Medical Expenditures over the Life-Cycle: Persistent Risks and Insurance by Fukai, Ichimura, Kitao, and Mikoshiba

Discussion by Mariacristina De Nardi

University of Minnesota, Federal Reserve Bank of Minneapolis, CEPR, and NBER
What does this paper do? Three main contributions

1. Uses administrative data to measure medical expenses for Japanese individuals

2. Calibrates rich structural model of savings with medical expense risk

3. Provides new findings on the effects of medical expenses and government insurance on:
   - Aggregate savings
   - Savings by gender, marital status, and education
   - Welfare
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Contribution 1: Japan and measuring medical expenses

- **Japan is a very interesting economy in which**
  - The government provides a lot of health insurance for medical expenses and long-term care expenses
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  - The government provides a lot of health insurance for medical expenses and long-term care expenses
  - Individual’s co-pays are low and decrease with age. In addition, there is a maximum co-pay amount that depends on one’s income
  - Administrative data on the universe of Japanese people receiving medical services in a given year, filing an insurance claim, and not on welfare
Contribution 2: An innovative, richer model

- Model: richer than in previous literature in important dimensions
  - First paper modeling both couples and singles, and medical expenses, over all of the life cycle

Why is this important?
- Medical expenses are an important risk
- Many people are in couples (average household size about 2.5 and over 45% of households are couples)
- Couples are different from singles. Face income and health risks of both partners, can save, enjoy economies of scale

First paper also modeling education heterogeneity in this context
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Contribution 3: Novel findings

- Effects of medical expenses and government insurance on
- Couples and singles over all of the life cycle
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- On welfare
Model’s key mechanism, part 1: Self-insurance

- People like to consume but face longevity risk and medical expenses

What are some bad states of the world?

- Young and sick risk: being young, having no assets, and facing high medical expenses
- Very old and sick risk: living a long time, having large medical expenses, running out of assets and consuming very little when old
- Die young risk: living a short life, consuming little and leaving lots of bequests. Deriving utility from bequests reduces the cost of this risk

Hard to self-insure against these risks in this model
Utility from bequests affect households' costs of self-insurance (De Nardi, French, Jones, McGee, 2021)

Suggestion: Evaluate the role of risks and bequest motives in affecting both model fit and policy
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Government insurance can help insure the states that are hardest to self-insure with one asset. What could be most valuable to help insure the young and sick risk and the very old and sick risk?
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  - Age-varying co-pays
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Suggestion: better discuss the effects of means-tested insurance vs. co-pays (including by age) and mechanisms
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But in his model labor supply is exogenous
⇒ No distortions from taxing labor income to provide health insurance
⇒ Why does the paper find that reducing government health insurance while rebating revenue lump-sum improves welfare?
Is it due to giving more resources to the young and borrowing constrained, is it redistribution, or is it related to bequest motives reducing the costs of self-insuring risks?

Suggestion: provide more intuition about the model’s mechanisms, results, and policy implications
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- Medical expenditures data set, limitations
  - No information on people’s demographics other than age and gender

Solution: Acknowledge. Check other sources. Perform appropriate robustness/corrections on model inputs to assess importance of the missing link between medical expenses and life expectancy with marital status and education.
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Contribution 1. The data. Comment 2

- Healthy people not going to the doctor and not filing a claim are not in the dataset. People on welfare are not in the data set either.

Some people might be healthy for a long time and not be in the sample or only appear for a short time, especially when young. Other people might go in and out of the sample. Authors drop observations who do not have three consecutive observations.

Problem: potentially inaccurate measure of medical expenses by age and of medical expenditure persistence.

Solution a: Document and discuss how many people are missing by age and gender. Are we overestimating medical expenses by age?

Solution b: For those who go in and out of the sample, use a small medical expenditure amount instead of dropping them from the sample and recompute persistence.
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- Paper estimates transition matrices for medical expenses by age rather than parameterized processes as other papers.
- But medical expenses are the sum of a persistent and transitory component.
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- Estimating the persistence of the sum of these two shocks underestimates the persistence of persistent shocks.
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- Paper estimates transition matrices for medical expenses by age rather than parameterized processes as other papers.
- But medical expenses are the sum of a persistent and transitory component.
- Estimating the persistence of the sum of these two shocks underestimates the persistence of persistent shocks.
- Solution: estimate medical expenses as persistent and transitory shocks. Allow the persistent shocks to depend on age, cohort (important), and previous medical expenses. Then model the various pieces separately.
Contribution 1. The data. Overall assessment

- Data is great but has drawbacks. They need to be acknowledged.
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- Data limitations affect key aspects of the model (medical expenses persistence and differences between married and single people that are important in this context)
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- Data is great but has drawbacks. They need to be acknowledged.
- Data limitations affect key aspects of the model (medical expenses persistence and differences between married and single people that are important in this context).
- More analysis/robustness needs to be performed to overcome data limitations.
Contribution 2. Rich model. Comment 1

- Paper models medical expenses as a function of “health”
- “Health” is measured by taking arbitrary medical expenses cutoffs to infer one’s health. Problematic for many reasons (including those discussed in the data section: super healthy people are not even in the sample)

- Solution: model medical expenses as a function of past medical expenses (and other relevant variables) in a standard way and avoid talking about “health”
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Income is deterministic and unaffected by medical expenses/health shocks (except for one robustness check)

Income risk generates precautionary savings that can also be used to cover medical expenses and leave bequests
Contribution 2. Rich model. Comment 2

- Income is deterministic and unaffected by medical expenses/health shocks (except for one robustness check)
- Income risk generates precautionary savings that can also be used to cover medical expenses and leave bequests
- Potentially important to model this risk
  - Solution: paper can save one state variable (Medical expenses modeled as a Markov(2) as opposed as a Markov(1) give the same results). Drop second order Markov and better model income risk
Contribution 2. Rich model. Overall assessment

- State of the art, ambitious model
- Can be improved by better
  - Modeling the role of marriage and education in affecting medical expenses and life expectancy
  - Modeling labor income shocks, including as a function of medical needs
Contribution 3. Novel findings. Comment 1

- Too many policy experiments which are not connected by the intuition of the key driving forces (self-insurance vs. government insurance, vs. taxation distortions vs. redistribution)

- Policy experiments should speak to the strengths of data and the model

- Interesting questions that can be addressed with this framework:
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  - Means-tested and age-dependent insurance vs. copays
Contribution 3. Novel findings. Comment 2

- More in detail on the latter point
- Focus policy experiments on features that most speak to Japan’s institutions
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  ▶ A changing copay rate by age resembles a form of longevity insurance. Why not study its role?
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- More in detail on the latter point
- Focus policy experiments on features that most speak to Japan’s institutions
  - A changing copay rate by age resembles a form of longevity insurance. Why not study its role?
  - How do income-tested medical expenditure caps affect welfare and for whom?
  - What is the most efficient way of providing insurance through co-pays and income-based caps?
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Focus policy experiments on features that most speak to Japan’s institutions

- A changing copay rate by age resembles a form of longevity insurance. Why not study its role?
- How do income-tested medical expenditure caps affect welfare and for whom?
- What is the most efficient way of providing insurance through co-pays and income-based caps?
- Long-term care insurance co-pay rate is only 10%. That of medical expenses is 30-40% but with ceilings. Why do we want to different degree of insurance for these two programs?
Contribution 3. Novel findings. Overall assessment

- Too many experiments, but none of them particularly suited to the strengths of data, model, and institutional environment
Contribution 3. Novel findings. Overall assessment

- Too many experiments, but none of them particularly suited to the strengths of data, model, and institutional environment
- Perform different decompositions and policy experiments. Better connect results across experiments
- Provide much more intuition of how the model works and why, and how that affects its policy implications
Excellent and ambitious paper, both computationally and empirically.
Can become even more ambitious with some additional work on both model and data.
Better discuss model fit to aspects not matched by construction and perform robustness to key parameters (patience, risk aversion, bequest motives).
I learned a lot from it and I recommend reading it.