The Health Insurance Policy Simulation Model (HIPSM)

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Introduction

- HIPSM is a detailed microsimulation model of individuals, families, and employers making coverage decisions within a health insurance market
- Builds on the Health Policy Center's modeling experience with the Health Insurance Reform Simulation Model (HIRSM)
  - HIRSM was used to model reforms in Massachusetts in *Building the Roadmap to Coverage: Policy Choices and the Cost and Coverage Implications (Blumberg, Holahan and Weil 2005)*
  - HIPSM is designed to be faster and easier to tailor to new policy specifications and state-specific analyses
- Jointly developed with the Tax Policy Center (TPC)

Overview

- HIPSM's Capabilities
- Model Structure
- Current Applications
- Data Needs

Examples of Coverage Policies that Can Be Modeled in HIPSM

(focus is on population under age 65)

- Medicaid/SCHIP eligibility expansions
- Individual and small-group market reforms (e.g., changes in rating rules)
- Publicly-funded reinsurance
- Income-related premium subsidies
- Purchasing pools
- Individual mandates
- Employer mandates (pay or play)

HIPSM Output

- Each simulation run produces summary tables and more detailed tables of the estimated effects of reforms, e.g.,
  - Insurance coverage status in baseline and reform by income and demographics
  - Cost of reforms (or savings) for government, employers, and individuals
  - Changes in ESI premiums, firm ESI sponsorship, and employee take-up rates by firm size
  - Changes in non-group premiums by age and health status
  - Characteristics of those who remain uninsured post-reform
- Output tables can be modified and extended for specific needs

National Baseline Database Construction

- Core file: 2005 CPS Annual Social and Economic Supplement
- Matched with 2005 CPS Contingent Work Supplement, MEPS-HC, Survey of Income (SOI), and tax variables from TPC's Tax Model
- Workers are organized into synthetic firms
  - Data from the MEPS-IC and Statistics of US Business are used to estimate the population of firms
- Data are reweighted and adjusted to match benchmarks for coverage, income, health care expenditures, and the distribution of firms
  - Benchmarks come from several sources including the reconciliation of aggregate expenditures in MEPS and National Health Expenditure data (Selden and Sing 2008)
- Data are aged to 2009 (or other year as needed)

Premiums in HIPSM

- Built up within risk pools from underlying health care costs
- Apply typical rating rules in the individual and group markets
- Results in expected costs (conditional on rating rules). Multiply by administrative loading factor
- Benchmarked to targets from the MEPS-IC and Kaiser/HRET Employer Health Benefits Survey

Behavioral Effects in HIPSM

- Utility-based approach
  - Individuals choose the available option that provides them the highest utility
  - Firms offer if workers' total willingness to pay exceeds total costs
  - By adding structure, a utility-based approach is intended to better estimate the effects of reforms well outside our historical experience
- Total utility = Specified utility + Latent utility (error term)
- Existing coverage is assumed optimal at baseline
- Key to HIPSM's mechanics: Imputed error terms that
  - Ensure baseline coverage is optimal
  - Yield premium elasticity and take-up rates consistent with assumed targets

Utility Functions

Dollar-valued utility for each coverage option depends on

- Expected out-of-pocket health care expenses
- Variance of out-of-pocket health care expenses
- Value of health care consumed
- Out-of-pocket premiums
- Tax incentives
- Expected out-of-pocket expenses / income

Simulation of Reforms in HIPSM

- Reforms change available options, rating rules, relative prices
- Workers' willingness to pay for ESI changes
- Firms react to altered worker preferences
- Individuals/families choose new best available coverage option, given firms' decisions
- Premiums adjust to new risk pools
- Model iterates until coverage is stable

Example: Medicaid/SCHIP Expansion

- Public coverage becomes available for new eligibles
  - Current eligibility in HIPSM is determined by a detailed Medicaid eligibility simulation model
  - Expansion covers children to 300% of poverty and adults to 150%
  - Particularly attractive to new eligibles with higher OOP costs
- Reduces demand for ESI
- Fewer firms offer ESI
- Medicaid/SCHIP coverage ↑, uninsured and other coverage types ↓
- Government costs and total health care spending rise
- Private premiums adjust to reflect altered risk pools
- Second-order effects

Flexible Incorporation of Alternative Assumptions into Modeling Results

- Potential impacts of various cost containment strategies
- Supply constraints that might evolve under different approaches to universal coverage
- Mechanisms for increasing public program participation
- Scenarios for future wage, employment, health care cost, and insurance premium growth

National Applications of HIPSM Currently Underway

- Medicaid/SCHIP expansions (Kaiser Family Foundation)
  - Several combinations of expansion levels for children, parents, and non-parents
  - With and without enhanced outreach efforts
- "Reducing the Number of Uninsured: Cost and Effectiveness of Alternative Approaches" (preliminary results presented at AEA meetings in January)
  - Four reform components build on each other in sequence: Medicaid/SCHIP expansion, premiums subsidies + age-rating in small group and nongroup markets, employer pay or play mandate, individual mandate
- Projections of future coverage rates and health care costs if there is no reform (RWJF)

State-Specific Applications of HIPSM Currently Underway

- Modeling of an extensive array of coverage options for New York State
  - Simulating the full range of policy frameworks likely to be considered by any state or the federal government, including single payer and combined public/private approaches
- Projections of future coverage rates and health care costs if there is no reform (Colorado Health Care Foundation)
- Medicaid/SCHIP expansions and other policies for Colorado (RWJF, State Coverage Initiatives)

Data Needs

- Employer-employee linked data
- State-specific data combining demographics, coverage, health care expenses, and premiums, with large sample sizes

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