Risk Adjustment, Self-Selection and Plan Design in Medicare Advantage

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Background

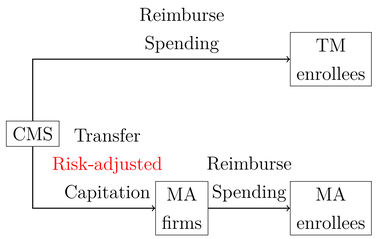

Figure: Medicare Market Illustration

Medicare is a U.S. federal health insurance program mainly for individuals aged 65 and older, comprising two main components:

- **Traditional Medicare (TM)**: A fee-for-service (FFS) system, typically paired with Medigap plans.
- **Medicare Advantage (MA)**: A managed competition framework where private insurers, subsidized by the government, often offer plans with **lower premiums and reduced generosity** compared to Traditional Medicare (TM).
- **Managed Competition**: The government provides fixed and predetermined subsidies to private insurance firms, which in turn offer insurance plans to beneficiaries.
- **Cream Skimming**: Firms strategically target healthier beneficiaries to maximize profits.
- **Risk Adjustment**: The government adjusts subsidy payments to insurers based on beneficiaries' observable characteristics.

Motivation

- **Self-Selection**: Beneficiaries make enrollment decisions based on private information. Healthier individuals may choose plans with lower premiums and reduced generosity, while less healthy ones opt for plans with higher premiums and greater generosity.
- The current risk adjustment mechanism assumes identical unobserved health perceptions for beneficiaries with the same observable characteristics, which may be inaccurate.
- This leads to "cream-skimming" incentives, allowing MA firms to target healthier beneficiaries by designing plans with lower premiums and reduced generosity.

Goals

- **Theoretical**: Developed a managed competition model incorporating endogenous plan design and self-selection under private information.
- **Empirical**: Applied the model to Medicare Advantage data, evaluating the welfare implications of self-selection effects.
- **Policy**: Provided insights for enhancing risk adjustment payment policies to mitigate market distortions.

Method

- Develop a structural model of demand and supply that incorporates self-selection and endogenous plan design.
- Estimate the model using Medicare Advantage data.
- Conduct counterfactual simulations to analyze scenarios where self-selection effects are neutralized.

Model & Estimation

Demand

- The model incorporates self-selection effects, where beneficiaries have varying unobserved health perceptions, leading to heterogeneous preferences for plan design.
- Health perceptions are assumed to follow a distribution with a mean equal to the predicted health status from the risk adjustment model with a variance.
- Estimation results indicate that beneficiaries with identical risk-adjusted subsidies have varying private health perceptions, leading to different plan selections, consistent with self-selection effects.

Supply

- The model incorporates endogenous plan design, where firms strategically design plans to maximize profits.
- The cost structure of plans allows the self-selection effects.
- Estimation results show that plan generosity is the most significant factor influencing its cost. Marginal costs increase non-linearly with plan generosity, indicating self-selection effects.

Counterfactual Simulation

Equal-Profit Risk Adjustment

- **Goal**: Align subsidies so firms earn the same profit from healthy and sick enrollees, removing cream-skimming incentives so that firms are indifferent to the health status of beneficiaries.

Table: Welfare Comparison Between Current and Equal-Profit Risk Adjustment

Metrics	Current	Equal-Profit	% Change
Total MA share (%)	30.58	33.25	8.72%
Total Consumer Surplus	22.08	24.51	11.01%
Total Producer Surplus	14.45	19.45	34.60%
Gov Spending on TM	370.26	357.46	-3.46%
Gov Spending on MA	163.51	176.31	7.82%
Subsidy Adjustment	-	0.95	-
Total Gov Spending	533.77	534.72	0.18%

Welfare Analysis

- **Market Responses**: Firms redesign plans to be more generous with higher premiums. Both consumer and producer surpluses increase, indicating improved market outcomes, while total government spending remains stable.

Takeaways

- Risk adjustment mechanism can further mitigate cream-skimming incentives by accounting for self-selection effects, leading to improved market outcomes and welfare gains.

References

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2. Miller, K., Petrin, A., Robert, T., & Michael, C. (2023). The Optimal Geographic Distribution of Managed Competition Subsidies. Technical Report 2023. https://doi.org/DOI