5/25/2014

Dear Committee,

I am applying for a small grant from the NBER Household Finance Working Group for 2014. I am a doctoral candidate in the economics department at New York University and was referred to the call for proposals by my main advisor, Andrew Caplin.

The proposal I am submitting aligns well with the NBER Household Finance Group's interest, but I would like to stress how this proposal is a natural extension of my previous research. My work thus far largely examines savings incentives of retirees through heterogeneous agent life-cycle saving models, and I have two collaborative works in progress that examine retiree demand for insurance products. This work has prepared me well to study the financial and portfolio decisions of a different population.

Furthermore, I would like to be clear that the proposal for which I am requesting funding is a joint project with David Cesarini (NYU), Erik Lindqvist (Stockholm School of Economics), and Robert Östling (Institute for International Economic Studies). I would like to emphasize that as the others have spent significant prior effort in data generation, I will be taking a lead in the analysis. The proposal and the budget I am submitting both reflect my contribution and role in this project.

I appreciate your consideration of my proposal, and look forward to a decision.

Sincerely,

Joseph Briggs

The Effect of Wealth on Household Portfolio Risk: Evidence from Swedish Lotteries

Risk preferences and their relationship with wealth are of primary importance in household finance, asset pricing, and other branches of economics. As claimed by Arrow, "the behavior of [risk measures] as wealth varies is of the greatest importance for the prediction of economic reactions in the presence of uncertainty" (Arrow (1970)) [1]. In the last 44 years several studies have attempted to characterize this relationship but have yet to reach a consensus as to how risk aversion varies (if at all) with wealth. I propose using a unique data panel of Swedish lottery participants linked to their wealth holdings to establish the causal effect of wealth on household risk taking behavior.

Background

Existing studies of the wealth/risk preference relationship mostly fit into one of four categories: survey, experimental, cross-sectional, and panel. Experimental analysis (e.g., Holt Laury (2002), Choi, et.al. (2007)) is complicated because stakes are generally low and the appropriate wealth measure is unclear, while survey studies (Barsky, et.al. (1997), Guiso Paiella (2008)) are limited due to being hypothetical in nature. Cross-sectional studies that utilize risky financial asset holdings to study the wealth/preference relationship (e.g., Friend and Blume (1975), Bucciol Miniaci (2011)) generally find a positive relationship between risk tolerance and wealth, although this is sensitive to treatment of human, real estate, and business wealth. However, as noted in Chiappori Paiella (2011), cross-sectional studies are unable to identify the causal effect of wealth on risk due to an inability to disentangle individual risk preference from the population preference/wealth distribution.

Four recent studies use wealth and finance panels to characterize the wealth/risk preference relationship. Brunnemeier Nagel (2008) and Chiappori Paiella (2011) conduct similar studies on the US and Italy, respectively, and find no evidence risky portfolio shares change in response to changes in wealth. This non-result is largely due to a strong portfolio inertia effect and passive portfolio management. Calvet et.al. (2009) finds slight evidence of a positive relationship when using richer data on individual assets to control for inertia. Paravisini et.al (2011) finds further evidence of decreasing relative risk aversion while studying peer-to-peer lending markets, although the study only uses partial portfolio and wealth data. Thus, the risk preference/wealth relationship as demonstrated through portfolio choice is clearly an open question.

When using changes in risky asset share as a measure of change in risk aversion to identify the effect of wealth, one must assume that all portfolio determinants other than wealth are either unchanged or controlled. Clearly many first order determinants of risky asset share, such as individual equity return beliefs, are unobserved and not controlled in these studies. In addition, these studies treat all changes in wealth as unexpected, while it is unclear as to how foreseen changes in wealth were previously reflected by portfolios. Finally, because many portfolios are passively managed (see Ameriks Zeldes (2004)), it is unclear to what extent observed portfolios are representative of true preference.

Data

To overcome these identification issues, I will use the a data set collected by David Cesarini, Erik Lindqvist, and Robert Östling on over 3 million Swedish lottery participants that won over 8 billion Swedish Krona (approximately 1.2 billion dollars) between 1979 and 2006. This data set consists of the probabilities of winning in all lottery

[1] This quote was brought to my attention in Guiso Paiella (2008)

drawings for both winners and losers, as well as the amounts won by the winners. Because wealth is randomly assigned amongst individuals with the same probability of winning, we are able to use this data to construct control groups in which wealth assignment is independent of outcomes. While there may exist concern in using a sample of lottery participants to study risk preference, I note that the data set consists of three lotteries, the largest of which is a sample of prize-linked savings accounts that paid monetary prizes en lieu of interest. This subsample alone consists of more than 2 million accounts (while Sweden's population was less than 9 million in all years of our sample), and so the representativeness of the sample is not a first order concern. There is also substantial variation in prize size, with prizes ranging from very small to over 12 million Swedish Krona.

This data on lottery winners has been linked to Swedish administrative data, in particular the Swedish wealth registry. This data set contains precise records of disaggregated individual wealth in a variety of categories, including financial market, real estate, and business. In addition, I intend to link the lottery data to an even richer Swedish data set (KURU) that dissagregates down to the level of individual securities (see Calvet et.al. (2009) for more info on this data).

Analysis

The linkage of exogenously assigned wealth to the disaggregated wealth portfolio directly addresses several issues:

- Lottery winnings are orthogonal to changes in beliefs of asset returns, aggregate conditions, and other portfolio determinants.
- Lottery winnings are clearly unexpected, and thus this wealth was not reflected in earlier portfolios.
- Lottery winnings require an active allocation decision, and thus are less likely complicated by inertia.

As claimed in Carroll (2002) "The ideal experiment "would be to exogenously dump a large amount of wealth on a random sample of households and examine the effect both on their expressed risk preferences and on their risk-taking behavior." Even if other determinants of risky portfolio share change following the lottery win, the proposed study would be closer to this ideal than havwe been previous studies.

The study will thus proceed in two parts. First, I will estimate the causal effect of wealth on risky asset share through a set of regressions that control for the probability of winning with cell fixed effects. I will use the large variation in prize size to examine non-linear effects and explore the possibility of fixed portfolio adjustment costs. Following this, I will examine through a structural model what possible model adjustments, such as a consumption habits or captial market imperfections (e.g., Flabin Yamshita (2002)), are consistent with observed portfolio adjustments. It is my hope that this will allow me to determine both the nature and sources of the relationship between wealth and risk preference.

References

Ameriks, J., & Zeldes, S. P. (2004). How do household portfolio shares vary with age. working paper, Columbia University.

Arrow, K. J. (1971). Exposition of the theory of choice under uncertainty. Essays in the Theory of Risk Bearing, 44-89.

Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. The Quarterly Journal of Economics, 112(2), 537-579.

Brunnermeier, M. K., & Nagel, S. (2008). Do Wealth Fluctuations Generate Time-Varying Risk Aversion? Micro-evidence on Individuals. American Economic Review, 98(3), 713-36.

Bucciol, A., & Miniaci, R. (2011). Household portfolios and implicit risk preference. Review of Economics and Statistics, 93(4), 1235-1250.

Calvet, Laurent E., John Y. Campbell, and Paolo Sodini. "Fight or flight? Portfolio rebalancing by individual investors." The Quarterly journal of economics 124.1 (2009): 301-348.

Carroll, C. (2002). "Portfolios of the Rich." In Household Portfolios: Theory and Evidence. MIT Press Cambridge, MA

Chiappori, P. A., & Paiella, M. (2011). Relative risk aversion is constant: Evidence from panel data. Journal of the European Economic Association, 9(6), 1021-1052.

Choi, S., Fisman, R., Gale, D., & Kariv, S. (2007). Consistency and heterogeneity of individual behavior under uncertainty. The American economic review, 97(5), 1921-1938.

Flavin, M. and T Yamashita (2002). "Owner Occupied Housing and the Composition of the Household Portfolio." American Econmic Review 92(1) 345-362.

Friend, I., & Blume, M. E. (1975). The demand for risky assets. American Economic Review, 65(5), 900-922.

Guiso, L. and P. Paiella (2008). "Risk Aversion, Wealth, and Background Risk." Journal of European Economic Association, 6, 1109-1150.

Holt, C. A., & Laury, S. K. (2005). Risk aversion and incentive effects: New data without order effects. American Economic Review, 902-904.

Lusardi, A., Michaud, P. and O. Mitchell (Working 2013). "Optimal financial knowledge and wealth inequality." No. w18669. National Bureau of Economic Research

Paravisini, D., Rappoport, V., & Ravina, E. (2010). Risk aversion and wealth: Evidence from person-to-person lending portfolios (No. w16063). National Bureau of Economic Research.

Proposal Title: The Effect of Wealth on Household Portfolio Risk: Evidence from Swedish Lotteries

Principal Investigator: Joseph Briggs

Institution: NYU

Item	**Quantity**	**Cost Per Unit**	**Total Cost**
Air Travel:			
Round Trip NYC to Stockholm	6	1200	7200
Lodging:			
Short Term in Stockholm	**3**0 nights	100	3000
Conference Support:			
Travel and Lodging	2	800	1600
Total Base Cost			**$11800**
Administrative/Facility/Indirect Costs (15% of total)			**$1770**
Total Budget Request			**13570**

Budget Justification:
My budget request is comprised almost entirely of travel expense. Because Statistics Sweden limits access to their databases to within the borders of Sweden, I will need to travel to Stockholm whenever I conduct analysis. I estimate making 6 trips in total. It is my intention to sublet my apartment in NYC for extended trips to Stockholm and do not ask for funding for these as they are budget neutral. For trips which are too short to warrant renting my personal apartment, I am asking for funding for short term lodging in Sweden. If conference support is not eligible for funding, please omit this from the budget. Finally, standard institutional administrative costs are added to the total.

JOSEPH BRIGGS

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Citizenship: American

EDUCATION

New York University *2010-2015 (Expected)*
Ph.D. in Economics

North Carolina State University *2006-2010*
B.S. in Mathematics

RESEARCH FIELDS

Household Finance, Behavioral Finance, Economics of Aging, Late in Life Labor Supply

HONORS, SCHOLARSHIPS, AND FELLOWSHIPS

2010-2015	Henry M. McCracken Fellowship, NYU
2013	3rd Year Seminar Best Paper Award, NYU
2010	Class Valedictorian, NCSU
2010	Outstanding Economics Student (Non-Major), NCSU
2006-2010	Park Scholarship (Full tuition and expense), NCSU

PUBLICATIONS

Briggs, J., Dabbs, K., Holm, M., Lubben, J., Rebarber, R., Riser-Espinoza, D., and Tenhumberg, B., "Structured Population Dynamics and Calculus: An Introduction to Integral Modeling", *Mathematics Magazine* 83: 4 (2010), pp. 243-257.

WORKING PAPERS

Resolving the Annuity Puzzle: Estimating Life-Cycle Models without (and with) Behavioral Data
(with John Ameriks, Andrew Caplin, Matthew D. Shapiro, and Chris Tonetti)

Health State Dependent Utility and Retirement Savings
Awarded best 3^{rd} year paper - NYU

RESEARCH IN PROGRESS

Missing Markets: Modeling and Estimating Demand for Improved Long Term Care Insurance
(with John Ameriks, Andrew Caplin, Matthew D. Shapiro, and Chris Tonetti)

Due Diligence: Job Search over the Life Cycle with Rationally Inattentive Workers
(with Andrew Caplin, Daniel Martin, and Chris Tonetti)

Networks, Age, and Life-cycle Labor Supply
(with Ross Doppelt and Joao Ramos)

CONFERENCES AND PRESENTATIONS

2013: MINYVan Workshop *(NYU)*
2014: North American Econometric Society *(Minnesota)*, Midwest Macro *(Missouri)*, Macro Student Lunch *(NYU)*

RESEARCH EXPERIENCE

Summer 2011 - Present	Professor Andrew Caplin
Summer 2009	Professor Richard Gorvett, University of Illinois, Urbana-Champaign
Summer 2008	Professor Richard Rebarber, University of Nebraska, Lincoln

TEACHING EXPERIENCE

Spring 2012	Microeconomics I, TA for Professor Vasiliki Skreta

PROFESSIONAL ACTIVITIES

Referee: *Economic Inquiry*
Coordinator: NYU Macro student lunch *(2013-2014)*