Subjective Uncertainty about Job Loss

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Motivation and Background Subjective perceptions of income risk are a key determinant of household consumption and saving behavior (e.g., Lusardi, 1998), as well as the take-up of unemployment insurance in Denmark (e.g., Hartmann and Leth-Petersen, 2024) and the decision of where and how much to work (e.g., Heathcote, Storesletten and Violante, 2014). If households are uncertain about the risks they face, both policy evaluation and the design of labor market and social insurance policies are affected. This project takes a first step by studying uncertainty about job loss risk, a key component of income risk (Caplin et al., 2023, Guvenen et al., 2021). The analysis will inform policy debates on (i) high saving rates, (ii) insurance take-up, (iii) labor shortages, and (iv) mass-layoff spillovers.

Standard economic models that incorporate income risk assume that households know the probability of job loss *precisely*, i.e., there is no uncertainty about this parameter. Similarly, surveys that elicit beliefs about future job loss, such as the New York Fed's Survey of Consumer Expectations or the Copenhagen Life Panel, typically ask for point estimates. The prevalence of round numbers of responses, especially many zeros and fifties, suggests substantial underlying uncertainty in reported subjective probabilities, consistent with households using simple heuristics when uncertain (Manski, 2023). Intuitively, people have limited experience and therefore cannot fully pin down their job loss probability. They update their beliefs when, for example, they or others in their environment experience unemployment during a recession. Hence, heightened uncertainty about job loss can slow recoveries (Cerra, Fatás and Saxena, 2023).

Studying uncertainty about job loss is particularly important currently, as macroeconomic uncertainty is highly elevated in Denmark and other advanced economies (Denmarks Nationalbank, 2025). For households, assessing how negative macro events—such as financial crises, trade tensions, or geopolitical risks—translate into job loss risk is inherently difficult as they often lack direct experience with such events. As a result, especially in turbulent times, households likely have limited knowledge of their actual risk of job loss and incorporate this uncertainty into their economic decision-making. This is relevant for Denmark's flexicurity system, which relies in part on households understanding their job loss risk to balance flexibility and security.

Research Question This project measures how much uncertainty households have about the risks they face and investigates its sources and consequences. Specifically, I study households' subjective uncertainty about job loss risk. How uncertain are individuals about the likelihood of losing their job? To what extent are these beliefs shaped by past experiences and how do they vary over the business cycle? Ultimately, what are the implications of such uncertainty for household decision-making, macroeconomic dynamics, and the design of labor market policies?

To address these questions, I will design a novel survey that elicits uncertainty about job loss risk. I will link the survey responses to rich Danish register data to study how beliefs relate to actual labor market histories, employer performance, and other household characteristics. I will use survey experiments to study the effects of the uncertainty about job loss risk on households' saving / insurance choices and their labor market decisions, i.e., where and how much to work. Finally,

I will use the survey evidence to inform a macroeconomic heterogeneous agent model featuring uncertainty about job loss risk, to quantify the broader macroeconomic and policy implications.

Policy Contribution   For policymakers, it is crucial to understand households' subjective uncertainty about job loss risk. In particular, it can inform several debates that are highly relevant in Denmark.

First, *high saving rates*. Workers' uncertainty about job loss risk is a plausible contributor to Denmark's currently high saving rate, as income uncertainty makes households more cautious and thereby more likely to save. If past experiences—such as job loss during recessions—persistently shape individuals' beliefs about future job loss uncertainty, these beliefs can have lasting effects, dampening consumption and slowing recovery. This would suggest that stronger counter-cyclical fiscal policies, including more responsive automatic stabilizers, are important to mitigate such scarring effects. It also indicates that today's strong saving behavior may be a more persistent phenomenon rather than a temporary response.

Second, *insurance take-up and financial literacy*. Analyzing the uncertainty about job loss risk can help identify which groups of households tend to under- or over-insure. These differences partly reflect how well people can assess job loss risk, for instance due to education and financial literacy. Even at similar risk, belief formation complexity induces heuristic behavior: some households follow precautionary rules of thumb and overinsure, while others underinsure because the risk is hard to gauge. Targeted policies could expand insurance where under-protection is likely and provide clear information and financial guidance where misperception drives behavior.

Third, *labor shortages at startups*. Innovative startups are central to sustaining and improving productivity growth in Denmark. Yet high uncertainty about job loss risk can discourage workers from joining young firms, as the job loss risk is not only higher, but also harder to assess. Startups may therefore struggle to attract talent without paying a premium, leading to misallocation of labor and lower aggregate productivity. The negative effect of job loss uncertainty on households' job decisions points to a role for complementary policies that reduce risk in entrepreneurial employment.

Fourth, *spillovers from mass layoffs*. Salient layoffs at large firms—e.g., Novo Nordisk's recent restructuring (9,000 global cuts, 5,000 in Denmark)—can raise uncertainty about job loss risk even among unaffected workers, making risks harder to gauge, pushing people toward heuristics, and inducing more cautious behavior (higher saving, preference for safer jobs). Clear communication about who is affected and rapid matching support in exposed occupations can limit these spillovers.

Survey   I propose to collect survey data in collaboration with Statistics Denmark. In standard economic models, job loss is treated as a Bernoulli event with a known probability p, implying that job loss risk is fully captured by the variance $p(1-p)$. However, this assumes that individuals know the probability p precisely. In practice, people may be unsure about how likely it is that they will lose their job, that is, they do not have a precise estimate, but instead hold an uncertain belief about the probability itself due to incomplete information.

To capture this uncertainty, my survey will use a *novel elicitation approach* that first asks respondents to report a range of plausible values for their perceived probability of job loss during the next 12 months, followed by their best-guess point estimate within this range. This will provide both an average perceived risk and an indication of how confident households are in that assessment. As a complementary measure, I will ask for the probability that the best-guess lies within a certain

interval, which captures households' uncertainty about their own estimate, following Enke and Graeber (2023). Finally, I will also elicit beliefs across horizons and condition the elicitation on the macroeconomic environment (stable conditions vs. recession) to study state dependence over the business cycle. Correlating beliefs with behavior is a useful first check, but it don't prove cause and effect as other factors may be at play, and beliefs and behavior can influence each other.

To identify causal effects of the uncertainty about job loss risk on behavior, I will include *conjoint vignette experiments* that let me study margins not easily identifiable in observational data. In particular, I elicit the marginal propensity to save, insurance take-up, adjustments in labor supply, and switches toward lower-turnover jobs by randomly varying key features of employment uncertainty. The vignettes will present hypothetical scenarios that vary the level and range of job loss probabilities relative to each respondent's own reported beliefs, thereby allowing me to study how changes in perceived uncertainty influence economic decisions. Cross-randomized information on fiscal policies—such as generosity of Denmark's unemployment insurance benefits—then permits an assessment of how policy shapes household behavior.

Complementing this, I will run an *information provision experiment* that adjusts perceived uncertainty about job loss risk by informing workers about risk levels and ranges for comparable peers (e.g., same industry and age). This serves two purposes: first, I can measure belief updating and learn about how new information shapes beliefs about job loss. Second, if the information meaningfully shifts beliefs, I can track actual choices (not just hypotheticals) such as unemployment insurance take-up, labor supply, and job changes, including moves to jobs with different turnover risk. With monthly labor market register data, effects can be monitored promptly and precisely.

To understand the role of preferences in how uncertainty maps into decisions, I also plan to elicit risk and ambiguity preferences. Finally, open-ended questions will complement the quantitative measures by providing insight into the narratives and reasoning behind respondents' beliefs and decision-making. Thus, I am employing an increasingly prominent mixed-methods approach, see Haaland et al. (2025) for a review article.

Link to Register Data   To understand the sources in subjective job loss uncertainty, I analyze differences across sectors (e.g., exposure to foreign markets), and across individuals' histories of unemployment and job transitions[1], validate subjective uncertainty about job loss risk against uncertainty as measured by an econometrician, and include employer performance and mass layoff exposure. Crucially, the register data let me track post information intervention outcomes such as transitions to safer lower-turnover jobs and unemployment insurance take-up.

I will link the survey to individual-level register data that provides detailed employment histories (BFL), firm affiliations (IDAN, IDAP), income and earnings (IND, LONN), education (UDDA), and unemployment spells (DREAM). These data allow me to observe realized job loss, employment stability, and socioeconomic background. Family linkages (via the FAM register) will further enable analysis of parents' and partners' employment histories and job loss experiences. On the firm side, I will merge information from the FIRM register (industry, size, ownership) and FIRE (financial accounts) to measure employer risk and identify plant or firm closures.

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[1]This builds on a growing literature emphasizing that personal experiences shape expectations and behavior in other domains, such as inflation experiences on inflation expectations (Malmendier and Nagel, 2016), recession experiences on GDP growth expectations (Kozlowski, Veldkamp and Venkateswaran, 2020) and stock market participation (Malmendier and Nagel, 2011), and firms' sales growth realizations on sales growth uncertainty (Bachmann et al., 2024).

Implications for the Macroeconomy and Labor Market Policies   As a final step, I plan to incorporate subjective uncertainty about job loss risk into a quantitative model. I build on the workhorse heterogeneous agent framework à la Krusell and Smith (1998), relaxing the usual full information assumption about job loss transition probabilities. This makes it possible to quantify how shifts in perceived uncertainty about job loss risk propagate in general equilibrium via interest rates, wages, and labor supply and to evaluate how policy changes, such as adjustments to unemployment insurance, would play out relative to a full information benchmark.

To relax the full information assumption, I propose a micro-founded extension of this class of models that incorporates ambiguity—also known as Knightian uncertainty—about the probability of job loss. In this setup, agents do not observe the true probability of job loss but instead consider a range of plausible values.[2] The survey data directly discipline both the extent of this ambiguity and its state dependence over the business cycle, allowing the model to capture heterogeneity in perceived uncertainty across individuals and macroeconomic conditions. I use both the survey responses and linked register data to calibrate the model, enabling a quantitative analysis of how subjective job loss uncertainty shapes households' precautionary saving and insurance motives, aggregate consumption dynamics, and the effectiveness of labor market policies.

In a second step, I will add two extensions. First, job mobility: households choose between safer, lower-turnover jobs and riskier, higher-upside jobs; greater uncertainty about job stability shifts choices toward safer positions, with implications for startup hiring and labor allocation. Second, uncertainty about one's own estimates: even holding beliefs fixed, limited confidence in their accuracy can dampen responsiveness to incentives and information, leading to smaller changes in spending or job transitions. Using register data and the survey's uncertainty measures, I will quantify both channels and clarify when uncertainty raises precaution (more saving, safer jobs) versus when it mutes reactions (attenuated elasticities), allowing a clear comparison of policies that insure risk, support efficient mobility, and improve the clarity of policy communication.

Timeline   In spring 2026, I will design the survey and seek feedback from other researchers, including those in the department, such as Jeppe Druedahl and Søren Leth-Petersen, as well as from researchers at the Nationalbank, such as Alexander Dietrich. The survey will be fielded in fall 2026. I will analyze the data immediately thereafter and, in parallel, continue developing the model using insights from the empirical results. By mid 2027, I plan to have a draft ready for conference submission.

Jeppe Druedahl has agreed to support the practical execution of my project (see his letter of support), as I am new to working with Danish register data. He is also planning related research on income risk, which opens the possibility for collaboration.

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[2]An alternative approach would be to model uncertainty using a Bayesian learning: individuals hold a Beta prior over the job loss probability, and the elicited range maps to percentile bounds.

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