The Health Insurance Policy Simulation Model (HIPSM)

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Prepared for the National Committee on Vital and Health Statistics, Populations Subcommittee Meeting on “Modeling health insurance data, including coverage, access, utilization, quality, and cost of care.” Washington DC, Feb 27, 2009.
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
End