

**Prescription Drug Coverage and Drug Utilization:  
Evidence from the Medicare Part D Expansion**

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# Prescription Drug Coverage and Drug Utilization

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## Background

- Optimal design of prescription drug insurance involves a tradeoff between
  - » Financial and health benefits of insurance versus
  - » Costs of insurance from moral hazard
- Financial benefits are from
  - » Better consumption smoothing
  - » Relaxation of financial constraints
    - Impede the ability of households to adequately self-insure

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## Background

- An important benefit identified in the health literature is reduction in cost-related non-adherence to Rx regimens
  - » Unfilled prescriptions
  - » Missed doses
- Seen to have important impacts on health
- These are in addition to
  - » Direct benefits of Rx on health maintenance
  - » Direct health benefits from fewer side effects

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## Background

- Moral hazard is the excess utilization of drugs
  - » Insured consumers do not bear the full costs of drugs
- Seen a primary social cost of providing insurance if drug prices reflect true marginal cost of production

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## Background

- A key empirical question then is what happens to Rx utilization when consumers gain coverage
  - » How much does it increase?
  - » How much is associated with the relaxation of financial constraints, such as cost-related non-adherence
  - » How much is due to moral hazard?

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## Background

- There are two important empirical challenges in analyzing the impact of insurance on utilization
- Unobserved heterogeneity in the demand for prescription drugs may bias estimates of the impact of coverage on utilization
  - » Those with high demand for Rx may also be more likely to have coverage → Upward bias

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## Background

- Difficult to separately identify the impact of the relaxation of financial constraints from moral hazard
- For example, an estimated small impact:
  - » Does it show small moral hazard?
  - » Or insurance that is ineffective in relaxing financial constraints?

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## Data and Methods

- Use panel data on elderly (65+)
- From 2005 and 2007 waves of the Prescription Drug Study (PDS)
- Supplement to the Health and Retirement Study (HRS)
- Examine the impact of gaining Rx insurance coverage on Rx utilization



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## Data and Methods

- Use evidence from increases in coverage among the elderly from the expansion of Medicare Part D benefits in 2006
- PDS provides data before (2005) and after (2006) the roll out of Part D on the same individuals

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## Data and Methods

- Part D started in 2006 and available to 3 groups
  - » Medicare beneficiaries 65 and older (voluntary)
  - » Medicare-eligible DI beneficiaries under 65 (voluntary)
  - » Medicaid-Medicare dual eligibles (automatically enrolled)

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## Data and Methods

- Available directly through 2 types of plans
  - » Stand-alone prescription drug plans (PDPs)
  - » Medicare Advantage (MA) plans,
    - Packaged with other Medicare benefits in an HMO, PPO, or private FFS plan
- Subsidies to employers and unions to retain existing coverage

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## Data and Methods

- PDS comes in 2 parts
- Questionnaire—gathers detailed information on
  - » Sources of Rx coverage
  - » General questions on utilization on
    - Extensive margin (whether take Rx)
    - Intensive margin—how many
      - > In last month in total
      - > In last month, taken regularly

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## Data and Methods

- Questionnaire—gathers detailed information on
  - » Cost-related non-adherence
    - “How often did you not fill a new prescription because of cost?”
    - “How often did you stop taking a prescription medication because of cost?”
    - “How often did you skip doses of a prescription medication in order to save money?”

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## Data and Methods

- Roster of medications—gathers detailed information for labels on the 10 most important medicines taken regularly
  - » Drug name (Simvastatin)
  - » Brand or trade name, if any (Zocor)
  - » Dosage (20 mg)
  - » Frequency (Take 1 tablet each day)
  - » Length of time taking the medication

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## Data and Methods

- Drug-specific information on non-adherence due to
  - » Cost
  - » Side effects
- Assessments of the drug as to
  - » Importance to overall health
  - » Frequency of unpleasant side effects
  - » Expense

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## Data and Methods

- Two innovations
  - » Use panel data fixed-effect estimators
    - consistent estimates of the impact of coverage on utilization
    - in the presence of time-invariant unobserved heterogeneity
  - » Use non-adherence questions to separately estimate impact of coverage on
    - utilization (in general)
    - cost-related non-adherence



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## Data and Methods

- Sample of 4,456 person-year observations on 2,228 individuals 65 and older, observed in 2005 and 2007
- Sample is broadly similar to that of all elderly in the HRS
  - » Slightly more like to be married
  - » Slightly more likely to have Rx coverage in 2005

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## Summary of Findings

- Part D associated with a substantial increase in Rx coverage from public sources and decrease from private sources
- The fixed-effect estimates suggest crowd-out of 73%
- Overall, the expansion of Part D raised Rx coverage for the elderly by 10 percentage points
- These results are remarkably consistent with the findings of Engelhardt and Gruber (2011), based on the MEPS

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## Summary of Findings

- This temporal increase in coverage then is used to identify the impact of coverage on utilization.
- In particular, the fixed-effect estimates indicate that gaining coverage results in a 15% increase in utilization, as measured by the number of prescription drugs taken.
- These results are consistent with the lower end of estimates in the literature.

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## Summary of Findings

- Gaining coverage is associated with large reductions (20-50%) in the incidence of cost-related non-adherence
- However, using drug-level data from the medication roster, even among the uninsured, only a relatively small proportion of drugs (12%) are associated with episodes of cost-related non-adherence
- So, these large reductions apply to a small slice of all drugs
- So, what explains the rest of the increase in utilization?

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## Summary of Findings

- A few pieces of evidence point to moral hazard, both qualitative and quantitative
- Using the medication roster data
  - » With coverage, drugs are seen as much less expensive
  - » New prescriptions less important to health
  - » New prescriptions are not differentially less likely to be associated with episodes of non-adherence
    - Impact on non-adherence concentrated on old drugs

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## Summary of Findings

- So, gaining coverage is associated with
  - » consumption of more drugs,
  - » On net seen as less expensive
  - » Less important to health
  - » and not better adhered to
- Certainly not inconsistent with moral hazard

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## Summary of Findings

- Finally, although quite speculative, the estimates on utilization and non-adherence can be taken together to form a rough lower bound estimate of moral hazard in utilization from prescription drug coverage.
  - » Of the overall 15% increase in utilization, about one-third can be attributed to moral hazard.

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## Caveats and Further Directions

- Conclusions on extent of moral hazard are speculative
- Moral hazard here measured as total change in utilization
- Technically only due to the substitution effect (the pure price effect from insurance)
- No attempt to estimate this more precisely
- Moral hazard usually seen as bad
  - » Could be good if price exceeds marginal cost
  - » Patent protection for pharmaceuticals