

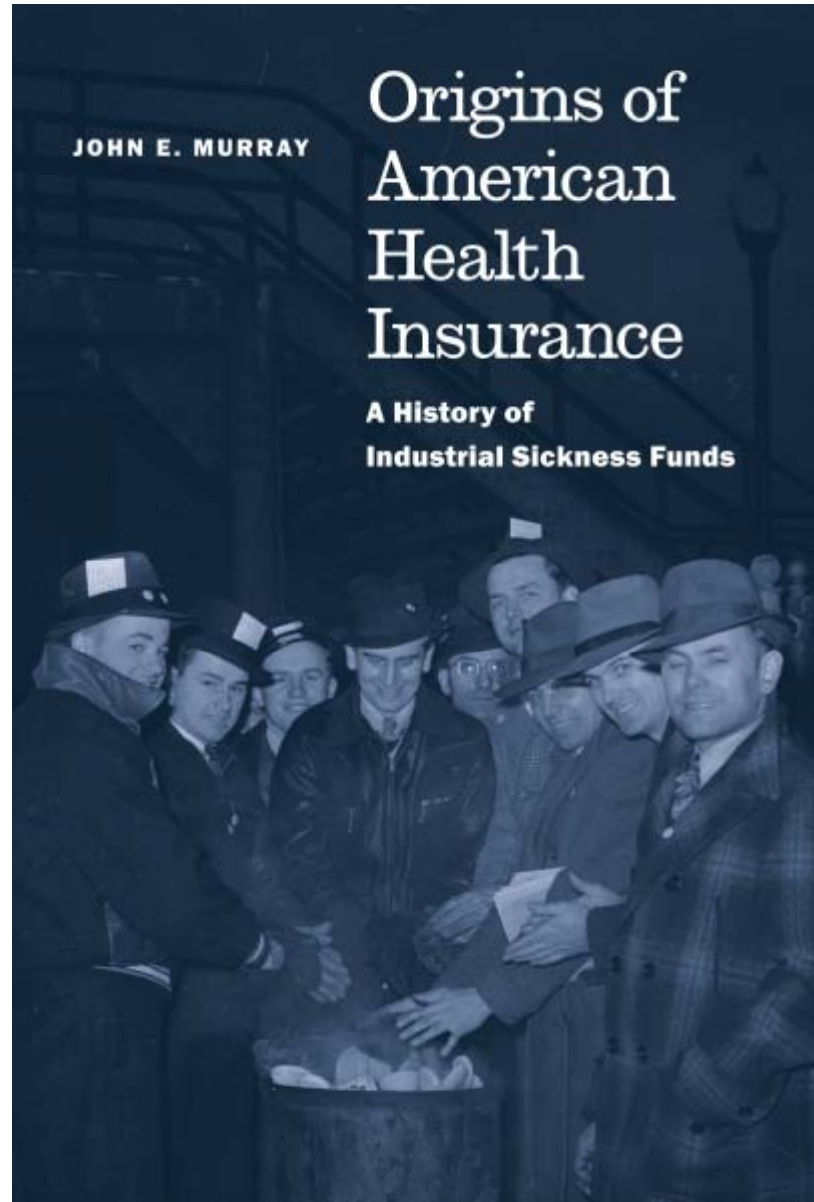
Asymmetric information and countermeasures in early 20c American microinsurance

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Origins of American Health Insurance: A History of Industrial Sickness Funds

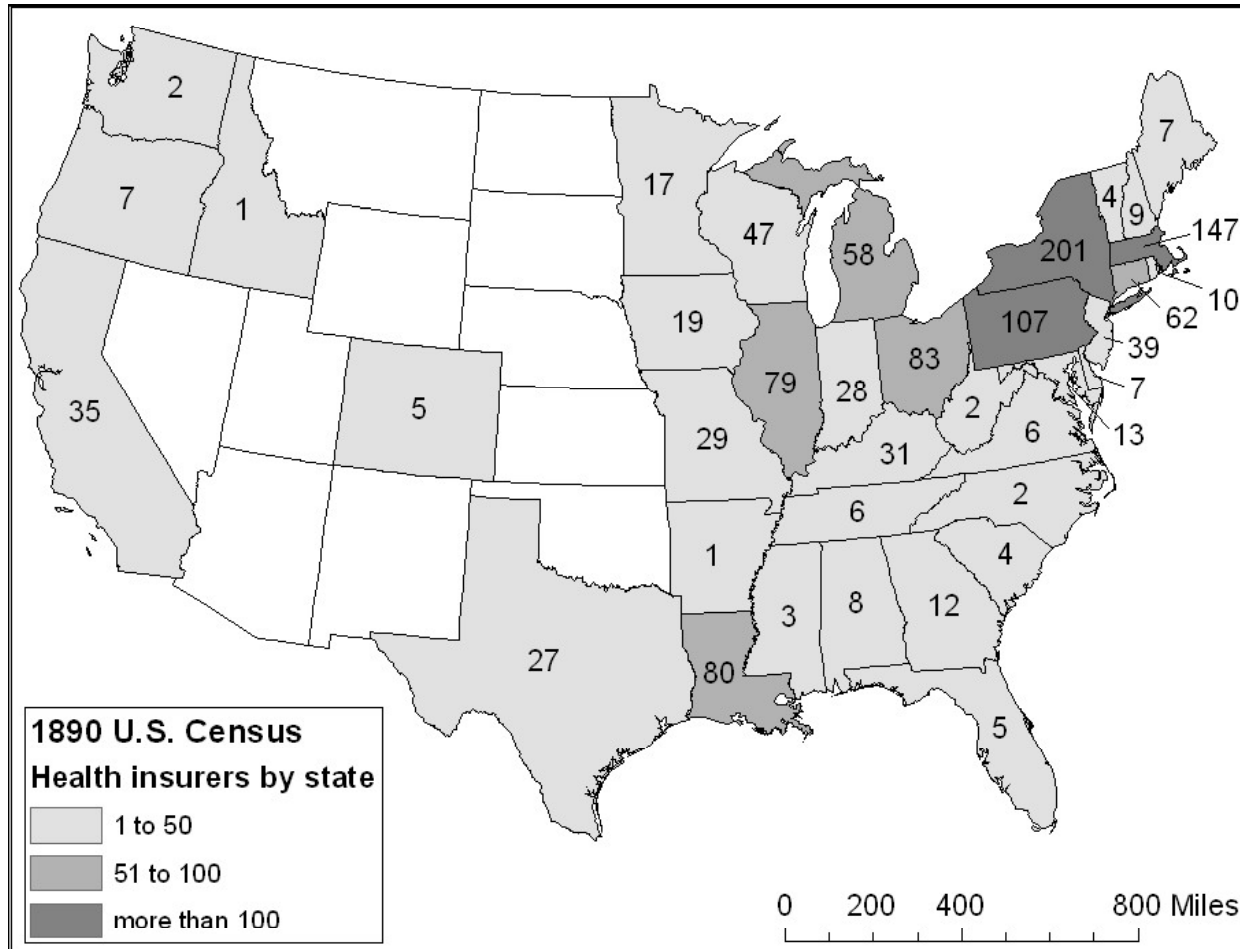
Yale University Press (2007)



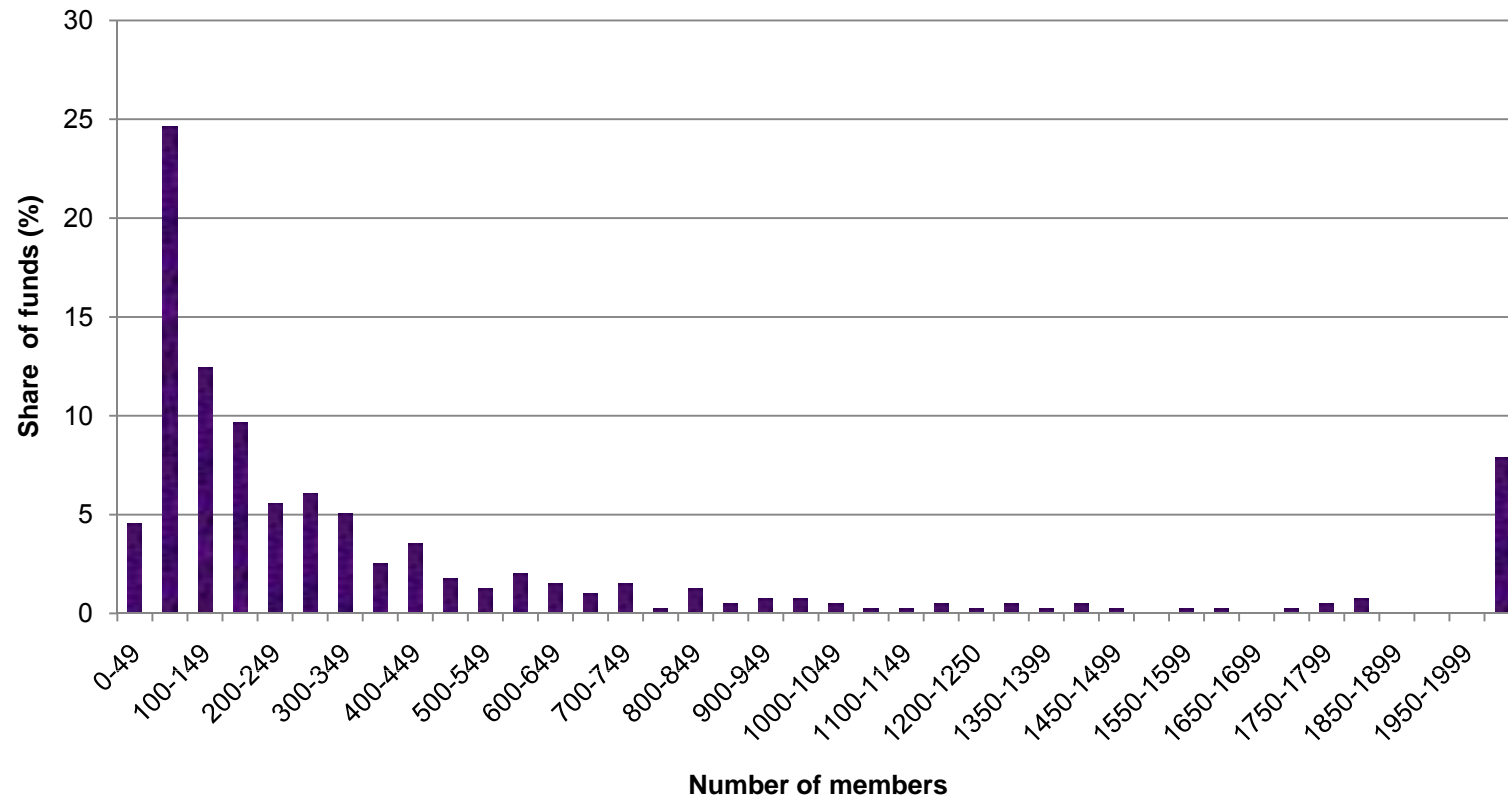
Microinsurance in early 20c United States

- Sponsored by firms, unions, fraternalists.
- Members paid 10¢ dues weekly or so.
- When sick or injured, wkr contacted fund.
- Fund sent doc or committee to check.
- Benefits of half to two-thirds weekly pay.
- Medical benefits unusual; ok with workers.
- Value of expected benefits ≈ value of dues.

Health microinsurance funds insured 1/3 of industrial labor force c. 1920



Membership in surveyed microinsurance funds, c.1908



“Microinsurance” through mutual benefit societies in W. Africa



Senegalese health benefit society id card

“Everyday Africans are tired of waiting for politicians to address their needs and have begun spinning their own safety nets.”

“The funds tend to regulate themselves. One requires members to visit fellow members who are hospitalized, in both a measure of solidarity and a double check that the person in the hospital bed is the one on the insurance card.”

New York Times, 28 Aug 2005

Question:

- How to structure microinsurance contract to balance benefit/rest with moral hazard/adverse selection
 - Relatively simple benefit (sick pay)
 - Insured workers are part of a microinsurance fund
 - In an era before social insurance?

Recent economics of asymmetric information in insurance

- Chiappori et al, *RAND* (2006): theory and empirics focus on insurance contracts
- Expect positive correlation between risk and coverage (conditioned on observables)
- Results not very robust—typically, weak positive correlations

Recent health insurance studies

- Cardon and Hendel, *RAND*, 2001: no evidence of informational asymmetries in 1987 NMES.
- Gottlieb, *Explorations*, 2007: Using 1889 Michigan & 1892 California BLS surveys + Chiappori & Salanié test, no evidence of risk-coverage correlation. Hence, no asymmetric information

Endogeneity and workable solution

- Historical health microinsurance funds did **not** allow workers to choose premiums, benefits, or other contract terms.
- Should minimize selection bias into more valuable benefit plans by workers with higher probability of making claims.

Role of information in early US health insurance

- ***Moral hazard*** and ***adverse selection*** used in early 20c insurance literature
- “...**moral hazard** looms up at every point...in sickness insurance” (Reinard Keelor, 1912 actuarial textbook)
- “under any voluntary plan there is an inevitably higher probability of securing a **poorer average risk**” (Howell Cheney, progressive businessman, 1917)

Goals of present project

1. Test for a relative measure of **adverse selection** (claims in **voluntary** vs compulsory insurance funds)
2. Holding selection constant, test for **moral hazard of sick pay**
3. Test **effectiveness of countermeasures** against each as used by insurers

Data

- U.S. Commissioner of Labor *Twenty-third Annual Report*
- Survey in 1908, data from 1906-08
- 370 establishment funds with sufficient responses to use here

Separability of moral hazard and adverse selection

- Present day empirical tests for asymmetric info often **cannot distinguish** between two.
- Insurance scholars, executives, managers in the past recognized **two different problems** requiring two specific **countermeasures**.

Adverse selection & its countermeasure

- “The problem of **adverse selection** in Group Health underwriting offers some difficulties.” (James Craig, *PCAS*, 1920).
- The solution: “the **insurance shall not commence** until an employee has completed a definite period of service, such as three months or six months.”

Why a trial period?

- “[I]n the voluntary associations a period of **probation** may be set up by the older employees in the association in order to **discover what sort of risk** a new employee promises to be, before he is admitted to membership.” (State of Illinois, 1919)

Moral hazard & its countermeasure

- The problem: “**moral hazard** undoubtedly exist[s] under disability policies issued for substantial amounts.” (E.E. Cammack, *PCAS*, 1921).
- Countermeasure: “The establishment of a **waiting period** before a sick member is entitled to benefits is an additional check on malingering.” (State of Illinois, 1919).

Waiting period necessary for all cases?

- Funds saw moral hazard in sickness claims that did not appear in **accident** claims.
- Usually, no waiting period for accidents because “sickness is more preventable than accidents”—Irving Fisher, 1917.

Statistical tests

- Regressions weighted by number of members
- Dependent variable = $\log(\text{claims}/\text{members})$
- Variables included but not discussed: number of members, age of fund, dummies for worker or firm management of fund and for medical benefits offered, and a vector of 28 industries.
- Hausman-Wu tests indicate no endogeneity.

| | Problem | Solution | 8 | 9 |
|--|--------------------------|------------------------|------------------------------------|------------------------------------|
| Voluntary membership | Adverse selection | | 0.55*** (0.12) | 0.50*** (0.11) |
| Any trial period | | Counter-measure | 0.28* (0.16) | 0.33*** (0.14) |
| Voluntary* Any trial period | | | -0.60*** (0.17) | -0.66*** (0.15) |
| Maximum benefit payment | Moral hazard | | 0.004 (0.02) | 0.08** (0.04) |
| Minimum benefit payment | Moral hazard | | 0.034** (0.020) | -0.0002 (0.04) |
| Waiting period | | Counter-measure | -0.044*** (0.013) | 0.004 (0.03) |
| Maximum benefit* waiting | | | | -0.014*** (0.006) |
| Minimum benefit* waiting | | | | 0.006 (0.006) |
| Adj R² | | | 0.56 | 0.57 |

Evidence of adverse selection

- Average claims per member (raw means):

| | Weighted (num. of members) | Unweighted |
|------------|----------------------------|------------|
| Compulsory | 0.16 | 0.20 |
| Voluntary | 0.25 | 0.23 |

- Ceteris paribus, voluntary fund claims per member higher than compulsory fund claims by 25-40%

Evidence of countermeasure effectiveness

- **Adverse selection:** Overall, **any trial period reduced claims** by half to two-thirds the magnitude that voluntary membership increased the claim rate.
- Specifically among voluntary funds, imposing a trial period reduced additional claims by one-third the increase induced by voluntary membership.

Evidence of moral hazard

- Value of benefit payment often reported as range
- Some evidence of moral hazard among more highly paid workers
- Some evidence (in different specifications) of moral hazard among lower paid workers

Evidence of countermeasure effectiveness

- **Moral hazard: Waiting period reduced claims** by workers eligible for the maximum benefit payment.
- Using model 3.9 and maximum benefit levels, imposing a waiting period reduced sickness claims by 6-8%.
- Relative to effect of 1SD increase in maximum benefit=>20% claim increase, this is a large share.

Conclusions: history

- Early 20c health insurers understood the **threat** posed by asymmetric information.
- They also understood **how to mitigate** both moral hazard and adverse selection.
- Their management skills were critical in **discouraging government insurance** and **maintaining market share** into the 1930s.

Conclusions: economics

- Present day analysis of asymmetric information in health insurance has found little evidence for its existence.
- =>Asymmetric information may not be a problem.
- Or statistics may lack power.
- Or claims data may be **net of insurer efforts** to mitigate asymmetric information.

Conclusions: microinsurance

- Trial periods of a month or longer may mitigate selection problems.
- Waiting periods of a few days to a week may mitigate moral hazard.