Deconstruction of the Time Trend in Health Insurance:

A look Inside SIPP 2008 Health Insurance Rates.

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Introduction

This analysis presents new longitudinal health insurance estimates from the Survey of Income and Program Participation (SIPP) spanning May 2008 to March 2010. First I present new monthly estimates for uninsurance, private coverage, Medicare, and Medicaid, paying particular attention to children's coverage. I then decompose these estimates into their constituent waves and subsample components, revealing the irregularities embedded within the aggregate numbers, and illustrating the complexity and challenges involved in producing these monthly estimates.

Background

Health insurance coverage is an important aspect of population health in the United States. A significant population 'gradient' exists in coverage, with reduced medical utilization and health outcomes in cases of uninsurance (McWilliams, 2009; Smith et al, 2006). Health insurance coverage is far from static, with some individuals "churning" in and out of coverage (Klein et al, 2005). Research suggests that intermittent coverage, as well as continuous uninsurance, results in reduced access to a variety of medical care. (Cummings et al, 2009; Olsen et al, 2005; Schoen & DesRoches, 2000; Sudano & Baker, 2003). Thus, longitudinal surveillance of coverage to detect coverage dynamics is required for a functional understanding of health insurance coverage within the population.

Few surveys collect longitudinal health insurance coverage data that is capable of documenting transitions in and out of coverage. The SIPP is one nationally representative survey that provides longitudinal surveillance on health insurance coverage at a monthly level. Yet, such detailed data

collection requires a complex system of survey administration and data processing that can be challenging to manage. It is important to understand the construction of SIPP health insurance estimates to assess the quality of the estimates and understand the true contours of health insurance coverage within the nation.

Data & Methods

The SIPP is a continuous series of national panels, ranging from 2.5 to 4 years, of the civilian noninstitutional population. Sample sizes range from 14,000 to 36,700 households per panel. This analysis uses the 2008 Panel, waves 1 through 5, which collects data from May 2008 to March 2010. Within SIPP, continuous monthly information is collected in a series of waves, each containing information on the 4 months prior to a given survey. The full sample is also broken up into 4 subsets, called rotation groups, with each group interviewed on a specific month of each wave to allow for continuous data collection. These pieces of data, coming from separate rotations and waves, get combined to create any given monthly insurance coverage estimate. For the monthly time series I present, 2/3^{rds} of the monthly estimates are produced using all 4 rotations groups, and nearly 1/2 combine data from 2 different waves.

This analysis presents new SIPP longitudinal estimates of health insurance from the 2008 Panel. The monthly estimates are presented for both adults and children, and include levels of uninsurance, private coverage, Medicare, and Medicaid. Next, these SIPP monthly estimates are deconstructed to reveal the variations hidden within the aggregated sample estimates. Additionally, I provide the sample distribution by number of months insured, and assess how much this varies across rotation group. This analysis illustrates how the monthly trend lines are influenced by variations in the separate waves and rotation groups that go into their construction.

Preliminary Results

As wave 5 data has not yet been released, preliminary results are based on waves 1 through 4,

which spans from May 2008 to November 2009. Final results will also include wave 5, which will extend our time frame to March 2010.

Overall, private coverage decreased for both adults and children between May 2008 and November 2009, consistent with expectations based on economic and employment declines during this time. The percent of the population with Medicare increased during these months. And Medicaid levels were steady through 2008, but increased significantly across 2009 with the expansion of coverage from the Children's Health Insurance Program Reauthorization Act.

Overall, uninsurance rates show little statistically significant change. For children, however, uninsurance increases significantly between August 2008 and January 2009, then declines throughout 2009 due to increased uptake in Medicaid. Estimates also indicate that from November to December of 2008 the uninsurance rate appears to increase more steeply than in other months. For children this pattern is particularly pronounced. However, within the waves of data, there is an unexplained quirk, such that in wave 1 Medicaid levels are elevated relative to subsequent waves. The apparent increase between the November and December 2008 monthly estimates is actually an artifact of this irregularity rather than a true time trend.

Examining Medicare estimates by wave also reveals a quirk within the data. Medicare estimates across separate waves conform to overall Panel trends by level, but not by slope. In other words, while each subsequent wave is higher, the trend within each wave is actually a decline. Closer inspection shows that a subtle variation in response rates occurred by month. Upon applying standard imputations, the variation in response rates created this slope irregularity within waves. And, further unraveling the data into its constituent rotation groups of sample, we find that while traveling alongside each other, nonetheless each monthly subgroup has its own unique characteristics with their own idiosyncrasies.

This analysis provides insight into the construction of seemingly straight-forward estimates to

discover the small irregularities that hide within the aggregated data. Close examination of the estimates' construction suggests a somewhat different trend in coverage across the time period compared to the trend that initially appeared. By breaking down the trend lines by their many constituent pieces, this analysis underscores both the challenges in collecting monthly longitudinal data and the importance of keen attention to sources of variation when interpreting these longitudinal patterns.

References

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