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U.S. Department of Labor
U.S. Bureau of Labor Statistics
Office of Compensation and Working Conditions

Measure of Generosity of Employer Sponsored Health Plans: an Actuarial Value Approach

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Working Paper 479
March 2015

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Measure of generosity of employer sponsored health plans: an actuarial value approach

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Last updated March 19, 2015

Abstract

The Bureau of Labor Statistics traditionally compiles and publishes data on individual provisions of employer-sponsored health insurance plans, such as whether the plan provides coverage for home health care or what amount of deductible must be paid before the plan pays benefits. There is, however, growing interest by health regulatory agencies for information on overall health plan “generosity”—what proportion of health care expenditures are paid by an insurer. The *Patient Protection and Affordable Care Act*, for instance, requires all health insurance plans offered in the individual and small group markets—whether purchased within or outside of State Exchanges—to be scored by the level of generosity measured by their actuarial values (AV). The AV of a plan is a summary estimate of the financial protection provided by a health plan. AV's are expected to be used by purchasers of health insurance in the small and individual markets as a measure to compare among plans.

An AV calculator computes these estimates of generosity as percentages of covered health costs paid by insurers or other third-parties. For this research, I use the AV approach to estimate the average generosity of employer-sponsored health plans. To do this, microsimulations are used that draws health expenses from a standard population and estimates insurance payments using a claims-payment procedure. Healthcare expenses for the microsimulations are estimated from the *Medical Expenditure Panel Survey* administered by the *Agency for Healthcare Research and Quality*. Using these expenditures, insurance payments are estimated from the claims-payment procedure using cost-sharing parameters obtained from information gathered from health insurance *Summary Plan Descriptions* collected from the *National Compensation Survey* conducted by the *Bureau of Labor Statistics*.

AV estimates of health plans are generated across several establishment and occupational characteristics that can be used by analyst to assess differences in health plan generosity across the labor market. These measures along with existing benefit provisions data that BLS publishes should provide a more complete picture of employer-sponsored healthcare benefits offered to American workers.

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JEL Classification Codes: I13, J32, G22

Keywords: employer-sponsored health plan, actuarial value

The National Compensation Survey of the Bureau of Labor Statistics publishes data on individual provisions of employer sponsored health insurance (ESHI) plans. The published data include information on distributions of plan types such as the percentage of employees enrolled in fee-for-service (FFS) plans or enrolled in Health Maintenance Organization (HMO) plans. The publications also provide information on detailed features and characteristics of plans including the contractual cost-sharing parameters of health insurance. Cost sharing parameters include deductible amounts, coinsurance rates, copays, and out-of-pocket expense maximums. These and other features of plans published by BLS describe, in part, the designs of ESHI plans offered to American workers. What has not been published to data are actuarial values, a measure of the generosity of health plans.

The actuarial value of a health insurance plan is the average total costs of covered healthcare expenses that the insurer is contractually obligated to pay.¹ Actuarial value estimates have been long used by actuaries to score payouts of plans covering policyholders.² But from a policyholder's perspective, a plan's actuarial value estimates the financial protection afforded by the plan, or what could be called the generosity of the plan. The actuarial value of a specific plan is typically computed by the insurer using the actual claim payment experience gathered from the plan. For instance, if an insurer pays 70 percent of costs that are defined as covered under the plan, the actuarial value of that plan equals 70 percent. Using this general concept of measuring generosity, this study takes a broader approach by estimating the average actuarial value of a collection of ESHI plans that were gathered as part of the National Compensation Survey (NCS). Since claims data from ESHI plans are typically not available to the survey or research community, claim payments for this study are estimated from a claims-payment model using healthcare utilization rates and expense levels of a simulated standardized population of healthcare users enrolled in ESHI plans. Healthcare utilization rates and expense levels of the standardized population are

¹ The term insurer is used universally throughout the paper even though the payer or underwriter of health expenditure claims for employees might be a self-insured employer or employee union rather than an insurance company.

² See *Creating a Usable Measure of Actuarial Value* by Lynn Quincy and Deanna Okrent, Consumers Union Policy and Action from Consumer Reports (http://www.consumersunion.org/wp-content/uploads/2013/04/CU_Actuarial_Value_2012_Report.pdf).

derived from the household component of the Medical Expenditure Panel Survey administered by the Agency for Healthcare Research and Quality. The actuarial values estimated from this claims-payment approach along with the current NCS published benefit statistics should provide a more robust picture of ESHI plans provided to American workers. Although there are any number of ways in which to assess the generosity of ESHI plans by way of actuarial values, this study presents results comparing actuarial value estimates principally between FFS and HMO plans. Arranging plans in this fashion universally show that HMO plans are more generous than FFS plans as HMO plans pay on average nearly 92 percent of healthcare expenses while FFS plans pay 88 percent. This comparison as well as others made later in the paper have not been assessed statistically. Standard errors for this new style estimate have not yet been derived, and thus any comparisons made must be done with caution since numerical differences may not be statistically significant.

Construct of an actuarial value Calculator

There are several methods in which an actuarial value calculator can be constructed, where each approach attempts to estimate the percent of covered health costs paid by an insurer. In its most simplistic form, an actuarial value can be expressed as:

$$AV = \frac{\textit{insurance paid expenses}}{\textit{Healthcare covered expenses}} 100$$

For this study, I use an approach that estimates the average expense coverage of groups of ESHI plans. This is an extension of an otherwise straightforward actuarial method that computes the percent of covered expenses of a particular health plan.

Unlike the single plan approach, the method used here calculates the average actuarial value across groups of plans by aggregating insurance expenses paid across each plan. To estimate the paid expenses of each plan, microsimulations of claim payments are generated from health expenses of a standardized population of healthcare users covered by ESHI plans. Claims and total healthcare expenses are then accumulated across plans to compute an average actuarial value. Groups may include workers in

the same industry or occupation, or who share similar characteristics such as employed in small sized establishments or are members of unions. When estimating across these groups, plans are sorted based on whether they are indemnity plans (FFS), or prepaid (HMO). Although indemnity and prepaid insurance plans mainly define how providers are paid—paid by service rendered or capitation fees, the type of plan also impacts the way in which the insured can receive services. For instance, HMO plans typically require gatekeepers of health care—by way of selected primary-care physicians—who refer patients to practitioners within HMO healthcare network systems.

Certainly, the percent that a particular plan pays will depend on several factors: the medical care goods and services covered, the shared cost responsibilities, the utilization rates of medical care by enrollees, and the corresponding prices. The medical care goods and services covered are often particular to the specific plan. For this study, I follow the coverage stipulations of the 2010 Patient Protection and Affordable Care Act (ACA) where the act lists 10 essential health benefits:³

1. ambulatory patient services
2. emergency services
3. hospitalization
4. maternity and newborn care
5. mental health and substance use disorder services
6. prescription drugs
7. rehabilitative and habilitative services and devices
8. laboratory services
9. preventive and wellness services and chronic disease management, and
10. pediatric services

³ For more information about the 10 essential health benefit categories stipulated by the ACA, see <https://www.healthcare.gov/blog/10-health-care-benefits-covered-in-the-health-insurance-marketplace/>

The utilization rates of health care will naturally vary across healthcare users as no two individuals or families are likely to have the same healthcare needs. For the actuarial value calculator to be useful as a generalized measure of generosity, it must provide measurements that are meaningful across varying plan designs. In the strictest sense, this requires that the actuarial value estimates of two health insurance plans covering the same services must be equal if they have the same cost sharing design and experience identical claims.⁴ Moreover, the actuarial values should have meaning over a broad spectrum of users, not just users that fall within select health status sets, such as those with chronic illnesses or particular healthcare needs such as prenatal and maternity care.

To generate comparable measures across plans, standardized levels of healthcare utilization and expenses are used to derive claim-payment estimates. To standardize usage and spending across plans, the principal practice among actuaries is to construct an artificial population of healthcare users that is tailored to resemble the population of users of the plans that are evaluated. For instance, ESHI plans cover largely the population at or under the age of 65, and so the artificial population should consist mainly if not exclusively of individuals at or under 65. The standardized population is a key principal since the interest is not so much how generous plans might be to particular healthcare users, but how plans compare among other plans with different designs but uniform usage and spending. Hence actuarial value estimates summarize generosity of plans postulated for a standardized population with diverse healthcare usage patterns.

To be fair, using a standardized population does not purge all non-design variance among plans. Since healthcare usage can, in part, be induced by how well plans cover categories of health care as well as the ease of access to care—the availability of network providers and treatment options, using a standardized level of usage and spending will likely fail to account for induced spending behavior differences among plans. For instance, some healthcare users may specifically choose plans for their

⁴ Although the actuarial values may equal, other parts of each plan might differ. For instance, one plan might have a more limited network of healthcare providers, and therefore be less preferred than another plan with an identical cost sharing design but have easy access to a wide variety of network providers.

relative generous claims coverage for specific health care such as those who might select plans for the coverage level of prenatal and maternity care. An actuarial value approach alone cannot account for such pre-selection insurance choices. Moreover, contractual prices paid to healthcare providers might vary among insurance carriers. That is to say, not one rate for a service prevails throughout the national healthcare system. These price differences are not captured explicitly in expenditure surveys, and thus quantity levels are lost within expenditure numbers. To adjust for such differences, an average payment rate for the many possible goods and services would have to be applied rather than using straight expenditure data.⁵ This would require adjusting expenses by price variation for the many different healthcare providers, a task that is simply not possible for this type of study.⁶ Moreover, two plans may cover the same care—such as maternity, but the extent in which each plan covers that care may differ. For example, one plan may provide benefits for no more than the minimal 48 hour hospital stay following vaginal childbirth—as required by the Newborns' and Mothers' Health Protection Act of 1996—while another plan may permit more liberal benefit coverage at the discretion of the healthcare provider.

Actuarial Value Illustration

To see how spending level and plan design impact actuarial values, the following exhibits provide simplified examples of actuarial values under three different healthcare plan designs, where the designs describe the deductible levels, coinsurance rates, and out-of-pocket maximums.⁷ For illustration purposes only, the plans are evaluated under 3 levels of family spending. For Exhibit 1 shown below, the actuarial value is lowest for the plan with the highest deductible (54 percent of covered expenses are paid by the

⁵ To use an analogy, a \$100 market basket of goods bought in a discount grocery store might have the same types of groceries—meats, vegetables and such—as a \$100 basket bought in a gourmet grocery store, but the two baskets would likely have differences in quantity and quality of items within those baskets. Insurance companies that compute actuarial values for their own plans avoid these difficulties as they typically use their own claims data that reflect usage induced spending behavior and contractual network payment rates that they negotiate with their providers.

⁶ Price variation become particularly important in terms of generosity of plans in high healthcare price areas. For instance, plans that principally require copays will afford more financial protection with the same levels of healthcare utilization in those areas with high prices than would plans requiring coinsurance shared arrangements.

⁷ Copays which are present in many plans are suppressed to keep the examples simple by not directly illustrating utilization.

insurer), even though that plan requires from the healthcare user the lowest coinsurance rate. The low spending coupled with the high deductible limits the claims that are covered under this scenario. The generosity measures of these plans shift, however, as spending increases. In Exhibit 2, using the same plan designs but doubling the covered healthcare expenses, the actuarial values of all 3 plans converge to 72 percent of total covered costs even though each has a very different cost sharing design. Under this scenario and assuming all else is constant—such as network and provider access, healthcare users would be indifferent in their choices among these three plans. Pushing the expenses even higher, Exhibit 3 shows that the ordering of generosity among the three plans flips as the demand for health care increases. Plan 3, which was the least preferred when spending was lowest, becomes the most generous plan when costs escalate.⁸

These demonstrations illustrate that actuarial values will differ across designs and expenditure levels. Since the interest is to compare across plan designs, standardizing spending eliminates the major generosity variability demonstrated in these three examples. The utilization and expenses of a standardized population afford a fixed level of average spending that thereby allows the evaluation of generosity among the 3 plans designs purged, in large part, of spending variance.

Exhibit 1: Actuarial value calculations with identical expenses (\$2,500) under varying plan designs

Plan	Family level spending	Cost sharing parameters of plan			Shared costs between		Actuarial Value
		deductible	Co-insurance rate	out-of-pocket maximum	Partici-pant	insurer	
1	2,500	0	0.28	2,500	700	1,800	0.72
2	2,500	500	0.20	2,500	900	1,600	0.64
3	2,500	1,000	0.10	2,500	1,150	1,350	0.54

⁸ Notice that plan 1 would have been less generous with the higher spending behavior had the out-of-pocket limit not been met.

Exhibit 2: Actuarial value calculations with identical expenses (\$5,000) under varying plan designs

Plan	Family level spending	Cost sharing parameters of plan design			Shared costs between		Actuarial Value
		deductible	co-insurance rate	out-of-pocket maximum	Partici-pant	insurer	
1	5,000	0	0.28	2,500	1,400	3,600	0.72
2	5,000	500	0.20	2,500	1,400	3,600	0.72
3	5,000	1000	0.10	2,500	1,400	3,600	0.72

Exhibit 3: Actuarial value calculations with identical expenses (\$10,000) under varying plan designs

Plan	Family level spending	Cost sharing parameters of plan design			Shared costs between		Actuarial value
		deductible	co-insurance rate	out-of-pocket maximum	Partici-pant	insurer	
1	10,000	0	0.28	2,500	2,500	7,500	0.75
2	10,000	500	0.20	2,500	2,400	7,600	0.76
3	10,000	1,000	0.10	2,500	1,900	8,100	0.81

What can be said about the size of actuarial values? To give some perspective to the size of actuarial values, the Internal Revenue Service reported that approximately 98 percent of individuals covered under an ESHI plan are enrolled in plans that pay at least 60 percent of covered healthcare expenses.⁹ Moreover, according to a report by the Consumers Union,¹⁰ the typical Preferred Provider Organization (PPO) plan sponsored by employers pay 83 percent of covered healthcare costs.

With a sketch of the actuarial value calculator and the expected sizes of actuarial values, we now turn to the two sources of data for the study before describing the claim payment program that will estimate the actuarial values of ESHI plans.

Data Sources: NCS and MEPS-HC

Both the numerator and denominator of the actuarial value expression shown earlier must be estimated. To estimate these values requires healthcare usage and expense data that are paired with the

⁹ See <http://www.irs.gov/pub/irs-drop/n-12-31.pdf>.

¹⁰ *Creating a Usable Measure of Actuarial Value*, by L. Quincy and D Okrent, Consumer Union Policy and Action from Consumer Report, January 2012, (http://www.consumersunion.org/wp-content/uploads/2013/04/CU_Actuarial_Value_2012_Report.pdf).

contractual cost sharing parameters set within the claims-payment model. The usage and expense data come from the household component of the Medical Expenditure Panel Survey, or the MEPS-HC. Values for the contractual cost sharing parameters of the model come from information drawn from Summary Plan Description brochures that are collected in the National Compensation Survey. Each of these data sources are briefly described below.

National Compensation Survey (NCS)

The NCS, conducted by the Bureau of Labor Statistics, is an establishment based survey that provides comprehensive measures of levels and trends in employer costs of employee compensation, and the incidence and provisions of employer-provided benefits. The survey provides the data for the quarterly *Employer Cost Index* and the *Employer Cost for Employee Compensation* reports. The NCS also tabulates—on an annual schedule—the incidence and provisions of health, retirement and other employer provided benefits. For health insurance, the published incidence statistics provide estimates of the percent of workers who have access to and participate in employer sponsored health plans. The provisions statistics provide detailed estimates about the types of plans, such as the percent of workers enrolled in different types of FFS plans and HMO plans. The provisions statistics also provide features of health plans such as the percent of workers who pay part of premium costs as well as information on cost sharing requirements of plans including the deductible amounts, copays, coinsurance rates, and out-of-pocket maximums.¹¹ These detailed provisions statistics are tabulated principally from information coded from Summary Plan Descriptions (SPD) brochures. An SPD provides a summary of the detailed provisions of plans that describe the expected and legal obligations of healthcare payments between participants and health insurance underwriters. A full set of coded data from the SPDs provides the lion's share of cost sharing arrangements that are necessary to control payment schemes within the claims-payment model.

¹¹ For the most recent detailed health plan bulletin that provides these estimates, see the National Compensation Survey: Health Plan Provisions in Private Industry in the United States, 2013, available at http://www.bls.gov/ncs/ebs/detailedprovisions/2013/ownership/private/basic_health.htm.

The NCS is designed to sample civilian workers employed in private industry establishments as well as state and local governments. The survey excludes military personnel, workers in Federal agencies, agriculture, private households, and unpaid jobs, as well as the self-employed and others who set their own pay. The survey data are collected from probability samples that canvass all 50 states and the District of Columbia. Establishments selected are commonly single economic units engaged in one, or predominately one, economic activity. For private industries, an establishment is a single physical location, such as a mine, a factory, an office, or a store. Establishments are classified by their assigned NAICS.¹² Within each selected establishment, as many as 8 occupations are selected for sampling. The number of occupations selected depends on the employment size of establishments. Large establishments can have as many as 8 occupations selected while small establishments can have as few as 1 to 4 occupations selected. Occupations consist of individual workers or groups of workers who share the same job duties and job characteristics such as part- or full-time work schedules and payment methods, such as commission pay as opposed to hourly pay or salary. Each sampled occupation is classified based on the Standard Occupational Classification system, or SOC. An occupation is the unit of observation in the NCS.¹³

The NCS uses a sampling panel structure to rotate establishments in and out of the survey. A panel is a subset of all establishments sampled for the survey that begin their participation at the same time. Approximately one-third of the private industry sample is reselected each year. Establishments in each panel remain in the survey for three years. Because of the complexity of the survey, it takes 12 months to initiate a new survey panel. During that initiation period, establishments are asked to provide SPDs of all health plans that are offered to the occupations that are sampled. To reduce response burden, only during this initiation period are establishments asked to provide the SPDs of each plan offered. This study uses panel 109, which was initiated in 2011. The 109 panel consists only of workers in private

¹² NAICS is the North American Industry Classification System which is designed to assign a unique six-digit numeric code to each industry defined by its economic activity.

¹³ For more information about the NCS design, see *Chapter 8, national compensation measures, Bureau of Labor Statistics Handbook* which can be found at <http://www.bls.gov/opub/hom/pdf/homch8.pdf>

industry establishments. The following tabulations provide a summary of the number of plans analyzed from SPDs collected from the 109 sample panel.

National Compensation Survey, 109 sample panel

Total number of unique plans analyzed from the 109 panel	4,300
Medical plans with drug coverage	2,578
Medical plans with drug coverage, less incomplete records	2,003
Occupational records mapped to unique plans*	11,911

* The 2,003 valid medical and drug plan records were joined with the 11,911 occupational records, the records used in analysis. There are more occupational records in the survey than medical plan and drug records since many occupations within the same establishment are offered the same medical and drug plans.

There were 4,300 unique health plans analyzed from the 109 panel. These include any number of combinations of health insurance plans. Most however are medical plans that provide coverage for hospitalization, out-patient care, ambulatory services, and out-patient drug coverage. Of the 4,300 plans, 2,578 were medical plans with drug coverage. Many of the remaining plans are either medical care plans that do not provide drug coverage, or plans that provide supplemental coverage such as standalone drug plans, and dental and vision care plans. This study evaluates only medical plans with drug coverage since the purpose is to assess the suitability of the NCS survey to estimate generosity of ESHI plans that cover, in large part, the main components of medical care goods and services, including out-patient drugs, as prescribed by the ACA requirements. Supplemental coverage for dental and vision care are excluded from this study since dental and vision care are not evaluated in the claims-payment model. Of the 2,578 in-scope medical plans, 2,003 had sufficient information coded to use in setting the cost-sharing parameters within the claims-payment model.¹⁴ These 2,003 unique plans are joined with the appropriate 11,911 occupational records. Notice that there are more occupational records than unique plans—about 6

¹⁴ The 575 plans that were dropped from this study had incomplete information necessary to set all the cost-sharing parameters of the claims-payment model.

occupational records to each plan—since a single health plan is often offered to any number of workers within an establishment.

Since the cost-sharing parameters coded from the SPDs can vary by provider networks or drug tier choice, the claims-payment routines of the model assume that participants choose the most generous options offered from the plans. For instance, if a plan offers a network of providers at lower deductible and copay rates, it is assumed that participants will access all health goods and services through that network. This extends to drug usage as well. If a plan offers multiple tier copay or coinsurance rates such as generic, brand name and formulary, it is assumed that the participant will select the lower price generic brands whenever available. Consequently, the actuarial values from this modeling approach must be interpreted as upper bound estimates of actual actuarial value plan values.

The upper bound approach would seem reasonable in most instances, but concerns do arise. For example, generic drugs are formulated to provide the same treatment responses as their related brand name drug products. However, generic drugs are not universally available for all possible drug treatments leaving only the more expensive brand name drug products available. The claim-payment routines of the model look only at the incidence and numbers of prescriptions from the MEPS-HC data and not whether choices were made, when possible, between generic drugs and the more expensive brand name drugs. A similar argument can be made for medical care treatments such as when patients have no options but to access products or treatments outside of a health insurance network. Such instances would require the insured to pay the higher cost sharing amounts, whether they be in deductibles, copays, or coinsurance rates. Without a data linkage between service and choice, therefore, the model approach cannot properly account for network or drug choice.¹⁵ Research work is ongoing to investigate ways in which choice might be, in part, addressed within the model estimates.¹⁶

¹⁵ If the effects caused by choice are nontrivial, the actuarial value differences found between traditional FFS plans, which provide higher cost sharing responsibilities but minimal service access rules, and HMO plans, which provide low cost sharing responsibilities but strict access rules, are not as large as reported in estimates presented in this paper.

¹⁶ Interval estimates are possible by generating both upper and lower bound estimates where the latter is estimated assuming out-of-network services are received for all health care and only brand name drugs are filled. Such an

Medical Expenditure Panel Survey, Household Component, MEPS-HC¹⁷

The current MEPS, administered by the Agency for Healthcare Research and Quality, consists of two major components: a household survey of families and individuals (the household component, or MEPS-HC) and an establishment survey of private and public sector employers (the insurance component, or MEPS-IC).¹⁸ MEPS-HC gathers demographic information and a host of health related information, at the person level, on such items as health status, insurance coverage, and medical care usage and expenses. Because of the difficulty to collect accurate and detailed information on the types of health care received and the corresponding costs from household respondents, the MEPS-HC is supplemented, when possible, by the Medical Provider Component (MPC) of MEPS. The MPC surveys hospitals, physicians, home healthcare providers, and pharmacies identified in the household survey component and, with the permission of the household respondents, collects the detailed usage and expenditure information from the providers. The MEPS-HC survey data with its demographic information, insurance coverage indicators, and usage and expense amounts provide the necessary set of data to construct a standardized population of healthcare users enrolled in ESHI plans.

The MEPS-HC is a representative sample of the United States noninstitutionalized civilian population. The sample is designed as an overlapping panel survey where a new panel of households is selected each year and interviewed over two full calendar years. The households selected for each panel are a subsample of households that participated in the previous year's National Health Interview Survey conducted by the National Center for Health Statistics.¹⁹ To construct a representative standardized population, the claims-payment model draws in survey data from MEPS-HC 2009 and 2010 survey years.

approach is problematic, however, if the purpose of the actuarial value estimates is to provide a single-dimensional way in which to compare generosity between plans.

¹⁷ The immediate text is drawn from survey descriptions of the MEPS. A more complete description of the surveys can be found at <http://meps.ahrq.gov/mepsweb>.

¹⁸ Data from the MEPS-IC are not used in this study.

¹⁹ See <http://www.cdc.gov/nchs/nhis.htm>.

These data are available from the annual releases of the Full Year Consolidated Data Files.²⁰ Multiple survey years were used to provide a more consistent estimate of usage and expenditures for the model. Since 2009 and 2010 expenditure data are paired with insurance data from 2011, all dollar values are adjusted to 2011 dollars using the medical component index of the Consumer Price Index. These full year files provide annualized usage and expense data over a calendar year, and it is those annualized data values that are used in the analysis.

The usage and expenditure values cover the following medical care categories as they are itemized in the MEPS-HC data files:

- Office based visits to physicians and non-physicians, each measured separately
- Outpatient visits to physicians and non-physicians, each measured separately
- Emergency room visits
- Inpatient hospital stays
- Home health care
- Prescription medicines

These usage and expenditure categories align well with the NCS ESHI plan data in which they must be paired with to estimate the actuarial values. These expense categories also align quite well with the broadly defined 10 essential health benefits prescribed by the ACA.

In an effort to construct the standardized population to closely resemble the healthcare usage and spending patterns of ESHI plan enrollees, MEPS-HC individual records are selected based on several criteria. To reduce the influence that Medicare coverage may have on healthcare usage, only individuals age 65 or younger are included.²¹ Additionally, only individuals who are covered under an ESHI plan are

²⁰ See

http://meps.ahrq.gov/mepsweb/data_stats/download_data_files_results.jsp?cboDataYear=All&cboDataTypeY=1%2CHousehold+Full+Year+File&buttonYearandDataType=Search&cboPufNumber=All&SearchTitle=Consolidated+Data.

²¹ At age 65, individuals are eligible to enroll in Medicare. If enrolled, Medicare becomes the primary insurance if individuals are no longer covered by an employer sponsored health insurance plan. Thus, age 65 has been used as the border age between employer sponsored plans as primary coverage and Medicare.

included. This includes individuals covered under their own ESHI plans or covered as dependents of ESHI plans. Since annual utilization and expenditure data are used, only individuals with health insurance coverage for at least 6 months of the year are included. It is hoped that this 6-month selection criterion provides a smooth and representative pattern of healthcare usage over a year even though there may be short episodes of interruptions in coverage caused by job switching or unemployment.

Because many health plans have family deductible and out-of-pocket limits, expenditures in the claims-payment model are analyzed at both the individual and family level. MEPS organizes the individuals represented in the survey into Health Insurance Eligibility Units (HIEU) allowing for individual and family level estimates. HIEU consists of families living together, or students living away at schools, that are related by blood, marriage or adoption. The HIEUs can be described as sub-families defined by the Current Population Survey. An HIEU is a sub-family of a CPS defined family in that the former includes only those individuals of a CPS family who qualify under another family member's insurance plan.²²

The following tabulations provide counts of individual and HIEU records counts for the 2009 and 2010 Full Year Consolidated Data Files.

²² See MEPS HC-129 Full Year Consolidated Data File documentation pages C5-C6 for more descriptive details of Health Insurance Eligibility Units construction. The documentation can be found at http://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h129/h129doc.pdf.

Medical Expenditure Panel Survey, record counts, 2009 and 2010
Consolidated Annual Files

2009:	
Total number of individual records	36,855
Individual records in-scope for study	14,051
Health Insurance Eligibility Units in scope for study	7,111
2010:	
Total number of individual records	32,846
Individual records in-scope for study	12,271
Health Insurance Eligibility Units in-scope for study	6,285
2009 and 2010 pooled:	
Total individual records in-scope	26,322
Total Health Insurance Eligibility Units in-scope	13,396

With the source of data in hand, we can now turn to the actuarial value estimates generated from the claims-payment model that use these data jointly.

Actuarial value estimates

The research-based claims-payment model provides the mechanism in which to estimate the actuarial values of plans. Essentially, the model estimates the percentage of MEPS HIEU expenditures that would be paid by health insurance had those HIEU been enrolled in the ESHI plans similar to those gathered from the NCS. Certainly, the model cannot predict the exact payment that would be made for any given claim, but the model is designed in conjunction with the data to estimate the typical levels of claim payments.

As mentioned earlier, the actuarial value estimates are sorted into two main health insurance categories: FFS and HMOs plans. The former typically provides more flexible healthcare access options, such as choosing one's own hospital or doctor, while the latter provides higher coverage rates—lower out of pocket costs—but more restrictive access rules such as paying claims only if health care was received through an HMO network provider.²³ According to health insurance incidence statistics available from the

²³ See appendix for plan type descriptions.

BLS Employee Benefit Survey (EBS) annual bulletin, 82 percent of private industry workers who participate in ESHI enrolled in FFS plans, while the remaining workers enrolled in HMO plans.²⁴ This would suggest that workers covered under ESHI prefer some level of choice when it comes to healthcare providers, which most but not all FFS plans offer.

There are several types of FFS plans that are designed with varying levels of healthcare-provider choice. The most flexible among them are the traditional plans, such as Blue Cross/Blue Shield FFS plans, that pay providers similar rates without regard to whether those providers are within contractually arranged healthcare network systems. Among traditional FFS plans, the insured can choose any qualified healthcare provider and expect the same level of claims paid for covered services. On the other end of the flexibility spectrum, exclusive provider organizations (EPOs) offer the least flexibility among FFS plans, as they require the insured to receive healthcare exclusively through select providers if claims are to be paid. Between these two extremes are two other types of FFS plans, point-of-service plans—a rarity among FFS plans—and Preferred Provider Organizations (PPO) plans.²⁵

Of the 82 percent enrolled in FFS, nearly 88 percent (72 percent of all ESHI enrollees) are enrolled in PPO plans. With such a large percent of workers enrolled in PPO plans, the actuarial value estimates presented for FFS plans are principally driven by the payment features of these plans. PPOs provide the flexible healthcare access features found among traditional FFS plans, but are defined as managed-care plans similar to HMOs in that the shared payment features are devised to encourage the PPO-insured to access health care through preferred provider networks. Health care received through preferred provider networks require lower deductibles, copays and coinsurance rates than if health care was received from providers outside of these networks. The blended features of PPOs—providing choice

²⁴ For employer-sponsored health insurance incidence and provision estimates for 2013—the latest Employee Benefit Survey estimates available, see

http://www.bls.gov/ncs/ebs/detailedprovisions/2013/ownership/private/basic_health.htm.

²⁵ See <http://www.bls.gov/ncs/ebs/glossary20132014.htm> for a glossary of employee benefit terms, including definitions for health plan types that describe differences among FFS and HMO plans.

but offering higher coverage rates within networks—may explain, in part, why they are the most popular plans among all ESHI plans.

The findings from this study show that there are clear distinctions in generosity between FFS and HMO plans as measured by sizes of the actuarial value estimates.²⁶ Charts 1 through 6 provide varying views of the actuarial value estimates generated from the claims-payment model. Chart 1 shows the average actuarial values by type of plans, while the remaining charts show actuarial value estimates by plan type arrayed across several establishment and occupational characteristics. Evaluating actuarial value estimates across all workers by plan type reveal that all FFS plans, combined together, pay less than HMO plans, 88.0 percent compared to 91.8 percent. Chart 1 also depicts the monotonically scaled relationship between provider choice and generosity among the different FFS plans. These results exhibited in Chart 1 clearly show that there is a tradeoff between flexibility of provider choice and generosity in terms of expense coverage. Comparing the most flexible plans in terms of choice of healthcare providers, traditional FFS plans pay 85.8 percent of covered expenses, on average, which is 6 percent less than the typical HMO plan, whereas exclusive provider organizations (EPOs) pay, on average, 90.1 percent, an actuarial value that falls very close to the average HMO. EPOs are designed as indemnity plans, but they are as restrictive in choice as HMOs, if not more so.

By industry (charts 2a and 2b), the actuarial value estimates show that workers in the goods producing industries are offered FFS and HMO plans that are slightly more generous than those offered to workers in service providing industries. For the FFS plans, workers in goods producing industries are offered plans with actuarial values of 88.4 percent compared to workers in service providing who are offered plans with actuarial values of 87.9 percent. A similar difference is found among HMOs where goods producing industry workers are offered plans that pay 92.7 percent whereas workers in service providing have HMOs that pay 91.6 percent. These differences are arguably small and may be economically insignificant in terms of out-of-pocket costs for many workers with typical healthcare

²⁶ As stated earlier, standard errors have not been computed for these estimates, and so differences cited in this research cannot be statistically assessed.

expense patterns. Nonetheless, there are marked differences among some of the individual industry groups.

Most notable is the actuarial value estimate for HMO plans offered to workers in the utility industries. These workers have HMO plans that pay 96.3 percent of covered expenses, which is 4.5 percent more than the typical HMO plan, and 10.5 percent more than the traditional FFS plan. Although identifying the exact factors explaining the levels of actuarial values is beyond this study, these more generous plans might in part be explained by the high rate of unionization among workers in the utility industry. According to a report by the Bureau of Labor Statistics, the utility industry has the highest percentage of workers represented by unions.²⁷ In as much as unions can collectively bargain for better healthcare plans than nonunion workers, we might expect that those plans would pay more generously.

On the lower end of generosity are the plans that are offered to workers in retail. FFS plans offered among these workers pay on average 85.5 percent of covered healthcare costs, 2.5 percent less than the typical FFS plan. Similarly, HMO plans offered to these same workers pay 89.4 percent of covered expenses, or 2.4 percent below the typical HMO plan.

As mentioned above, the average FFS plan pays less, on average, than HMO plans, and that same finding is decisively evident across each of the individual industry estimates except for professional and business services. The average difference in actuarial value between FFS plans and HMO plans, when measured across the industries, is 4.6 percent, but it is only 0.3 percent for professional and business services, a difference that is comparatively very small. There is no clear explanation of why the two types of plans would be so close, but what is clear is that the FFS plans offered to these workers are the most generous FFS plans when measured across industry groupings. Those plans have an actuarial value of 89.9 percent, nearly 2 percent higher than the typical FFS plan. Conversely, the HMO plans offered to these same workers are among the least generous when compared to other HMO plans, 90.2 percent compared to 91.8 percent for the typical HMO plan. Only workers in retail have HMO plans that are less

²⁷ Current Population Survey, Bureau of Labor Statistics Union Members—2013 news release, USDL-14-0095, <http://www.bls.gov/news.release/pdf/union2.pdf>

generous, 89.4 percent. Even though there is a narrow difference between actuarial value estimates of FFS and HMO plans for workers in professional and business services, those virtually similar values have no apparent impact on access rates. Workers in the professional and business service industry are about as likely to have access to a FFS plan as workers in the service providing industries, 80 percent compared to 81 percent.

There are telling differences in the generosity of plans offered among the varying occupational groups as well.²⁸ Chart 3 provides those differences. For instance, workers within the installation, maintenance and repair occupations—a blue-collar occupation—are offered HMO plans that exceed the generosity of similar plans offered to other occupational groups, 93.4 percent, which is 1.6 percent above the typical HMO. Paradoxically, these same workers are provided FFS type plans that are among the least generous, 86.2 percent compared to 88 percent. Other occupational groups that are typically recognized as blue-collar occupations are also offered HMO plans that pay above the overall average for HMOs.²⁹ The generosity of FFS plans for these other blue-collar occupations are mixed, however. For instance, workers in construction, extraction, farming and fishing occupations are offered plans that pay notably above the average, 90.3 percent, while workers in transportation and material moving are offered FFS plans that pay below the average, 87.5 percent.

Perhaps not surprising, sales and related occupations are offered the least generous plans whether those plans are FFS or HMO plans. This is a predictable result since most sales workers are employed mainly in retail establishments which was mentioned above for having the least favorable plans offered to workers arranged by industry groups. Sales workers are offered FFS plans which pay on average 86.5 percent, and HMO plans which pay on average 88.1 percent. It is noteworthy that these HMO plans are no more generous than the typical FFS plan offered to all workers.

²⁸ The occupational groups of this study are the same occupational groups that are found in the National Compensation Survey publications, such as the Employment Cost Index. These relatively high level aggregates enable estimation by job tasks as defined by the Standard Occupational Classification Manual.

²⁹ Blue-collar occupations include construction, extraction, farming, fishing and forestry; installation maintenance and repair; production; and transportation and material moving.

Among the higher paid occupations, management business and financial occupations and professional and related occupations, FFS plans pay at or slightly above the typical FFS plan while the HMO plans pay about 0.5 percent above the average HMO plan. Although these workers—according to estimates from the NCS Employer Costs for Employee Compensation reports—receive compensation substantially higher than the average worker, the medical plans offered to these workers would not seem to be much richer in value than those offered other workers. With few exceptions certainly, health plans offered to one set of workers are normally offered to other workers within the same establishment.³⁰ This may in part explain why there is not a notable difference in the actuarial values of plans for the higher paid occupations. Sorting workers into wage quartiles bear this out as well.

Chart 4 presents estimates of actuarial values of plans sorted by wage quarterlies. The quartile results show that the workers falling in the first quartile—the lowest wage earners—have access to both FFS and HMO plans that are numerically less generous than plans offered to the top quartile of wage earners, but the differences seem too small to be unequivocally important economically. The other quartiles show progressively small increments in generosity, but none appear greatly different from the others. Certainly, these seemingly small difference may mask other important distinctions which could include the ease or the availability of select healthcare systems or the extent in which coverage is provided, areas of inquiry beyond this study. Nevertheless, such potential differences should be kept in mind when assessing differences among the occupational and wage classes.

Actuarial values estimated along other characteristics of the American workforce reveal differences as well. Chart 5 presents actuarial values of plans by establishment size, union and nonunion affiliation, and full-time and part-time work status. Of these, union workers and workers employed in establishments employing at least 500 workers stand out. Whether a union worker or worker in a large establishment, the FFS and HMO plans are typically more generous than the average plan. This is not

³⁰ Although the results from this study show that the actuarial values of plans offered to higher paid occupations are not notably different from other plans, the rates of access and participation of medical plans are greater among these higher paid occupations. See the News Release entitled Employee Benefits in the United States—March 2014, Bureau of Labor Statistics available at <http://www.bls.gov/ncs/ebs/sp/ebnr0020.pdf>.

surprising for union workers who through collective bargaining are presumably afforded access to rich plans. Similarly, large size establishments may be able to offer their employees—through their larger risk pool of enrollees—more actuarially generous plans. In comparison, workers in the smallest establishments employing less than 100 workers are offered the least generous plans, as is true for non-union workers.³¹

Not surprisingly, full-time workers are offered plans that pay about the average since most workers who are offered plans are employees with full-time work schedules. The parsing of estimates by work schedule, however, allows analysis of part-time workers. Perhaps for similar reasons cited above, plans offered to part-time workers, both FFS and HMO, are not all together dissimilar from plans offered to full-time workers. Again, this may reflect the situation in which workers who are offered plans—irrespective of earnings levels or work schedule—are offered the same plans as those offered to other workers within the same establishment. That is, there may be no apparent discriminating factors within establishments that bar eligible workers from plans. Bear in mind, however, only 24 percent of part-time workers have access—which can be interpreted as being eligible for coverage—to medical care plans, and only 13 percent of part-time workers, about one-half who are eligible, participate in health plans. Hence, the low rate of access ostensibly reveals that not all workers within establishments, particularly part-time workers, are eligible to receive plan coverage from their employers. Moreover, those who are eligible may be unable to enroll in an offered plan they have access to if the employee premium is too expensive to do so. Such issues should clearly demonstrate that the dynamics of eligibility and affordability of employer sponsored health insurance cannot be assessed under a single statistics such as actuarial values. Other important measures of ESHI, such as costs, participation and take up rates, must be part of any evaluation of health coverage of workers.

³¹ Some caution must be exercised for estimates by establishment size. Establishments are single site units and therefore estimates by establishment size might be somewhat muted in comparison to analysis at the enterprise or firm level. NCS survey design precludes the ability to estimate at higher organizational levels such as the firm level.

In addition to the characteristics of the workforce, actuarial values of plans are also shown to vary by area of the country. The results are mixed, however. Chart 6 present actuarial value estimates by the 9 standard Census divisions. When looking at these divisional estimates grouped by the four Census regions—Northeast, South, Midwest, and West, there are no regions that show universally more generous coverage by type of plan—FFS or HMO. For instance, the West North Central division in the Midwest has HMO plans (93.8 percent) that are more generous, on average, than found in any other division, but the FFS plans (87.1 percent) fall below the national average. Elsewhere, HMOs are more generous—in comparison to the national average—in New England (92.7 percent), East South Central (92.8 percent) and Pacific (92.9), while FFS plans are more generous within the Middle Atlantic (90.0 percent), East North Central (88.2 percent), and Pacific (88.5 percent). Interestingly, only the Pacific division has FFS plans and HMO plans that have generosity rates above the national average.

Concluding remarks

The paper describes ongoing research work at the BLS that has developed a method in which to estimate the average actuarial values of employer sponsored health insurance plans. These actuarial values are measures of health plan generosity in terms of providing financial protection against unexpected healthcare episodes. The underlying approach is to estimate claims payments using a model that incorporates utilization and expense data of health care made available from the Medical Expenditure Panel Survey, coupled with the cost-sharing parameters gathered from Summary Plan Descriptions of employer-sponsored health insurance collected by the National Compensation Survey. These actuarial value estimates, in conjunction with other National Compensation Survey statistics, should provide a more comprehensive picture of health plans offered to American workers.

More research work is planned. One area of research will look at other sources of health claims data that may allow for richer estimates. Moreover, the claim-payment model provides a means in which estimates of actuarial value can be computed for a series of periods which will be of interest as the multifaceted effects of the Affordable Care Act change the healthcare coverage landscape. The BLS

research will thus generate actuarial value estimates of plans collected over a broader period of time than what is provided in this study.

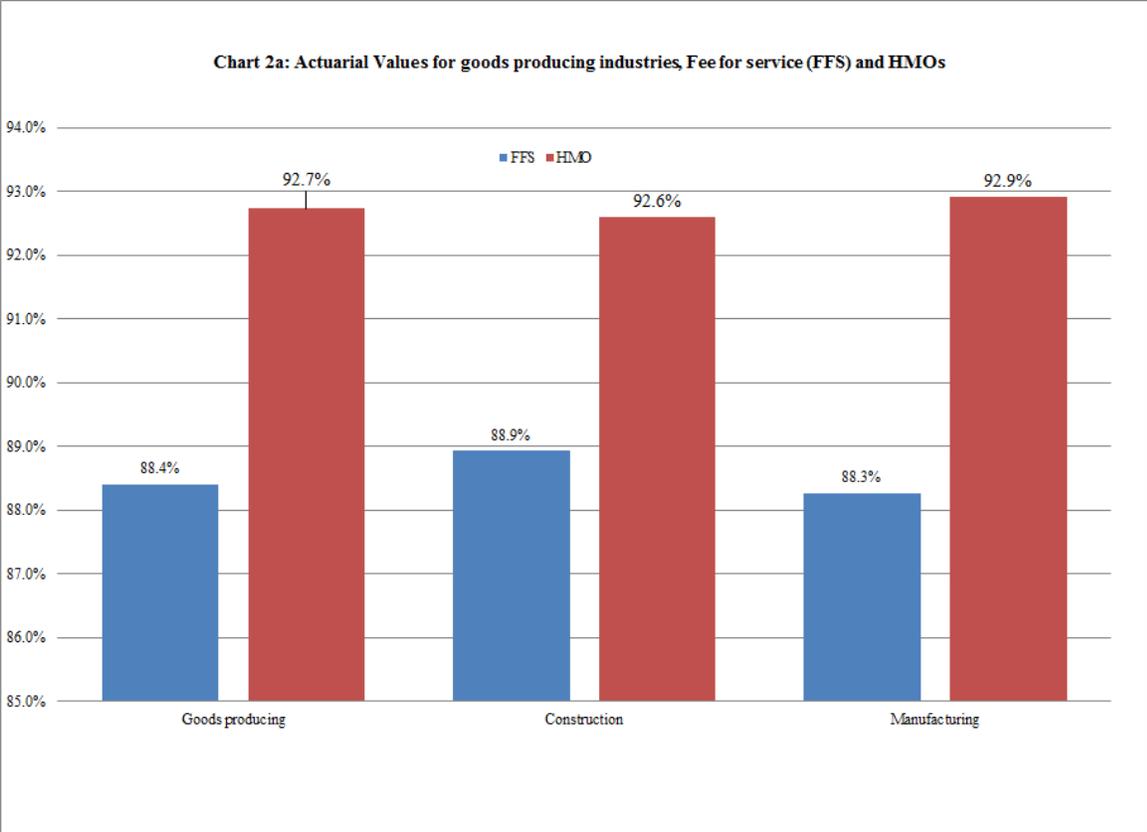
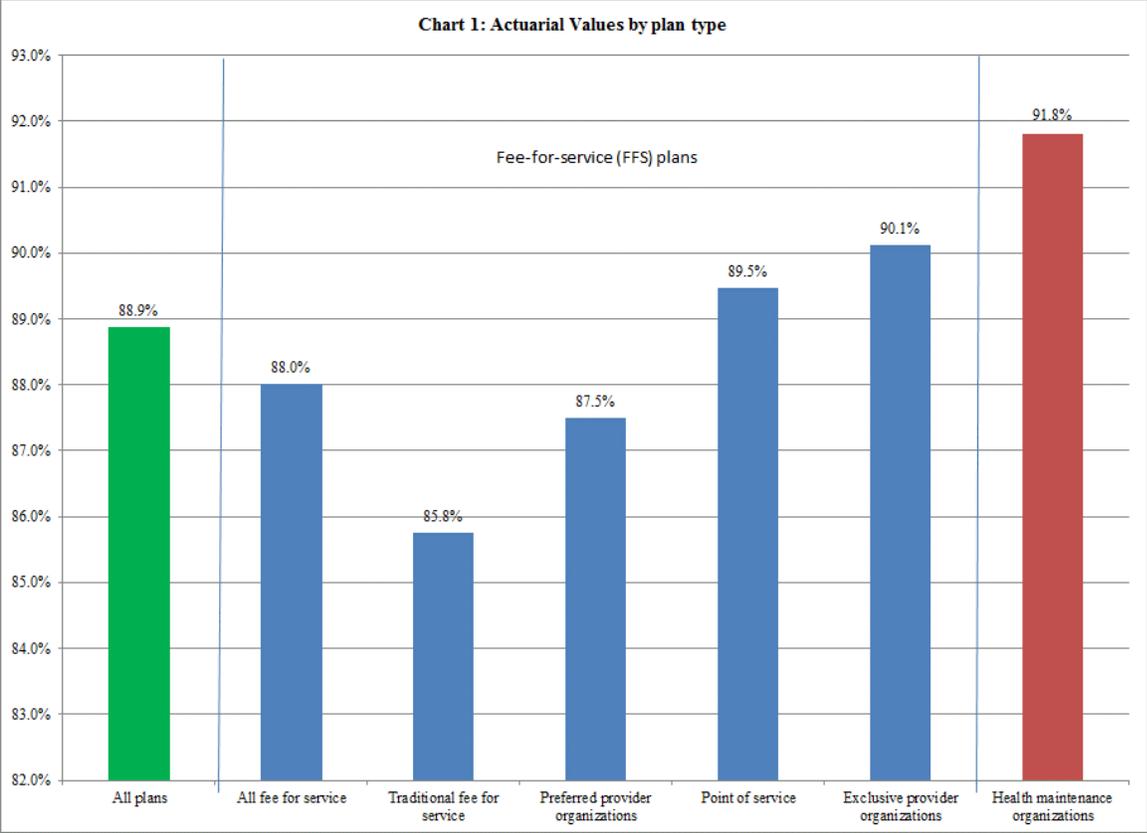


Chart 2b: Actuarial Values for service providing industries, Fee for service (FFS) and HMOs

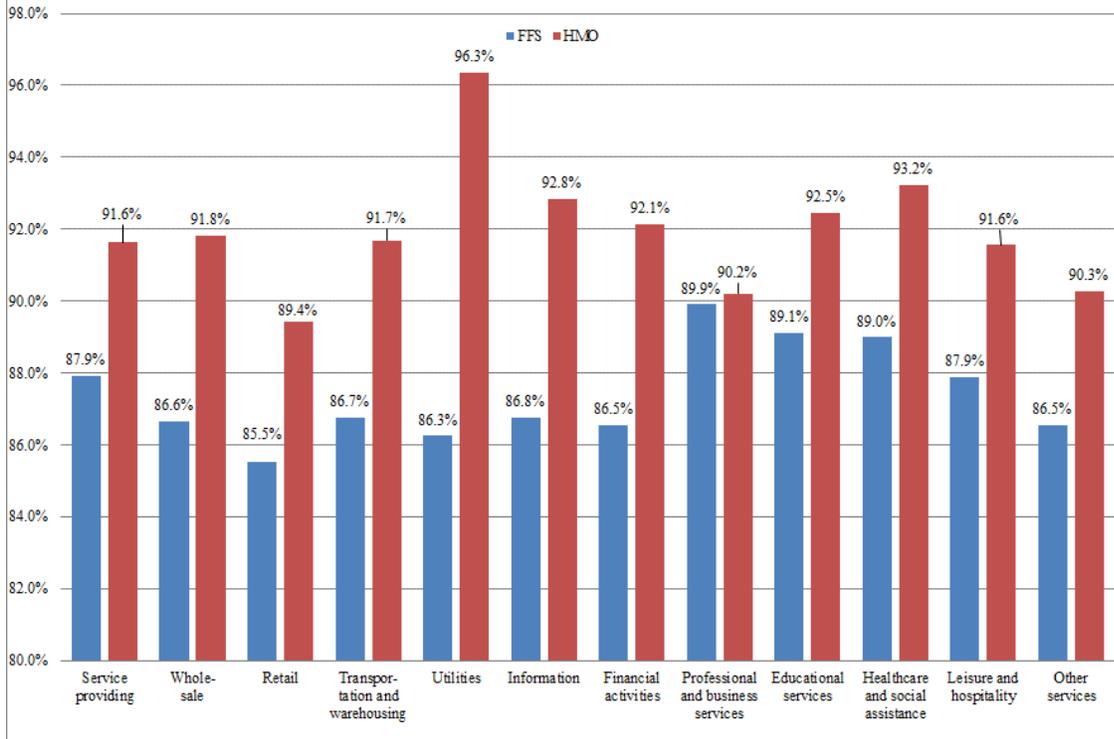
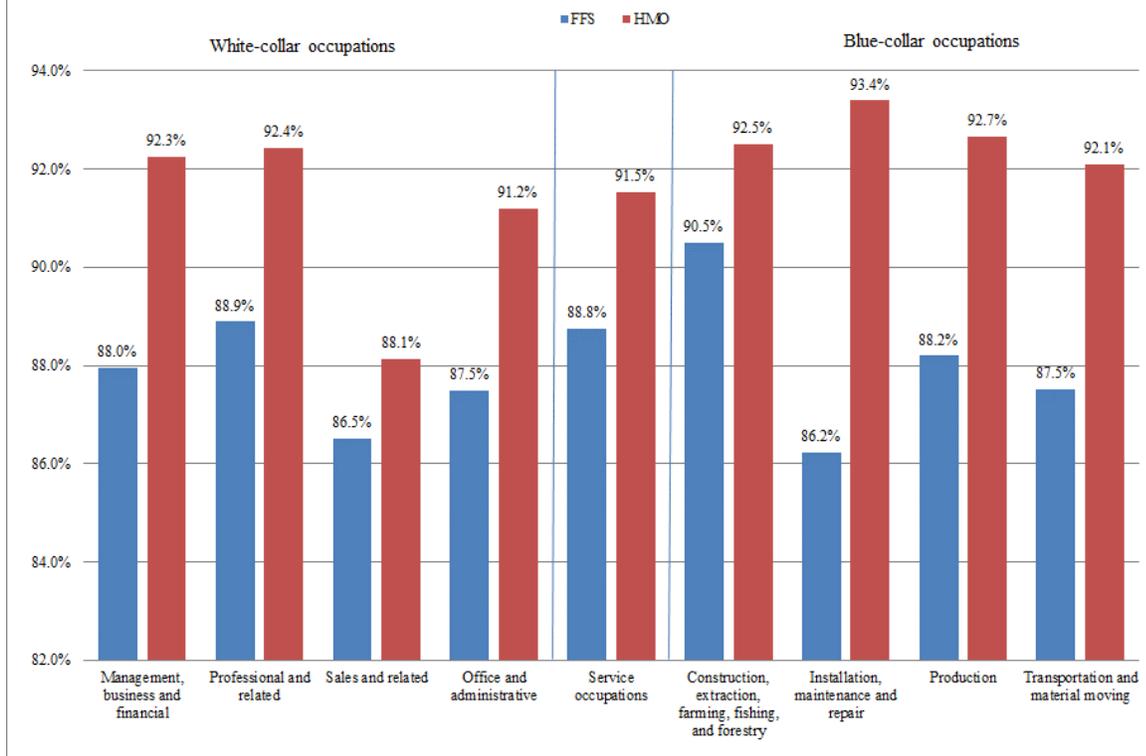
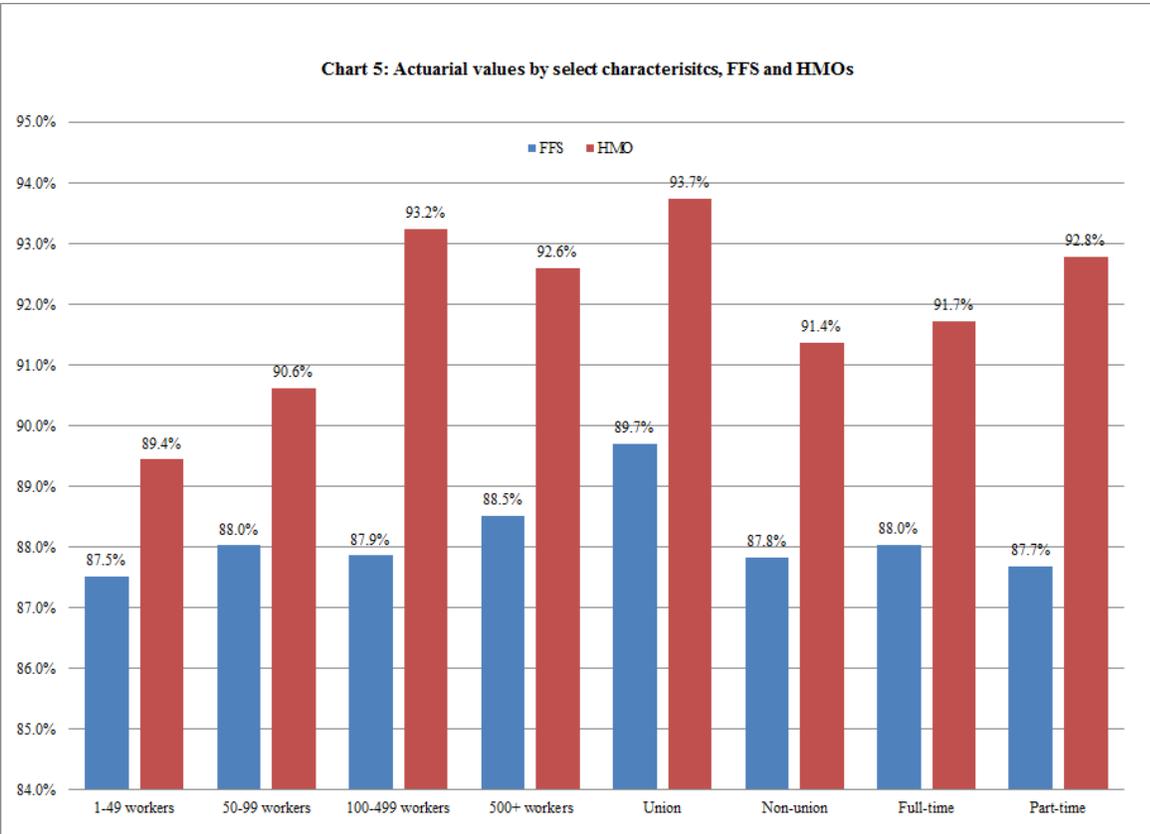
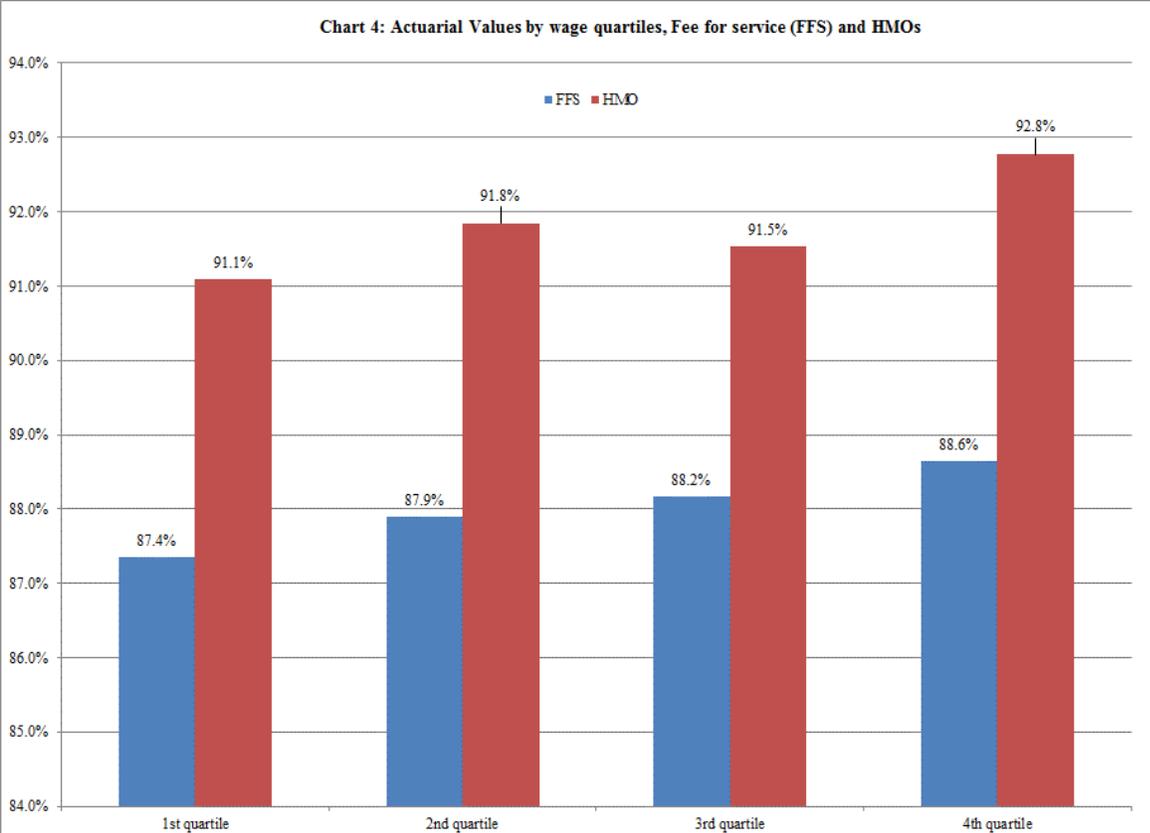
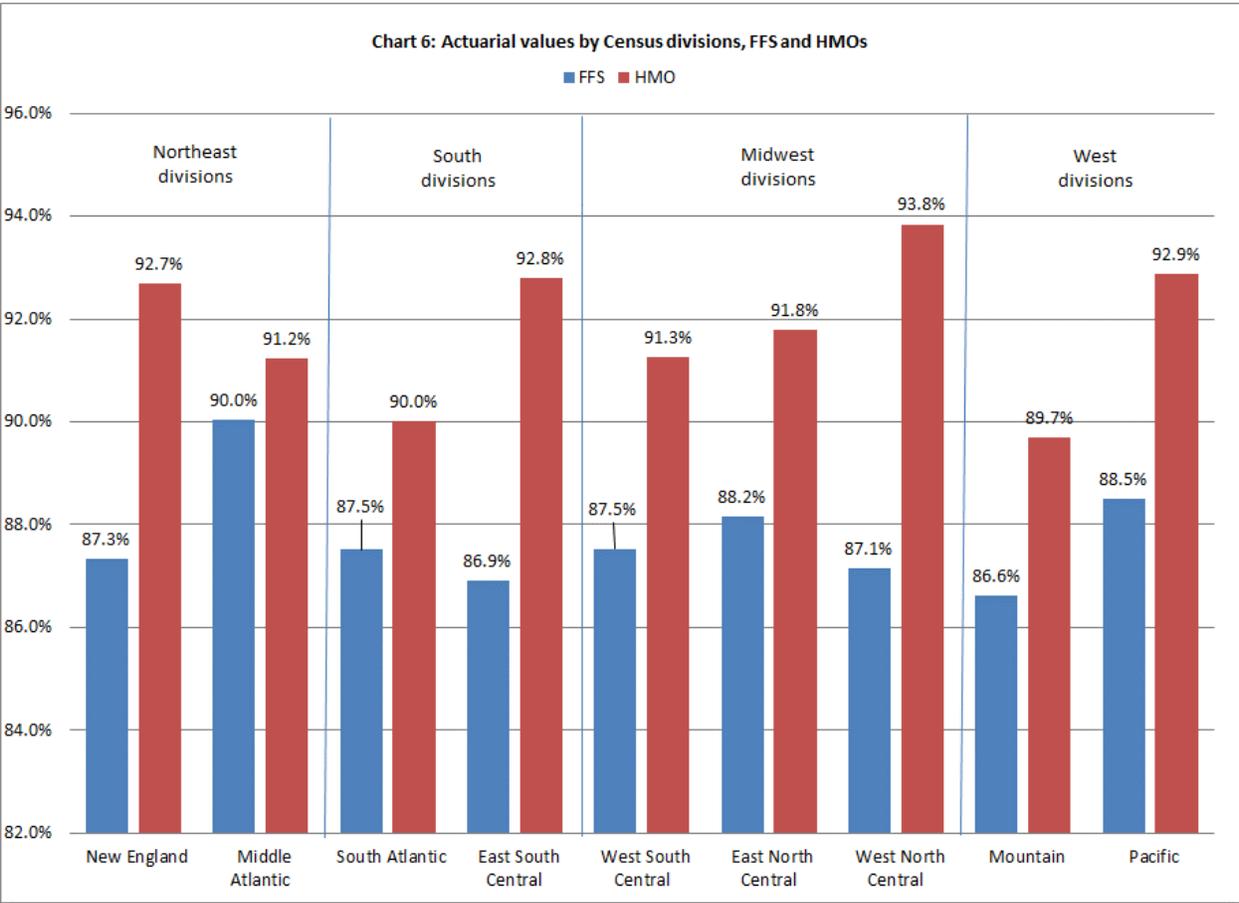


Chart 3: Actuarial Values by occupations, Fee for service (FFS) and HMOs







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Appendix: health plan type descriptions as used by the BLS National Compensation Survey

Fee-for-service plans

Traditional fee-for-service plan. This type of plan finances, but does not deliver, healthcare services; the plan allows participants the choice of any provider, without affecting reimbursement. Employers pay premiums to a private insurance carrier to provide a specific package of health benefits. Some employers may choose to self-fund a fee-for-service plan, in which case the employer, as opposed to an insurance company, assumes responsibility for payment of all eligible benefits.

Preferred provider organization (PPO). This type of plan provides coverage through a network of participating healthcare providers. Enrollees may receive services outside the network, but at higher costs. The additional costs may be in the form of higher deductibles, higher coinsurance rates, or both, or in the form of nondiscounted charges from providers.

Exclusive provider organization (EPO). This type of plan obligates employees to use only the plan's providers in order to receive coverage, in contrast to PPO benefit plans, which merely offer a financial incentive for enrollees to use the preferred provider. An EPO is a specific type of PPO plan that can be either self-insured or insured through an insurance company.

Point-of-service (POS) plan. This type of plan combines features of PPOs and traditional HMOs. POS enrollees receive more generous benefits for services within the network and for specialist care authorized by their primary care physicians. Benefits are less generous for care received outside the network and for self-referrals.

Health Maintenance Organizations (HMOs)

HMOs assume both the financial risks associated with providing comprehensive medical services and the responsibility for delivering healthcare in a particular geographic area, usually in return for a fixed, prepaid fee from members. HMOs emphasize preventive care and cover most types of care in full or subject to a copayment.

Traditional HMOs. This type of HMO provides no benefits for services obtained outside the network.

Open-access HMOs. This type of HMO allows enrollees to receive services from a specialist within the network without a referral from a primary care physician.