

Mortality Risk, Moral Hazard, and Mental Health

Essays in Applied Microeconomics

Clara Fernström





Dissertation for the Degree of Doctor of Philosophy, Ph.D.,
in Economics
Stockholm School of Economics, 2020

Mortality Risk, Moral Hazard, and Mental Health
© SSE and Clara Fernström, 2020

ISBN 978-91-7731-165-2 (printed)
ISBN 978-91-7731-166-9 (pdf)

This book was typeset by the author using \LaTeX .

Front cover photo: © Clara Terne

Back cover photo: Clara Fernström

Printed by: BrandFactory, Gothenburg, 2020

Keywords: household finance, saving, mortality risk, survival probability, corporate finance, moral hazard, firm investment, mental health, graduate studies

Till Signe, Hjalmar och Selma

Foreword

This volume is the result of a research project carried out at the Department of Economics at the Stockholm School of Economics (SSE).

The volume is submitted as a doctoral thesis at SSE. In keeping with the policies of SSE, the author has been entirely free to conduct and present her research in the manner of her choosing as an expression of her own ideas.

SSE is grateful for the financial support provided by the Jan Wallander and Tom Hedelius Foundation, the Swedish Bank Research Foundation, the Thule Foundation at Skandia, Torsten Söderberg Foundation, the Swedish Research Council for Health, Working Life and Welfare, Stiftelsen Louis Fraenckels Stipendiefond, and Herman Friedländers Stipendiefond, which has made it possible to carry out the project.

Göran Lindqvist

Director of Research
Stockholm School of Economics

David Domeij

Professor and Head of the
Department of Economics
Stockholm School of Economics

Acknowledgements

I would like to thank my supervisors Tore Ellingsen and Paolo Sodini for fantastic support, guidance, and advise. And special thanks to Erik Lindqvist for helpful suggestions and constant encouragement. I would also like to thank Marieke Bos, David Domeij, Anna Dreber Almenberg, Magnus Johannesson, and Roine Vestman for inspiring discussions and great feedback.

In the first two chapters, I use medical data and I am grateful to friends who have lent their medical expertise to help me better understand the world of diagnoses and medication. Thank you, Christoffer Melén, Louise Pedersen, Johanna Ranes, Erik von Seth, Klara von Seth, and Axel Svedbom.

I am grateful for the financial support provided by the Jan Wallander and Tom Hedelius Foundation, the Swedish Bank Research Foundation, the Thule Foundation at Skandia, Torsten Söderberg Foundation, the Swedish Research Council for Health, Working Life and Welfare, Stiftelsen Louis Fraenckels Stipendiefond, and Herman Friedländers Stipendiefond, which has made it possible to carry out the project. Also, I am grateful to Sveriges Riksbank for the access to the proprietary data on firm loans during my employment.

I am grateful to my co-authors Eva Ranehill, Anna Sandberg, and Yingjie Qi for being the best supporters, advisers, and partners in crime. Thank you, Anastasia Girshina, Emma Heikensten, and Elin Molin, for great encouragement, help, and friendship.

Thank you, Kristin, for showing the way. Dear Hannah, Julia, and Åsa, thank you for having my back. Special thanks to Hannah for inspiring me to approach the topic of life and death in my research. I am grateful to my parents, Eva and Christer, for instilling in me their interest in science and society.

And Fredrik, thank you for being the best husband and friend I could ever hope for. You have been on my side on every step of this journey. It would not have been possible without your support and not half as enjoyable without your company.

Thank you, Signe, Hjalmar, and Selma, for being the light of my life every day.

Stockholm, April 6, 2020

Clara Fernström

Contents

Introduction	I
1 Dying and dissaving	3
1.1 Introduction	4
1.2 Theoretical framework	8
1.3 Data	13
1.4 Empirical strategy	17
1.5 Results	20
1.6 Robustness analysis	26
1.7 Conclusion	29
1.A Appendix	79
1.B References	127
2 Mental health among Swedish PhD students	131
2.1 Introduction	132
2.2 Data and descriptive statistics	135
2.3 Results	141
2.4 Conclusion	160
2.A Appendix	163
2.B References	187
3 Cost of loans and moral hazard: A quasi-experiment	191
3.1 Introduction	192
3.2 Experimental setting	195
3.3 Data and sample restriction	195
3.4 Empirical strategy	197
3.5 Results	199
3.6 Robustness tests	200
3.7 Conclusion	202
3.A Appendix	213
3.B References	219

Introduction

This doctoral thesis is a collection of three essays.

In the first essay, *Dying and dissaving*, I study how a sudden drop in survival probability affects people's saving behavior. Standard life cycle theory suggests individuals would decrease saving. Using Swedish administrative data, I link precisely measured negative health shocks to subsequent saving behavior. In this essay, I assess the quantitative impact of survival probability on the consumption-saving decision. By exploiting exogenous variation in the timing of health shocks, I also contribute to understanding the causal effect of health on wealth. I find that annual saving falls by 5 percent in response to a one standard deviation fall in survival probability. I find significant heterogeneity in the effect across the pre-diagnosis wealth distribution, but not across the pre-diagnosis income distribution. The rich dissave more whereas the poor increase saving in response to lower survival probability. People dissave less if they have a spouse whereas the presence of children has no significant effect.

* * *

The second essay, *Mental health among Swedish PhD students*, is joint work with Eva Ranehill and Anna Sandberg. Recent survey-based evidence indicates high and increasing rates of mental health problems among PhD students in many countries. We complement such survey-based evidence by using register data to study mental health care uptake among Swedish PhD students that enrolled 1993–2014. Compared to a sample of highly educated individuals, PhD students are prescribed more psychiatric medication but do not receive more outpatient mental health care. However, compared to a sample of the general population, PhD students both are prescribed less psychiatric medication and receive less outpatient mental health care. An event study analysis provides suggestive evidence that mental health is negatively affected by entering PhD studies. We document an overall increase in mental health care uptake during the sample period and the observed increase has been particularly steep for female PhD students. We further find that mental health care uptake is positively correlated with age and negatively correlated with being a parent and being formally employed.

* * *

The third essay, *Cost of loans and moral hazard: A quasi-experiment*, is joint work with Yingjie Qi. We document the effects of higher loan costs on private firms in the presence of financial frictions by exploiting a novel quasi-experiment and a unique and comprehensive dataset from Sweden. In June 2010, the central bank of Sweden increased the policy rate unexpectedly and exposed firms with long term loans maturing right before or after to different costs of loans. Consistent with the debt overhang theory, we find that higher costs of loans have a significant negative effect on investment and more so for highly levered firms. Contrary to the risk shifting theory, we find no evidence that distressed firms engage in activities that are riskier ex-post due to higher costs of loans. These results are robust to carefully controlling for firms' credit demand.