

Adverse Selection and Moral Hazard in Social Insurance for Entrepreneurs

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August 29, 2024

Background

- Asymmetric information creates a market failure in private insurance markets
 - Only high risk individuals would insure themselves → sustainability lost
- Adverse selection & moral hazard are fundamental conflicts in insurance markets
 - AS: Individuals with higher risks insure more
 - MH: Larger insurance coverage increases insurance claims
- Entrepreneurs are difficult to cover with social insurance
 - Large variation in SI systems across OECD countries from no coverage to voluntary contributions or mandatory policies

This Paper

- Main question: What affects the choice of SI contributions among entrepreneurs?
 - How much entrepreneurs are willing to pay?
 - How risks affect SI contributions (adverse selection)?
 - Does choice over contributions affect realized claims (moral hazard)?
- We use unique Finnish institutional setting and data
 - Some entrepreneurs can freely choose their SI coverage – scope for adverse selection and moral hazard
 - We exploit a reform – some entrepreneurs now had more freedom to choose, while others did not

Literature

- Entrepreneurs are “the engine of growth” (Decker et al. JEP 2014)
 - But their earnings are more volatile than wage earners (Audoly 2022 wp)
 - Solo self-employment is increasing (Uber, Wolt, etc.) and they want to be insured for retirement, sickness and unemployment (Boeri et al. 2020 JEP)
- Social insurance and firms:
 - Lower SI contributions spur the growth of **young** firms (Benzarti et al. AERi 2020)
 - Wider UI coverage increases business creation (Hombert et al. 2020)
- General insurance-related literature, including AS and MH:
 - Health (e.g. Einav, et al., 2010; Finkelstein, et al., 2019; Hackmann, et al., 2015.)
 - Unemployment Insurance (e.g. Kolsrud, et al., 2018; Landais, et al., 2020.)
 - Quasi-experimental variation trying to separate AS from MH (e.g., Abbring, et al., 2003b; Adams, et al., 2009; Einav et al., 2010)

Social Insurance in Finland

Main principle: SI covers for risks if you are not able to earn income as a worker or entrepreneur

- Coverage bundle: sickness, unemployment, parental leave and pension

TyEL (wage earners & some entrepreneurs): Mandatory social insurance based on labor income

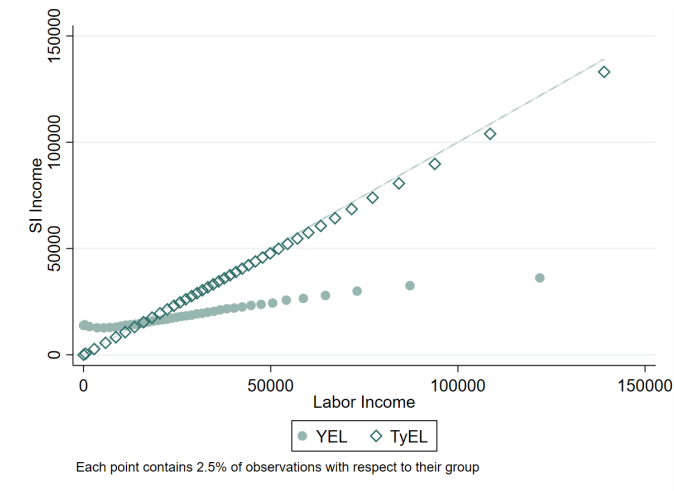
YEL (entrepreneurs): SI contributions based on **self-reported SI income** (with lower and upper limits) for owners of firms with over 30% ownership

- Does not need to coincide with actual earnings from the firm, but should reflect a wage someone would earn for their work ⇒ but no real enforcement of this rule

Funded by government-mandated contributions

- 24.4% of gross wages in 2024

Insurance Levels YEL vs. TyEL Entrepreneurs



Data

- We utilize individual-level *register-based* data on social insurance contributions for approx. 70% of entrepreneurs 2005–2015
- Full-population data on all income sources and firm outcomes (tax records and accounting data) & unique identifiers to link owners to their firms
- Data on SI claims: sick pay, unemployment benefits, parental leave benefits, pensions
- Demographics
- Survey data for entrepreneurs, including questions regarding attitudes towards SI and perceived health

▶ Sample Characteristics

Reform of 2011

- In 2011: Change in the YEL ownership share rule from 50% to 30%
 - Other details were not changed
- Three groups
 - Treatment: 31-50% ownership share
 - Main Control (always restricted, TyEL): 10-30% ownership share
 - Secondary Control (always unrestricted, YEL): 51-70% ownership share
 - We divide owners into these groups based on their ownership share in 2010
- We can use this variation to study how a more relaxed mandate affects SI contributions and claims

Event studies around the 2011 Reform

Identification assumptions:

- Treated individuals can change their insurance level and claims, but their true risks remain unchanged $True(risk_i^{t2}) \approx True(risk_i^{t1})$
- Control groups account for common changes in risks when $True(risk_i^{t2}) \neq True(risk_i^{t1})$ for unrelated reasons

Potential concern:

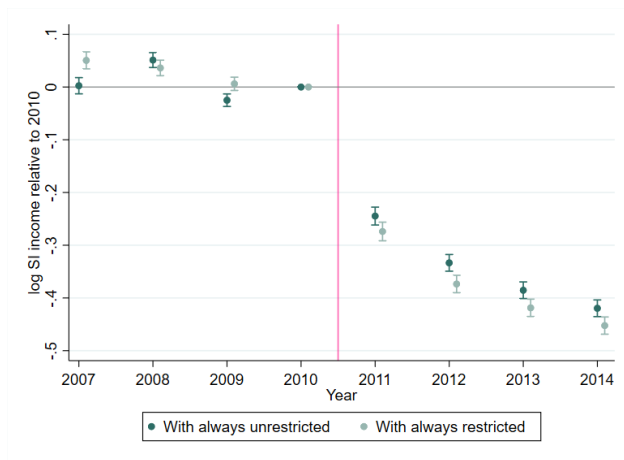
- Owners could select into treatment by manipulating ownership share
 - We observe no changes in ownership shares around the reform ► Ownership changes

Event Study Specification: SI income

$$SI_{it} = \delta_t + \sum_{\ell \neq t^* - 1} \beta_{\ell} Treat_i 1_{t=\ell} + X_{it} + \varepsilon_{it}$$

- i identifies individual, t year, $t^* = 2011$
- δ_t are year fixed effects
- controls X_{it} : age, gender, occupation, region
- results robust to exclusion of controls or inclusion of individual fixed effects

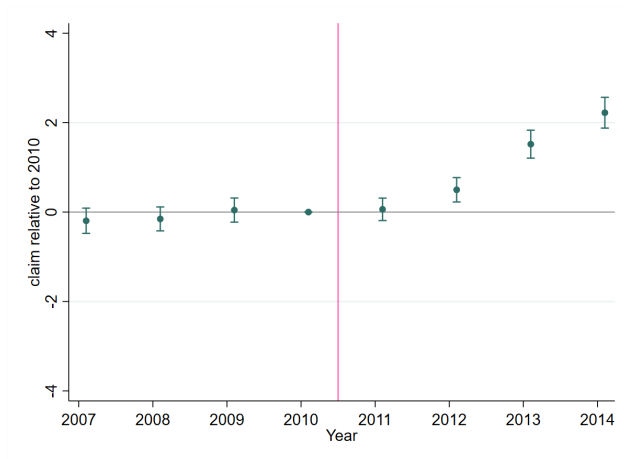
Event study: Clear drop in SI coverage when more freedom to choose



Event studies around the 2011 Reform

- When more freedom to choose, entrepreneurs drop their SI payments and coverage
 - over 40% drop in three years after the reform relative to both control groups
- This indicates that a large share of entrepreneurs are not willing to pay for SI as much as they were paying before
- In addition to preferences, we need to know how much of this driven by adverse selection, and how moral hazard affects claims

Moral hazard: Sick Days



Moral Hazard Responses

- No clear evidence of significant moral hazard responses
- Realized claims do not plummet following the drop in SI contributions
 - Overall, risks do not appear to be strongly linked with the choice of SI contributions

▶ Parental Allowance

▶ Earnings Related Unemployment

▶ Kela Unemployment

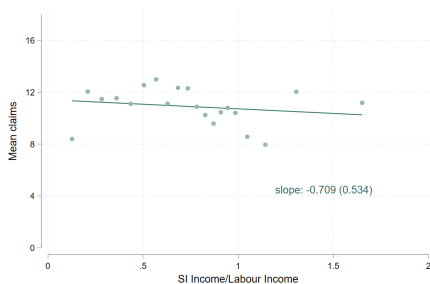
▶ Heterogeneity results

Simple Model

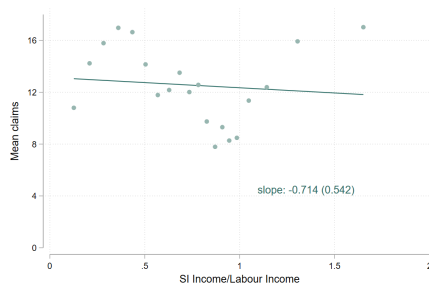
- With freedom to choose SI contributions, asymmetric information would become apparent through
 - Adverse selection: high-risk individuals insure more
 - Advantageous selection: high-risk individuals insure less (based on preferences)
- Without variation in SI rules and contributions, it is hard to distinguish between AS, MH and risk preferences
 - cross-sectional correlations of claims and insurance coverage include both AS and MH
 - To test for AS, we conduct two different types of positive correlation tests

Positive Correlation Tests: All Claims (except pension)

Pre-Reform Claims



Post-Reform Claims



▶ Learning over time

Positive Correlation Tests: Take-aways

- No apparent evidence of adverse selection
 - Pre-reform risks are not positively linked to choices of SI coverage after the reform
- Not much indication of moral hazard

▶ Sick Pay

▶ Parental Allowance

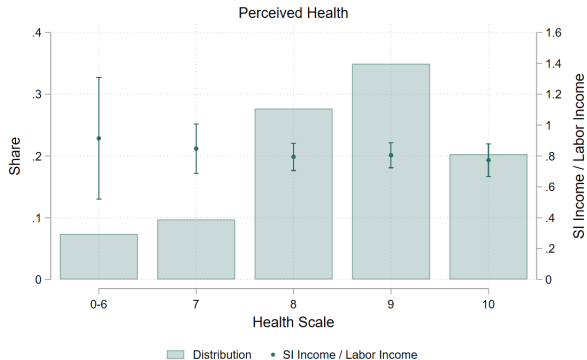
▶ Earnings Related Unemployment

▶ Kela Unemployment

Potential Mechanisms and Explanations

- To shed more on what other factors explain SI contribution choices we use entrepreneur surveys
 - We can link the surveys to our administrative data
- We look at how the choices on SI contributions and claims are linked to attitudes toward SI and perceived health status

Survey: Health and SI contributions



Health measure: 0-10 (terrible - excellent)

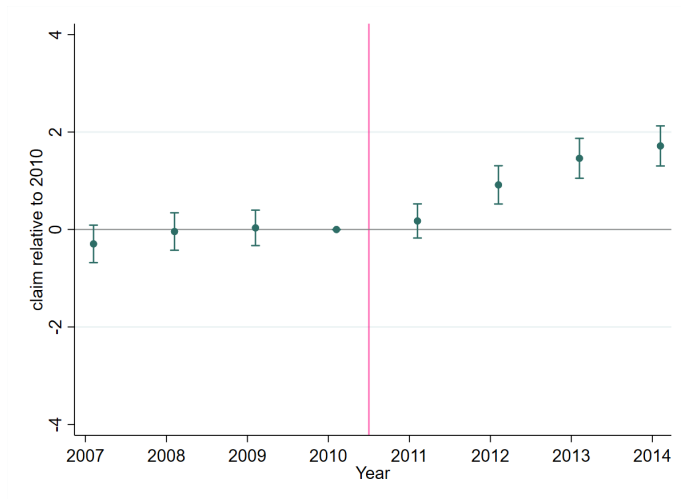
Conclusions

- We observe a clear drop in SI contributions when entrepreneurs are given more freedom to choose
 - points to a large willingness-to-pay response
 - limited evidence of either moral hazard or adverse selection accompanying the response on SI contributions
- Findings from the survey:
 - Lack of trust in the SI system and uncertainty associated with low SI contributions

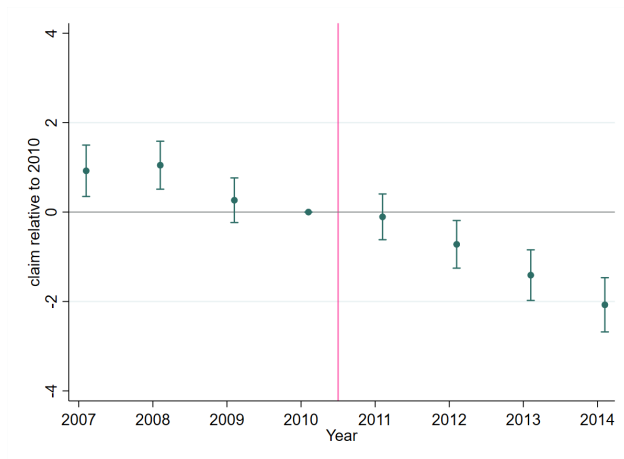
Extra slides

- Extras start here.

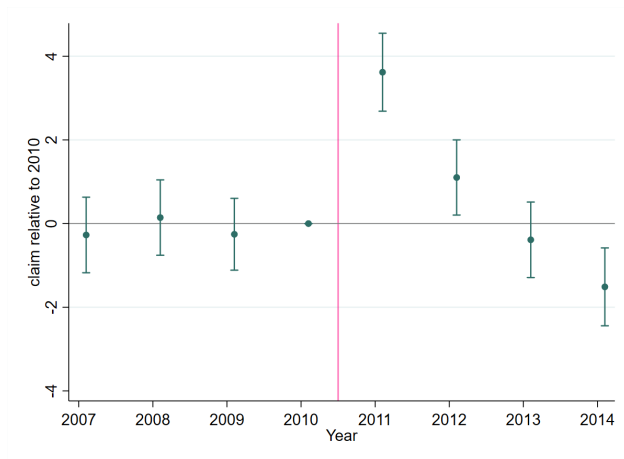
Moral hazard: Parental allowance days



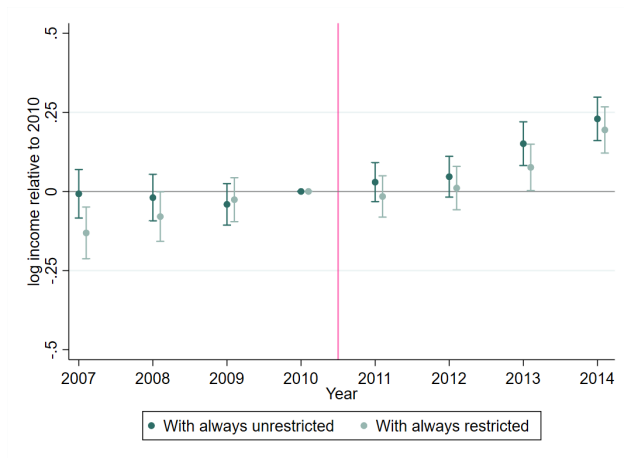
Event study: Earnings-related Unemployment Benefits



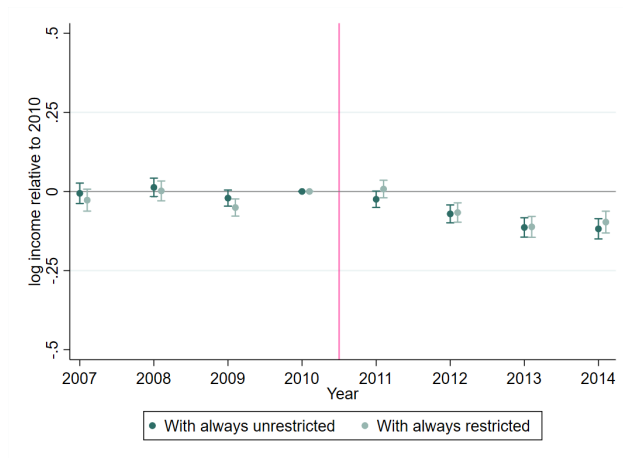
Event study: Kela Unemployment Benefits



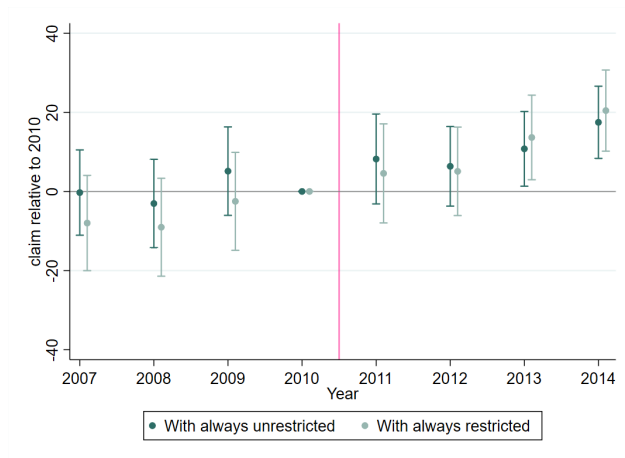
Event study: Capital income



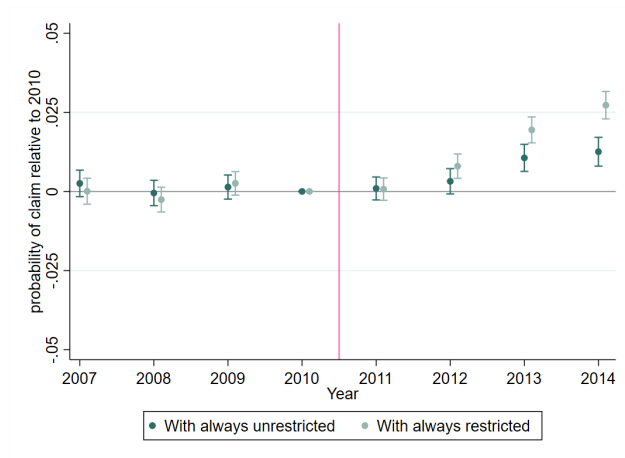
Event study: Operating Assets (incl. liquid and fixed assets)



Event study: Sick Pay Benefits (Intensive Margin)



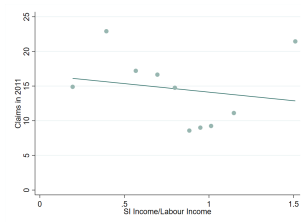
Event study: Sick Pay Benefits (Extensive Margin)



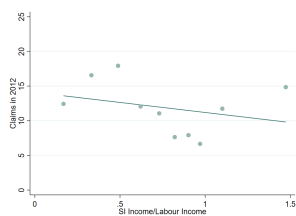
Positive Correlation Tests: Learning over time

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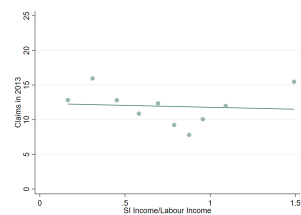
2011



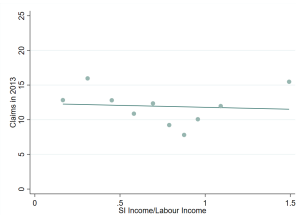
2012



2013

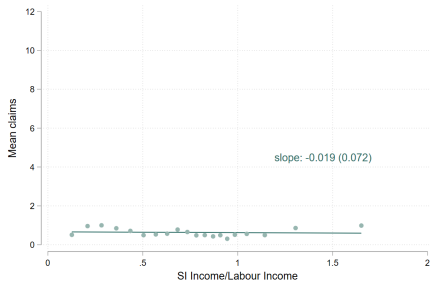


2014

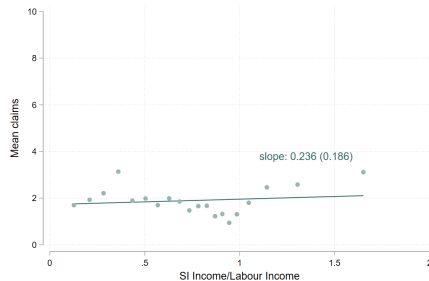


Positive Correlation Tests: Sick Pay

Pre-Reform Claims



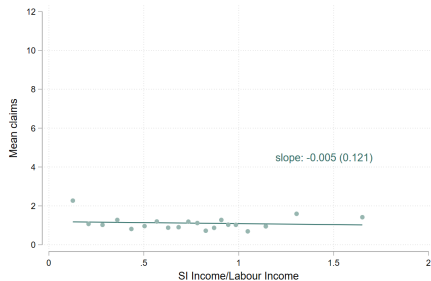
Post-Reform Claims



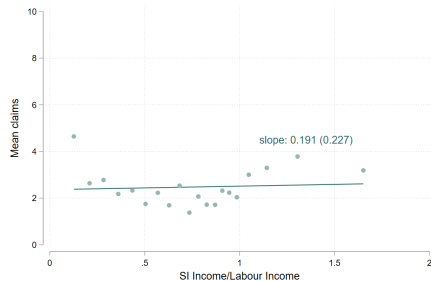
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Positive Correlation Tests: Parental Leave

Pre-Reform Claims

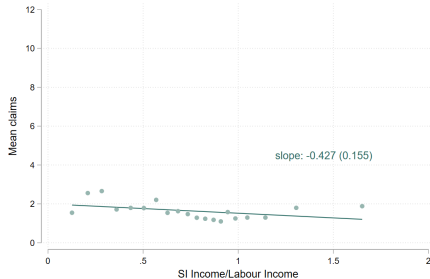


Post-Reform Claims

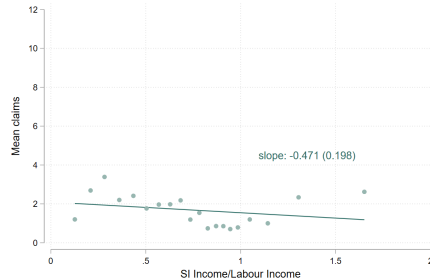
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Positive Correlation Tests: Earnings-related Unemployment Benefits

Pre-Reform Claims

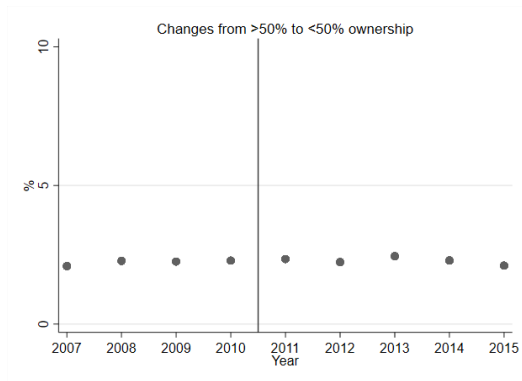
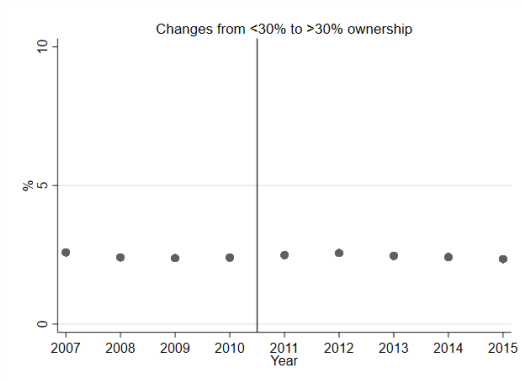


Post-Reform Claims



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Ownership changes

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