

Project Proposal

Characterizing Entrepreneurs in Denmark

by

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Abstract. To understand how Danish small business entrepreneurs respond to government policy one has to know their risk and time preferences, and if they possess an optimistic bias with respect to their own ability. Are they risk averse, or have high discount rates, such that they are hard to motivate? Are they overconfident in their own abilities that leads to excess entry into markets? If so, are male entrepreneurs less risk averse, have higher discount rates, and exhibit greater confidence than women? We propose conducting a set of field experiments in Denmark that will allow a direct characterization of small business entrepreneurs in terms of these traits.

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Project Description

To understand how Danish small business entrepreneurs respond to government policy one has to know their risk and time preferences, and if they possess an optimistic bias with respect to their own ability. Are they risk averse, or have high discount rates, such that they are hard to motivate? Are they overconfident in their own abilities that leads to excess entry into markets? If so, are male entrepreneurs less risk averse, have higher discount rates, and exhibit greater confidence than women? We propose conducting a set of field experiments in Denmark that will allow a direct characterization of small business entrepreneurs in terms of these traits. Such field experiments have already been initiated by Elston, Harrison and Rutström [2005] in the United States. They simply went to trade shows catering to entrepreneurs and conducted some of the experiments we are proposing here. We propose to do the same thing in Denmark, and modify their experiments to consider individual discount rates as well. Each experimental task will involve real monetary outcomes to provide motivation for truthful elicitation of these characteristics.

Risk attitudes will be examined by asking subjects to make decisions over choices that involve two lotteries. For example, the subject in an experiment might be told that they could choose lottery A or lottery B, where lottery A gives them a 50-50 chance of receiving 160 or 200 kroner and lottery B gives them a 50-50 chance of receiving 385 or 10 kroner. The subject picks A or B. The typical experimental task would give the subject 10 such tasks, varying the possibility that the higher prize would be received. This design and these parameters were developed by Holt and Laury [2002] and have later been used in the United States (e.g., Harrison, Johnson, McInnes and Rutström [2005]) and in Denmark (Harrison, Lau and Rutström [2004]). The typical findings from these experiments are that individual are averse to risk, and that there is considerable heterogeneity in risk attitudes across people. Fortunately, it seems that much of the heterogeneity is correlated with observable individual characteristics, such as age and education level. The Danish field experiments of Harrison, Lau and Rutström [2004] were representative of the adult Danish population, and will therefore serve as an excellent comparison group for the proposed experiments to elicit risk attitudes of entrepreneurs.

Time preferences will be examined by asking subjects to also make a series of choices, in this case over outcomes that differ in terms of when they will be received. For example, one option is 100 kroner in 30 days, and another option will be 110 kroner in 90 days. If the subject picks the

earlier option we can infer that their discount rate is below 10% for 60 days. By varying the choices so that the later option implies different discount rates, and verifying that the individual does not have access to perfect capital markets, we can identify the discount rate of the individual. In addition, one can vary the time horizon to identify the discount rate function. This method has been widely employed in the United States (e.g., Coller and Williams [1999]) and in Denmark (e.g., Harrison, Lau and Williams [2002]). The typical findings from these experiments are that subjects have discount rates between 7% and 11% on an annual effective basis, after we control for concave utility functions (see Andersen, Harrison, Lau and Rutström [2005]), and that there is considerable heterogeneity in time preferences across identifiable segments of people. We have again an excellent comparison group in the form of a representative sample of the adult Danish population (Andersen, Harrison, Lau and Rutström [2005]).

Finally, market entry decisions will be examined by asking subjects to enter a market in which performance depends on perceived skill in relation to others. For example, five subjects will have the option of entering or not entering a market with a capacity of one, i.e. only one subject will be making a profit in the market. Market entrants are ranked according to their skills in answering some (open-ended or multiple choice) questions, and the highest ranked entrant receives 350 kroner. In order to enter the market subjects have to give up their initial endowment of 100 kroner, otherwise they get to keep the initial endowment. This design was developed by Camerer and Lovallo [1999] and tested with college students in the United States. It was later employed in the United States by Elston, Harrison and Rutström [2005], who conducted field experiments with entrepreneurs. The typical findings from these and related experiments are excess entry into markets when profits are determined by perceived skill, and that men are more confident than women and therefore more likely to enter competitions (e.g. Niederle and Vesterlund [2005]).

An additional policy motivation for eliciting risk attitudes is to obtain better estimates of the welfare impacts of economic policy alternatives. For example, the finding that most Danes are risk averse can be significant for welfare analysis of public policy. Assume a policy that is predicted to result in either a zero or a positive (2,000 kroner, for example) effect on the income of the average Dane, with probabilities $\frac{1}{4}$ and $\frac{3}{4}$, respectively.¹ The certainty equivalent of this policy, assuming a

¹ In the field of computable general equilibrium models there has long been a recognition that systematic sensitivity analysis of simulations conditioned on uncertain parameters implies uncertain policy impacts (see for example Bernheim, Scholtz and Shoven [1991] and Harrison and Vinod [1992]).

risk coefficient in the neighborhood of the estimated coefficients in Harrison, Lau and Rutström [2004], is about 40% lower than the expected value of 1,500 kroner. Even if we assumed a 90% confidence in the higher predicted income effect instead of only 75%, we would still be off by almost 20% if we assumed risk neutrality. A proper identification of individual risk attitudes can therefore be critical to the accuracy of welfare analysis for public policy, and our understanding of how entrepreneurs respond to incentives provided by the government.

We hope to be able to conduct this set of experiments in 2006 and get new insights into the characteristics and behavior of Danish small business entrepreneurs.

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Time Schedule

The project is expected to last for one year beginning January 1, 2006 and ending December 31, 2006. During the first six months, we will be preparing and conducting the experiments, and we plan to analyze and document the results during the last six months of the project. The results will be reported in an article prepared for publication in a respectable international journal, and we will be providing our main findings in a shorter and more accessible format for policy makers. The investigators are very experienced with respect to the design and conduct of field experiments in general, as well as in Denmark.

Budget

It is expensive to conduct the type of experiments we propose here. For example, we spent approximately 80,000 kroner on a previous set of laboratory experiments in Denmark with 90 students who responded to the risk aversion and discount rate tasks mentioned above, excluding rent of location. One reason for the high cost of conducting experiments in Denmark is that the income earned during the experiment is considered as taxable income and must be reported to the tax authorities. We plan to use Tablet PCs for this experiments, since handheld devices will be of great help in conducting the experiments at a trade show where we will have limited space available and thus need more flexibility. We would need some research assistance to help prepare the experiments, and some travel is are needed for us to conduct the experiments and get together to analyze the data.

Data collection	100,000 kr.
Hardware	50,000 kr.

Research assistance	50.000 kr.
Travel costs	50.000 kr.
Overhead	50.000 kr.
Total	300.000 kr.