Florian Exler

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Florian Exler, Department of Economics, U Mannheim

National Bureau of Economic Research

November 28, 2016

Application

Dear Recruiter,

I hereby apply for the position as **Post-Doctoral Fellowship on Household Finance** (ID: appHFf16) at National Bureau of Economic Research.

My name is Florian Exler, I currently am a PhD-Candidate in Economics at the University of Mannheim under supervision of Michèle Tertilt and I expect to complete my PhD by June 2017. I am a macroeconomist particularly interested in household finance. I use quantitative methods to understand how financial markets shape individual behavior and well-being. You find a current Curriculum Vitae, my research statement in the attachment.

I am available for interviews at the **SAEe Meetings in Bilbao, December 15-17 2016** and the **AEA/ASSA Meetings in Chicago, January 6-8 2017**. I would be delighted to meet you in person. If you have any further questions, please do not hesitate to contact me. Thank you for your time and consideration.

Sincerely,



Florian Exler

encl: CV, Research Statement

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Placement Coordinator:
Dagmar Röttsches
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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

Prof. Michèle Tertilt
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Prof. Klaus Adam
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Prof. Jim MacGee
University of Western Ontario
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Prof. Sang Yoon (Tim) Lee
Toulouse School of Economics
☎+33 5 61 12 88 73
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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

2016	Symposium of the Spanish Economic Association (Bilbao, scheduled), 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.

Research Statement

Florian Exler
floexler@gmail.com

Areas of Interest I am a *macroeconomist* particularly interested in *household finance*. I use *quantitative* methods to understand how financial markets shape individual behavior and well-being. My research is motivated by policy questions and uses calibrated structural models to evaluate welfare implications of (potential) regulation.

Absent perfect financial markets, assets and debt are important tools that households use to smooth consumption in the face of idiosyncratic risk. My research mainly focuses on how default and debt relief can provide insurance for households hit by negative income or expenditure shocks. An important, statutory way of debt relief is consumer bankruptcy. When designing consumer bankruptcy laws, policy makers face a trade-off between high credit prices due to nonpayment risk and providing insurance through debt relief.

To develop normative policy recommendations, I follow two steps that I deem crucial: Firstly, I develop theoretical models to appropriately represent the underlying economic forces households face when taking out credit. Secondly, I calibrate these models to capture important empirical characteristics in the markets I study.

Regulating Small Dollar Loans: The Role of Delinquency My job market paper analyzes the role of delinquency when regulating small dollar lending in the United States. Unsecured lending contracts are subject to limited commitment not only because of official consumer bankruptcy laws. Households can also default by simply not repaying their loans and becoming delinquent. To capture both options of default, 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, lump sum court fees and lawyer costs prevent low income households from filing for bankruptcy protection[1]. With delinquency as the only option, these households do not have access to legally mandated debt relief. Additionally, delinquent households pay late fees to avoid collection efforts from their banks. I find that delinquency offers insufficient insurance against adverse events. In a policy experiment, low income households are allowed to repay bankruptcy filing costs *after* debt relief, making bankruptcy more affordable. I show that

[1] c.f. Stefania Albanesi and Jaromir B. Nosal (2015). *Insolvency after the 2005 bankruptcy reform.* Staff Reports 725. Federal Reserve Bank of New York.

bankruptcy filings increase and delinquency decreases. Low income households enjoy a 1% welfare increase; aggregate welfare increases by 0.1%. The repayment plan proposed by the Consumer Financial Protection Bureau on the other hand does not yield any welfare gains.

Bankruptcy and Wage Garnishment In my second paper, I explore the trade-off between providing households with insurance through debt relief and incentivizing repayment to keep interest rates low. While the U.S. regime has a strong insurance component, many European systems are stricter in that they force households in bankruptcy to repay (parts of) the outstanding debt through wage garnishment. I examine the optimal garnishment regime for the German economy and the resulting impact on credit prices. Since garnishment poses an implicit tax burden, households are subject to moral hazard when choosing labor supply. To account for moral hazard, I model labor supply endogenously. 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.

Future Plans The empirical literature on household finances documents increasingly detailed characteristics of household borrowing and saving. Making use of this information, I believe that employing quantitative macroeconomic tools will help to better understand the underlying mechanisms. Only then can we identify the scope for potential regulatory reforms. I think three areas are particularly important:

(1) Do households fully understand their financial situation and how do households form expectations about the future?

(2) Is there market power in the financial markets that households access? What role do moral hazard and adverse selection play when financial contracts are created in equilibrium?

(3) What kinds of risk do households face that is not insurable in traditional insurance markets?

Work in Progress Addressing the first set of questions, Igor Livshits, Jim MacGee, Michèle Tertilt and I explore "Regulation of Consumer Credit with Over-Optimistic Borrowers." For many financial products, the current regulatory debate centers around behavioral consumers. While irrational agents are usually seen as falling victim to exploitation, overoptimistic agents might also be cross-subsidized by rational agents. Overoptimistic households are surprised by negative shocks more often than rational agents and might declare bankruptcy more frequently. If overoptimistic borrowers are pooled with rational agents, they face lower credit prices than they would otherwise.

Planned Projects Regarding question (2), the literature on consumer bankruptcy takes a pragmatic stand and assumes perfect competition in lending markets. Contracts are only subject to limited commitment (and moral hazard in case of garnishment, see above), but information frictions are neglected.

When drafting financial products, however, banks also have to take adverse selection into account. Johannes Schneider and I plan to evaluate how private information affects the enforcement of credit contracts and expected repayment. Banks might want to treat households that face temporary shortfalls in liquidity differently from households that are structurally over-indebted. However, information frictions most likely prevent banks from perfectly identifying the reason for delinquency.

Agarwal et al.[2] document that credit card companies earn most profits when lending to low and high income individuals. These profits are used to cross-subsidize medium income borrowers. This finding is inconsistent with perfect competition as usually assumed in the consumer bankruptcy literature. In a second project, I plan to investigate potential causes for the observed profit patterns such as relationship capital or network effects. Then, I intend to analyze the effects of imperfect competition on the set of credit contracts offered and on household borrowing and repayment. Furthermore, market power gives room to welfare enhancing policy interventions that redistribute rents.

Finally, the fundamental risk that households face critically determines welfare consequences in any model described above. Livshits, MacGee, and Tertilt[3] provide first estimates of unforeseen expenditures. I am convinced that more detailed information on the type of risk, the persistence of risk and the correlation of different risks (e.g. bad health leads to expenditures and lower income) is pivotal when assessing welfare consequences of different bankruptcy policies. In the long run, I plan to investigate these risks more closely and plan to estimate a more detailed process of expenditure risk.

[2]Sumit Agarwal et al. (2015). "Regulating Consumer Financial Products: Evidence from Credit Cards." *The Quarterly Journal of Economics* 130.1, pp. 111–164.

[3]Igor Livshits, James MacGee, and Michèle Tertilt (2007). "Consumer Bankruptcy: A Fresh Start." *American Economic Review* 97.1, pp. 402–418.

DEPARTMENT OF ECONOMICS
Klaus Adam, Ph.D.
Professor of Economics

UNIVERSITY OF MANNHEIM

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To whom it may concern

November 1, 2016

Recommendation letter for Florian Exler, University of Mannheim

Dear Junior Recruitment Committee Member,

I am very happy to write in support of Florian Exler, a Ph.D. student at the University of Mannheim, who is applying for a position at your institution.

Florian is a quantitative macroeconomist with research interests in household finance. He has a strong set of research papers. Florian is - together with Johannes Poeschl - the best student we have on the market this year across all fields. I recommend that you give his application a careful look.

Florian entered our Ph.D. program in 2011 with a Master in Economics from the University of Freiburg, where his Master thesis earned the F.A. von Hayek Award. (During his time in Freiburg he has also spent an exchange year the University of Wisconsin, Madison). After completing our two-year Ph.D. course program, he started to work on macro household finance under the supervision of my colleague Michele Tertilt. I am his second advisor and he is now in his sixth year. Next to his job market paper, which I describe in more detail below, Florian has written a second paper on “Personal Bankruptcy and Wage Garnishment” in Germany, using a quantitative bankruptcy model with endogenous labor supply, and he has some ongoing joint work with Igor Livshits, Jim MacGee and his main advisor on “Regulation of Consumer Credit with Over-

Optimistic Borrowers" (Jim MacGee is also a letter writer). Taken together this is a rather strong portfolio.

Florian's job market paper, titled 'Regulating Small Dollar Loans: The Role of Delinquency", constructs a quantitative model of unsecured borrowing, targeted to replicate important features of the U.S. small dollar (or payday) loan market, which is a sub-prime segment of the consumer credit market with approximately 50bn USD of outstanding loans.

The conceptually new aspect of his framework is that he models besides the standard repayment versus bankruptcy decision also a delinquency decision. Delinquency is a situation in which the borrower is in arrears with contractual payments, but does not file for bankruptcy. Such a situation is empirically an important feature in this market segment, which has to do – amongst other things – with the fact that bankruptcy filing is rather costly and requires up-front payments that many borrowers either cannot afford or find too steep, given their current consumption levels.

In delinquency, the lender can subject the borrower to so-called "late-fees", essentially penalty payments, but can also offer to write down the face value of debt. Florian models fee and write-down decisions as being optimal for the lender subject to a limited commitment constraint on part of the borrower: the borrower can always opt not to pay the fees and not to honor the debt; not paying the fees generates a monetary gain, but also subjects the borrower to a direct utility loss (think of these as arising from the lender's collection efforts) and constrains any other borrowing and thus the ability to smooth future shocks. Lenders choose late fees and the debt restructuring so as to maximize expected payoffs. Importantly, delinquency– unlike bankruptcy – may not result in a debt write down for borrowers. Indeed, a small fraction of delinquent borrowers falls into "debt traps" in the sense that the present value of fees and debt repayments made ex-post along the realized equilibrium path exceeds the ex-ante debt levels owed at the start of the delinquency period (this is not true in expectations at the start of the delinquency period). These debt traps emerge due to the incompleteness of the contracting space, which is modeled to resemble the one actually present in these markets.

Subjecting households to persistent and transitory income shocks, as well as large expenditure shocks that potentially trigger default or delinquency, Florian's quantitative model can replicate a number of features of the unsecured borrowing market: it matches the average debt to income ratio, the default and delinquency ratios, and it generates large annualized percentage rates (APRs) of interest for small dollar loans and lower APRs for other forms of unsecured borrowing (credit

card borrowing). The latter is achieved by modeling lenders' technology for producing loans as being subject to a fixed cost per created loan. Breaking even then requires that competitive lenders charge higher APRs for smaller loans. The model also does a good job in matching the slope of the APRs across income quantiles and loan size quantiles.

Given the quantitative performance of the model, Florian then evaluates two policy proposals: (1) a reform proposal put forward by the Consumer Financial Protection Bureau (CFPB), which would force small dollar loan lenders to offer delinquent borrowers a fixed repayment plan in which repayment is spread out over several periods (rather than the total sum coming due at once and late fees being levied if the sum is not repaid in total); and (2) a bankruptcy advance, which would allow the consumer to pay the up-front costs associated with filing for bankruptcy; the advance is budget neutral in the sense that borrowers are required to repay it (and do so in equilibrium) following the conclusion of the bankruptcy procedure.

Florian shows that the CFPB proposal would actually *not* be chosen in equilibrium. The reason is that – as with up-front payments for bankruptcy procedures – the repayment sums involved would require low income households to scale back consumption by so much that they prefer staying in delinquency (essentially the proposed repayment horizon is too short). High income households, however, would always prefer to pay the bankruptcy fee to get rid of debt. The model thus suggests that none of the households will use the additional option proposed by the CFPB.

The situation is different for the second proposal mentioned above, i.e., the bankruptcy cost advance. It allows getting rid of debt without scaling back immediately on consumption: the bankruptcy advance can be refinanced in the period after bankruptcy in the private market. Florian shows that this proposal leaves the delinquency plus bankruptcy rates unchanged, but shifts many households that previously would have chosen delinquency into bankruptcy, thereby largely eliminating "debt trap"-like outcomes. In consumption equivalents terms, low income households permanently gain up to 1% of consumption from introducing the advance option, while high income households loose only very little.

I very much like this paper as it offers a conceptually transparent approach for discussing borrower delinquency, "debt-traps" and the welfare effects of a number of policy proposals that are currently discussed to improve risk-sharing in unsecured sub-prime credit markets. It also points to an important market-incompleteness in the U.S. bankruptcy code, namely the fact that borrowing to finance bankruptcy costs is not possible in a market in which this borrowing would also be subject

to the bankruptcy procedure. I think the paper has a good chance of getting published in a leading field journal, such as the Journal of Monetary Economics.

Florian is a hard worker, a good presenter and a good writer - his job market paper is rather polished. He has also been very productive: he has one more completed paper and some ongoing work with senior coauthors. He has a pleasant, open and very friendly personality; his teaching ratings were consistently very good. In sum, Florian has my strong support and I think he would be a very pleasant colleague.

In terms of research quality Florian is at the same level as our former student Moritz Kuhn, who has received early tenure at University of Bonn and has papers published in the AER (lead article), the Economic Journal, the J. of Public Econ, etc.

I recommend Florian to all European schools, including the best, and to all U.S. schools, except for the very best. I also recommend him to research departments at leading central banks.

Please let me know if you have further questions.

Sincerely,



Klaus Adam

DEPARTMENT OF ECONOMICS
CHAIR FOR INTERNATIONAL ECONOMICS

UNIVERSITÄT MANNHEIM

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Mannheim, November 7, 2016

Dear Recruiting Committee,

I am extremely delighted to recommend Florian Exler for a position in your Department. I am Florian's main advisor. Florian is by far the best PhD student I have had since joining the University of Mannheim six years ago. In terms of potential, he compares well to my previous student (at Stanford) Todd Schoellman, who was just voted tenure at Arizona State University (at the Department level). Every department (excluding perhaps the very top), should take a close look at him.

I have known Florian since he took my second year topics course in 2012. He has also worked as my research assistant and earlier this year we started a joint project, so now he is also a co-author. Over the last three years, Florian has been a very active member of the "macro group" here in the Department. He has presented his research many times in our internal macro bag lunch series. He often asks insightful questions. I am very impressed with Florian's accomplishments so far. Florian is an intelligent, creative, ambitious, and hard-working researcher. At this point I see him more as a colleague than a student.

Florian is a macroeconomist. His research is in the area of consumer finance. In terms of methods, he uses calibrated quantitative models to analyze policy-relevant questions. Florian thus has modeling skills, computational skills, as well as data skills. He has worked both with the SCF and CPS extensively. By now he has two completed (single-authored) papers and is working on a third new project (joint with myself). I think this is a very nice portfolio for someone on the job market.

Let me first describe the contribution of Florian's job market paper and then briefly comment on his other projects. His paper "Regulating Small Dollar Loans: The Role of Delinquency" got inspired by the payday loan market. This is a curious industry that lends to quite poor people, typically at extremely high (annualized) interest rates, over very short periods. Policy-makers (especially the Consumer Financial

Protection Bureau – CFPB) are currently heavily debating various options to regulate this market (which comprises not only payday loans but also other small dollar loans). While there is a sizeable literature on consumer credit by now (including my own work), Florian quickly noticed that the small dollar loan market has two features that make it quite distinct from other unsecured credit markets (such as credit cards). First, interest rates are extremely high (often APR of 400 percent or more), which seems hard to explain with standard models. And second, delinquency is very common, i.e. people simply do not make payments (and they often remain delinquent for a long time), yet don't seem to be filing for bankruptcy.

Intrigued by these features of the small dollar loan market, Florian set out to model them. This required some thinking. High interest rates are often attributed to market power, yet the payday lending business as a whole does not seem to make large profits. Moreover it is not dominated by one large lender, but rather many separate small businesses. Thus market power seemed an unlikely explanation. Rather, Florian decided that the fixed cost of making a loan might be a promising reason. Typically, in the literature, financial transactions costs are modelled as a spread between the borrowing and lending rates, i.e. as proportional to loan size. But that seemed to make little sense for loans of $500 or less for short periods. A proportional fee (of the usual magnitudes) would yield a payment to the lender of less than a dollar per loan. Why would anyone go through the hassle of filing paper work and dealing with a loan for such a small amount? A fixed cost captures the idea that setting up a loan contract takes time independent of the loan size. Second, delinquency seemed another puzzle. People often pay late fees period after period, surely it would be better to file for bankruptcy? And yet people don't. Partly inspired by recent empirical work by Albanesi and Nosal, Florian realized that filing for bankruptcy is actually quite costly (in terms of court filing fees and lawyer fees), and that many of the loans in question are quite small and held by poor people who do not have the cash in hand to pay the fees. He thus set out to model delinquency explicitly and distinct from bankruptcy. As far as I know there is only one other (unpublished) paper that models delinquency explicitly (Athreya, Sanchez, Tam and Young, 2016). In contrast to Athreya et al, Florian models late fees and collection efforts by banks explicitly. He also allows banks to voluntarily write down part of the debt in delinquency if this increases the (expected) repayment amount.

By modeling delinquency explicitly and introducing the fixed cost, Florian successfully captures the delinquency-to-bankruptcy ratio in the data and the extremely high APRs for small loans. He computes average interest rates by income and by loan size quintiles from the Survey of Consumer Finances. In the data, interest rates decline by income – a feature that is not surprising as default premia decline with income, i.e. this feature is captured by most models. Yet the data also shows that interest rates decline with loan size. This is much more surprising, since all else equal, default premia should increase in loan size – so standard models are not able to capture this feature. Due to the fixed cost, however, Florian's model does quite well

along this dimension. Another interesting result of the benchmark calibration is that some of the most unlucky consumers repay, over the course of delinquency, a multiple of the debt they originally owed. It seems quite reasonable to me to call such a situation a "debt trap."

The beauty of a calibrated structural model of course is that it allows the analysis of counterfactuals. It also lends itself to welfare analysis. And this is precisely what Florian does with his model. He first analyzes the CFPB's proposed repayment plan. The stated intention of this proposal is to help consumers in trouble: those unable to repay their loans and stuck in delinquency. By forcing lenders to have an affordable repayment plan, the hope is to get such consumers out of their "debt trap." Florian tries to model the main features of the proposed plan as accurately as possible and then simulates what would happen in the model. The main result is that it simply would not work. When offered such a repayment plan, most people prefer to stay in delinquency instead. This might seem surprising since delinquency is not a pleasant state to be in – after all consumers pay a heavy utility cost each period and moreover no further borrowing is possible in this state. Yet, for most consumers the repayment plan is even worse. Even though they face the utility cost, in expectation they repay a lot less, and hence delinquency is still preferable.

Given the dismal performance of the CFPB's plan (in the model), Florian then goes on to investigate alternatives. Specifically he analyzes a loan by the government to finance the bankruptcy filing fee, which Florian calls a "bankruptcy advance." By assumption such a loan cannot be discharged in bankruptcy ever, and thus it is given at the risk-free interest rate. While this might appear like a cheap trick (i.e. sheltering government loans from bankruptcy), note that this is a feature of many government loans, e.g. student debt and taxes owed cannot be discharged either. Florian finds that such bankruptcy advances would in fact work quite well in the model. Delinquencies would go down by about two thirds and instead bankruptcies would rise by a similar magnitude. While this itself might not appear surprising, the surprising result is how much it would improve welfare. Poor people would gain a tremendous amount in welfare terms (measured in consumption equivalence units), while higher income types would lose just a very small amount. Overall (ex-ante) welfare is increased by about a percentage point. Thus, this seems a very reasonable policy to consider. It is also not a policy currently on the radar of policy-makers. Thus, I think Florian's research is not just interesting to academics, but could become quite important to policy-makers as well.

Florian's job market paper has already been well-received by the research community. He has presented his paper at multiple conferences this past summer (including the EEA in Geneva and a poster at the SED in Toulouse), and has been invited to give seminars at several Departments. He will also give his paper at the University of Chicago soon, where I am currently on sabbatical. His paper is very well polished and he should interview well. I strongly believe his job market paper will be published well. Given the hot topic and policy relevance, he might even have a shot at a top five journal. The lower bound should be the Journal of Monetary Economics or the AEJ Macro.

Florian's second paper is titled "Personal Bankruptcy and Wage Garnishment." This paper analyzes the negative work incentives implicit in the German bankruptcy system. Contrary to the Fresh Start system in the United States, Germany only features a Chapter 13-like restructuring of debt, where only after several years of repayment the remaining debt is forgiven. Since the amount of repayment during this period is a fraction of income, there are clear disincentives to work inherent in such a scheme. On the other hand, by having a long repayment period, a larger amount of debt is repaid and thus, ex-ante, credit prices are positively affected. Thus it is not obvious what the optimal policy should look like. Florian uses a calibrated model to find the best policy (within a given set of instruments) specifically for Germany. He finds that decreasing the repayment fraction (to improve work incentives) and at the same time increasing the length of the repayment period would lead to aggregate welfare gains of about half a percentage point. Also this second project has been well-received by the research community. Florian presented it at various conferences (including a quantitative macro workshop in Vigo, the Econometrics Society World Congress in Montreal, and the German Economic Association Meetings in Münster last year). He also gave the paper during seminars at various institutions (e.g. Minneapolis Fed, University of Stockholm).

Finally, Florian is currently working on a new project with Jim MacGee, Igor Livshits, and myself. The goal of the new project is to venture into behavioral economics. Many policy discussions (and in fact some of the empirical literature on the topic) center around the idea of financially illiterate (or otherwise impaired) poor households being exploited by the banking industry. Policies to address such a problem (if it exists) might be quite different from changing bankruptcy laws. In ongoing work we explore various angles of this topic.

Rather than going into more details of Florian's second and third projects, let me briefly say a few words about his contribution, given his agenda is closely linked to my own work. First, in my view the specific topics (delinquency, the CFPB's proposal, and the effects on hours worked) are quite distinct from what I have worked on in the past. Second, while we had used a life-cycle model in our AER paper, Florian explores an infinitely lived consumer model in his job market paper, which computationally needs to be solved quite differently, i.e. he could not just build on our code. Third, I can attest you from working with him that he is an independent thinker, very organized, and ambitious, so I have absolutely no doubt that he will flourish on his own.

Finally, a word on teaching and presentation skills. Between his two papers, I think it is fair to say that Florian has by far more conference experience than the average PhD student on the job market. Accordingly he is a fairly confident presenter. He also has substantial teaching experience, both on the graduate and undergraduate level. Let me emphasize that Florian has been the teaching assistant for various parts of the first year PhD macro sequence several times. For obvious reasons, only our very best students get assigned this task.

In sum, Florian has all the traits needed to become a successful researcher: he is intelligent, creative, and ambitious. He is also an outstanding citizen of the Department. He actively participates in seminars and workshops, and has helped in organizing them. Florian's experience, skill, and personality would make him an excellent addition to any economics department. He would also be a great fit for Central Banks or finance departments with an interest in consumer finance. In terms of potential, I believe he compares well to my previous student Todd Schoellman who was just voted tenure at ASU (in the department). In terms of recent Mannheim students, I believe Florian is in the same league as Moritz Kuhn (now tenured at University of Bonn) and more recently Christian Michel (now an assistant professor at Pompeu Fabra). I therefore highly recommend Florian to your Department.

Sincerely,



Michele Tertilt

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November 8th, 2016

Dear Colleagues,

I am very happy to write this letter in support of **Florian Exler**. I have known Florian for his entire Ph.D. studies, as I was at the University of Mannheim for 5 years until my recent move to the Toulouse School of Economics. During this time, I have come to know Florian quite well: He was one of the most attentive students in my advanced graduate macroeconomics course, and an active member of the weekly macroeconomics Ph.D. workshop. Florian presented at least once a semester in these workshops, and would regularly raise insightful questions/comments regardless of whether the presenter was a fellow student, Mannheim faculty or invited speaker as well. In his advanced years, he sat in the student office right next to my own, and not only was he in close contact with me over the progress of his research but suffice it to say that we have had enough coffees and occasional beers together over the years. So I am confident I know Florian's work and character quite well.

Florian is the strongest macroeconomics candidate from Mannheim in several years, and one of the best if not the best candidate this year across all fields. Going a few years back, Florian's potential compares favorably with Moritz Kuhn (tenured at Bonn), one of Mannheim's most successful graduates in macro, although it is difficult to compare the two. It is perhaps easier to compare him with more recent successful graduates from Mannheim but not in macro, such as Christian Michel (UPF) and Stefan Weiergräber (Indiana Bloomington): This batch of more recent graduates were more influenced by a shift in research supervision in Mannheim due to the large number of new, influential faculty joining during this time. Broadly speaking, while Mannheim has traditionally produced strong candidates in methods, there has been more emphasis on real-world, policy relevant questions in recent years. Florian deserves credit for absorbing the best from both the old and newer faculty, resulting in his unique set of methodological skills as well as a keen eye for important, practical questions. We have very high expectations for him.

Although I am sure his main advisor, Michèle Tertilt, will elaborate in length on his job market paper, let me give you an overview of my own thoughts. After that, I also want to talk a bit about his second paper, which I think is of equally high quality.

In his job market paper titled "**Regulating Small Dollar Loans: The Role of Delinquency**," Florian tackles the hitherto under-investigated small loan market (in the U.S.). He starts by pointing out that this market is large: lending volume amounts to $50 billion, and interest payments alone $8 billion, per annum. Although the dollar volume may pale in comparison to larger credit markets, such as the mortgage market, more than 12 million people---about 3.5% of the U.S. population---are active in the market every year. This is an important point to consider from a welfare perspective, since most of these are low-income households close to or at their borrowing constraints. Perhaps more importantly for Florian's analysis, the interest rates they face are exorbitantly high, so the natural question arises whether these costs reflect the high insurance value of small loans for low-income households, or if it is a high welfare cost for households close to zero consumption.

Due to the high cost, many low-income households outright default on such loans. It is important to distinguish such a default, which Florian calls falling into a "delinquency state," from bankruptcy, which comes with debt relief (which is also an option in his model). The way he models delinquency

is a significant contribution to household finance models. Especially for poor families, bankruptcy is an unavailable option for many reasons, and Florian assumes a fixed cost of declaring bankruptcy to stand in for the associated legal costs. In his model, small loan creditors internalize the cost of delinquent debt, and instead of "giving up" on such debtors by letting them live in autarky, restructure the loans to extract as much surplus as possible. That is, they renegotiate the interest rate and charge late fees that the household can just afford. This feature of his model, in my view, captures median- and low-income household finance behavior much more realistically than abstract debt constraints that allow no default, or assume that all unlucky, poor households can readily declare bankruptcy and wipe out their debt at a fairly low cost.

I also want to point out that although his application is to the small loan market, his approach can be applied to a much wider range of consumer finance scenarios (save perhaps the very wealthy): suburban mortgage markets, student debt etc. come to mind.

Since households can always choose among three options (solvency, bankruptcy, delinquency) at any point in time, Florian's numerical problem is non-trivial as anyone familiar with dynamic discrete choice models would know (especially without assuming extreme-value type distributions, which is hard to fit into the context of an incomplete markets model such as Florian's). This is compounded by the fact that lenders price loans according to the probabilities they expect the borrower choosing each of the options next period. Since this is an indispensable part of his model but computationally expensive, some simplifications are required elsewhere. Here, Florian makes just the right assumptions at the right places, while also checking that they are backed by empirical evidence. The parsimony of his assumptions are a testament to his creativity and understanding of the model, as they are neither so specific to be trivial nor too general as to become intractable.

Such is his second new assumption, which is more tied to the subject of small loans. In order to generate high interest rates but avoid having monopolistic lenders so as to keep the analysis tractable, Florian also assumes a fixed cost of originating loans. In addition to ample empirical evidence on such costs, theoretically it is clear that rates on large loans will then be close to competitive and hence to the risk-free rate, while small loans, when in demand, can command arbitrarily large rates. Of course, the fact that they are still taken out means, in a model with rational agents, that it was still worth the risk for the small loan borrowers: The question is not whether agents make the right decision but whether policy can improve their welfare and if so, whether it will be a cost/benefit for the rest of the population.

Currently, the U.S. Consumer Finance Protection Agency proposes a repayment plan, which, in a nutshell, is supposed to protect households in delinquency *ex post.* Instead of becoming subject to accumulating late fees, the policy will let borrowers roll over their debt at no additional cost. For borrowers who opt in, lenders would be federally forbidden to levy extra fees. Instead, the Agency would mandate a fixed maturity with fixed repayment amounts.

Florian's quantitative analysis reveals that such a policy is effectively useless, because delinquent households would never opt into the plan. (By the way, operationalizing this is again non-trivial, because the number of dynamic discrete choices expands to 4!) This is intuitive, especially in the face of persistent income shocks---in good times, there is no reason for the household to commit to repaying over long horizons, since they expect to be able to pay back earlier. In bad times, households would become delinquent anyway after the repayment plan expires, or worse, cannot afford to pay back the Agency-mandated amount to begin with. And since barely anyone opts into the plan, there is virtually no change in consumer welfare.

Florian's instead proposes to improve the already existing option of filing for bankruptcy. This protects households against delinquency *ex ante,* by lending households the cost of bankruptcy so that it becomes a feasible option. It is as if the household is allowed to borrow a fixed amount beyond it would be able to in the market, and further at the risk-free rate---but the borrowed amount *must* be used to file for bankruptcy. In his counterfactual analysis, he finds that about 80% of households who

would have chosen delinquency in the absence of this policy switch to filing for bankruptcy instead. Since bankruptcy provides better insurance (the cost is lower than delinquency), consumption equivalent welfare for poor households, which comprise about 10% of the population in the data and his benchmark calibration, increases by about 1% point. While in theory this may put some burden on the rest of the economy since their debt is wiped out, the costs are minimal because i) these are small dollar loans to begin with, ii) the debt would not have been repaid anyway in delinquency either, and iii) the fixed cost of filing is almost always paid back.

As I have pointed out several times already, this is a very creative paper, beginning from the very topic. Florian has identified a significant market which, especially today, has come to the forefront of policy discussions. For many young and median-income households, the behavior that he allows in the model is much more realistic than stylized bankruptcy models I have previously seen, and I have learned a lot from the paper both quantitatively (how agents behave when they have multiple default options) and empirically (on small dollar loans). The peculiarity of the small dollar loan market requires some significant modifications to existing literature, including Athreya, Sánchez, Tam and Young (2015), which also features delinquency but not debt-restructuring. All this points to his keen eye for real, policy-relevant research, deftness in modeling and unexpected yet intelligent answers. I would expect to see the paper in its final form in a general interest journal such as the ***Journal of the European Economic Association***, or a top field journal such as the ***Journal of Monetary Economics***.

His second paper, "**Personal Bankruptcy and Wage Garnishment**," was his first serious academic paper, and also addresses a very interesting, real-world question, one that that is raised especially when comparing differences between the U.S. and other advanced nations: Does U.S.'s lenient bankruptcy law promote market labor, giving it an aggregate productivity edge (in his application, over Germany)?

In contrast to the U.S., where the consequences of filing for bankruptcy are relatively low (debt is wiped out and taking out credit is restricted only for a fixed amount of time), in Germany, declaring bankruptcy comes with the cost of a large fraction of your future wage being garnished until the debt is paid off. For low-income households, lenient bankruptcy rules are favorable *ex post* as an insurance device; But it comes with the *ex ante* cost of making it more difficult to get a loan in the first place, since lenders will fear the possibility of non-repayment.

More interestingly from a macro perspective, there is also an equilibrium trade-off: While forgiving debt may reduce the amount of capital, wage garnishment may decrease labor if households respond to their lower effective wages by working less. Taking all this into account, Florian calibrates an incomplete markets model with default to Germany, and computes i) the constrained optimal policy in which the social planner chooses the optimal length and amount of wage garnishment, and also ii) simulates the welfare cost/benefit of moving to the bankruptcy regime of the U.S. He finds that the optimal policy dictates less garnishment but for a longer period of time than the current German policy. This would increase aggregate (consumption-equivalent) welfare by half a percentage point, taking into account both the insurance and general equilibrium effects. Low-income households gain significantly, by 1.5% points.

However, the welfare gains from decreasing the amount and increasing the length of garnishment is non-monotonic. In the limit when he moves Germany to a U.S.-style policy, there is an average loss of welfare by 1% point. That is, the cost of higher credit and loss of aggregate capital dominates the insurance effect and increase in labor supply.

I really like the idea behind this paper. That bankruptcy policies have not only an individual level trade-off but general equilibrium trade-off by altering aggregate quantities, to me, is fascinating. While it needs some more work and could benefit from the inclusion of more choices available to his model's agents (the option to start a business, for example, and/or (in)voluntary unemployment), the idea and execution of the paper again show his creativity and eagerness to address policy-relevant

questions. When he is able to add some final touches to the paper after the job market, which I am looking forward to, I am sure the paper will be on par quality with his job market paper, and publishable in similar outlets such as the ***International Economic Review***.

I am aware that Florian also has a third project with the two other letter writers (Michèle and Jim MacGee) and Igor Livshits, but I am not very familiar yet with the details and will defer to Michèle and Jim for comments on that chapter. Of course, I am sure that he will be instrumental in pushing that project forward as well, since---although I have yet to work with him myself---he is a coauthor most people would like having: a serious academic, but also congenial and always pleasurable to talk things over and have a beer with.

Florian is not only creative and hardworking, he is also one of the most enjoyable and mature students I have interacted with. He has remained confident and calm throughout his Ph.D. studies, and was a good friend and charitable leader: For many years, Florian organized several seasonal outings to local points of interests, especially for newcomers, and was also in charge of the regular department BBQ/picnic with about 100 people. He was the fun, active guy in the department, popular with students and faculty alike, both academically and personally.

I have never had Florian as a teaching assistant myself (mainly because I mostly taught smaller classes that don't need TA's), but from how he articulates himself individually and his superb presentation skills, I can only imagine he is a fantastic teacher and communicator, more so given his affable personality.

In the short-run, I believe he will continue to write papers studying the macroeconomic perspective of household/consumer finance. That he became dedicated to this field early on attests to his interest and discipline, and he already has two very interesting papers to show for it. I'm sure more are to come, and that he will quickly establish a name for himself in the field. Nobody knows the long-run, but he definitely has the potential and capabilities to venture into other topics and questions he finds of interest as well.

In closing, let me reiterate that Florian is the best macroeconomics candidate from Mannheim in the last 5 years, and comparable to our best placements in recent years overall. I am confident he will be a delightful colleague to anyone who is lucky enough to hire him. He has a lot to offer: He is creative, is a good collaborator, and has huge upward potential that won't be subsiding anytime soon. All departments should consider his file seriously and interviewing him in person, except perhaps the top 15.

Please feel free to contact me if you have any further questions.

Sincerely,



Sang Yoon (Tim) Lee

Western SocialScience

November 21, 2016

Dear Hiring Committee Members:

I am pleased to write a letter on behalf of Florian Exler, who has applied for a position in your department. Florian is a PhD student at Mannheim who is on the job market, with plans to defend his thesis in summer 2017. I think that Florian is a promising and productive young scholar who would make a fine addition to your department.

I interacted with Florian while visiting Mannheim during April and May of this year. Florian participated in a graduate lecture series I gave on consumer credit and bankruptcy, and I interacted with him frequently to discuss his research. This reflects our common interest in consumer credit, and the fact that he is an impressive young scholar. Our interactions have also led us to begin work -- with Florian's advisor (Michele Tertilt) and my colleague Igor Livshits -- on a joint project. If we were hiring in the Macro area this year at Western, I would push for us to interview Florian, and to have him out for a job talk.

Florian's main research interests lie in macroeconomics, with a focus on heterogeneous agent models with incomplete markets. This interest is reflected in his job market paper, which tackles a topical question of how bankruptcy and credit market regulations shape access to credit markets of low income households. This is an important issue, reflected in the ongoing debates about whether (relatively) high costs lending products such as pay day loans offer benefits by helping lower income households smooth consumption in the face of volatile income, or lead to a "debt trap" that leaves household worse off. In addition, in the aftermath of the 2005 U.S. bankruptcy reform (BAPCPA), there is increased concern over whether the increased cost of filing for bankruptcy has resulted in some lower income households being unable to afford to file for bankruptcy – and thus effectively being stuck in a delinquency limbo.

To address this question, Florian develops a model that incorporates the key features needed to tackle this problem. The model builds on the incomplete market with bankruptcy models of Chatterjee et al (2007) and Livshits et al (2007). This provides an incomplete market framework with bankruptcy that is a natural starting point for a model of lower income credit markets since it features both default in equilibrium, and has lenders price in the credit risk from default when they price loans. In addition, Florian chooses to work with the infinitely lived agents rather than a life-cycle model, so as to allow for a (relatively) tractable environment that can be calibrated to a period length of three months. This is intended to capture the fact that many loans to lower income households (such as payday loans) are short term.

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Florian extends this framework along two key dimensions. First, Florian incorporates fixed costs of servicing each loan. This is important for an analysis of the impact of credit products for lower income households for two reasons. First, the face value of many lower income loans (e.g., pay day loans) are in the hundreds of dollars. This means that even modest fixed costs of making these loans could be a significant factor in accounting for the relatively high APRs associated with these loans. Second, Florian adds in late fees that are added to borrower's debt if they are late (delinquent) in repayment. This captures an important feature of low income credit markets, where a substantial fraction of lender's revenue is accounted for by late fees.

These additions lead Florian to extend the benchmark bankruptcy model so that borrowers can choose between delinquency – where they do not repay their debt, but incur additional fees – and bankruptcy. In the calibrated equilibrium, this results in some borrowers who are either unable to afford the upfront cost of filing for bankruptcy or for whom the filing costs would exceed the delinquency fees that period remaining in delinquency for multiple periods. Mechanically, this reflects the fact that with standard utility functions, the Inada conditions imply that even small reductions in consumptions for poor households imply large change in the marginal utility of consumption. As a result, some poor households find it optimal to remain in delinquency for multiple periods and incur substantial late fees rather than file for bankruptcy.

This is a very interesting finding, as it illustrates how a "debt trap" scenario can develop for low income households with high debts. What is particularly interesting about the mechanism that Florian develops is that households are fully aware of the downside risk of a debt trap when they borrow, but still find it optimal to borrow. This is appealing since (as Florian notes in the paper), studies have found that most payday borrowers choose to borrow even when outside parties intervene to clearly explain the full costs and risks of payday loans.

Florian also does a serious job of calibrating the model to data moments from the SCF. Although his calibration does not fully account for the high interest rates on small loans in the data, he comes much closer than models without fixed costs per loan. Overall, Florian was quite careful to map the model to the best available data targets.

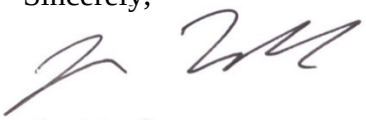
Florian also uses the model to quantitatively evaluate a recent proposal by the Consumer Financial Protection Bureau to end debt traps. He finds that the proposed debt repayment plans would not be effective. However, he also shows that adopting a policy of providing (priority) loans to pay for bankruptcy can improve ex ante welfare of borrowers. This points to a plausible policy reform that could help address debt traps, and also further illustrates the important ways in bankruptcy law can shape consumer credit markets.

As a Canadian, I found this particularly interesting, given the historical debate over access to bankruptcy for lower income borrowers in Canada. After some experimentation with government subsidized bankruptcy in the 1970s, Canadian bankruptcy trustees adopted an approach of processing bankrupts files and billing later (often claiming future tax returns). Florian work – as well as that of Albanesi and Nosal (2015) – suggests that similar reforms to increase access to low income households in the U.S. might be worth further investigation.

I think that Florian is a promising young scholar who will continue to produce high quality research in macroeconomics that should be publishable in top journals. I also have no doubt that he will be an excellent colleague, as I enjoyed my interactions with Florian during my time at Florian. While I have not seen him teach directly, my interactions with him suggest that he should develop into an above average instructor at both the undergraduate and graduate levels.

I hope that you will give Florian's application the serious consideration it deserves. If there is any additional information that you desire, please feel free to contact me, either by phone (519-661-2111, ext. 85207) or e-mail (jmacgee@uwo.ca).

Sincerely,



Jim MacGee
Associate Professor of Economics