Design of a National Longitudinal Survey of Small Businesses to Assess the Early Impact of Healthcare Reform

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Introduction

The Patient Protection and Affordable Care Act (ACA), effective January 1, 2014, stated that all firms with 50 or fewer full-time equivalent (FTE) employees may purchase health insurance for their employees from health insurance marketplaces known as the Small Business Health Options Program (SHOP). Employees of small firms were also eligible to purchase subsidized insurance for themselves and their families from the individual Marketplaces. In addition, all firms with more than 50 FTE employees were required to offer qualified insurance to their employees or pay a penalty if any employees enrolled in subsidized Marketplace coverage. The ACA was designed in part to help small employers (those with 50 or fewer employees) provide cost-effective health insurance to their employees. As an incentive, small employers who offered qualified insurance might qualify for a tax credit. The legislation specified that the scope of covered employers and magnitude of penalties would change over time.

There are two types of health insurance marketplaces, also known as exchanges, offered by States to the employers and individuals in those States: State-Based Exchanges (SBE) and Federally Facilitated Exchanges (FFE). State-Based Exchanges allow employers to use an exchange that was developed by that State for health insurance eligibility and enrollment. Federally Facilitated Exchanges allow employers to use the Federal website, www.HealthCare.gov, for health insurance eligibility and enrollment. Prior to the implementation of the ACA, States were given the opportunity to decide if they were going to offer an SBE or an FFE to employers. When the ACA was implemented, 18 States chose to develop a State-Based Exchange while 33 States, including the District of Columbia, chose to use a Federally Facilitated Exchange.

The Medical Expenditure Panel Survey – Insurance Component (MEPS-IC) is an annual survey of private employers as well as state and local governments. The survey produces national and state-level estimates of employer-sponsored insurance including offered plans, costs, and number of enrollees. The MEPS-IC is sponsored by the Agency for Healthcare Research and Quality and is fielded by the U.S. Census Bureau. The private-sector sample is comprised of about 42,000 business establishments annually. An establishment is a single business entity or location. Firms, also known as companies, can comprise one or more establishments.

To enable research to compare the health insurance characteristics of firms eligible to use exchanges before and after the implementation of the ACA, a longitudinal supplement of private-sector establishments was implemented in 2014. More specifically, the MEPS-IC longitudinal survey sampled 3,000 responding establishments to the 2013 MEPS-IC and these longitudinal cases were fielded along with the 2014 MEPS-IC. The longitudinal survey will produce valuable research data exhibiting the changes these businesses may experience after the implementation of the ACA. This paper describes the design of the 2013-14 MEPS-IC longitudinal survey and illustrates important research data that cannot be obtained by an annual, cross-sectional survey.

MEPS-IC Longitudinal Survey

The 2013-2014 MEPS-IC longitudinal survey was sponsored by the Office of the Assistant Secretary for Planning and Evaluation (ASPE). The survey is a two-year study where the frame for Year 2 (2014) is the respondents to the

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prior year (2013) full MEPS-IC. The two-year length was a product of funding and respondent burden. The MEPS-IC can be especially burdensome to small establishments so the number of survey contacts is carefully managed. Sampled establishments in the longitudinal survey were given the same survey instruments as those in the regular 2014 MEPS-IC and use the same data collection activities as the regular MEPS-IC. During data processing, the longitudinal cases were treated separately for imputation and weighting.

Eligible establishments for the longitudinal survey are part of firms with 50 or fewer employees (full and part time). Other eligibility criteria included private-sector only (no state or local governments) and the establishment must have responded to the prior year (2013) MEPS-IC. The sample size of 3,000 establishments was set based on cost and survey processing constraints.

Stratification

The longitudinal survey utilized two stratification variables: Firm Size and State Exchange Type. The firm size strata were 1-11 employees and 12-50 employees. The stratum boundary between the two firm size strata was set to be the same as used in the full 2013 MEPS-IC to minimize variance implications. State exchange type was used as a stratification variable because it is an important study variable with respect to the ACA. The longitudinal survey frame establishment counts by strata are shown in Table 1 (unweighted) and Table 2 (weighted).

Table 1 – Unweighted final frame establishment counts: State Exchange Type by Firm Size

Exchange Type	1 – 11 Employees	12 – 50 Employees
SBE	4,195	1,793
FFE	7,193	3,119

Table 2 – Weighted final frame establishment counts: State Exchange Type by Firm Size

Exchange Type	1 – 11 Employees	12 – 50 Employees
SBE	1,717,287	337,655
FFE	2,652,158	572,545

Allocation of Establishments

During the design phase the 2013 MEPS-IC was not yet completed, so 2012 MEPS-IC data were used. Two of the most important variables in the MEPS-IC are Offer Insurance and Number of Enrolled Employees. Because of the importance of these two variables, the allocation for the MEPS-IC was designed on a combination of these variables using historical compositing factors of 0.44 for the Offer Insurance variable and 0.56 for the Number of Enrolled Employees variable. The allocation of the longitudinal survey adopted these compositing factors to be as consistent with the MEPS-IC design as much as possible.

An adjusted optimal allocation was used for the design of the survey. Proportional allocation was not selected since it does not consider the variability of target variables in different subgroups. Because most states that were developing their own exchanges were approaching the task differently, consideration was given towards putting more sample in the SBE states instead of in those states that were using an FFE. The adjusted optimal allocation starts with optimal allocation but then is adjusted to boost the precision of estimates for a key subgroup such as States with state-based exchanges. Variable cost was not an issue during the design phase so optimal allocation was equivalent to Neyman allocation.

Optimal (Neyman) allocation was selected since optimal allocation minimizes the variance of a specific variable. Table 3 shows the preliminary allocation figures based on Neyman allocation. The “Overall” column is the combination, using the compositing factors described above, of the separate allocations using Offer Insurance as the design variable (weighted by .44) and also using Number of Enrolled Employees as the design variable (weighted by .56). Table 4 shows the same preliminary allocation figures as Table 3 but aggregated to the type of exchange.

Table 3 – Allocation of 3,000 sample Establishments using Neyman allocation by strata

Stratum	Offer Insurance	Number of Enrolled	Overall
FFE (1 – 11)	1,480	821	1,111
SBE (1 – 11)	982	856	911
FFE (12 - 50)	346	835	620
SBE (12 – 50)	192	488	358
TOTAL	3,000	3,000	3,000

Table 4 – Allocation of 3,000 sample Establishments using Neyman allocation by type of exchange

State Exchange Type	Offer Insurance	Number of Enrolled	Overall
FFE	1,826	1,656	1,731
SBE	1,174	1,344	1,269
TOTAL	3,000	3,000	3,000

As mentioned earlier, of interest was the possibility of boosting the sample in the SBE states - at the cost of the precision in the FFE states. To analyze the implications of implementing such an adjustment, precision plots were created to illustrate the effects of increasing sample in the SBE states (Baskin and Kashihara, 2014). The precision for these plots was defined as the inverse of the standard error for the selected key survey variable. The plots show the precision curves of SBE, FFE and Overall (all states) for a key survey variable and provides a visual of gains or losses when increasing the sample for a particular subdomain. Figure 1 shows the precision plot using Offer Insurance and Figure 2 shows the precision plot using Number of Enrolled.

Figure 1 – Precision plot of Offer Insurance vs State Exchange (SBE) sample size

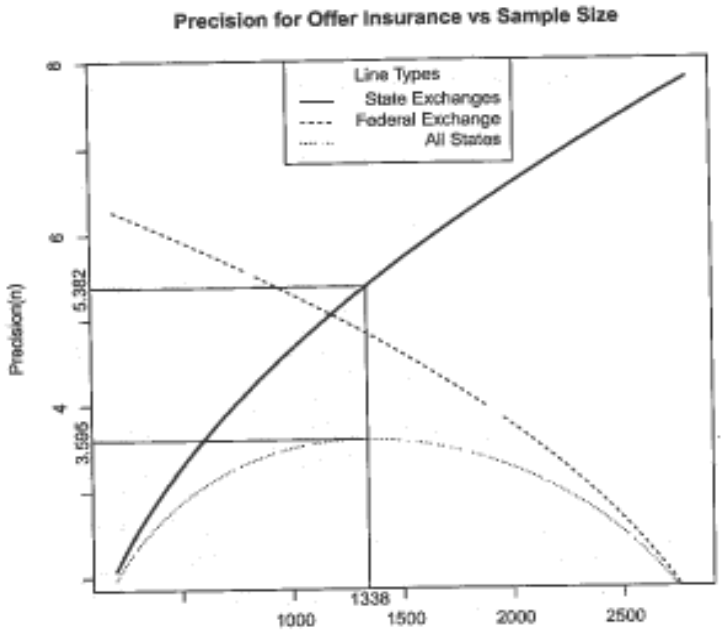
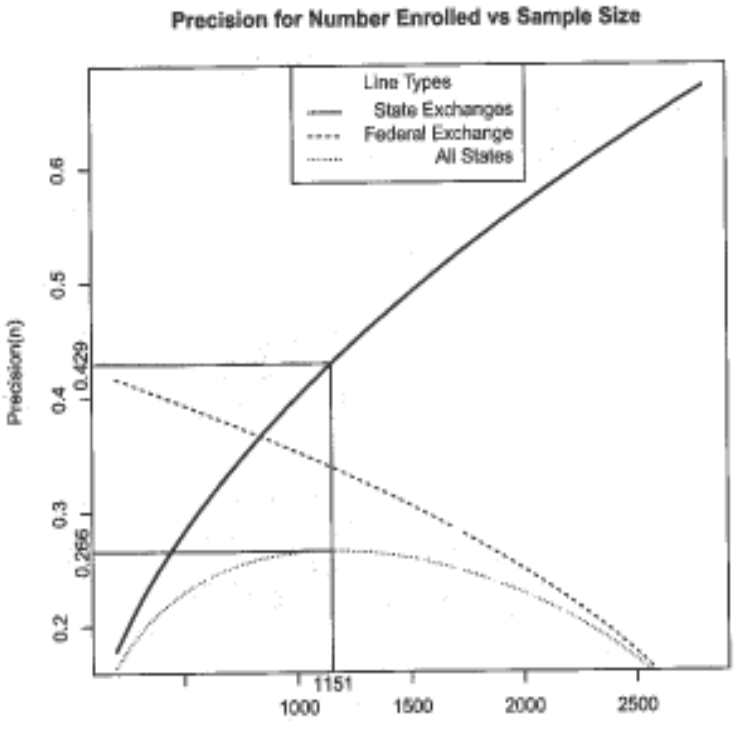


Figure 2 – Precision plot of Number Enrolled vs State Exchange (SBE) sample size



Both plots show that as the SBE sample size increases, the precision of the estimate of the key survey variable also increases in the SBE states, while at the same time the precision of the estimate of the key survey variable decreases in the FFE states. Also shown in both plots are the precision of the three curves at the optimal state exchange sample size (vertical line on the plots) for the key survey variable. The optimal state exchange sample sizes are 1,338 establishments for Offer Insurance and 1,151 establishments for Number of Enrolled Employees.

Since both precision plots showed that at the optimal precision for "all states" the precision for the SBE subgroup was already greater than the precision for the FFE subgroup, the decision was made not to make any further adjustments to the Neyman allocation by boosting the SBE subgroup sample size.

Sample Selection

The frame for the 2013-2014 longitudinal survey included 16,300 establishments that responded to the 2013 MEPS-IC. The sample size was 3,000 establishments that were optimally allocated among two strata based on firm size (2 stratum cells) and state exchange type (2 stratum cells). Establishments on the frame within stratum cells were sorted by State, Industry, Firm Size, and Firm ID to insure diversification within the sample. The sampling method was the same that was used to select the sample for the full MEPS-IC: sequential probability proportional to size (sequential PPS). The probability of selection, p_i, for an establishment was

$$p_i = \left(\frac{nrwgt_i}{\sum_i nrwgt_i}\right) \text{ x (stratum sample size)}$$

where $nrwgt_i$ is the prior-year (2013) non-response adjusted weight for the establishment, used because the final 2013 MEPS-IC weights were not available at the time of sampling.

Final Response Outcomes

Table 5 shows the final response outcomes for the longitudinal survey. Of the sampled 3,000 establishments, 2,924 were in-scope to the survey in Year 2 (2014). There was only one establishment that was undeliverable-as-addressed (UAA) and many of the out-of-scope establishments had gone out of business (about 2.5% overall). The data were collected via a telephone prescreener followed by a mailed survey form or web response option, then a telephone follow-up if necessary. Most of the prescreener-only establishments did not offer insurance and these establishments were not sent any further survey forms. The in-scope response rate for 2014 was 75.6%.

Table 5 – 2014 Final response outcomes for establishments in the longitudinal survey

Sample		**3,000**
	UAA / Out-of-Scope	76
Total In Scope		**2,924**
	Prescreener Response	980
	Mail Response	669
	Web Response	214
	Telephone Follow-up Response	348
Total Responses		**2,211**

At this time the data have not yet been released to the public, so table shells of important estimates from these data are provided below. Table 6 shows the overall transitions in offering insurance before and after the implementation of the ACA. Table 7 shows the changes in insurance offering by the exchange type location. Table 8 shows the changes in insurance offering by firm size.

Table 6 – Transition percentages of insurance offering status of establishments from 2013 to 2014

	YES in 2014	**NO in 2014**	**Total**
YES in 2013	%	%	100 %
NO in 2013	%	%	100 %

Table 7 – Percentages of establishments that transitioned their insurance offering from 2013 to 2014 by exchange type location

Insurance Offering Transition	**FFE State**	**SBE State**
YES → NO	%	%
NO → YES	%	%
YES → YES	%	%
NO → NO	%	%
Total	100 %	100 %

Table 8 – Percentages of establishments that transitioned their insurance offering from 2013 to 2014 by firm size

Insurance Offering Transition	**Firm Size 1-10 Employees**	**Firm Size 11–50 Employees**
YES → NO	%	%
NO → YES	%	%
YES → YES	%	%
NO → NO	%	%
Total	100 %	100 %

The MEPS-IC longitudinal data are collected by the U.S. Census Bureau and, for confidentiality reasons, can only be accessed in the Research Data Center at the Census Bureau Headquarters in Suitland, Maryland.

Additional MEPS-IC Longitudinal Surveys

At this time, to measure planned annual changes within the ACA, ASPE has funded two additional MEPS-IC longitudinal surveys. The 2014-2015 survey expands the scope from establishments in firms with 1-50 employees to 1-100 employees. The sample size was also increased from the initial longitudinal survey from 3,000 establishments to 5,000 establishments. Currently, field collection of data for this survey is coming to a close and data processing is about to begin. The 2015-2016 survey expands the scope to all employer sizes and the sample size has been increased to 7,000 establishments. Allocation and sampling are currently underway for the 2015-16 iteration of this longitudinal survey series.

References

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