A comparative analysis of health forecasting methods

by
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(Progress report)

13TH MEETING OF HEALTH ACCOUNTS EXPERTS AND CORRESPONDENTS FOR HEALTH EXPENDITURE DATA
Paris, 4-5 October, 2011
Why developing forecasting models?

Address policy questions

- What if no action is taken
- Sustainability
- Drives health expenditure
- Costs raise the most
- Impact of medical technologies and innovations
- Impact of/on the rest of the economy
- “What if” policy scenarios
Models’ features

- Policy questions determine the:
  - Time horizon
  - Forecasted variables
  - Units of measurement
  - Drivers

Model & its specification
Classes of forecasting models

- **Macro-level models**
- **Component-based models**
- **Cohort-based models**
- **Micro-simulation models**

The diagram shows the classification of forecasting models based on the unit of analysis and the section or total health expenditure.
Strengths of each class of models

• **Macro models**
  – Effective in the short-run forecast
  – Account for a reaction to health spending from consumers and industry
  – (GE) Connect health spending to its impact on the overall economy

• **Component-based models**
  – Provide overall guidance on short and long-term growth trends
  – Identify the importance of high-level expenditure drivers
  – Not as data intensive

• **Microsimulation models**
  – Project the future health status of the population
  – Can test “what if” scenarios, such as changes to the organisation and financing of care, and the introduction of new technologies
  – Disaggregated projections (age groups, providers, regions etc.)
Growth drivers

Percentage of Gross Domestic Product

Effect of Cost Growth Faster Than GDP and Aging of Population

Effect of Aging of Population

Limited effect
Growth drivers

Source: Goss, J. (2008)
Be Aware of Assumptions

Projected health expenditures in Sweden (as a share of GDP)

25 models reviewed

<table>
<thead>
<tr>
<th>Country</th>
<th>Model/Institution</th>
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<tr>
<td>U.S.</td>
<td>Congressional Budget Office (CBOLT)</td>
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<td>Centers for Medicare &amp; Medicaid Services (Component)</td>
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<td>Centers for Medicare &amp; Medicaid Services (GE)</td>
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<td>U.S. Department of Veterans Affairs</td>
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<td>FEM (Medicare RAND)</td>
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<td>The Future Elderly Model (CMS/RAND)</td>
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<td>Australian Institute of Health and Welfare (AIHW)</td>
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<td>National Centre for Social and Economic Modelling (NATSEM) Micro-Macro</td>
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<td>Australian Government, Productivity Commission</td>
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<td>Australian Government, The Treasury</td>
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<td>Statistics Canada /Population Health Model (POHEM)</td>
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<td>HM treasury</td>
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<td>National Heart Forum Microsimulation Model (Foresight)</td>
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<td>OECD</td>
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<td>European Union/Ageing Working Group</td>
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10 countries + OECD & EU
Conclusions

- **Projections not predictions**
  - Like maps provide information, don’t drive

- **Policy questions**
  - Determine model selection & specification
  - No model is superior to the others
  - Globalization

- **New forecasting techniques available**
  - Testing policies before they are introduced
  - Systems of models on the horizon

- **Transparency**
  - Limitations and assumptions well described.