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Final Report: Analysis of Actuarial Values and Plan Funding Using Plans from the National Compensation Survey

Compiled for Office of Policy and Research (OPR), Employee Benefits Security Administration (EBSA), Department of Labor (DOL) by Actuarial Research Corporation (ARC)

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Introduction

Actuarial Research Corporation (ARC) performed an analysis of actuarial value (AV) by plan funding (whether a plan is self-insured or purchased) for the Department of Labor's (DOL) Employee Benefits Security Administration (EBSA). The goal of the project was to support the Office of Policy and Research (OPR) in its efforts to measure the level of coverage offered by employer-sponsored insurance plans by estimating actuarial value by plan funding type. The project uses the National Compensation Survey (NCS) data—produced by the Bureau of Labor Statistics (BLS)—and compares the estimates to the AV calculated using the Minimum Value Calculator (MVC) from the Center for Consumer Information and Oversight (CCIIO). Finally, the project includes a regression analysis of the effects of plan funding on actuarial value.

While the goal of this study was to determine whether health insurance plans vary in the richness of their benefits by their funding methodology, the work done in support of this goal has additional applications. In particular, the distributions of actuarial value produced in this study can also be useful for EBSA in their Auxiliary Data,[1] an annual report and dataset published by EBSA which generates estimates of insurance coverage for individuals and statistics on various aspects of employer-sponsored insurance including the value of the coverage.

Overview of the Process

Under a Memorandum of Understanding (MOU) between EBSA and BLS, ARC worked onsite at BLS to extract relevant data from the most recent four years of the NCS, recode the data and calculate actuarial values[2] for the plans. Actuarial values for the NCS employer sponsored health plans were first calculated with ARC's own internal methodology (ARC ratebook), and then compared to actuarial values calculated using the MVC from CCIIO. Once the AVs were calculated, employee-weighted distributional tables by plan type and funding were created, as well as basic tables which profile the underlying population covered by the NCS. The final step was to use statistical analysis to estimate the effects of plan funding on the actuarial values.

Data extractions from the NCS datasets were performed at BLS, in conversation with BLS staff, using software available on the BLS computers. The ARC rating methodology is a Unix-based C program that evaluates plans by means of a "claims repayment" routine at the person level. All plans were evaluated on each person record in the database that underlies the ARC model, and the output is at the plan level. The ARC programs (and underlying data) were uploaded to BLS computers, and compiled and run using BLS resources so that no NCS plan data left the BLS facility. The MVC, from CCIIO, was used to evaluate the NCS plans using Excel based macros. ARC automated the MVC calculation process for running large numbers of plans, without change to the calculation routines themselves. The MVC Excel sheet was also uploaded to, and run at, BLS.

Once a set of initial actuarial values were calculated from the raw data for each of the NCS datasets, a set of imputation algorithms was used to fill in for missing values and/or missing questions. After these

[1] https://www.dol.gov/agencies/ebsa/researchers/data/auxiliary-data

[2] Actuarial value, or AV, is defined as the ratio of average benefits paid to a uniform covered service package, when calculated over a standard population. Actuarial value calculations, in general and in this work, do not take into account items such as type of plan, the richness of an insurance plan's network, the impact of cost-sharing on utilization (induced demand), how high the insurance plans "recognized charge" (fee) schedules are, or differences in employer contributions for the coverage.

imputations were performed, actuarial values were then recalculated using both ARC's ratebook and the MVC. Output was created from each of the sets and methodologies run.

For the regression analysis, matching and statistical analysis were performed at BLS, using SAS statistical software which was available on the BLS computer system. Plan output was matched back to each applicable plan / occupation group record in order to perform the statistical analysis of size, industry, plan type, geographic location, average wage, and funding.

Data Description

The annual NCS, produced by BLS, covers the incidence and detailed provisions of selected employee benefit plans in private establishments.[3] In the area of health insurance, the NCS provides detailed information on private employers and their health insurance plans. The NCS provides this information annually, taken from a combination of detailed Summary Plan Descriptions, short summaries and comparison charts that are provided by responding employers.[4] The detailed plan provisions extracted from these documents allow for the examination of how coverage richness in the employer market may be influenced by various employer, employee and plan characteristics.

The NCS includes employer and employee characteristics in addition to health insurance plan parameters. Employer characteristics include size, industry, and geographic location, with workforce characteristics such as part-time vs. full-time and union participation. Plan parameters on the NCS include overall cost-sharing as well as service specific details including those for inpatient hospital, physician office visits, mental health and substance abuse treatment, and prescription drugs. These plan specific cost-sharing parameters (both overall and by service) can be used to estimate the relative richness of the plans, using a measure known as the plan's actuarial value.

ARC's evaluation of the health insurance plans in the NCS began with the NCS survey data itself, which was accessed with assistance from BLS staff specifically in the areas of determining the appropriate variables and methods for extracting, and forming a plan level data set to be evaluated. Table 1, below, shows the four NCS datasets that were accessed, their collection months, and the depth of variables (if there was anything beyond core variables available). The four datasets were chosen based on being the most recently available with at least half having non-core variables available and all years being able to have the self-insured variable appended to the data.[5]

Table 1. NCS Data and Variable Availability

NCS Dataset #	Initiation collection months	Medical Non-Core Variables Collected?	Self-insured variable appended?
110	June 2011 – July 2012	N	Y
111	June 2012 – July 2013	Y	Y
112	June 2013 – July 2014	N	Y
113	June 2014 – July 2015	Y	Y

[3] https://www.bls.gov/ncs/summary.htm
[4] From the Introduction of "Selected Medical Benefits: A Report from the Department of Labor to the Department of Health and Human Services", April 2011. Accessed at https://www.bls.gov/ncs/ebs/sp/selmedbensreport.pdf.
[5] The self-insured variable was not part of the NCS datasets but was appended by BLS personnel.

Each NCS survey analyzed by ARC contains "core" information on medical and prescription drug coverage as well as overall plan limits. Additionally, NCS 111 and NCS 113 contain "non-core" medical variables that describe specific services.

The "Medical Non-Core" variables include coverage and copay information about specific medical services (hospital, physician office visits, etc.). In the years when these variables are not collected, the survey provides only overall plan information (such as deductible, out-of-pocket (OOP) max), and prescription drug information. Self-insured status is not provided by plans on the main NCS dataset, but rather through a quarterly update dataset. BLS was able to link plans across the datasets, in order to append the variable to the datasets. NCS observations contain an occupational weight and a participation percentage for the plan in question. ARC determined plan participation weights using the product of these two values for each observation. Analysis was performed using these plan participation weights.

Once plan records existed, the NCS variables were recoded into those used by the ARC ratebook and MVC in order to calculate the actuarial values. The overall limit data (those cost-sharing variables that applied to all services) was used to determine plan deductibles, coinsurance levels, and OOP maximums. When available, separate individual and family deductibles and OOP maximums were used. Medical core variables provide information about networks, prepayment vs indemnity coverage, presence of a primary care physician, coverage of out-of- network emergency services, and whether the plan is paired with a health savings account. ARC used these variables—in conjunction with some overall limit data—to determine plan type (HMO, PPO, POS, fee-for-service, high-deductible). ARC used prescription drug variables to determine the presence of drug coverage and coverage parameters for three drug tiers.

Coverage information for several services used in the ARC ratebook (hospital copay per day, emergency room, outpatient, and specialist) were not directly available in any NCS data. In addition, detailed data on hospital coverage per admission and primary care office visits were not collected in the NCS 110 and NCS 112 surveys for most records. Furthermore, even when coverage and cost sharing information was collected as part of an NCS survey, data for some records were ambiguous and/or partially complete such that specific coverage parameters could not be determined. For example, some records showed presence of a copay for primary care coverage but indicated that the copay amount was "unspecified." In all of these cases, ARC assigned default values to plan parameters where complete cost sharing information was unavailable. In general, services for which specific cost sharing information was unavailable were assumed to be covered under the overall plan deductible and coinsurance limits.[6]

While first pass actuarial values were calculated using these default values, they were then calculated using a set of imputed values. These imputed values relied on probability distributions derived from plan parameters found in the Kaiser Family Foundation/Health Research & Education Trust (KFF/HRET) Employer Health Benefits Surveys for the relevant year. Due to the slightly more limited scope of the NCS 110 and 112 datasets (where only core questions were asked), more fields were imputed to these datasets than to the NCS 111 and 113 datasets. Table 2, below, summarizes the extent of imputation for various parameters across NCS datasets.

[6] Records with indeterminable deductible and/or coinsurance levels were excluded from analysis.

Table 2. NCS Plan Parameters Imputations by Dataset					
Plan Parameter		NCS Dataset #			
		110	111	112	113
% of Records Imputed	OOP Max	2%	2%	3%	3%
	IP Hospital[7]	84%	75%	89%	5%
	ER[8]	n/a	100%	n/a	n/a
	OP Hospital	100%	100%	100%	100%
	Primary Care	69%	41%	78%	46%
	Specialist	100%	100%	100%	100%
	Rx Tier 1	10%	8%	10%	10%
	Rx Tier 2	17%	19%	20%	24%
	Rx Tier 3	17%	21%	21%	21%

Further details on the imputation process are found in Appendix A, Technical Appendix.

Data Concerns: Self-Insured Variable in NCS

ARC found that the incidence of self-insurance (as opposed to purchased insurance) among plans in the NCS datasets was much lower than in other data sources that capture plan funding. Across the NCS 110-113 datasets, roughly 30% of (weighted)[9] participants are covered by plans identified as self-insured. KFF/HRET Employer Health Benefits Surveys from the same time period imply nearly twice the incidence of self-insurance, with about 60% of participants covered by plans identified as self-insured. Similarly, large discrepancies exist across plan types and employer sizes. Custom tabulations provided by AHRQ from the Medicare Expenditure Panel Survey – Insurance Component (MEPS-IC) for a separate project with DOL/EBSA also imply large differences in self-insured incidence from NCS data.[10]

In practice, the manner in which a plan is labeled "self-insured" varies widely, so the differing shares of participants in self-insured plans may result from different methods for determining plan funding status across the data sources. Additionally, for many records in the NCS datasets, the value of the self-insured variable was imputed rather than collected directly from the establishment. This could also explain some of the differences across data sources.

Methodology

ARC conducted initial actuarial value calculations by inputting the raw NCS plan data, with default values as described above, into the ARC ratebook and the MVC, for each of the four datasets. The first rating methodology, the ARC ratebook, is based on three years of demographic, spending and utilization data from the Medical Expenditure Panel Survey, Household Component (MEPS-HC) and is a "claims-repayment" model. The model uses person level records along with a program that simulates health spending under various health insurance plans under consideration. For each plan, the ratio of claims

[7] The NCS 113 had additional variables on inpatient hospital, which resulted in fewer records needing any imputation compared to earlier years.
[8] Emergency room cost-sharing was only available in the KFF/HRET Employer Health Benefits Survey for 2012 and thus was only imputed to the NCS 111 dataset.
[9] 42%-45% (unweighted)
[10] These data are not for public release, so ARC cannot comment on the exact magnitude of discrepancies.

paid to the underlying covered expenses, for the entire standardized population (in this case ESI under 65) is the actuarial value. The use of the MEPS-HC data has been restricted to those persons under age 65 with employer sponsored insurance (ESI) and then controlled to be consistent, in both population and spending, with the subset of estimates from the National Health Accounts that detail employer sponsored insurance, for the plan year in question.

The second rating methodology, the MVC from CCIIO, uses tables from claims data at the overall and service level to estimate the value of each service's coverage and contribution to the overall actuarial value. The data underlying the MVC is from the MarketScan Commercial Claims and Encounters Database and adjusted by CCIIO staff.[11]

While both methodologies are explained in more detail in the Technical Appendix (Appendix A), the actuarial values calculated from each appear to maintain a small but consistent differential. When looking at the values using the unimputed data (those that rely more on overall rather than service specific cost-sharing), the AVs differ a bit more than those calculated using the more detailed, but imputed specifications. Table 3.1., below, shows the distribution of actuarial values from the two rating methodologies pre-imputation. The linear relationship between the two sets of values was best fit to a line denoted by y = 1.157x - 0.1527 with an R-squared of 0.982.

Table 3.1. Comparison of Pre-Imputed Actuarial Values (ARC Ratebook vs. MVC), NCS Group 113

	ARC Ratebook		MVC
Mean AV	0.84		0.82
5%	0.71		0.67
10%	0.74		0.70
20%	0.77		0.74
30%	0.80		0.77
40%	0.82		0.80
50%	0.84		0.82
60%	0.86		0.85
70%	0.89		0.87
80%	0.92		0.91
90%	0.96		0.96
95%	0.97		0.97

Table 3.2., below, shows the post-imputation actuarial values for both the ARC ratebook and the MVC. The two sets of values fit a line slightly closer to y=x: y = 1.057x - 0.0669 with an R-squared of 0.949.

[11] https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/mv-calculator-methodology.pdf

Table 3.2. Comparison of Post-Imputed Actuarial Values (ARC Ratebook vs. MVC), NCS Group 113			
	ARC Ratebook		MVC
Mean AV	0.85		0.83
5%	0.73		0.70
10%	0.76		0.74
20%	0.79		0.77
30%	0.81		0.79
40%	0.83		0.81
50%	0.85		0.83
60%	0.87		0.85
70%	0.89		0.87
80%	0.92		0.90
90%	0.94		0.93
95%	0.96		0.95

Given the small differential between the two methodologies, plus the flexibility of the ARC ratebook to model at the person level as well as to be set to a specific underlying covered expense amount and time period (and so different values for each NCS dataset), ARC chose to focus on the results from the ARC ratebook and use those as the basis for the self-insured regression analysis.

AV Findings

Analysis of the NCS has produced tabulations that look at the average actuarial values for plans based on plan, employer and employee characteristics. A subset of these tables from the NCS 113 dataset, and labelled Table 4.1. through 4.5., are shown below. Participation, as shown below, is within funding status (so that each column adds to 100%).

The full set of tables which includes earlier years and additional tables, are presented in Appendix B. While the tables below only show results from the ARC ratebook post-imputation, the actuarial values included in the full set have been calculated using both the ARC ratebook and the MVC (after imputations for missing values).

Table 4.1. Participants and Average AV by Plan Type and Funding, NCS Group 113						
	Total		Self-Insured		Purchased	
Plan Type	% of Participants	Average AV	% of Participants	Average AV	% of Participants	Average AV
HMO	12%	0.89	3%	0.89	16%	0.89
POS	8%	0.87	8%	0.88	8%	0.87
PPO	59%	0.85	67%	0.85	56%	0.85
FFS	1%	0.87	2%	0.88	1%	0.86
HDHP[12]	19%	0.79	21%	0.79	19%	0.80

As seen in Table 4.1, above, most plans in the dataset are PPO plans, which use a network but allow for out-of-network usage at higher levels of cost-sharing. While a feature of PPO plans, the out of network cost sharing parameters were not evaluated as part of this project.

As shown below, the majority of self-insured plans are found in employers of size 100 or greater. While in the initial tables, funding does not appear to make an appreciable difference in actuarial value, this will be further examined by ARC in the final step of the full analysis.

Table 4.2. Participants and Average AV by Employer Size and Funding, NCS Group 113						
	Total		Self-Insured		Purchased	
Employer Size	% of Participants	Average AV	% of Participants	Average AV	% of Participants	Average AV
0-49	31%	0.85	16%	0.83	37%	0.85
50-99	14%	0.84	11%	0.85	15%	0.83
100-499	33%	0.84	35%	0.83	32%	0.85
500+	23%	0.86	37%	0.85	16%	0.87

[12] High deductible health plans were not directly categorized as such in the NCS data. Rather, they were determined by ARC, based on year-specific characteristics. For the NCS 113 dataset, high deductible plans had either A) an individual deductible at least $1300 and OOP max no more than $6450 that cover all services with no service-specific copays (beyond $0 for preventive), or B) a deductible at least $1000 and the presence of a health savings account.

Table 4.3. Participants and Average AV by Average Hourly Wage and Funding, NCS Group 113[13]

	Total		Self-Insured		Purchased	
Avg. Hourly Wage	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**
< $15	28%	0.84	29%	0.82	27%	0.85
$15-$30	42%	0.85	40%	0.84	43%	0.85
$30+	30%	0.85	31%	0.85	30%	0.85

Table 4.4. Participants and Average AV by Union Status of Covered Workers and Funding, NCS Group 113

	Total		Self-Insured		Purchased	
Union Membership	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**
Union	14%	0.89	15%	0.89	13%	0.89
Non-Union	86%	0.84	85%	0.83	87%	0.85

Table 4.5. Participants and Average AV by Full or Part-time Status of Covered Workers and Funding, NCS Group 113

	Total		Self-Insured		Purchased	
Full/Part Time Status	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**	**% of Participants**	**Average AV**
Full Time	94%	0.85	92%	0.84	94%	0.85
Part Time	6%	0.85	8%	0.81	6%	0.88

In addition to the above summary tables which look at average actuarial values, ARC also produced tables that look at the distribution of actuarial values by plan type and funding. A subset of these tables, from the NCS 113 dataset, calculated using ARC's methodology, is shown below. The full set of tables are included in Appendix C. All distributional tables are based on weighted counts of plan participants.

Table 5.1., below, shows the distribution of average actuarial values for all plans by type of funding (self-insured or purchased). When looking at the dataset containing all plans, the mean AV is very close to the median (or 50th percentile) value.

[13] It should be noted, however, that if a single employer plan spanned multiple rows it was weighted relative to the proportion of covered workers by wage group.

Table 5.1. All Plans - AV by Funding, NCS Group 113 (weighted participants)					
	Total		**Self-Insured**		**Purchased**
Mean AV	0.848		0.841		0.851
5%	0.728		0.733		0.725
10%	0.758		0.759		0.757
20%	0.786		0.780		0.789
30%	0.812		0.803		0.818
40%	0.832		0.825		0.834
50%	0.849		0.842		0.852
60%	0.869		0.860		0.874
70%	0.890		0.878		0.896
80%	0.917		0.900		0.923
90%	0.944		0.933		0.945
95%	0.956		0.951		0.957

Table 5.2., below, displays the distribution of actuarial values for HMO plans. For these plans, the mean is less than the median, and in general closer to the 40th percentile. Since the mean is less than the median, while there are generally more employees in plans with higher AVs, it is the smaller number in the much lower value plans that brings the average down.

Table 5.2. HMO Plans - AV by Funding, NCS Group 113 (weighted participants)					
	Total		**Self-Insured**		**Purchased**
Mean AV	0.892		0.885		0.892
5%	0.758		0.733		0.765
10%	0.773		0.742		0.773
20%	0.837		0.796		0.839
30%	0.874		0.855		0.874
40%	0.899		0.912		0.899
50%	0.918		0.929		0.917
60%	0.935		0.936		0.934
70%	0.942		0.947		0.942
80%	0.948		0.953		0.948
90%	0.955		0.962		0.955
95%	0.966		0.977		0.965

Table 5.3., below, displays the distribution for point-of-service (POS) plans.

Table 5.3. POS Plans - AV by Funding, NCS Group 113 (weighted participants)					
	Total		**Self-Insured**		**Purchased**
Mean AV	0.873		0.882		0.870
5%	0.725		0.767		0.663
10%	0.779		0.803		0.761
20%	0.825		0.838		0.824
30%	0.839		0.853		0.834
40%	0.869		0.872		0.857
50%	0.887		0.884		0.888
60%	0.908		0.904		0.913
70%	0.924		0.911		0.928
80%	0.940		0.925		0.942
90%	0.951		0.967		0.948
95%	0.964		0.967		0.956

Table 5.4., below, displays the distribution for preferred provider (PPO) plans.

Table 5.4. PPO Plans - AV by Funding, NCS Group 113 (weighted participants)					
	Total		**Self-Insured**		**Purchased**
Mean AV	0.853		0.849		0.855
5%	0.738		0.751		0.729
10%	0.764		0.764		0.764
20%	0.796		0.788		0.802
30%	0.823		0.816		0.826
40%	0.843		0.841		0.845
50%	0.858		0.856		0.860
60%	0.873		0.869		0.875
70%	0.890		0.883		0.893
80%	0.913		0.906		0.916
90%	0.940		0.935		0.943
95%	0.957		0.949		0.963

Finally, Table 5.5., below displays the distribution for high deductible plans by funding. By nature, these plans offer less generous cost-sharing to the average enrollee. NCS data supports this expectation, as high deductible plans exhibit lower mean and median AVs than other plan types and no plans with AV of 0.90 or above (as calculated by the ARC ratebook).

Table 5.5. High Deductible Plans - AV by Funding, NCS Group 113 (weighted participants)					
	Total		**Self-Insured**		**Purchased**
Mean AV	0.794		0.790		0.796
5%	0.707		0.710		0.706
10%	0.733		0.733		0.733
20%	0.760		0.757		0.760
30%	0.778		0.776		0.778
40%	0.788		0.787		0.790
50%	0.802		0.796		0.805
60%	0.815		0.810		0.818
70%	0.825		0.818		0.826
80%	0.832		0.830		0.834
90%	0.846		0.841		0.848
95%	0.857		0.850		0.863

The distribution of fee-for-service (FFS) plans by funding type is not shown, as there were very few plans of this type in the NCS (as well as very few employer plans of this type remaining).

Regression Analysis

ARC conducted regression analyses using NCS data to test whether plan funding (whether a plan is self-insured or purchased) has a significant effect on actuarial value. Separate analyses were conducted for each NCS dataset as well as a combined dataset containing pooled data from all available datasets (NCS 110 - NCS 113).[14]

For many records in the raw NCS data, plan funding status was imputed by BLS staff. ARC conducted a sensitivity analysis to examine whether the inclusion of imputed records impacted the results. ARC performed separate analyses including and excluding these records in order to assess—and if necessary, control for—the impact of the imputations of plan funding status on the regression results.

Summary statistics for variables used in the regression analyses of pooled data are shown in the table below:

[14] The impact of funding on actuarial value was found to be statistically significant in some NCS datasets, when running the model separately for each year; however the magnitude, significance, and direction of this impact are inconsistent across the datasets. Results for the regression analyses conducted separately for each NCS data set can be found Appendix D.

Table 6.1. Summary Statistics of NCS Pooled Data, NCS 110-113 (unweighted)				
Variable	**All Data**		**Excl. records with imputed 'Self-insured' variable**	
	Mean	**Std. Dev**	**Mean**	**Std. Dev**
# Observations (approx.)	***73,600***		***58,800***	
Self-insured	0.417	0.493	0.452	0.498
Employer Size	2,250	4,312	2,350	4,423
Average Hourly Wage	$30.37	$22.65	$30.74	$23.30
Full-Time	0.931	0.2537	0.9268	0.2604
Plan Type				
HDHP	0.211	0.408	0.213	0.409
HMO	0.150	0.357	0.153	0.360
POS	0.094	0.291	0.093	0.290
PPO	0.527	0.499	0.524	0.499
FFS	0.019	0.135	0.017	0.130
Industry				
Manufacturing	0.167	0.373	0.157	0.364
Agriculture, Mining, Construction	0.037	0.190	0.034	0.180
Trade, Transportation, Utilities	0.206	0.405	0.207	0.405
Information	0.036	0.187	0.034	0.181
Finance/Real Estate	0.246	0.431	0.261	0.439
Professional and Business Services	0.063	0.244	0.059	0.236
Education and Health Services	0.217	0.412	0.224	0.417
Other Services	0.026	0.159	0.024	0.154
Census Division				
New England	0.058	0.234	0.060	0.238
Middle Atlantic	0.176	0.380	0.182	0.386
East South Central	0.044	0.205	0.042	0.200
South Atlantic	0.172	0.377	0.174	0.379
East North Central	0.137	0.344	0.131	0.337
West North Central	0.074	0.262	0.069	0.253
West South Central	0.112	0.316	0.112	0.315
Mountain	0.073	0.261	0.076	0.265
Pacific	0.153	0.360	0.154	0.361

ARC used a multivariable OLS regression model to estimate the impact of plan funding on actuarial value, controlling for various other factors. For each plan in a given establishment in each dataset, ARC estimated the following equation:

$$AV_{p,t} = \beta_0 + \beta_1 \text{Self-Insured}_{p,t} + \beta_i X_{p,t}$$

where *AV* is the outcome variable denoting the plan's Actuarial Value (as calculated by the ARC ratebook) and *Self-Insured* is the independent variable of interest. *Self-insured* is a binary variable for plan funding where 1 = Self-Insured and 0 = Purchased. In the equation above, *X* represents the independent binary[15] control variables of employer and employee characteristics such as employer size, average hourly wage, plan type, full vs part time status, industry, and geographic region. Year fixed effects[16] were also included in the model.

The NCS samples at the establishment level and tracks plans offered to various groups of workers within an establishment. In a given year, an establishment can offer multiple plans. An establishment can also be surveyed in multiple years. Due to this structure, ARC clustered the data by establishment and plan. In addition to the regression analyses, ARC tested correlation and covariance of the independent variables (i.e. self-insured and the control variables) and found that all coefficients were relatively close to zero. ARC also tested the correlation of the dependent variable—Actuarial Value—and the independent variable Self-Insured—without controlling for other factors—and found a relatively low correlation between the two variables (less than 0.02).

Regression coefficients and standard errors are presented in the table below:

[15] In the regression model, we used categorical classifications for all of the employer/employee characteristics, so the control variables are binary variables. For each characteristic, one dummy control variable was excluded from analysis. Coefficients for the binary control variables should be interpreted relative to the excluded dummy variable.

[16] Dummy variables representing which dataset the record was collected from—NCS 110, 111, 112, or 113. Including these dummy variables in the model controls for trends in actuarial values across datasets.

Table 6.2 OLS Regression Results for the Effect of Plan Funding on AV, NCS Pooled Data, NCS 110-113 (weighted)		
Variable	**All Data**	**Excl. recs. w/ imputed 'Self-insured'**
Self-insured	**0.002** *0.002*	**0.002** *0.002*
Employer Size (vs 500+)		
0-49	**-0.024***** *0.002*	**-0.027***** *0.003*
50-99	**-0.019***** *0.004*	**-0.021***** *0.005*
100-499	**-0.015***** *0.002*	**-0.021***** *0.002*
Avg. Wage (vs $30+ / hour)		
<$15 / hour	**-0.017***** *0.002*	**-0.020***** *0.003*
$15-$30 / hour	**-0.006***** *0.002*	**-0.006***** *0.002*
Part Time (vs Full-Time)	**0.007**** *0.003*	**0.006*** *0.003*
Plan Type (vs PPO)		
HDHP	**-0.061***** *0.002*	**-0.059***** *0.003*
HMO	**0.044***** *0.003*	**0.046***** *0.003*
POS	**0.019***** *0.003*	**0.015***** *0.004*
FFS	**0.023***** *0.005*	**0.020***** *0.004*
Industry (vs Trade, Transportation, Utilities)		
Manufacturing	**0.007**** *0.002*	**0.010***** *0.003*
Agriculture, Mining, Construction	**0.010*** *0.004*	**0.009*** *0.005*
Information	**0.030***** *0.004*	**0.039***** *0.004*
Finance and Real Estate	**0.008***** *0.002*	**0.010***** *0.003*
Professional and Business Services	**0.007***** *0.003*	**0.008**** *0.004*
Education and Health Services	**0.001** *0.003*	**0.001** *0.004*
Other Services	**0.031***** *0.003*	**0.031***** *0.004*

(Table continued on next page)

Table 6.2 OLS Regression Results for the Effect of Plan Funding on AV, NCS Pooled Data, NCS 110-113 (weighted)

Variable	All Data	Excl. recs. w/ imputed 'Self-insured'
Census Division (vs Pacific)		
New England	**-0.004** *0.004*	**-0.007** *0.005*
Middle Atlantic	**0.000** *0.003*	**0.003** *0.004*
East South Central	**-0.014***** *0.004*	**-0.009*** *0.005*
South Atlantic	**-0.014***** *0.003*	**-0.013***** *0.003*
East North Central	**-0.016***** *0.003*	**-0.014***** *0.004*
West North Central	**-0.011***** *0.003*	**-0.010**** *0.004*
West South Central	**-0.020***** *0.003*	**-0.022***** *0.004*
Mountain	**-0.015***** *0.005*	**-0.014**** *0.007*
Year Fixed Effects (vs NCS 113)		
NCS 110	**0.013***** *0.003*	**0.018***** *0.004*
NCS 111	**0.010***** *0.002*	**0.015***** *0.003*
NCS 112	**0.006**** *0.003*	**0.013***** *0.003*

Notes: Coefficients with standard errors below, weighted by plan participation.
Year fixed effects included in the model.
Source: National Compensation Survey datasets: 110, 111, 112, and 113
Legend: * p < 0.1; ** p < 0.05; *** p < 0.01

Based on the analysis of pooled NCS data—clustered by establishment and plan, controlling for various employer/employee characteristics, and including year fixed effects—ARC found that plan funding did not have a significant impact on plan actuarial value at the 90% confidence level. This finding was consistent whether or not records with imputed plan funding status were included in the analysis.

Our analysis found that other independent variables had effects on actuarial value. Dummy variables associated with plan type, employer size, and average hourly wage had relatively small but significant impacts on actuarial value ($p<0.01$ in all cases). For instance, our analysis found that smaller employer size and lower average hourly wage had slightly negative impacts on overall plan actuarial value (versus the largest employer size and highest hourly wage groups, respectively). Also, as expected, HDHP plan type had a negative impact on actuarial value versus the PPO plan type. Other plan types had slightly positive impacts on actuarial value versus the PPO plan type.

Limitations

The major limitation of this analysis is that the incidence of self-insurance (as opposed to purchased insurance) among plans in the NCS datasets is much lower than in other data sources that capture plan funding. As previously mentioned, across the NCS 110 - 113 datasets, roughly 30% of (weighted) participants are covered by plans identified as self-insured, compared to the approximately 60% of participants covered by self-insured plans in the KFF/HRET Employer Health Benefits Surveys from the same time period.

The differences in the incidence of self-insurance could potentially affect the impact on actuarial value and should be taken into consideration when interpreting the results of ARC's analysis.

Conclusions

ARC's analysis using NCS data resulted in tabulations of average actuarial values for plans based on plan, employer and employee characteristics, as well as distributions of actuarial values by plan type and funding. The findings from the regression analysis on the effect of plan funding on actuarial value indicated that plan funding did not have a significant effect on plan actuarial value. While other independent variables had significant effects, impacts on actuarial value were small.

As previously mentioned, the low incidence of self-insurance (as opposed to purchased) among plans in the NCS compared to other sources is a limitation of this study, and should be taken into consideration when interpreting findings.

Acknowledgments

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Appendix A: Technical Appendix

Contents

The NCS Datasets

Each NCS dataset is based on a sample of roughly 3,300 establishments representing roughly 100 to 110 million workers, depending on the year.[1] NCS data is collected from establishments with each observation called an "occupational quote," which includes all workers in the job who have the same occupational attributes including full or part time status and union or non-union status.[2] After imputations performed by BLS staff, NCS data sets were provided to ARC. Zero-weight quotes, quotes for plans that did not offer medical coverage, and quotes with unknown plan types were dropped, and ARC's analysis was based on the remaining quotes.[3] The following table shows the approximate number of quotes originally provided by BLS versus the number of quotes ultimately used in ARC's analysis for each NCS dataset:

Table A.1. NCS Quotes by Dataset

NCS Dataset #	Approx. # of occupational quotes originally provided by BLS	Approx. # of occupational quotes used in ARC analysis
110	31,600	20,000
111	28,600	18,300
112	28,200	17,900
113	27,200	17,400

Each NCS observation, or quote, contains data on health care plan provisions offered to a specific group, as well as data about the employer and employees in the group. Plans with identical provisions are often offered to multiple occupation groups within an establishment, or even across multiple establishments. In NCS data, each set of plan provisions offered to each group within each establishment is represented by a unique observation.

NCS observations contain an occupational weight and a participation percentage for the plan in question. ARC determined plan participation weights using the product of these two values for each observation. Analysis was performed using these plan participation weights.

Overall plan limits and service-specific cost sharing information are key inputs of the ARC rating methodology for estimating actuarial values. NCS plan data contains many parameters that map to ARC ratebook variables; however, in some cases, NCS information is not sufficient to use in the ARC ratebook. For instance, cost sharing for several services (e.g. ER, OP hospital) is not present in NCS data. Additionally, even when coverage and cost sharing information is collected for a certain service, data for some records may be ambiguous and/or partially complete such that specific coverage parameters could not be determined.

[1] https://www.bls.gov/ncs/ebs/detailedprovisions/2014/ownership/private/ebbl0056.pdf, https://www.bls.gov/ncs/ebs/detailedprovisions/2013/ownership/private/ebbl0056.pdf, https://www.bls.gov/ncs/ebs/detailedprovisions/2012/ownership/private/ebbl0056.pdf, https://www.bls.gov/ncs/ebs/detailedprovisions/2011/ownership/private/ebbl0056.pdf.
[2] https://www.bls.gov/opub/hom/pdf/homch8.pdf page 5.
[3] In some cases, two quotes were merged into a single quote, such as a stand-alone medical and stand-alone prescription drug plan that are offered to the same group of workers.

When information was unavailable in NCS, ARC ratebook variables were assigned a default value. In most cases, these services were assumed to be covered under overall plan limits (deductible, coinsurance, OOP max). The default values were eventually replaced with values imputed from the KFF/HRET Employer Health Benefits Surveys in subsequent data runs.

The table below lists key input variables of the ARC ratebook, a description of each variable, whether the information on the variable is available in NCS data, and the default value assigned to the variable if information is unavailable.

Table A.2. ARC Ratebook Variable Default Values

Category	ARC ratebook variable name	Description	Available in NCS?	Default value, if unknown
Overall Limits	ded	Plan deductible (per person)	Yes	n/a [record discarded]
	coins	Plan coinsurance rate	Yes	
	oopmax	Out-of-pocket max (per person)	Yes	$999,999 (i.e. no max)
	familyded	Family limit on deductible	Yes	= ded * 2
	famoopmax	Family limit on OOP max	Yes	= oopmax * 2
Medical Services	hAcopay	IP hospital copay (per admission)	Yes, but limited info in NCS 110 and NCS 112	Covered under overall plan deductible/coinsurance
	primcopay	Primary care copay		
	hcopay	inpatient hospital copay (per day)	No	
	ercopay	ER copay	No	
	outpcopay	outpatient hospital copay	No	
	speccopay	Specialist (physician) copay	No	
	prevcopay	Preventive care copay	Yes	= $0
Prescription Drugs	rxcopay1	Prescription drug tier 1 (generic) copay	Yes	Covered under overall plan deductible/coinsurance
	rxcopay2	Prescription drug tier 2 copay	Yes	
	rxcopay3	Prescription drug tier 3 copay	Yes	

Imputing from the KFF/HRET Employer Health Benefits Surveys

To begin the actual imputation process, each NCS dataset was processed to include a set of flags at the plan level that indicated if a particular cost-sharing variable on that record required imputation. The flags also indicated, for all but the out-of-pocket maximum, whether the type of cost sharing (copay or coinsurance) was known or unknown and if any other information could be obtained from the NCS data.

As noted earlier, if a plan deductible and coinsurance were unknown, the plan was not included for evaluation. Variables were imputed sequentially, with the first variable to be imputed being the plan out-of-pocket maximum (OOP max). For all plans, the OOP max must be greater than or equal to the deductible. Mechanically, this means that the imputed value was OOP max minus deductible, with the plan deductible added back in to the OOP max, before the plan record was written. The KFF/HRET Employer Health Benefits Survey data was tabulated to give a set of values (or probability distribution) by plan deductible and coinsurance. For each combination of coinsurance and deductible shown below, there were twelve (12) possible values of (OOP max – deductible) that could be imputed.

- Coinsurance categories: 0%, under 20%, 20%, over 20%
- Deductible categories: $0, $1-$499, $500-999, $1,000 and up
- Possible values for (OOP max – deductible): unlimited, $0, $500, $1,000, $1,250, $1,500, $2,000, $2,500, $3,000, $4,000, $5,000, $6,000

For subsequent variable imputations, a probability matrix for each copay was based on plan coinsurance (using the categories shown above), deductible (using the categories shown above), out-of-pocket maximum (categorized as unlimited, <$1,500, $1,500-$2,999 and >=$3,000) and plan type (HMO, PPO and/or POS, or HDHP). In addition to the yes/no flags, additional flags on the NCS file indicated:

- whether the imputation should be for copay amount excluding $0 as an option, or
- copay including $0 as a valid copay, or
- plan coinsurance, or
- whether the type of cost sharing was unknown and thus should be selected using the probability of that type of cost sharing from the KFF/HRET Employer Health Benefits Survey.

These imputations were performed for the following services: primary care, outpatient, inpatient hospital, and prescription drug. Each variable was categorized using the KFF/HRET Employer Health Benefits Survey data to allow for approximately 5-8 possible imputation values.

Primary care was first imputed using this method. Because cost-sharing for specialty care is often related to primary care cost sharing, the ratio of specialist copay to primary copay was used to impute specialist copay. For all datasets, the possible specialty care multipliers were 1.0, 1.5, 1.75 and 2.0.

Hospital cost sharing was imputed allowing separate probability matrices for per admission copay, per admission copay allowing $0 as a valid copay, per day copay or plan coinsurance. Outpatient copay was imputed similarly (or set as plan coinsurance). Emergency copay was imputed for NCS 111 using the KFF/HRET Employer Health Benefits Survey from 2012, but other years of the survey did not include ER copay information and so the default value (paid as all other) remained.

The ARC model allows for up to three tiers of prescription drug copays. The generic drug copay was imputed using the dimensions as discussed above, but the higher tiers were determined by relationship (or ratio) to the generic copay. By examining both mean and median copay amounts by tier, as well as the copay ratios relative to generic, three categories of generic copays resulted in specific multipliers for the higher tiers of coverage. For the NCS 113 dataset, the categories, and multipliers, were as follows:

Table A.3. Rx Tier Multipliers, NCS 113

Tier 1 (generic) copay	Tier 2 multiplier	Tier 3 multiplier
<$10	5	10
$10-<$15	3	6
$15 +	2	4

ARC Ratebook Model

As noted above, ARC has the capability to evaluate the richness of private health insurance plans against a nationally representative population where spending on medical services are controlled to levels consistent with the CMS projections of the National Health Accounts. Health insurance plans can be evaluated using data controlled to employer sponsored private insurance spending for the under 65 population for a desired calendar year. This is done by combining three recent years from AHRQ's Medical Expenditure Panel Survey Household Component (MEPS-HC), controlling this data to current levels of spending, and then using person level records along with a program that simulates health spending under various simplified health insurance plans. For each plan, the ratio of claims paid to underlying covered expenses, for the entire standardized population (in this case, ESI under 65) is the actuarial value.

ARC's current model uses person records from the 2010, 2011 and 2012 Medical Expenditure Panel Survey Household Component (MEPS-HC138, HC147 and HC155) as the underlying database. Population by insurance and age / sex group was controlled to levels consistent with National Health Account insurance totals and SSA projected estimates for the non-institutionalized population. Spending by channel and service was controlled to per capita levels consistent with the projections by the National Health Accounts (released July 2016, CMS Office of the Actuary), with additional specificity using data from the Health Care Cost Index (HCCI) reports.[4] Once the entire database was controlled, persons under age 65 who ever had employer sponsored private health insurance were extracted, along with their private health and out-of-pocket spending and utilization for hospital, physician, prescription drug and other professional services. MEPS event level data was used to partition physician office visits into preventive, primary care, and specialist. A partition was also made of prescription drug spending so that up to three-tiered drug plans could be analyzed.[5]

In order to analyze the NCS datasets, the file was adjusted for each of the plan years examined. The resulting mean per capita covered expenses are shown below:

[4] HCCI reports found at http://www.healthcostinstitute.org/report/
[5] Data taken from the CMS Medicare Part D Event Data symposium on drug use by brand vs. generic.

Table A.4. ARC Ratebook Mean Per Capita Covered Expenses by NCS Dataset	
NCS Dataset #	**Per Capita Covered Expense**
110	$4,824
111	$4,950
112	$5,133
113	$5,252

The following is a list of the variables that can be specified or modified in the ARC ratebook, for calculating actuarial values:

- Per admission hospital copay
- Per day hospital copay
- Emergency room copay
- Outpatient hospital copay
- Preventive care physician copay
- Primary care physician copay
- Specialist physician copay
- Prescription drug deductible (up to three tiers: generic, brand 1, brand 2)
- Prescription drug copay (up to three tiers: generic, brand 1, brand 2)
- Plan deductible (per person, per family)
- Plan coinsurance (percent paid by plan)
- Out-of-pocket maximum (per person, per family)
- Whether out-of-pocket maximum includes copays (yes/no)
- Whether out-of-pocket maximum includes drug cost sharing (yes/no)
- Benefit maximum (overall limit on what plan pays)
- Cost index for hospital
- Cost index for physician
- Cost index for prescription drugs
- Dollar amount of employer HSA contribution (0 if none or a non HSA plan)

Each plan is evaluated on a person by person basis, where person level costs are first adjusted by the service indices (if applicable) in order to have the underlying data more accurately represent the desired underlying covered expenses. The ARC Model is a "claims repayment" model, in that we simulate how the insurance plan would pay for the services used by each person. What this means is that copays are applied to each office visit (or prescription), coinsurance is calculated as a percent of total spending, and total out-of-pocket spending is compared to the plan limits.

At the person level, service specific copays are applied to applicable services with the overall plan variables (such as deductible, coinsurance, out-of-pocket maximum and benefit maximum) paid next. Next, family limits on deductibles, out-of-pocket maximums and benefit maximums are checked against the person results and family spending is adjusted. If the plan has an employer contribution towards the HSA that is permitted to count toward the plan value, then out-of-pocket and plan payments are

adjusted to permit out-of-pocket spending (up to the HSA contribution) to move to plan payments.[6] As a final step, for each person, the person's weight, total spending, plan spending, and out-of-pocket spending is retained so that the average over the entire population could be calculated at the end of the process for each plan.

MVC Model

The Minimum Value Calculator (or MVC) is an Excel-based tool that was released in February 2013 by the Center for Consumer Information and Insurance Oversight (CCIIO). The purpose of the MVC is to provide a tool which employers could use to certify that their health plans met the ACA's minimum standard of value: that at least 60% of essential health costs were paid as benefits. Stated another way, the MVC verifies that a plan's AV is no less than 0.60. Unlike the Actuarial Value Calculator (AVC), which was also developed by CCIIO but is modified annually, the MVC is based on claims from large employer and is not intended to certify a metal rating (platinum, gold, silver or bronze) for individuals and small group plans under the ACA.

By recognizing the existence of "grandfathered plans" in the employer market, the MVC allows for plan parameters to exceed those hard standards set for plans in the individual exchanges (such as limits on out- of-pocket maximums). This greater flexibility, as well as having employer data underlying the model, makes the MVC a more applicable tool for NCS plan evaluation.

The minimum value calculator, for a single plan, allows for one or two tiers of benefits, as well as overall and service specific cost-sharing. For the purposes of this project, and to be comparable to the ARC internal model, only the first-tier parameters were used. As put forth by CCIIO, the MVC allows a user to input plan parameters on a single spreadsheet page and then press a "run" button to generate a result. ARC has adjusted the methodology involved in calculating values so that more than one plan could be evaluated at a time, while not changing the routines that calculate the values themselves.

The following is a list of plan specifications that can be included in the MVC:

- Deductible
- Coinsurance
- Out-of-pocket maximum
- All of the following may be specified as copay, coinsurance and whether or not the deductible applies:
    - Emergency room services
    - All inpatient hospital services (including mental health and substance abuse)
    - Primary care visit to treat an injury or illness (excludes well baby, preventive and x-rays)
    - Specialist visit
    - Mental/behavioral health and substance abuse disorder - outpatient services
    - Imaging (CT/PET scans, MRIs)
    - Rehabilitative speech therapy
    - Rehabilitative occupational and rehabilitative physical therapy

[6] The HSA variable was not used to evaluate plans from the NCS.

- Preventive care/screening/immunizations
- Laboratory outpatient and professional services
- X-rays and other diagnostic imaging
- Skilled nursing facility (SNF)
- Outpatient facility fee (e.g., ambulatory surgery centers)
- Outpatient surgery physician/surgical services
- Prescription drugs (4 tiers):
    - Generics
    - Preferred brand drugs
    - Non-preferred brand drugs
    - Specialty high-cost drugs

In addition, the user can specify that the plan is "grandfathered" and parameters can then be entered outside of the allowable range of ACA mandates. The model also allows flexibility in how the deductible and out-of-pocket maximum are applied to prescription drugs. Separate parameters may be specified or they may be integrated with medical. Inpatient hospital and skilled nursing copays may be applied per day or per admission and a maximum number of days may be applied to the inpatient copay. Finally, primary care cost sharing may be applied after a set number of visits.

The underlying data in the MVC is from the 2009 MarketScan Commercial Claims and Encounters Database with costs trended to 2014. The data was from over 1.2 million enrollees, and was transformed into nationally representative continuance tables visible in the Excel calculator. Three separate continuance tables showing utilization and claims are included so that medical and prescription drugs may be evaluated separately or in combination. The calculator computes average expenses for all enrollees (denominator) as well as plan covered expenses (numerator) to produce an estimated actuarial value.

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Appendix B: Detailed Tables

Contents

Table B.1. Records, Participants and Average AV by Funding and Plan Type, NCS 110-113 Data									
	Total			Self-Funded			Purchased		
Plan Type	Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
Group 1: NCS 110									
HDHP	3,391	6,552,109	0.7936	1,643	1,755,199	0.8257	1,748	4,796,909	0.7819
HMO	3,224	7,433,983	0.9151	524	1,051,961	0.9288	2,700	6,382,022	0.9129
POS	2,634	5,018,118	0.8859	1,349	2,042,476	0.8818	1,285	2,975,642	0.8887
PPO	10,229	30,679,519	0.8656	4,814	10,675,355	0.8693	5,415	20,004,164	0.8637
FFS	503	1,134,168	0.8912	304	335,198	0.8952	199	798,969	0.8896
Group 2: NCS 111									
HDHP	3,642	7,977,362	0.8079	1,887	2,621,410	0.8056	1,755	5,355,952	0.8091
HMO	2,939	7,385,590	0.9058	542	922,916	0.9261	2,397	6,462,674	0.9029
POS	1,517	4,790,088	0.8832	491	1,281,617	0.8820	1,026	3,508,470	0.8836
PPO	9,933	29,911,185	0.8593	4,587	9,991,120	0.8633	5,346	19,920,065	0.8572
FFS	313	1,019,666	0.8986	163	186,786	0.9115	150	832,879	0.8958
Group 3: NCS 112									
HDHP	4,198	9,428,829	0.7914	2,093	3,322,094	0.7958	2,105	6,106,735	0.7890
HMO	2,525	7,502,588	0.9077	354	640,297	0.9266	2,171	6,862,291	0.9060
POS	1,492	4,692,729	0.8855	522	1,383,424	0.8932	970	3,309,305	0.8822
PPO	9,326	32,624,405	0.8583	3,956	10,861,037	0.8616	5,370	21,763,367	0.8566
FFS	358	952,200	0.8700	192	228,369	0.8696	166	723,831	0.8701
Group 4: NCS 113									
HDHP	4,308	10,168,032	0.7943	2,183	3,348,373	0.7903	2,125	6,819,659	0.7963
HMO	2,331	6,165,522	0.8919	376	456,286	0.8852	1,955	5,709,236	0.8925
POS	1,257	4,267,214	0.8733	478	1,194,627	0.8816	779	3,072,586	0.8701
PPO	9,328	31,106,054	0.8527	4,125	10,527,205	0.8492	5,203	20,578,850	0.8546
FFS	201	591,647	0.8672	110	242,330	0.8792	91	349,317	0.8588

Table B.2. Records, Participants and Average AV by Funding and Employer Size, NCS 110-113 Data									
	Total			Self-Funded			Purchased		
Employer Size	Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
Group 1: NCS 110									
0-49	1,957	16,010,502	0.8477	443	2,228,481	0.8778	1,514	13,782,021	0.8429
50-99	1,120	6,398,079	0.8678	340	1,510,429	0.8713	780	4,887,650	0.8668
100-499	4,861	16,259,216	0.8657	1,998	5,954,970	0.8541	2,863	10,304,246	0.8724
500+	12,043	12,150,099	0.8902	5,853	6,166,310	0.8837	6,190	5,983,789	0.8968
Group 2: NCS 111									
0-49	2,447	15,565,222	0.8553	634	2,128,491	0.8566	1,813	13,436,731	0.8551
50-99	1,762	7,238,555	0.8635	407	1,562,473	0.8633	1,355	5,676,082	0.8636
100-499	5,792	15,696,019	0.8514	2,693	5,375,948	0.8428	3,099	10,320,071	0.8559
500+	8,343	12,584,094	0.8785	3,936	5,936,937	0.8742	4,407	6,647,156	0.8824
Group 3: NCS 112									
0-49	2,675	17,399,609	0.8465	809	3,123,038	0.8548	1,866	14,276,572	0.8447
50-99	1,528	7,024,572	0.8487	389	1,457,727	0.8515	1,139	5,566,845	0.848
100-499	5,851	18,181,073	0.8573	2,567	6,538,380	0.8458	3,284	11,642,693	0.8637
500+	7,845	12,595,496	0.8717	3,352	5,316,076	0.863	4,493	7,279,420	0.878
Group 4: NCS 113									
0-49	2,699	16,222,181	0.8456	810	2,560,402	0.8343	1,889	13,661,779	0.8478
50-99	1,394	7,129,686	0.8358	375	1,781,389	0.8496	1,019	5,348,297	0.8312
100-499	5,602	17,158,720	0.8449	2,408	5,587,696	0.8274	3,194	11,571,024	0.8533
500+	7,730	11,787,882	0.8625	3,679	5,839,334	0.8533	4,051	5,948,548	0.8715

Table B.3. Records, Participants and Average AV by Funding and Average Hourly Wage, NCS 110-113 Data									
	Total			Self-Funded			Purchased		
Average Hourly Wage	Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
Group 1: NCS 110									
< $15	4,595	15,174,836	0.8567	2,104	5,048,167	0.8463	2,491	10,126,669	0.8618
$15-$30	8,595	22,430,365	0.8665	3,668	6,631,461	0.8785	4,927	15,798,904	0.8615
$30+	6,791	13,212,695	0.8764	2,862	4,180,561	0.8873	3,929	9,032,134	0.8714
Group 2: NCS 111									
< $15	4,124	15,332,635	0.8513	1,953	4,423,933	0.8416	2,171	10,908,702	0.8553
$15-$30	7,502	21,930,821	0.8594	2,962	6,328,201	0.8597	4,540	15,602,619	0.8593
$30+	6,718	13,820,434	0.8743	2,755	4,251,716	0.8771	3,963	9,568,719	0.873
Group 3: NCS 112									
< $15	3,707	14,312,727	0.8393	1,730	4,346,300	0.8346	1,977	9,966,427	0.8414
$15-$30	7,255	24,552,206	0.8578	2,795	7,239,789	0.8573	4,460	17,312,418	0.8581
$30+	6,937	16,335,818	0.8681	2,592	4,849,133	0.8651	4,345	11,486,685	0.8694
Group 4: NCS 113									
< $15	3,521	14,555,892	0.8435	1,705	4,610,774	0.8209	1,816	9,945,118	0.854
$15-$30	6,872	21,969,313	0.8468	2,657	6,230,165	0.8446	4,215	15,739,147	0.8477
$30+	7,032	15,773,264	0.8533	2,910	4,927,881	0.854	4,122	10,845,383	0.8529

Table B.4. Records, Participants and Average AV by Funding and Union Status, NCS 110-113 Data									
	Total			Self-Funded			Purchased		
Union?	Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
Group 1: NCS 110									
Union	2,707	6,644,001	0.9039	1,209	2,230,519	0.9172	1,498	4,413,482	0.8972
Non-Union	17,274	44,173,896	0.8605	7,425	13,629,671	0.8629	9,849	30,544,225	0.8594
Group 2: NCS 111									
Union	2,039	6,888,214	0.898	794	1,930,851	0.8937	1,245	4,957,363	0.8997
Non-Union	16,305	44,195,676	0.8552	6,876	13,072,998	0.8542	9,429	31,122,678	0.8557
Group 3: NCS 112									
Union	2,336	7,166,164	0.8948	887	2,212,081	0.8967	1,449	4,954,083	0.894
Non-Union	15,563	48,034,587	0.8503	6,230	14,223,140	0.8469	9,333	33,811,447	0.8517
Group 4: NCS 113									
Union	2,125	7,090,860	0.8883	863	2,424,460	0.8895	1,262	4,666,400	0.8877
Non-Union	15,300	45,207,609	0.8415	6,409	13,344,360	0.8318	8,891	31,863,249	0.8456

Table B.5. Records, Participants and Average AV by Funding and Full/ Part Time Status, NCS 110-113 Data									
	Total			Self-Funded			Purchased		
Full/Part Time	Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
Group 1: NCS 110									
Full	18,451	47,485,120	0.8661	7,891	14,491,872	0.873	10,560	32,993,249	0.8631
Part	1,530	3,332,776	0.8671	743	1,368,318	0.8446	787	1,964,458	0.8827
Group 2: NCS 111									
Full	17,073	47,858,456	0.8607	7,003	13,833,112	0.8606	10,070	34,025,343	0.8608
Part	1,271	3,225,434	0.8649	667	1,170,737	0.8436	604	2,054,697	0.877
Group 3: NCS 112									
Full	16,618	51,625,787	0.8558	6,397	14,790,790	0.8528	10,221	36,834,998	0.857
Part	1,281	3,574,964	0.8602	720	1,644,432	0.8604	561	1,930,532	0.8601
Group 4: NCS 113									
Full	16,414	49,021,220	0.8474	6,678	14,525,226	0.8429	9,736	34,495,994	0.8493
Part	1,011	3,277,249	0.8544	594	1,243,595	0.8145	417	2,033,655	0.8788

Table B.6. Records, Participants and Average AV By Plan Type and Employer Size, NCS 110 Data										
Plan Type	Employer Size	Total			Self-Funded			Purchased		
		Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
ALL	ALL	19,981	50,817,896	0.866	8,634	15,860,189	0.871	11,347	34,957,707	0.864
	0-49	1,957	16,010,502	0.848	443	2,228,481	0.878	1,514	13,782,021	0.843
	50-99	1,120	6,398,079	0.868	340	1,510,429	0.871	780	4,887,650	0.867
	100-499	4,861	16,259,216	0.866	1,998	5,954,970	0.854	2,863	10,304,246	0.872
	500+	12,043	12,150,099	0.890	5,853	6,166,310	0.884	6,190	5,983,789	0.897
HDHP	ALL	3,391	6,552,109	0.794	1,643	1,755,199	0.826	1,748	4,796,909	0.782
	0-49	413	2,756,962	0.773	112	243,265	0.829	301	2,513,697	0.767
	50-99	154	826,015	0.816	66	160,360	0.850	88	665,655	0.807
	100-499	821	1,719,760	0.795	343	553,962	0.809	478	1,165,798	0.788
	500+	2,003	1,249,372	0.824	1,122	797,613	0.832	881	451,760	0.809
HMO	ALL	3,224	7,433,983	0.915	524	1,051,961	0.929	2,700	6,382,022	0.913
	0-49	268	2,550,905	0.907	15	73,172	0.917	253	2,477,733	0.907
	50-99	198	992,200	0.908	15	179,486	0.948	183	812,714	0.899
	100-499	587	2,088,160	0.920	92	312,314	0.938	495	1,775,846	0.917
	500+	2,171	1,802,717	0.926	402	486,989	0.918	1,769	1,315,728	0.928
POS	ALL	2,634	5,018,118	0.886	1,349	2,042,476	0.882	1,285	2,975,642	0.889
	0-49	130	1,057,451	0.864	43	332,918	0.906	87	724,532	0.845
	50-99	93	472,200	0.905	36	100,309	0.881	57	371,891	0.912
	100-499	359	1,511,604	0.898	152	463,328	0.879	207	1,048,275	0.906
	500+	2,052	1,976,864	0.884	1,118	1,145,920	0.876	934	830,944	0.895
PPO	ALL	10,229	30,679,519	0.866	4,814	10,675,355	0.869	5,415	20,004,164	0.864
	0-49	1,125	9,304,549	0.851	269	1,577,331	0.878	856	7,727,219	0.845
	50-99	649	4,073,947	0.866	216	1,059,640	0.862	433	3,014,307	0.867
	100-499	2,980	10,489,101	0.861	1,357	4,455,654	0.850	1,623	6,033,447	0.868
	500+	5,475	6,811,922	0.894	2,972	3,582,730	0.892	2,503	3,229,192	0.896
FFS	ALL	503	1,134,168	0.891	304	335,198	0.895	199	798,969	0.890
	0-49	21	340,635	0.880	4	1,795	0.919	17	338,840	0.879
	50-99	26	33,717	0.746	7	10,634	0.695	19	23,083	0.769
	100-499	114	450,592	0.897	54	169,712	0.887	60	280,880	0.904
	500+	342	309,223	0.911	239	153,058	0.918	103	156,166	0.904

Table B.7. Records, Participants and Average AV By Plan Type and Employer Size, NCS 111 Data

Plan Type	Employer Size	Total			Self-Funded			Purchased		
		Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
ALL	ALL	18,344	51,083,890	0.861	7,670	15,003,849	0.859	10,674	36,080,041	0.862
	0-49	2,447	15,565,222	0.855	634	2,128,491	0.857	1,813	13,436,731	0.855
	50-99	1,762	7,238,555	0.864	407	1,562,473	0.863	1,355	5,676,082	0.864
	100-499	5,792	15,696,019	0.851	2,693	5,375,948	0.843	3,099	10,320,071	0.856
	500+	8,343	12,584,094	0.879	3,936	5,936,937	0.874	4,407	6,647,156	0.882
HDHP	ALL	3,642	7,977,362	0.808	1,887	2,621,410	0.806	1,755	5,355,952	0.809
	0-49	492	2,575,906	0.813	168	357,922	0.814	324	2,217,984	0.813
	50-99	266	933,863	0.809	96	215,135	0.804	170	718,728	0.810
	100-499	1,352	2,868,562	0.803	781	1,299,007	0.798	571	1,569,555	0.807
	500+	1,532	1,599,031	0.808	842	749,346	0.816	690	849,685	0.801
HMO	ALL	2,939	7,385,590	0.906	542	922,916	0.926	2,397	6,462,674	0.903
	0-49	391	2,626,808	0.898	13	72,140	0.915	378	2,554,668	0.898
	50-99	313	1,189,017	0.919	11	28,463	0.933	302	1,160,554	0.918
	100-499	588	1,835,067	0.898	105	227,915	0.926	483	1,607,153	0.894
	500+	1,647	1,734,698	0.917	413	594,399	0.927	1,234	1,140,299	0.912
POS	ALL	1,517	4,790,088	0.883	491	1,281,617	0.882	1,026	3,508,470	0.884
	0-49	216	1,592,475	0.868	44	231,552	0.859	172	1,360,923	0.869
	50-99	126	607,131	0.892	37	234,075	0.888	89	373,056	0.894
	100-499	452	1,043,676	0.889	125	189,517	0.886	327	854,159	0.889
	500+	723	1,546,806	0.892	285	626,474	0.887	438	920,331	0.895
PPO	ALL	9,933	29,911,185	0.859	4,587	9,991,120	0.863	5,346	19,920,065	0.857
	0-49	1,269	8,451,084	0.851	367	1,415,047	0.862	902	7,036,037	0.849
	50-99	1,024	4,445,204	0.856	246	1,062,368	0.867	778	3,382,836	0.852
	100-499	3,301	9,586,978	0.851	1,639	3,594,868	0.850	1,662	5,992,110	0.852
	500+	4,339	7,427,919	0.881	2,335	3,918,838	0.875	2,004	3,509,081	0.887
FFS	ALL	313	1,019,666	0.899	163	186,786	0.912	150	832,879	0.896
	0-49	79	318,950	0.884	42	51,831	0.911	37	267,119	0.878
	50-99	33	63,340	0.909	17	22,433	0.934	16	40,907	0.896
	100-499	99	361,735	0.899	43	64,642	0.913	56	297,094	0.896
	500+	102	275,641	0.913	61	47,881	0.899	41	227,760	0.916

Table B.8. Records, Participants and Average AV By Plan Type and Employer Size, NCS 112 Data										
Plan Type	Employer Size	Total			Self-Funded			Purchased		
		Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
ALL	ALL	17,899	55,200,751	0.856	7,117	16,435,221	0.854	10,782	38,765,530	0.857
	0-49	2,675	17,399,609	0.847	809	3,123,038	0.855	1,866	14,276,572	0.845
	50-99	1,528	7,024,572	0.849	389	1,457,727	0.852	1,139	5,566,845	0.848
	100-499	5,851	18,181,073	0.857	2,567	6,538,380	0.846	3,284	11,642,693	0.864
	500+	7,845	12,595,496	0.872	3,352	5,316,076	0.863	4,493	7,279,420	0.878
HDHP	ALL	4,198	9,428,829	0.791	2,093	3,322,094	0.796	2,105	6,106,735	0.789
	0-49	703	2,784,804	0.794	268	528,625	0.808	435	2,256,178	0.791
	50-99	394	1,360,803	0.773	140	364,263	0.782	254	996,539	0.770
	100-499	1,392	3,278,960	0.791	784	1,375,547	0.790	608	1,903,412	0.792
	500+	1,709	2,004,263	0.801	901	1,053,657	0.802	808	950,605	0.800
HMO	ALL	2,525	7,502,588	0.908	354	640,297	0.927	2,171	6,862,291	0.906
	0-49	313	3,293,642	0.899	13	60,977	0.933	300	3,232,665	0.898
	50-99	219	1,002,007	0.904	10	13,893	0.943	209	988,114	0.903
	100-499	633	1,808,272	0.915	110	330,878	0.936	523	1,477,393	0.910
	500+	1,360	1,398,667	0.922	221	234,548	0.911	1,139	1,164,118	0.925
POS	ALL	1,492	4,692,729	0.886	522	1,383,424	0.893	970	3,309,305	0.882
	0-49	191	1,456,728	0.862	35	330,517	0.893	156	1,126,211	0.853
	50-99	136	515,965	0.878	27	94,389	0.879	109	421,576	0.878
	100-499	377	1,463,370	0.892	135	476,485	0.889	242	986,884	0.894
	500+	788	1,256,666	0.908	325	482,033	0.901	463	774,633	0.913
PPO	ALL	9,326	32,624,405	0.858	3,956	10,861,037	0.862	5,370	21,763,367	0.857
	0-49	1,408	9,663,121	0.842	455	2,170,081	0.858	953	7,493,040	0.837
	50-99	742	4,003,894	0.857	197	923,438	0.876	545	3,080,456	0.851
	100-499	3,319	11,188,414	0.862	1,482	4,260,677	0.851	1,837	6,927,737	0.869
	500+	3,857	7,768,975	0.874	1,822	3,506,841	0.873	2,035	4,262,134	0.876
FFS	ALL	358	952,200	0.870	192	228,369	0.870	166	723,831	0.870
	0-49	60	201,314	0.837	38	32,837	0.874	22	168,477	0.830
	50-99	37	141,903	0.854	15	61,744	0.829	22	80,159	0.873
	100-499	130	442,058	0.879	56	94,792	0.879	74	347,266	0.879
	500+	131	166,926	0.900	83	38,997	0.907	48	127,929	0.897

Table B.9. Records, Participants and Average AV By Plan Type and Employer Size, NCS 113 Data										
Plan Type	Employer Size	Total			Self-Funded			Purchased		
		Records	Participants	Avg AV	Records	Participants	Avg AV	Records	Participants	Avg AV
ALL	ALL	17,425	52,298,469	0.848	7,272	15,768,820	0.841	10,153	36,529,648	0.851
	0-49	2,699	16,222,181	0.846	810	2,560,402	0.834	1,889	13,661,779	0.848
	50-99	1,394	7,129,686	0.836	375	1,781,389	0.850	1,019	5,348,297	0.831
	100-499	5,602	17,158,720	0.845	2,408	5,587,696	0.827	3,194	11,571,024	0.853
	500+	7,730	11,787,882	0.863	3,679	5,839,334	0.853	4,051	5,948,548	0.872
HDHP	ALL	4,308	10,168,032	0.794	2,183	3,348,373	0.790	2,125	6,819,659	0.796
	0-49	777	3,609,287	0.792	276	639,062	0.795	501	2,970,225	0.791
	50-99	318	1,294,853	0.794	122	418,604	0.767	196	876,250	0.806
	100-499	1,399	3,154,762	0.796	760	1,121,401	0.786	639	2,033,361	0.801
	500+	1,814	2,109,129	0.797	1,025	1,169,306	0.800	789	939,823	0.794
HMO	ALL	2,331	6,165,522	0.892	376	456,286	0.885	1,955	5,709,236	0.893
	0-49	274	2,343,541	0.890	6	5,889	0.940	268	2,337,653	0.890
	50-99	160	876,470	0.880	8	52,629	0.933	152	823,840	0.877
	100-499	700	1,970,358	0.891	122	209,629	0.863	578	1,760,729	0.894
	500+	1,197	975,153	0.909	240	188,139	0.895	957	787,014	0.913
POS	ALL	1,257	4,267,214	0.873	478	1,194,627	0.882	779	3,072,586	0.870
	0-49	185	1,465,650	0.855	49	136,441	0.869	136	1,329,210	0.854
	50-99	72	459,501	0.867	13	140,347	0.905	59	319,155	0.850
	100-499	311	1,300,438	0.872	106	367,110	0.851	205	933,328	0.880
	500+	689	1,041,625	0.904	310	550,731	0.899	379	490,894	0.908
PPO	ALL	9,328	31,106,054	0.853	4,125	10,527,205	0.849	5,203	20,578,850	0.855
	0-49	1,419	8,598,431	0.854	454	1,731,284	0.844	965	6,867,147	0.856
	50-99	834	4,479,380	0.837	232	1,169,809	0.869	602	3,309,571	0.825
	100-499	3,114	10,469,348	0.847	1,379	3,767,177	0.834	1,735	6,702,172	0.855
	500+	3,961	7,558,895	0.869	2,060	3,858,935	0.861	1,901	3,699,960	0.878
FFS	ALL	201	591,647	0.867	110	242,330	0.879	91	349,317	0.859
	0-49	44	205,271	0.887	25	47,727	0.895	19	157,545	0.885
	50-99	10	19,482	0.753	.	.	.	10	19,482	0.753
	100-499	78	263,813	0.872	41	122,380	0.886	37	141,433	0.860
	500+	69	103,081	0.836	44	72,223	0.857	25	30,858	0.788

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Appendix C: Post-imputation AV Comparisons for All Plans[1] by Funding

Contents

[1] The distribution of fee-for-service (FFS) plans by funding type is not shown separately as a plan type, as there were very few plans of this type in the NCS. However, FFS is included in each of the total tables.

Table C.1a. Post-imputation AV Comparisons for All Plans by Funding, NCS 110 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.866	0.850	0.871	0.858	0.864	0.847
5%	0.727	0.695	0.741	0.722	0.721	0.677
10%	0.753	0.735	0.766	0.753	0.748	0.722
20%	0.805	0.788	0.823	0.807	0.798	0.777
30%	0.840	0.821	0.849	0.835	0.834	0.814
40%	0.863	0.847	0.869	0.852	0.859	0.841
50%	0.880	0.865	0.882	0.867	0.878	0.862
60%	0.896	0.886	0.893	0.885	0.897	0.886
70%	0.915	0.904	0.910	0.899	0.917	0.908
80%	0.935	0.922	0.929	0.917	0.938	0.925
90%	0.948	0.941	0.946	0.939	0.949	0.941
95%	0.956	0.951	0.953	0.951	0.956	0.952
# Unique Estab ID #s	1,776	1,776	718	718	1,328	1,328
# Unique Plans	4,439	4,439	1,859	1,859	2,822	2,822
% Wgt of Largest Estab	2.4%	2.4%	5.9%	5.9%	1.9%	1.9%

Table C.1b. Post-imputation AV Comparisons for HDHP Plans by Funding, NCS 110 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.794	0.768	0.826	0.805	0.782	0.755
5%	0.673	0.605	0.721	0.680	0.671	0.595
10%	0.687	0.631	0.765	0.740	0.684	0.625
20%	0.721	0.687	0.793	0.775	0.717	0.656
30%	0.748	0.740	0.808	0.791	0.730	0.708
40%	0.786	0.765	0.821	0.807	0.748	0.740
50%	0.812	0.792	0.839	0.818	0.794	0.773
60%	0.827	0.812	0.847	0.830	0.819	0.799
70%	0.847	0.829	0.854	0.839	0.841	0.819
80%	0.861	0.841	0.871	0.846	0.857	0.837
90%	0.883	0.860	0.885	0.857	0.881	0.860
95%	0.890	0.885	0.890	0.872	0.890	0.886
# Unique Estab ID #s	563	563	242	242	367	367
# Unique Plans	941	941	432	432	534	534
% Wgt of Largest Estab	7.3%	7.3%	15.9%	15.9%	2.1%	2.1%

Table C.1c. Post-imputation AV Comparisons for HMO Plans by Funding, NCS 110 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.915	0.896	0.929	0.918	0.913	0.893
5%	0.802	0.749	0.805	0.748	0.799	0.749
10%	0.840	0.804	0.897	0.884	0.837	0.804
20%	0.876	0.839	0.902	0.900	0.873	0.837
30%	0.905	0.891	0.930	0.912	0.904	0.872
40%	0.928	0.909	0.941	0.924	0.925	0.907
50%	0.938	0.921	0.944	0.936	0.935	0.920
60%	0.943	0.929	0.947	0.942	0.942	0.929
70%	0.947	0.937	0.951	0.948	0.946	0.935
80%	0.951	0.944	0.954	0.954	0.950	0.942
90%	0.955	0.953	0.965	0.962	0.954	0.952
95%	0.962	0.961	0.972	0.970	0.959	0.959
# Unique Estab ID #s	545	545	111	111	471	471
# Unique Plans	925	925	154	154	784	784
% Wgt of Largest Estab	2.3%	2.3%	9.8%	9.8%	2.7%	2.7%

Table C.1d. Post-imputation AV Comparisons for POS Plans by Funding, NCS 110 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.886	0.875	0.882	0.873	0.889	0.876
5%	0.767	0.740	0.778	0.757	0.744	0.720
10%	0.799	0.776	0.803	0.802	0.797	0.763
20%	0.835	0.832	0.835	0.830	0.839	0.832
30%	0.873	0.858	0.865	0.852	0.885	0.864
40%	0.888	0.879	0.882	0.865	0.900	0.894
50%	0.905	0.895	0.891	0.880	0.915	0.904
60%	0.915	0.907	0.900	0.891	0.924	0.913
70%	0.927	0.917	0.912	0.909	0.932	0.921
80%	0.939	0.930	0.930	0.924	0.946	0.933
90%	0.951	0.942	0.946	0.942	0.952	0.942
95%	0.958	0.953	0.959	0.954	0.958	0.953
# Unique Estab ID #s	381	381	169	169	235	235
# Unique Plans	717	717	332	332	399	399
% Wgt of Largest Estab	2.3%	2.3%	4.6%	4.6%	3.8%	3.8%

Table C.1e. Post-imputation AV Comparisons for PPO Plans by Funding, NCS 110 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.866	0.852	0.869	0.858	0.864	0.849
5%	0.742	0.711	0.739	0.711	0.742	0.703
10%	0.761	0.740	0.759	0.748	0.763	0.735
20%	0.808	0.796	0.828	0.809	0.799	0.787
30%	0.841	0.827	0.852	0.841	0.835	0.818
40%	0.861	0.851	0.871	0.858	0.858	0.847
50%	0.876	0.865	0.881	0.870	0.873	0.861
60%	0.890	0.880	0.891	0.884	0.888	0.878
70%	0.909	0.898	0.910	0.898	0.908	0.898
80%	0.924	0.915	0.922	0.914	0.925	0.917
90%	0.945	0.937	0.944	0.934	0.947	0.939
95%	0.955	0.950	0.952	0.948	0.957	0.950
# Unique Estab ID #s	1,334	1,334	555	555	910	910
# Unique Plans	2,521	2,521	1,148	1,148	1,481	1,481
% Wgt of Largest Estab	3.0%	3.0%	7.1%	7.1%	2.7%	2.7%

Table C.2a. Post-imputation AV Comparisons for All Plans by Funding, NCS 111 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.861	0.844	0.859	0.845	0.862	0.844
5%	0.738	0.714	0.755	0.732	0.733	0.704
10%	0.772	0.746	0.778	0.762	0.768	0.740
20%	0.804	0.785	0.803	0.787	0.804	0.782
30%	0.830	0.811	0.827	0.809	0.831	0.811
40%	0.848	0.832	0.844	0.828	0.851	0.834
50%	0.867	0.854	0.863	0.851	0.869	0.855
60%	0.884	0.871	0.880	0.869	0.886	0.871
70%	0.904	0.890	0.898	0.888	0.906	0.891
80%	0.927	0.911	0.922	0.908	0.928	0.913
90%	0.942	0.934	0.940	0.931	0.943	0.934
95%	0.953	0.947	0.951	0.943	0.954	0.948
# Unique Estab ID #s	1,711	1,711	556	556	1,392	1,392
# Unique Plans	3,664	3,664	1,255	1,255	2,650	2,650
% Wgt of Largest Estab	2.4%	2.4%	6.2%	6.2%	0.9%	0.9%

Table C.2b. Post-imputation AV Comparisons for HDHP Plans by Funding, NCS 111 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.808	0.784	0.806	0.785	0.809	0.783
5%	0.727	0.692	0.729	0.716	0.727	0.689
10%	0.752	0.726	0.758	0.731	0.750	0.723
20%	0.773	0.747	0.776	0.755	0.772	0.739
30%	0.785	0.768	0.781	0.769	0.790	0.766
40%	0.799	0.779	0.791	0.778	0.803	0.781
50%	0.814	0.791	0.808	0.787	0.817	0.793
60%	0.828	0.805	0.827	0.804	0.828	0.805
70%	0.834	0.814	0.835	0.818	0.834	0.813
80%	0.845	0.823	0.843	0.826	0.845	0.821
90%	0.862	0.838	0.857	0.837	0.869	0.840
95%	0.874	0.854	0.866	0.847	0.874	0.861
# Unique Estab ID #s	559	559	206	206	388	388
# Unique Plans	849	849	314	314	563	563
% Wgt of Largest Estab	6.5%	6.5%	15.0%	15.0%	3.0%	3.0%

Table C.2c. Post-imputation AV Comparisons for HMO Plans by Funding, NCS 111 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.906	0.887	0.926	0.917	0.903	0.883
5%	0.781	0.742	0.842	0.793	0.779	0.739
10%	0.806	0.768	0.888	0.871	0.804	0.766
20%	0.860	0.822	0.916	0.901	0.857	0.817
30%	0.902	0.881	0.928	0.923	0.899	0.872
40%	0.920	0.900	0.930	0.927	0.917	0.896
50%	0.929	0.910	0.932	0.930	0.927	0.908
60%	0.935	0.921	0.939	0.933	0.935	0.916
70%	0.940	0.931	0.944	0.937	0.939	0.927
80%	0.946	0.937	0.948	0.943	0.946	0.937
90%	0.953	0.948	0.957	0.957	0.952	0.948
95%	0.959	0.959	0.967	0.962	0.958	0.958
# Unique Estab ID #s	477	477	62	62	436	436
# Unique Plans	749	749	96	96	667	667
% Wgt of Largest Estab	7.3%	7.3%	27.6%	27.6%	2.2%	2.2%

Table C.2d. Post-imputation AV Comparisons for POS Plans by Funding, NCS 111 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.883	0.870	0.882	0.869	0.884	0.871
5%	0.729	0.704	0.735	0.734	0.729	0.673
10%	0.770	0.745	0.778	0.763	0.767	0.735
20%	0.835	0.830	0.835	0.829	0.835	0.831
30%	0.866	0.856	0.868	0.850	0.866	0.857
40%	0.885	0.875	0.889	0.876	0.883	0.874
50%	0.904	0.891	0.899	0.888	0.905	0.897
60%	0.921	0.909	0.909	0.900	0.924	0.916
70%	0.934	0.923	0.924	0.909	0.936	0.925
80%	0.943	0.936	0.935	0.921	0.948	0.941
90%	0.957	0.948	0.951	0.943	0.959	0.951
95%	0.962	0.957	0.956	0.951	0.963	0.958
# Unique Estab ID #s	329	329	88	88	261	261
# Unique Plans	479	479	138	138	358	358
% Wgt of Largest Estab	2.8%	2.8%	7.9%	7.9%	3.1%	3.1%

Table C.2e. Post-imputation AV Comparisons for PPO Plans by Funding, NCS 111 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.859	0.844	0.863	0.850	0.857	0.841
5%	0.734	0.707	0.761	0.744	0.727	0.694
10%	0.776	0.749	0.788	0.775	0.765	0.743
20%	0.810	0.792	0.813	0.796	0.807	0.788
30%	0.835	0.818	0.834	0.818	0.836	0.817
40%	0.851	0.840	0.851	0.840	0.851	0.840
50%	0.867	0.855	0.869	0.858	0.867	0.854
60%	0.881	0.869	0.883	0.871	0.881	0.867
70%	0.896	0.881	0.897	0.886	0.896	0.879
80%	0.913	0.898	0.918	0.904	0.912	0.894
90%	0.938	0.928	0.940	0.929	0.937	0.925
95%	0.949	0.942	0.950	0.939	0.949	0.943
# Unique Estab ID #s	1,275	1,275	441	441	954	954
# Unique Plans	2,211	2,211	841	841	1,495	1,495
% Wgt of Largest Estab	3.0%	3.0%	7.4%	7.4%	1.2%	1.2%

Table C.3a. Post-imputation AV Comparisons for All Plans by Funding, NCS 112 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.86	0.84	0.85	0.84	0.86	0.84
5%	0.72	0.69	0.74	0.70	0.72	0.67
10%	0.76	0.73	0.76	0.74	0.76	0.73
20%	0.80	0.77	0.80	0.78	0.80	0.77
30%	0.83	0.80	0.82	0.80	0.83	0.80
40%	0.84	0.82	0.84	0.82	0.84	0.82
50%	0.86	0.85	0.86	0.84	0.86	0.85
60%	0.88	0.87	0.88	0.86	0.88	0.87
70%	0.90	0.89	0.90	0.88	0.90	0.89
80%	0.92	0.91	0.91	0.90	0.93	0.91
90%	0.95	0.93	0.94	0.93	0.95	0.94
95%	0.96	0.95	0.96	0.94	0.96	0.95
# Unique Estab ID #s	1,668	1,668	595	595	1,340	1,340
# Unique Plans	3,795	3,795	1,349	1,349	2,755	2,755
% Wgt of Largest Estab	1.8%	1.8%	4.3%	4.3%	0.9%	0.9%

Table C.3b. Post-imputation AV Comparisons for HDHP Plans by Funding, NCS 112 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.79	0.76	0.80	0.77	0.79	0.76
5%	0.69	0.63	0.73	0.70	0.67	0.59
10%	0.73	0.69	0.74	0.72	0.72	0.66
20%	0.75	0.73	0.76	0.73	0.75	0.72
30%	0.77	0.75	0.77	0.75	0.77	0.75
40%	0.79	0.76	0.79	0.77	0.78	0.76
50%	0.80	0.78	0.80	0.78	0.80	0.78
60%	0.81	0.79	0.81	0.79	0.82	0.79
70%	0.83	0.80	0.82	0.80	0.83	0.80
80%	0.84	0.81	0.84	0.81	0.84	0.81
90%	0.85	0.83	0.85	0.83	0.85	0.83
95%	0.86	0.84	0.87	0.85	0.86	0.84
# Unique Estab ID #s	671	671	259	259	467	467
# Unique Plans	1,084	1,084	420	420	711	711
% Wgt of Largest Estab	4.2%	4.2%	9.3%	9.3%	2.7%	2.7%

Table C.3c. Post-imputation AV Comparisons for HMO Plans by Funding, NCS 112 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.91	0.89	0.93	0.91	0.91	0.89
5%	0.78	0.73	0.83	0.81	0.77	0.73
10%	0.79	0.76	0.84	0.82	0.78	0.75
20%	0.85	0.82	0.90	0.87	0.85	0.81
30%	0.90	0.88	0.93	0.91	0.90	0.87
40%	0.93	0.90	0.94	0.93	0.93	0.90
50%	0.94	0.92	0.95	0.93	0.94	0.92
60%	0.95	0.93	0.96	0.93	0.95	0.93
70%	0.95	0.94	0.96	0.95	0.95	0.93
80%	0.95	0.94	0.96	0.95	0.95	0.94
90%	0.96	0.95	0.96	0.96	0.96	0.95
95%	0.97	0.96	0.97	0.97	0.96	0.96
# Unique Estab ID #s	416	416	59	59	371	371
# Unique Plans	664	664	90	90	585	585
% Wgt of Largest Estab	5.9%	5.9%	27.4%	27.4%	2.9%	2.9%

Table C.3d. Post-imputation AV Comparisons for POS Plans by Funding, NCS 112 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.89	0.87	0.89	0.88	0.88	0.86
5%	0.77	0.73	0.81	0.79	0.76	0.73
10%	0.79	0.76	0.83	0.82	0.79	0.75
20%	0.83	0.81	0.85	0.84	0.82	0.80
30%	0.87	0.84	0.87	0.85	0.86	0.83
40%	0.88	0.86	0.89	0.87	0.88	0.86
50%	0.89	0.88	0.90	0.88	0.89	0.87
60%	0.91	0.89	0.91	0.89	0.91	0.89
70%	0.93	0.91	0.93	0.90	0.94	0.91
80%	0.94	0.93	0.94	0.93	0.94	0.93
90%	0.95	0.94	0.95	0.95	0.95	0.94
95%	0.96	0.96	0.96	0.96	0.96	0.96
# Unique Estab ID #s	313	313	92	92	237	237
# Unique Plans	475	475	148	148	336	336
% Wgt of Largest Estab	2.2%	2.2%	5.0%	5.0%	3.0%	3.0%

Table C.3e. Post-imputation AV Comparisons for PPO Plans by Funding, NCS 112 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.86	0.84	0.86	0.84	0.86	0.84
5%	0.72	0.68	0.73	0.70	0.71	0.67
10%	0.77	0.74	0.78	0.75	0.77	0.74
20%	0.81	0.79	0.81	0.79	0.80	0.78
30%	0.84	0.81	0.84	0.82	0.84	0.81
40%	0.85	0.83	0.85	0.84	0.85	0.83
50%	0.87	0.85	0.87	0.85	0.87	0.85
60%	0.88	0.87	0.89	0.87	0.88	0.87
70%	0.90	0.88	0.90	0.88	0.90	0.88
80%	0.91	0.90	0.91	0.90	0.91	0.90
90%	0.94	0.92	0.94	0.93	0.93	0.92
95%	0.95	0.94	0.95	0.94	0.95	0.94
# Unique Estab ID #s	1,297	1,297	479	479	984	984
# Unique Plans	2,299	2,299	877	877	1,598	1,598
% Wgt of Largest Estab	2.2%	2.2%	5.2%	5.2%	1.2%	1.2%

Table C.4a. Post-imputation AV Comparisons for All Plans by Funding, NCS 113 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.848	0.829	0.841	0.824	0.851	0.831
5%	0.728	0.702	0.733	0.704	0.725	0.699
10%	0.758	0.736	0.759	0.736	0.757	0.735
20%	0.786	0.767	0.780	0.767	0.789	0.767
30%	0.812	0.790	0.803	0.787	0.818	0.792
40%	0.832	0.810	0.825	0.805	0.834	0.812
50%	0.849	0.831	0.842	0.822	0.852	0.835
60%	0.869	0.851	0.860	0.842	0.874	0.855
70%	0.890	0.873	0.878	0.863	0.896	0.878
80%	0.917	0.902	0.900	0.886	0.923	0.908
90%	0.944	0.931	0.933	0.922	0.945	0.934
95%	0.956	0.949	0.951	0.937	0.957	0.952
# Unique Estab ID #s	1,621	1,621	547	547	1,309	1,309
# Unique Plans	3,716	3,716	1,344	1,344	2,670	2,670
% Wgt of Largest Estab	2.6%	2.6%	6.2%	6.2%	1.3%	1.3%

Table C.4b. Post-imputation AV Comparisons for HDHP Plans by Funding, NCS 113 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.794	0.769	0.790	0.767	0.796	0.771
5%	0.707	0.671	0.710	0.684	0.706	0.662
10%	0.733	0.709	0.733	0.703	0.733	0.713
20%	0.760	0.740	0.757	0.733	0.760	0.742
30%	0.778	0.754	0.776	0.756	0.778	0.754
40%	0.788	0.766	0.787	0.767	0.790	0.765
50%	0.802	0.776	0.796	0.776	0.805	0.777
60%	0.815	0.788	0.810	0.787	0.818	0.788
70%	0.825	0.800	0.818	0.797	0.826	0.801
80%	0.832	0.809	0.830	0.807	0.834	0.809
90%	0.846	0.823	0.841	0.817	0.848	0.827
95%	0.857	0.838	0.850	0.825	0.863	0.843
# Unique Estab ID #s	702	702	271	271	500	500
# Unique Plans	1,142	1,142	469	469	746	746
% Wgt of Largest Estab	5.4%	5.4%	11.3%	11.3%	1.9%	1.9%

Table C.4c. Post-imputation AV Comparisons for HMO Plans by Funding, NCS 113 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.892	0.871	0.885	0.869	0.892	0.871
5%	0.758	0.723	0.733	0.709	0.765	0.723
10%	0.773	0.739	0.742	0.731	0.773	0.739
20%	0.837	0.785	0.796	0.765	0.839	0.789
30%	0.874	0.841	0.855	0.834	0.874	0.841
40%	0.899	0.877	0.912	0.884	0.899	0.876
50%	0.918	0.904	0.929	0.915	0.917	0.904
60%	0.935	0.917	0.936	0.923	0.934	0.917
70%	0.942	0.928	0.947	0.931	0.942	0.927
80%	0.948	0.937	0.953	0.950	0.948	0.937
90%	0.955	0.952	0.962	0.959	0.955	0.952
95%	0.966	0.964	0.977	0.984	0.965	0.964
# Unique Estab ID #s	412	412	51	51	378	378
# Unique Plans	615	615	73	73	556	556
% Wgt of Largest Estab	8.1%	8.1%	34.1%	34.1%	2.5%	2.5%

Table C.4d. Post-imputation AV Comparisons for POS Plans by Funding, NCS 113 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.873	0.853	0.882	0.867	0.870	0.848
5%	0.725	0.687	0.767	0.755	0.663	0.597
10%	0.779	0.738	0.803	0.786	0.761	0.727
20%	0.825	0.800	0.838	0.820	0.824	0.797
30%	0.839	0.824	0.853	0.840	0.834	0.824
40%	0.869	0.846	0.872	0.850	0.857	0.846
50%	0.887	0.868	0.884	0.866	0.888	0.870
60%	0.908	0.890	0.904	0.890	0.913	0.890
70%	0.924	0.900	0.911	0.895	0.928	0.903
80%	0.940	0.926	0.925	0.910	0.942	0.930
90%	0.951	0.943	0.967	0.967	0.948	0.943
95%	0.964	0.964	0.967	0.967	0.956	0.949
# Unique Estab ID #s	286	286	93	93	212	212
# Unique Plans	412	412	147	147	279	279
% Wgt of Largest Estab	5.3%	5.3%	11.4%	11.4%	7.7%	7.7%

Table C.4e. Post-imputation AV Comparisons for PPO Plans by Funding, NCS 113 Data						
	Total		Self-Funded		Purchased	
	ARC AV	MVC AV	ARC AV	MVC AV	ARC AV	MVC AV
Mean AV	0.853	0.836	0.849	0.834	0.855	0.837
5%	0.738	0.709	0.751	0.721	0.729	0.707
10%	0.764	0.746	0.764	0.752	0.764	0.745
20%	0.796	0.782	0.788	0.778	0.802	0.783
30%	0.823	0.806	0.816	0.801	0.826	0.808
40%	0.843	0.825	0.841	0.820	0.845	0.828
50%	0.858	0.842	0.856	0.837	0.860	0.844
60%	0.873	0.857	0.869	0.855	0.875	0.859
70%	0.890	0.874	0.883	0.870	0.893	0.877
80%	0.913	0.899	0.906	0.892	0.916	0.902
90%	0.940	0.928	0.935	0.924	0.943	0.931
95%	0.957	0.946	0.949	0.936	0.963	0.954
# Unique Estab ID #s	1,253	1,253	442	442	952	952
# Unique Plans	2,327	2,327	889	889	1,571	1,571
% Wgt of Largest Estab	3.1%	3.1%	7.3%	7.3%	1.7%	1.7%

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Appendix D: Summary Statistics and Regression Results

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Table D.1. Summary Statistics of NCS 110 Data (unweighted)					
Variable	**All Data**			**Excluding records with imputed 'Self-insured' variable**	
	Mean	**Std. Dev**		**Mean**	**Std. Dev**
# Observations (approx.)	*20,000*			*16,800*	
Self-insured	0.432	0.495		0.448	0.497
Employer Size	2,393	3,542		2,334	3,339
Average Hourly Wage	$28.98	$21.87		$29.04	$22.13
Full-Time? (vs. Part Time)	0.923	0.266		0.922	0.269
Plan Type					
HDHP	0.170	0.375		0.171	0.377
HMO	0.161	0.368		0.155	0.362
POS	0.132	0.338		0.137	0.344
PPO	0.512	0.500		0.513	0.500
FFS	0.025	0.157		0.024	0.153
Industry					
Manufacturing	0.150	0.357		0.143	0.350
Agr./Mining/Construction	0.028	0.166		0.027	0.162
Trade/Transp./Utilities	0.176	0.381		0.167	0.373
Information	0.030	0.170		0.027	0.163
Finance/Real Estate	0.220	0.414		0.233	0.423
Prof./Business Services	0.067	0.250		0.059	0.236
Educ./Health Services	0.305	0.460		0.319	0.466
Other Services	0.024	0.152		0.024	0.152
Census Division					
New England	0.067	0.250		0.070	0.255
Middle Atlantic	0.178	0.382		0.179	0.384
East South Central	0.049	0.215		0.048	0.215
South Atlantic	0.157	0.364		0.158	0.365
East North Central	0.157	0.363		0.150	0.357
West North Central	0.082	0.275		0.081	0.273
West South Central	0.110	0.313		0.114	0.318
Mountain	0.078	0.268		0.082	0.274
Pacific	0.122	0.327		0.117	0.322

Table D.2. Summary Statistics of NCS 111 Data (unweighted)					
Variable	**All Data**			**Excluding records with imputed 'Self-insured' variable**	
	Mean	**Std. Dev**		**Mean**	**Std. Dev**
# Observations (approx.)	*18,300*			*14,900*	
Self-insured	0.418	0.493		0.457	0.498
Employer Size	2,147	4,502		2,259	4,671
Average Hourly Wage	$29.78	$21.64		$30.26	$22.35
Full-Time? (vs. Part Time)	0.931	0.254		0.928	0.258
Plan Type					
HDHP	0.199	0.399		0.202	0.402
HMO	0.160	0.367		0.168	0.373
POS	0.083	0.275		0.074	0.262
PPO	0.541	0.498		0.540	0.498
FFS	0.017	0.130		0.015	0.122
Industry					
Manufacturing	0.171	0.376		0.164	0.371
Agr./Mining/Construction	0.040	0.197		0.037	0.188
Trade/Transp./Utilities	0.222	0.416		0.227	0.419
Information	0.040	0.196		0.038	0.191
Finance/Real Estate	0.257	0.437		0.268	0.443
Prof./Business Services	0.067	0.250		0.064	0.245
Educ./Health Services	0.177	0.381		0.178	0.382
Other Services	0.026	0.160		0.025	0.157
Census Division					
New England	0.060	0.238		0.064	0.245
Middle Atlantic	0.178	0.382		0.186	0.389
East South Central	0.045	0.207		0.038	0.192
South Atlantic	0.163	0.369		0.166	0.372
East North Central	0.136	0.343		0.130	0.336
West North Central	0.071	0.257		0.070	0.255
West South Central	0.117	0.321		0.111	0.314
Mountain	0.071	0.257		0.077	0.267
Pacific	0.159	0.366		0.158	0.365

Table D.3. Summary Statistics of NCS 112 Data (unweighted)					
Variable	**All Data**			**Excluding records with imputed 'Self-insured' variable**	
	Mean	**Std. Dev**		**Mean**	**Std. Dev**
# Observations (approx.)	*17,900*			*13,800*	
Self-insured	0.398	0.489		0.434	0.496
Employer Size	2,161	4,510		2,322	4,754
Average Hourly Wage	$31.34	$24.71		$31.87	$25.63
Full-Time? (vs. Part Time)	0.928	0.258		0.922	0.268
Plan Type					
HDHP	0.235	0.424		0.240	0.427
HMO	0.141	0.348		0.150	0.357
POS	0.083	0.276		0.083	0.276
PPO	0.521	0.500		0.508	0.500
FFS	0.020	0.140		0.018	0.134
Industry					
Manufacturing	0.172	0.378		0.154	0.361
Agr./Mining/Construction	0.042	0.200		0.038	0.190
Trade/Transp./Utilities	0.220	0.414		0.225	0.418
Information	0.035	0.185		0.035	0.184
Finance/Real Estate	0.255	0.436		0.278	0.448
Prof./Business Services	0.061	0.240		0.060	0.237
Educ./Health Services	0.188	0.391		0.185	0.388
Other Services	0.026	0.160		0.025	0.156
Census Division					
New England	0.047	0.211		0.046	0.210
Middle Atlantic	0.185	0.388		0.190	0.392
East South Central	0.040	0.196		0.042	0.201
South Atlantic	0.183	0.387		0.177	0.382
East North Central	0.129	0.335		0.123	0.329
West North Central	0.073	0.260		0.065	0.246
West South Central	0.105	0.306		0.106	0.307
Mountain	0.070	0.255		0.072	0.259
Pacific	0.169	0.374		0.179	0.383

Table D.4. Summary Statistics of NCS 113 Data (unweighted)					
Variable	**All Data**			**Excluding records with imputed 'Self-insured' variable**	
	Mean	**Std. Dev**		**Mean**	**Std. Dev**
# Observations (approx.)	*17,400*			*13,300*	
Self-insured	0.417	0.493		0.471	0.499
Employer Size	2,285	4,685		2,500	4,953
Average Hourly Wage	$31.59	$22.26		$32.26	$23.08
Full-Time? (vs. Part Time)	0.942	0.234		0.936	0.244
Plan Type					
HDHP	0.247	0.431		0.248	0.432
HMO	0.134	0.340		0.138	0.344
POS	0.072	0.259		0.067	0.250
PPO	0.535	0.499		0.538	0.499
FFS	0.012	0.107		0.010	0.098
Industry					
Manufacturing	0.176	0.381		0.170	0.375
Agr./Mining/Construction	0.041	0.197		0.035	0.183
Trade/Transp./Utilities	0.211	0.408		0.217	0.413
Information	0.041	0.197		0.036	0.187
Finance/Real Estate	0.256	0.437		0.271	0.444
Prof./Business Services	0.058	0.233		0.052	0.223
Educ./Health Services	0.189	0.392		0.195	0.396
Other Services	0.028	0.164		0.024	0.154
Census Division					
New England	0.058	0.234		0.058	0.234
Middle Atlantic	0.161	0.367		0.170	0.376
East South Central	0.041	0.199		0.037	0.189
South Atlantic	0.187	0.390		0.200	0.400
East North Central	0.125	0.331		0.115	0.319
West North Central	0.070	0.255		0.057	0.233
West South Central	0.116	0.321		0.117	0.322
Mountain	0.075	0.263		0.072	0.258
Pacific	0.167	0.373		0.173	0.378

Table D.5. OLS Regression Results for the Effect of Plan Funding on AV, NCS 110 Data

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Self-insured	**0.004**	**0.006**
	0.003	*0.004*
Employer Size (vs 500+)		
0-49	**-0.033*** **	**-0.036*** **
	0.005	*0.005*
50-99	**-0.016*** **	**-0.011***
	0.006	*0.007*
100-499	**-0.019*** **	**-0.022*** **
	0.004	*0.005*
Avg. Wage (vs $30+ / hr)		
<$15 / hr	**-0.017*** **	**-0.020*** **
	0.004	*0.005*
$15-$30 / hr	**-0.007***	**-0.006**
	0.003	*0.004*
Part Time (vs Full-Time)	**0.004**	**-0.003**
	0.006	*0.006*
Plan Type (vs PPO)		
HDHP	**-0.072*** **	**-0.064*** **
	0.006	*0.007*
HMO	**0.048*** **	**0.051*** **
	0.004	*0.005*
POS	**0.015** **	**0.015** **
	0.006	*0.007*
FFS	**0.022*** **	**0.019** **
	0.007	*0.007*

Table D.5. OLS Regression Results for the Effect of Plan Funding on AV, NCS 110 Data, continued

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Industry (vs Trade, Transportation, Utilities)		
Manufacturing	**0.005** *0.005*	**0.006** *0.005*
Agriculture, Mining, Construction	**-0.001** *0.01*	**-0.009** *0.012*
Information	**0.030***** *0.007*	**0.034***** *0.008*
Finance and Real Estate	**0.012**** *0.006*	**0.011** *0.007*
Professional and Business Services	**0.011*** *0.006*	**0.009** *0.007*
Education and Health Services	**-0.003** *0.006*	**-0.008** *0.007*
Other Services	**0.023***** *0.008*	**0.021**** *0.01*
Census Division (vs Pacific)		
New England	**-0.001** *0.007*	**-0.013** *0.008*
Middle Atlantic	**-0.003** *0.006*	**-0.006** *0.008*
East South Central	**-0.006** *0.009*	**-0.005** *0.01*
South Atlantic	**-0.010*** *0.006*	**-0.011** *0.007*
East North Central	**-0.006** *0.006*	**-0.015**** *0.007*
West North Central	**-0.006** *0.009*	**-0.010** *0.01*
West South Central	**-0.019***** *0.006*	**-0.023***** *0.007*
Mountain	**-0.014** *0.01*	**-0.017** *0.011*

Notes: Coefficients with standard errors below, weighted by plan participation.
Source: NCS 110 data; Legend: * p < 0.1; ** p < 0.05; *** p < 0.01

Table D.6. OLS Regression Results for the Effect of Plan Funding on AV, NCS 111 Data

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Self-insured	**0.003**	**0.005**
	0.003	*0.004*
Employer Size (vs 500+)		
0-49	**-0.018*** **	**-0.018*** **
	0.004	*0.005*
50-99	**-0.010** **	**-0.006**
	0.005	*0.006*
100-499	**-0.017*** **	**-0.018*** **
	0.004	*0.005*
Avg. Wage (vs $30+ / hr)		
<$15 / hr	**-0.019*** **	**-0.023*** **
	0.003	*0.004*
$15-$30 / hr	**-0.011*** **	**-0.012*** **
	0.002	*0.003*
Part Time (vs Full-Time)	**0.009**	**0.012**
	0.006	*0.008*
Plan Type (vs PPO)		
HDHP	**-0.050*** **	**-0.050*** **
	0.003	*0.004*
HMO	**0.043*** **	**0.041*** **
	0.004	*0.005*
POS	**0.019*** **	**0.018** **
	0.006	*0.007*
FFS	**0.042*** **	**0.028*** **
	0.007	*0.007*

Table D.6. OLS Regression Results for the Effect of Plan Funding on AV, NCS 111 Data, continued

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Industry (vs Trade, Transportation, Utilities)		
Manufacturing	**0.014*** ***0.005***	**0.022*** ***0.005***
Agriculture, Mining, Construction	**0.017*** ***0.005***	**0.024*** ***0.006***
Information	**0.036*** ***0.006***	**0.045*** ***0.007***
Finance and Real Estate	**0.008**** ***0.004***	**0.016*** ***0.005***
Professional and Business Services	**0.004** ***0.005***	**0.008** ***0.006***
Education and Health Services	**0.005** ***0.005***	**0.014**** ***0.006***
Other Services	**0.035*** ***0.006***	**0.041*** ***0.007***
Census Division (vs Pacific)		
New England	**-0.014**** ***0.007***	**-0.018**** ***0.008***
Middle Atlantic	**-0.001** ***0.005***	**-0.002** ***0.006***
East South Central	**-0.014*** ***0.008***	**-0.012** ***0.01***
South Atlantic	**-0.018*** ***0.005***	**-0.017*** ***0.006***
East North Central	**-0.008*** ***0.005***	**-0.009** ***0.006***
West North Central	**-0.016*** ***0.005***	**-0.019*** ***0.006***
West South Central	**-0.026*** ***0.005***	**-0.027*** ***0.006***
Mountain	**-0.012**** ***0.006***	**-0.011*** ***0.006***

Notes: Coefficients with standard errors below, weighted by plan participation.
Source: NCS 2011 data; Legend: * p < 0.1; ** p < 0.05; *** p < 0.01

Table D.7. OLS Regression Results for the Effect of Plan Funding on AV, NCS 112 Data

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Self-insured	**0.006***	**0.005**
	0.003	*0.004*
Employer Size (vs 500+)		
0-49	**-0.024*****	**-0.03*****
	0.005	*0.006*
50-99	**-0.016*****	**-0.025*****
	0.005	*0.006*
100-499	**-0.008****	**-0.018*****
	0.004	*0.004*
Avg. Wage (vs $30+ / hr)		
<$15 / hr	**-0.021*****	**-0.02*****
	0.004	*0.004*
$15-$30 / hr	**-0.004**	**-0.001**
	0.003	*0.003*
Part Time (vs Full-Time)	**0.008**	**0.002**
	0.006	*0.006*
Plan Type (vs PPO)		
HDHP	**-0.066*****	**-0.066*****
	0.003	*0.004*
HMO	**0.049*****	**0.055*****
	0.006	*0.006*
POS	**0.025*****	**0.023*****
	0.005	*0.006*
FFS	**0.007**	**0.014**
	0.01	*0.01*

Table D.7. OLS Regression Results for the Effect of Plan Funding on AV, NCS 112 Data, continued

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Industry (vs Trade, Transportation, Utilities)		
Manufacturing	**0.015*** ** *0.005*	**0.011*** *0.006*
Agriculture, Mining, Construction	**0.006** *0.006*	**0.002** *0.006*
Information	**0.029*** ** *0.009*	**0.036*** ** *0.007*
Finance and Real Estate	**0.013*** ** *0.004*	**0.006** *0.004*
Professional and Business Services	**0.013** ** *0.005*	**0.013** ** *0.007*
Education and Health Services	**0.005** *0.006*	**0.003** *0.007*
Other Services	**0.021*** ** *0.007*	**0.022*** ** *0.008*
Census Division (vs Pacific)		
New England	**-0.001** *0.008*	**-0.002** *0.012*
Middle Atlantic	**0.007** *0.005*	**0.012*** *0.006*
East South Central	**-0.008** *0.006*	**-0.007** *0.007*
South Atlantic	**-0.011** ** *0.004*	**-0.012** ** *0.006*
East North Central	**-0.024*** ** *0.006*	**-0.018** ** *0.007*
West North Central	**-0.018*** ** *0.006*	**-0.016** ** *0.007*
West South Central	**-0.018*** ** *0.006*	**-0.023*** ** *0.007*
Mountain	**-0.010** *0.008*	**-0.002** *0.007*

Notes: Coefficients with standard errors below, weighted by plan participation.
Source: NCS 112 data; Legend: * p < 0.1; ** p < 0.05; *** p < 0.01

Table D.8. OLS Regression Results for the Effect of Plan Funding on AV, NCS 113 Data

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Self-insured	**-0.005** *0.003*	**-0.011**** *0.004*
Employer Size (vs 500+)		
0-49	**-0.023***** *0.005*	**-0.03***** *0.007*
50-99	**-0.030***** *0.01*	**-0.044***** *0.015*
100-499	**-0.018***** *0.005*	**-0.031***** *0.006*
Avg. Wage (vs $30+ / hr)		
<$15 / hr	**-0.007** *0.005*	**-0.012*** *0.007*
$15-$30 / hr	**-0.002** *0.004*	**-0.003** *0.006*
Part Time (vs Full-Time)	**0.003** *0.006*	**0.009** *0.007*
Plan Type (vs PPO)		
HDHP	**-0.057***** *0.003*	**-0.056***** *0.004*
HMO	**0.035***** *0.007*	**0.032***** *0.009*
POS	**0.017**** *0.008*	**0.001** *0.013*
FFS	**0.019** *0.015*	**0.006** *0.02*

Table D.8. OLS Regression Results for the Effect of Plan Funding on AV, NCS 113 Data, continued

Variable	All Data	Excluding recs. w/ imputed 'Self-insured'
Industry (vs Trade, Transportation, Utilities)		
Manufacturing	**-0.007**	**-0.001**
	0.005	*0.007*
Agriculture, Mining, Construction	**0.017****	**0.022****
	0.007	*0.01*
Information	**0.029*****	**0.044*****
	0.006	*0.01*
Finance and Real Estate	**-0.001**	**0.005**
	0.004	*0.005*
Professional and Business Services	**0.003**	**-0.001**
	0.006	*0.009*
Education and Health Services	**-0.004**	**-0.007**
	0.008	*0.01*
Other Services	**0.039*****	**0.034*****
	0.006	*0.009*
Census Division (vs Pacific)		
New England	**-0.001**	**0.015**
	0.009	*0.009*
Middle Atlantic	**-0.002**	**0.005**
	0.006	*0.007*
East South Central	**-0.027*****	**-0.020****
	0.007	*0.009*
South Atlantic	**-0.021*****	**-0.016****
	0.006	*0.007*
East North Central	**-0.024*****	**-0.022****
	0.006	*0.009*
West North Central	**-0.008**	**-0.003**
	0.007	*0.01*
West South Central	**-0.024*****	**-0.023*****
	0.007	*0.008*
Mountain	**-0.028****	**-0.030**
	0.014	*0.018*

Notes: Coefficients with standard errors below, weighted by plan participation.
Source: NCS 113 data; Legend: * p < 0.1; ** p < 0.05; *** p < 0.01