.

In a second paper, we plan to quantitatively assess benefits of regulation such as restricting the maximum penalties associated with delinquent payments, capping interest rates and limiting roll-overs. To that end, we embed the framework above into a life-cycle model. Building on Livshits, MacGee, and Tertilt,[2] we examine a heterogeneous agent incomplete market life-cycle model with bankruptcy. As above, the model is populated by consumers with accurate income expectations and over-optimistic consumers with beliefs of their future income that are higher than the true values. Competitive lenders are unable to directly distinguish between the two types of consumers, but can observe a consumer's present income, debt level and history of defaults. Lenders use this information to update the probability of whether a consumer is an over-optimistic or realist type. In equilibrium, this results in the partial pooling of different types of households who lenders assign the same type probability to. Since lenders incorporate expected default risk in the bond price schedules they quote consumers, standard type households borrow less than they would in an environment without over-optimistic types. We calibrate the model to match aggregate bankruptcy filing rates, unsecured debt to income and average borrowing interest rates in the United States. Using the calibrated model, we quantify the impact of consumer financial regulation on both types of households, as well as the magnitude of over-borrowing by over-optimistic households.

[1]Paul Heidhues and Botond Koszegi (2010). "Exploiting Naivete about Self-Control in the Credit Market." *American Economic Review* 100.5, pp. 2279–2303.

[2]Igor Livshits, James MacGee, and Michèle Tertilt (2010). "Accounting for the Rise in Consumer Bankruptcies." *American Economic Journal: Macroeconomics* 2.2, pp. 165–193.

Budget – NBER Household Finance Grant

Regulation of Consumer Credit with Over-Optimistic Borrowers

Graduate Research Assistance		
Literature Search	50h at $23.00*	$1.150
Data Work	100h at $23.00*	$2.300
Computing Resources for Solution and Calibration of Quantitative Model		
High Performance Cluster	4.000h at $0.536**	$2.144
Travel Cost		
Conferences Europe	3 trips to conferences in EU, at $1.000	$3.000
Conferences USA	2 trips to conferences in USA, at $2.000	$4.000
Visiting Coauthors	2 research trips to Western University, Ontario, Canada; at $3.000	$6.000
Sum		**$18.594**

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* Austrian wages, since I will be an Assistant Professor at the University of Vienna in 09/2017. Converted to USD and rounded.

** Rates from https://aws.amazon.com/de/ec2/spot/spot-and-science/ : m3.2xlarge Windows at Ireland location

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Research Interests

Primary Macroeconomics

Secondary Household Finance, Quantitative Economics

Education

since 2011 University of Mannheim, Department of Economics, Germany
PhD Program in Economics, *PhD expected: June 2017*

2015/02-04 Federal Reserve Bank of Minneapolis, USA
Visiting PhD Student

2006-2011 University of Freiburg, Germany
Diplom (Master equivalent) in Economics, July 2011

2009-2010 University of Wisconsin–Madison, USA
Visiting Graduate Student

References

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Prof. Sang Yoon (Tim) Lee
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Research

Working Papers

Regulating Small Dollar Loans: The Role of Delinquency (**Job Market Paper**)

Personal Bankruptcy and Wage Garnishment

Work in Progress

Regulation of Consumer Credit with Over-Optimistic Borrowers (with Igor Livshits, Jim MacGee and Michèle Tertilt)

Academic Employment

since 2013 UNIVERSITY OF MANNHEIM, Prof. Michèle Tertilt, PhD
Research Assistant

2007-2011 UNIVERSITY OF FREIBURG,
Student Assistant

Teaching Experience

2016 Advanced Macroeconomics III (PhD, English), Teaching Assistant to Prof. Georg Dürnecker
University of Mannheim

2015 Advanced Macroeconomics III (PhD, English), Teaching Assistant to Prof. Tom Krebs
University of Mannheim

2013 Advanced Macroeconomics I (MSc, English), Teaching Assistant to Prof. Johannes Pfeifer
University of Mannheim
Macroeconomics A (BA, German), Teaching Assistant to Prof. Tom Krebs
University of Mannheim

2012 Advanced Macroeconomics I (PhD, English), Teaching Assistant to Prof. Georg Dürnecker
University of Mannheim

Presentations & Workshops

2017 CEPR European Household Finance Workshop (scheduled), Global Macro Workshop (NYU Abu Dhabi), University of Surrey, McMaster University, University of Vienna, Bank of Italy, Tilburg University, Bank of Finland

2016 Symposium of the Spanish Economic Association (Bilbao), University of Minnesota, University of Chicago, Universitat Autònoma de Barcelona, EEA-ESEM (Geneva), Society for Economic Dynamics (Toulouse, poster), Empirical Economic and Social Research Workshop (Mannheim)

2015 ECB Conference on Household Finance and Consumption (Frankfurt), Frankfurt-Mannheim Macro Workshop (Frankfurt), Annual Conference of the German Economic Association (Münster), EEA Annual Congress (Mannheim, poster), World Congress of the Econometric Society (Montréal), Workshop on Dynamic Macroeconomics (Vigo), University of Stockholm, Federal Reserve Bank of Minneapolis

2014 Princeton Initiative: Macro, Money and Finance, Zurich Initiative for Computational Economics

Scholarships and Awards

2016-2017 PhD Scholarship, Stiftung Geld und Währung (German Central Bank)

2016 PhD Scholarship, Fontana Foundation

2015 IPID4all Travel Grant, German Academic Exchange Service

2011-2012 PhD Scholarship, German Science Foundation (DFG)

2012 F. A. von Hayek Award for outstanding Diploma Thesis, University of Freiburg

Professional Service

Referee	Review of Economic Studies
Other	Member of "Erweiterter Abteilungsrat" (Department Council), University of Mannheim Member of "Fakultätsrat" (Faculty Council), University of Mannheim

Competences

Languages	German (native), English (fluent), French (basic)
Software	Matlab, Python, Stata, LaTeX

Abstracts

Regulation of Small Dollar Loans: The Role of Delinquency (Job Market Paper)

This paper analyzes whether and how to regulate small dollar lending in the United States. To that end, I develop a structural model of unsecured lending where heterogeneous households can not only file for bankruptcy but also become delinquent. Adding fixed cost of loan creation endogenously produces realistic interest rates of up to 300% for small loans. In the face of income and expenditure risk, households can partially insure through bankruptcy that provides legally mandated debt relief. However, lump sum court fees and lawyer costs prevent low income households from filing for bankruptcy protection. Without access to bankruptcy, these households become delinquent and pay late fees to avoid collection efforts from their banks. My quantitative results show that delinquency offers insufficient insurance against adverse events, granting room for welfare-improving policy interventions. In one such intervention, low income households are allowed to repay bankruptcy filing costs *after* debt relief, making bankruptcy more affordable. I show that bankruptcy filings increase and delinquency decreases. Low income households enjoy a 1% welfare increase, while aggregate welfare increases by 0.1%. The repayment plan proposed by the Consumer Financial Protection Bureau, that allows households to spread repayment over three periods, does not yield any welfare gains.

Personal Bankruptcy and Wage Garnishment

Bankruptcy legislation exhibits important welfare effects on the aggregate economy through effects on prices of and access to credit. In designing bankruptcy law, policy makers face a trade-off between insuring individuals against adverse shocks and providing incentives to repay debt. While the U.S. regime has a strong insurance component, many European systems are stricter in that they force delinquent households to repay (parts of) the outstanding debt through wage garnishment. Taking into account labor supply effects, this paper examines the optimal garnishment regime for the German economy and the resulting impact on credit prices. The optimal garnishment regime reduces garnishment rates by more than 15% while increasing the duration of garnishment from six to nine years. This results in an aggregate welfare increase of around 0.5%. Low income households gain up to 1.5% since they have significantly better access to cheaper credit. Cheaper credit allows them to better smooth consumption over the life-cycle. High income households already face favorable credit conditions and hence gain very little. Fully removing wage garnishment and moving to a "Fresh Start" regime similar to the U.S. raises the price of credit, since lenders internalize the possibility of not being paid back. Young households suffer from restricted access to credit and the welfare of newborns decreases by as much as one percent.

March 21, 2017

To Whom It May Concern:

Subject: Recommendation Letter for **Florian Exler**

I am writing to strongly support Florian Exler's application for a Small Grant with the NBER Household Finance (HF) working group. I have been working on the joint project with Florian for about a year now, and I think I can attest to his qualities as an economist and a researcher. I believe Florian is a promising young researcher, who deserves and would greatly benefit from the Small Grant. Of course, I also believe the project we are working on is an important and promising one, and is worthy of the support from the HF program.

Florian will defend his PhD thesis at the University of Mannheim this summer, and will join the University of Vienna as an assistant professor in the Fall. He has already written two papers on household finance, and we are currently working on the joint project that he is submitting as this grant application. I think his job market paper "Regulating Small Dollar Loans: The Role of Delinquency" makes valuable contribution to the analysis of consumer credit market, especially that faced by the poorer households. It brings together several key elements that are critical to that group of borrowers – "debt trap" that may arise endogenously in the model, delinquency as a non-trivial alternative to bankruptcy filing, and a fixed cost of making a loan, which is particularly significant for this group due to the smaller size of their loans. The paper highlights Florian's keen perception of the important issues around these topics and shows his excellent technical skills in both modelling and computational work.

The current project "Regulation of Consumer Credit with Over-Optimistic Borrowers" is joint with my regular co-authors, Jim MacGee and Michele Tertilt (who is Florian's main advisor in Mannheim). The starting point for our project is recognizing that the fully-rational models we have been using for quantitative analysis of the consumer debt markets, delinquencies and defaults fail to capture some key aspects of the policy debate surrounding these issues. Fully rational and perfectly informed households that populate our quantitative models would never benefit from a regulation imposed on the lenders. Yet, the reality (especially that faced by poor households) strongly suggests a very different take on the world. We attempt to capture that reality by departing from the assumption of fully rational (or correctly informed) borrowers. This allows us to think of such issues as predatory practices of lenders and their effects on welfare of both sophisticated and "behavioral" borrowers, and to make sense of regulation proposals that aim to protect borrowers from their own naivete.

In summary, I strongly recommend Florian Exler for the Small Grant with HF working group. If you need any further information, please do not hesitate to contact me at livshits@uwo.ca.

Sincerely,

Igor Livshits
Associate Professor, Dept. of Economics
University of Western Ontario