

## Taking Account...

### Paper looks at approaches for disease-based prices

To better understand productivity and inflation in the health sector, many health economists advocate tracking the cost of treatment by disease. Several studies have examined disease-based price inflation by applying a variety of methodologies. However, the current literature has not systematically examined how different approaches for allocating disease expenditures might affect price growth, which has implications for measuring output and inflation in the health sector.

In a recent Bureau of Economic Analysis (BEA) working paper, economists Abe Dunn, Eli Liebman, Lindsey Rittmueller, and Adam Shapiro (formerly of BEA) compare various methodologies for allocating spending to disease episodes and gauging their effect on disease-based price inflation. They find that specific allocation methods can affect inflation rates but that the annual growth rate stays within a 2.9 to 3.9 range across all methods. The paper highlights various issues and trade-offs that may be useful when selecting among the different approaches.

The working paper analyzes various allocation methods using commercial claims data from MarketScan for 2003 to 2007. The two primary aims are to: (1) provide a range of estimates for disease-based price inflation and (2) provide guidelines for

how the selected methodology may affect the measurement of disease-based price inflation.

Three approaches were analyzed. The first approach was an encounter-based methodology, which assigns expenditures to diseases based on the observed diagnosis. A second approach was an episode-grouper approach, which uses software algorithms to review a patient's medical history. The third approach was a person-based approach, which uses regressions and the characteristics of the patient in an attempt to statistically allocate expenditures across disease categories.

The study did not attempt to determine which of the approaches is best. However, the authors note that there are certain scenarios in which specific approaches may be preferable. For example, in cases where diagnosis codes are often missing, the person-based approach may perform well, as the method can allocate expenditures across observable diseases. In cases where one would like to examine the underlying prices of services associated with a disease, it will be important to assign each claim to an episode so that prices of the associated services may be identified. In this case, the person-based approach will not work.

While there are several theoretical tradeoffs for each of the approaches, how much the selected methodology matters in practice is an empirical ques-

tion. The authors offered insights for other researchers:

- Different methods for grouping claims should be explored to understand the sensitivity of the results to methodological choices.
- Information on individuals is often observed over several years in claims data, but this information should be analyzed 1 year at a time to avoid bias.
- In addition to measuring disease prices, researchers should also examine expenditure per capita growth and other expenditure statistics, which offer an important check on the selected methods.
- Important tradeoffs when selecting the level of aggregation for a disease episode should be acknowledged.

While measures of disease-based price inflation are affected by the selected methodology, the various estimates appear to fall into a similar range in the aggregate. The disease-based price inflation figures at the disease-category level, however, appear to be more sensitive to the selected methodology, although some similar general patterns emerge across all methodologies. For example, prices for cardiology-related conditions are rising more slowly than average across methodologies. Another common pattern across methods is that expenditures and disease prices for preventative services are rising rapidly.