

Enhancing Health Survey Data with Alternative Data Sources

Four papers were presented on the use of external or alternative data sources to enhance and augment survey research. The papers covered three themes: (1) the use of administrative data for validating survey questionnaire data, specifically for the assessment of measurement error; (2) use of administrative data to augment survey data by providing information that isn't collected on a survey or data that may be difficult to capture with a survey, such as health care cost data; (3) the use of multiple data sources including wearable device data to objectively measure health outcomes and to augment survey data.

The papers by Call et al and Pascale et al revolved around measurement error in the assessment of insurance coverage and insurance type. Call et al's paper, titled: "*Who Gets It Right? Using Survey and Administrative Data to Evaluate Characteristics Associated with Accurate Reports of Health Insurance Coverage*" was a reverse record check study in which a list of health insurance enrollees was used to randomly sample participants into two surveys, CPS and ACS. Self-reports on CPS and ACS were compared to data on the frame (i.e. health insurance enrollment list). The presenter described individual characteristics, health status, family and health plan factors that are associated with accurate reporting of insurance coverage for people with private and public insurance. The results from this analysis are being used to edit imputation routines, and for adjustments to population estimates of coverage type for policy simulation and evaluation. Pascale et al focused on the use of machine learning algorithms versus conventional or conceptual methods in the classification of insurance type in the CPS. Both presentations highlighted the utility of administrative data and machine learning strategies in accurately measuring complex constructs. Given the complexity of healthcare coverage and the policy environment that keeps changing, there is a lot of room for confusion about what is health insurance and let alone how to ask it in a survey for people to report it accurately. <>

The paper by Simon et al highlighted the complementary nature of surveys and administrative records. The paper highlighted that while surveys are the gold standard for health insurance measurement, some policy questions cannot be answered with survey, especially those related to health care costs. These estimates can be computed using publicly available administrative data and later appended or combined to survey data.

Gomori et al presented on the AURORA study, which incorporates sensor data from a wearable device, data collected via a smartphone app, and neurocognitive assessment in conjunction with survey data. The presentation highlighted issues related to the complexity of

collecting different types of data and combining these data while ensuring confidentiality, while highlighting the richness and depth of information that can be collected on survey participants.

These papers were contextualized in a discussion session that emphasized the importance of exploring the use of external data in the design of surveys, in conjunction with surveys, in the weighting of survey estimates, and in the analyses of survey data. The discussion touched on issues related to the difficulties of combining external data sources, including administrative data or data from wearable devices, to survey data including software and data integration challenges but emphasized the gains that can be accomplished by these survey augmentation strategies.

A salient point that was raised during the discussion was related to the use of administrative data to validate or to benchmark survey estimates. The use of administrative data in this context assumes that administrative records are the “gold standard”. However, this is may not be the case – in fact, administrative data experts who worry about the reliability and validity of administrative records, use survey data to assess administrative data quality.

In addition to fundamental comparisons, the analysis showed that ‘validity’ is relativistic. For example in some instances, the ACS is more accurate at identifying particular types of health insurance (marketplace) CPS more accurate for others (state plan). A critical point brought up by Pascale was that their experience had led them to a form of unfolding, in which answers to general questions, such as, do you have insurance led the respondent into a successive set of questions of increasing detail; as opposed to presentation of a laundry list of different types of health insurance. Additional analysis showed that the following items were associated with greater accuracy in reporting insurance coverage:

- Adults reporting for children
- Low income, unemployed, low education
- Shared coverage
- Received medical care
- Recency / intensity of coverage (recent enrollment)

Discussion relative to the Baines paper highlighted an important issue relative to the contribution of the different methods to understanding. The specific example provided was the self-report of prescription drugs; in which the respondent self-reported evaluated there costs as

high, but with the administrative data they were often at or below average. This finding points a key aspect of why mixed methods is critical. The survey assess the individual within their own context and experiences as opposed to the administrative data that characterizes the individual within the context of a population.

Finally, the discussion of the Gomori paper focused on the complexity of study design and enrollment, which many different methods of data collection are being used. A total of 12 steps were required to complete enrollment, in part due to the range of data collection methods being used and the intrusiveness of some of the data collection (.i.e. the intrusiveness of the Brainstrong© requiring that its keyboard being used, as opposed to the native keyboard on the phone). In addition the follow-up discussion focused on core issues associated with the use of wearables, from problems associated with participants trying to sell them to increasing intrusiveness of using the device progress from using them for most days and for a moderate period of time to wearing them everyday for at least 21 hours.

It was noted that the standard for inclusion into the study changed multiple times in response to the complexity of enrollment and burden in order to achieve the enrollment goal.