7/28/2011

PROJECTIONS OF NATIONAL HEALTH EXPENDITURES: METHODOLOGY AND MODEL SPECIFICATION

The Office of the Actuary (OACT) in the Centers for Medicare & Medicaid Services (CMS) produces short-term (11 years) projections of health care spending for categories in the National Health Expenditure Accounts (NHEA) annually. Detailed tables are available on our website and a paper describing our results is published in Health Affairs on the release of these projections. [1] The NHEA track health spending by source of funds (for example, private health insurance, Medicare, Medicaid), by type of service (hospital, physician, pharmaceuticals, etc.), and by sponsor (businesses, households, governments).

The July 2011 release of the NHE Projections (2010-2020) reflects a number of changes, which will be discussed in greater detail throughout the paper:

- This version of the NHE Projections incorporates data, methodology, and classification changes made to the historical National Health Expenditures the 2010 quinquennial comprehensive revision. Data changes include new nomenclature and definitional changes, changes to price indexes. The baseline NHE Projections Model has been expanded to include new submodels for spending by sponsor and additional detail for insurance enrollment.

- The role of the NHE Projections model has changed in response to the passage of the Patient Protection and Affordable Care Act of 2010 (hereafter referred to as the ACA) in March of 2010. Our standard NHE projections model is now used to produce a baseline projection of national health spending in the absence of the ACA legislation. The impact of individual provisions of the ACA are estimated using the Office of the Actuary Health Reform Model (OHRM). These estimates are then applied to the baseline model projection to produce a final projection that reflects the effects of the ACA. This change in methodology reflects the anticipation of substantial shifts in health care spending that are not reflected in historical trends and thus cannot be fully captured by models estimated based on historical data.

- The 2011 update of the NHE Projections has been expanded to include projections by sponsor, or source of financing, of health care. This concept differs from projections by the direct source of payment for medical care – often through insurance. Spending by sponsor takes a step back to look at the ultimate source of financing for care – including spending from private households and employers that flows through premiums paid for coverage.

- The impact of health reform, both by payer and by type of service, are estimated using the Office of the Actuary Health Reform Model (OHRM) and are then applied to the nominal baseline.

- Separate estimation processes produced ACA impact estimates on the net cost of private health insurance, government administration, government public health activity, non-commercial research, and structures and equipment.

[1] Keehan S. et al., "Health Spending Projections through 2020: Economic Recovery and Reform Drive Faster Spending Growth," *Health Affairs* 30, no. 8 (2011) (published online 28 July 2011)

- Projections are inherently subject to uncertainty. The models are estimated based on historical trends and relationships in health spending; any structural break in these relationships is generally unpredictable. These projections also rely on assumptions about macroeconomic conditions and health sector parameters The degree of uncertainty increases along with the projection horizon. The lack of historical experience with ACA-mandated health system reforms adds uncertainty to these projections.

The methodology and specification for the baseline pre-ACA NHE Projection Model are presented below. The discussion is organized in the following sections:

1. *Overview of the Baseline NHE Projections Model*
2. *Data sources and exogenous inputs*
    a. Historical data
    b. Exogenous projections
3. *Baseline NHE Model specification*
    a. Personal health care spending
        - Aggregate spending
        - Spending by type of service
        - Spending by payer
        - Spending by sponsors of payment
    b. Health insurance enrollment
4. *Incorporating effects of the Affordable Care Act (ACA)*
5. *Concluding note*

1. OVERVIEW OF THE BASELINE NHE PROJECTIONS MODEL

The effects of changes to systems of health care financing resulting from the Affordable Care Act of 2010 (ACA) will not be fully reflected in data for some years. Prior to the availability of direct evidence on these effects, baseline projections for total National Health Expenditures (NHE) will involve two discrete steps. First, we produce a projection of private expenditures for the counterfactual scenario that we would anticipate in the absence of the ACA legislation. This projection is based on econometric models, which reflect relationships in historical time-series data. Second, we adjust this baseline projection using detailed actuarial estimates of the impact of the individual provisions of the ACA.

NHE Projections have always focused on health system as a whole, taking macroeconomic conditions and projections for Medicare and Medicaid spending as exogenous inputs. Macroeconomic and demographic assumptions from the Social Security Administration (for the 2010-20 projections, the 2011 OASDI Trustees Report was used) are always used as exogenous inputs into the model. Actuarial projections for Medicare and Medicaid that exclude the estimated effects of the ACA were also taken in as exogenous inputs.

The primary focus of the NHE projections is health care spending by private payers. We also project non-Medicare and Medicaid public spending, to provide a comprehensive projection of all spending within the NHEA. Projections for the combined spending by private health insurance, out-of-pocket, and other private payers, are projected within a multi-equation structural econometric model that maintains consistency with exogenous Medicare and Medicaid projections. This model will be hereafter referred to as the Baseline NHE Projection Model.

Section 4 of this paper will describe how the results of the Baseline NHE Projection are adjusted to incorporate the impacts of the Affordable Care Act.

2. DATA SOURCES AND EXOGENOUS INPUTS TO THE BASELINE NHE PROJECTIONS MODEL

a. Historical data sources

National Health Expenditures (NHE) data

All historical data for health expenditures are derived from the NHEA compiled by OACT. The NHEA is a national level matrix of health spending data by type of service and source of funding. Information on the methodology used in producing these historical estimates, as well as more detail on recent changes in classification in effect with the 2009 vintage of the National Health Expenditures, can be found at http://www.cms.hhs.gov/NationalHealthExpendData/downloads/dsm-09.pdf. Classification of spending by types of services and sources of funding projected in our model are listed below.

In addition to projections of spending by type of service and payer, our Baseline model has been expanded to generate projections based on the additional perspective of spending by 'sponsor' of spending – defined as the underlying source of funding for direct payers including private health insurance, Medicaid, and Medicare. Payer categories track the source of direct payment for health care consumption (e.g. Medicare or PHI) but do not consider who is ultimately paying for each form of coverage – via taxes or premium payments for example. The Sponsor classification effectively takes a step back to look at where the funding for health consumption is actually coming from after accounting

for the flows of funding to final payers. The objective is to take a look at the financial impact of projected trends by the households and businesses who ultimately pay for medical services. Categories of spending projected by 'sponsor' are shown in a third table below.

TYPES OF SERVICE

National Health Expenditures

- Health Consumption Expenditures
  - Personal Health Care
    - Hospital Care
    - Professional Services
      - Physician and Clinical Services
      - Other Professional Services
    - Dental Services
    - Other Health, Residential, and Personal Care
    - Nursing Home and Home Health
      - Nursing Care Facilities and Continuing Care Retirement Facilities
      - Home Health
    - Retail Outlet Sales of Medical Products
      - Prescription Drugs
      - Durable Medical Equipment
      - Nondurable Medical Products
  - Government Administration
  - Net Cost of Private Health Insurance
  - Government Public Health Activities
- Investment
  - Structures
  - Equipment
  - Research

PAYER

National Health Expenditures

- Out-of-Pocket
- Health Insurance
  - Private Health Insurance
  - Medicare
  - Medicaid
  - Children's Health Insurance Program (CHIP)
  - Department of Defense
  - Department of Veterans' Affairs
- Other Third Party Payers and Programs
  - Other Federal Programs
  - Other State and Local Programs
  - Other Private Expenditures
  - Other Private Expenditures

SPONSORS OF PAYMENT

National Health Expenditures

- Business, Households and Other Private
  - Private business
    - Employer contributions to private health insurance premiums
    - Other
  - Household
    - Household private health insurance premiums
    - Medicare payroll taxes and premiums
    - Out-of-pocket health spending
  - Other private revenues
- Government
  - Federal government
    - Employer contributions to private health insurance premiums
    - Employer payroll taxes paid to Medicare hospital insurance trust fund
    - Medicare
    - Medicaid
    - Other programs
  - State and local government
    - Employer contributions to private health insurance premiums
    - Employer payroll taxes paid to Medicare hospital insurance trust fund
    - Medicaid
    - Other programs

Medical Price Indexes

Data sources for medical prices are consistent with those used in the NHEA. Following the 2010 comprehensive revision of the National Health Expenditures, the baseline price projections for some additional types of services are based on the Consumer Price Indexes (CPI) published by the Bureau of Labor Statistics (BLS).

For physician and clinical services, we now use a composite index of the Producer Price Index (PPI) for offices of physicians and clinical and diagnostic laboratories. This composite index provides a more comprehensive deflator for the types of provider revenue covered under this NHE category. For hospital services, we continue to use a PPI from BLS.

For inpatient hospital services in the period from 1993 forward, the NHEA uses the PPI for hospital services introduced in December 1992. To obtain a measure closer to a transaction price, the PPI uses a methodology that attempts to capture discounts and redefines the "items" included in the index. For years prior to 1993, OACT estimated a transaction price measure based on an adjusted version of the CPI for hospital and related services. For nursing care facilities and continuing care retirement communities and home health spending, we now use the respective PPIs from BLS.

Our price measure for total personal health care spending is a chain-weighted deflator based on the indexes in the table below, with the weight for each index set equal to the share of personal health care expenditures accounted for by that type of service.

Price indexes continue to be used as an intermediate tool within our NHE Projection Model in the development of our pre-ACA baseline projection. However, final current-law projections of price indexes will not be released for our 2011 projections cycle, pending the completion of ongoing analysis on the effects of the ACA for relative price by service and payer.

Components of personal health care expenditure chain-type annual-weighted price index

Industry/Commodity or Service	Price proxy	2009 weight
Personal health care		100.0
Hospital care	PPI, hospitals*	36.8
Physician and clinical services	Composite Index: PPI for Office of Physicians and PPI for medical & diagnostic laboratories	25.4
Other professional services	CPI services by other medical professionals	3.4
Dental services	CPI, dental services	5.2
Home health care	PPI home health care services	3.3
Other health, residential, and personal care	N/A	
Other (School Health, Worksite Health Care, Other Federal, Other State & Local, etc)	CPI physicians' services	
Home and community-based waivers (HCBW)	CPI care of invalids & elderly at home	
Ambulance	CPI-U All Items	
Residential Mental Health & Substance Abuse Facilities	PPI residential mental retardation facilities	
Nursing home care	PPI nursing care facilities	7.1
Prescription drugs	CPI, prescription drugs	12.0
Other non-durable medical products	CPI, internal & respiratory over-the-counter drugs	2.0
Durable medical equipment	Composite Index: CPI for eyeglasses and eye care and CPI nonprescription medical equipment and supplies	1.4

*Producer Price Index for hospitals, U.S. Department of Labor, Bureau of Labor Statistics. Used beginning in 1994 and scaled to 100.0 in 2000. Indexes for 1960-93 are based on a CMS developed output or transaction price index.

Insurance Coverage Data

Private health insurance enrollment data are compiled by OACT using a combination of raw data drawn from the National Health Interview Survey (NHIS) and the Current Population Survey (CPS). The level of the insured population is currently benchmarked to the 1997 NHIS. This base year level is then escalated using growth rates based on the insured population from the CPS to produce the historical time series.

b. Exogenous Projections

Exogenous inputs to the NHE Projections include assumptions for projections of real GDP growth, economy-wide inflation, labor market indicators, and demographic projections of the population by age and gender. All macroeconomic and demographic assumptions are based on the annual projections of the Board of Trustees for OASDI (Federal Old-Age, Survivors, and Disability Insurance). These projections are produced annually by the Social Security Administration (SSA).[2]

A projection for disposable personal income (DPI) consistent with the economic assumptions from the 2011 Medicare Trustees Report is generated using the University of Maryland Long Term Interindustry Forecasting Tool (LIFT). The relationship between DPI and GDP is influenced by fluctuations in taxes and government transfer payments, depreciation of capital stock, and retained earnings and transfer payments of private business.

The Board of Trustees for Medicare reports annually to the Congress on the actuarial status of the Hospital Insurance and Supplementary Medical Insurance Trust Funds.[3] These projections, as well as the Medicaid and Children's Health Insurance Program (CHIP) projections, are produced by OACT and are also consistent with macroeconomic and demographic assumptions included in the OASDI Trustees Report.

Projections for input price indexes in each sector are based on projections from IHS Global Insight, Inc. Since these projections are generated conditional on macroeconomic assumptions for aggregate wage and price growth that differ from those incorporated in the OASDI Trustees report, price and wage proxies proxy included in these indexes are adjusted for consistency with OASDI macroeconomic assumptions.

The latest release of the NHE projections was produced in the summer of 2011. This forecast incorporates projections from the 2011 Trustees Reports issued in the spring of 2011, updated to reflect additional macroeconomic, Medicare, and Medicaid data available through June 2011.[4]

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[2] Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Trust Funds, *The 2011 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds,* 13 May 2011, http://www.ssa.gov/OACT/TR/2011/tr2011.pdf (accessed 24 July 2011).

[3] Board of Trustees, *2011 Annual Report of the Boards of Trustees of the Federal Hospital Insurance Trust and Federal Supplementary Medical Insurance Trust Funds,* 13 May 2011, http://www.cms.hhs.gov/ReportsTrustFunds/downloads/tr2011.pdf (accessed 8 July 2011).

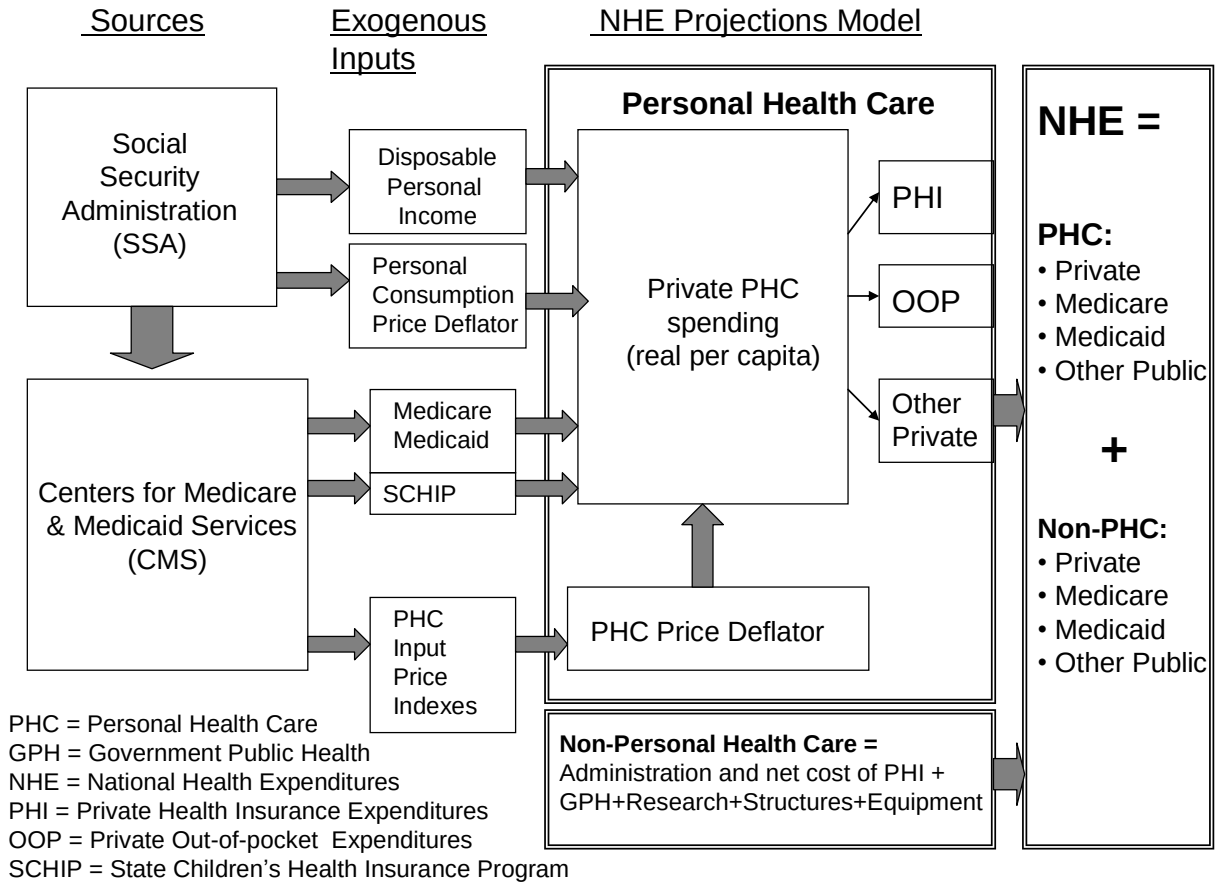
[4] The updated macroeconomic forecast comes from the July 2011 publication of the Blue Chip Economic Indicators, a survey of 50 of the top forecasts by different private companies and academic institutions. More information on the report is found at: http://www.aspenpublishers.com/blue-chip-publications.htm.

3. MODEL SPECIFICATION

a. Personal health care (PHC) spending

The Baseline NHE Projection Model for health spending by all private sources of funds is an econometric model that is estimated based on time series data from the historical National Health Expenditures. The structure and parameters of the model draw on standard economic theory and the health economics literature. The model is reestimated annually following the release of updated data for the NHEA. The fit and appropriateness of model specifications for individual series are reviewed at this time.

The diagram below provides a schematic view of the aggregate health sector within the Baseline NHE Projections Model and shows the linkages among the data sources, exogenous data, the personal health care (PHC) model, the non-PHC output, and the aggregate baseline NHE projections.



PHC = Personal Health Care
GPH = Government Public Health
NHE = National Health Expenditures
PHI = Private Health Insurance Expenditures
OOP = Private Out-of-pocket Expenditures
SCHIP = State Children's Health Insurance Program

The Baseline NHE Projection Model is a "top-down" model. Growth in private personal health care (PHC) spending, medical price inflation, and private health insurance enrollment is primarily determined at the aggregate level. Projections for spending by type of service (hospital, physician, etc.) and by payer (PHI, out-of-pocket) are constrained for consistency with aggregate projections. However, the implications of sectoral trends for aggregate growth are also taken into account in adjustments of the

aggregate projection. Projections maintain consistency with exogenous projections of macroeconomic variables, actuarial projections of spending for the Medicare and Medicaid programs, and additional assumptions specific to the health sector (e.g. generic drug penetration rate).

The core of our aggregate model of PHC spending consists of two behavioral equations:[5]

- Private personal health care spending (real per capita)
- Personal health care price inflation

The independent variables in our aggregate model of private personal health care spending (real per capita private PHC) are:

- Disposable personal income growth (less Medicare and Medicaid, real per capita)
- Relative medical price inflation (PHC)[6]
- Public spending growth (PHC, real per capita)
- Time trend

Projections of relative medical price inflation are projected endogenously – based on equations within the NHE Projections model. All other independent variables in the care model that drives aggregate trends in spending and price inflation are exogenous – projected outside of our model.

The models are estimated with all variables expressed in log differences (a measure of growth rate), reflecting the focus of our projection on short-term fluctuations in growth. We maintain an alternative version of the model in log levels which we monitor as a comparison point in evaluating our ten-year trend.

Constant Term and Time Trend

The inclusion of an exogenous time trend effectively means that the constant in the model is changing over time. A positive constant implies a constant addition to trend growth in real per capita health care spending in addition to the contribution from rising income, public spending, and price variation. The addition of a time trend implies that this exogenous contribution to growth decelerates over time. A common interpretation for the constant term in an equation of this form is the impact of technological change (the introduction of new medical products and techniques).

[5] Variables are expressed as log differences (growth rates).

[6] Relative medical price inflation was redefined in the 2009 model. The deflator that we use to measure price inflation for all goods and services is the aggregate price deflator for all consumption expenditures. We have substituted a centered three-year moving average of this deflator for the current period value in calculating relative medical price inflation. This choice was intended to better capture the longer-term substitution effect between medical and non-medical consumption by excluding some year-to-year volatility in overall consumer prices.

Disposable Personal Income

Income is defined as real per capita disposable personal income (DPI) less Medicaid and Medicare payments.[7]

Real per capita DPI is a highly influential variable in our model of private health spending. The importance of this variable is consistent with a large body of literature examining the empirical relationship between national income and health spending. A number of studies based on time-series cross-country data for Organization of Economic Cooperation and Development (OECD) economies confirm the importance of the link between health spending and income.[8] It has been repeatedly shown that variations in GDP (used as a proxy for income) account for a substantial share of variation in health spending across countries and time.

In the Baseline NHE Projections Model, income has a lagged effect on health spending. The lag that we build in to this effect reflects several characteristics of markets for health services.

Since private insurers or public payers account for the large majority of health spending, spending is largely insulated from contemporaneous changes in household income. Furthermore, consumers generally do not pay for most medical expenses directly at the point of purchase. Thus their decisions are not immediately affected in the short term by variations in income except where substantial parts of the expenditure are paid for out-of-pocket.[9] The importance and structure of out-of-pocket cost-sharing varies quite a bit across sectors and over time, and this may affect the lag structure.

The critical element that introduces the delay captured by the lag is the role of multiple intermediaries between consumers and medical providers. These intermediaries include employers or unions who negotiate on behalf on pools of employees and governments at the Federal and state level who determine the nature of coverage and methods of payment for Medicare and Medicaid – as well as the structure of regulations that constrains private employers and insurers. Beyond the determination of coverage, providers will respond to changes in coverage and methods of payment in making choices on behalf of individual patients. Because so many decisions are contractual (or built into law) and are intended to apply to an underlying pool with varying preferences, it takes time for the system to respond – time to determine what decisions best fit the preferences of all members of the pool, to change the structure of coverage, and time for these changes to influence standards of medical practice at the point of service.

To capture the timing of these lags, the income term in our model of personal health care spending is incorporated as a moving average over 5 years (from four years previous through the current period).[10] The relationship between real per capita spending and real per capita DPI is assumed to be log-linear. The assumption of log-linearity implies that prices and income elasticities are constant over time. The

[7] The objective is to obtain as nearly as possible a measure of income that applies to the population that accounts for private spending on medical care. Thus we exclude spending for Medicare and Medicaid, which are included in DPI but accrue to a population that is primarily publicly insured. Since private spending includes out-of-pocket and PHI spending for Medicare beneficiaries, the correspondence cannot be exact.

[8] For a review of this literature, see Gerdtham, Ulf, "International Comparisons of Health Expenditure."

[9] Some current period effect can be expected in response to consumer cost-sharing and loss of employment, with the associated loss of employer-provided health insurance.

[10] Estimates that allow coefficients to vary across this five-year period based on a polynomial distributed lag (PDL) show no statistically significant improvement in explanatory power over a moving average.

income elasticity in our current model is 1.54, near the upper end of estimates for macro-level elasticities of approximately 0.8 to 1.6 in the empirical literature.[11] However, these estimates are generally based on spending by all sources of funding, rather than on private spending alone; elasticities for private spending tend to be higher.

Relative Medical Price Inflation

Economic theory predicts that consumers adjust their spending on different goods and services in response to variations in the relative price of these alternatives. However, the existence of third-party payers for medical care complicates the response to price variation. Consumers bear only a fraction of the actual price of medical services at the time of purchase. Thus, in short-term consumption decisions, they respond to the marginal out-of-pocket price rather than to the actual price, generally determined by a combination of deductibles, cost-sharing requirements, and out-of-pocket maximums.

The price to consumers can theoretically roughly approximated by the fraction of total costs paid out-of-pocket multiplied by the actual price. However, the approximation is very poor; for decision-making purposes the important question is the marginal price, the amount that the consumer pays for an additional dollar of medical care. The broad use of copayments, deductibles, and out-of-pocket maximums, combined with the fact that the majority of health care consumption is accounted for by high-cost cases, means that the marginal price paid by consumers is most often zero. The analysis of micro data confirms that variations in the out-of-pocket price paid by patients has sizable effects on health care spending, however, the indicator is too flawed to use as a single measure of the generosity of insurance coverage within an aggregate time-series model. We adjust projections based on analysis of the specific types of cost-sharing (e.g. tiered copays, deductibles) for individual types of service.

However, the effects of out-of-pocket prices on consumer choices are only one potential avenue for price effects. Medical prices also influence demand for services in two additional ways. First, the price of health insurance is effectively the price of the bundle of medical goods and services an enrollee is expected to consume (plus administrative costs and profits). Consumers' decisions to purchase health insurance (primarily through their employers as agents) and the generosity of the coverage selected are therefore influenced by the relative price of medical care. Second, the relative price of medical care affects demand for services across types of medical care through the price sensitivity of health insurers' coverage and provider selection decisions.

Within our model, relative medical price inflation has a significant negative coefficient, as we expect. The price elasticity of demand for health care in our updated and revised model is −0.4. This price elasticity is well above micro-level estimates of price elasticity of demand for medical care (−0.1 to −0.2 based on the Rand Health Insurance Experiment).[12] This difference reflects the fact that micro-based studies use household-level data on the relationship between consumer out-of-pocket spending below out-of-pocket maximums and effective price given coinsurance rates.

Medical price inflation is an endogenous variable in our model (it is determined within the baseline NHE Projections Model). The dependent variable in our model is OACT's price deflator for personal health

[11] Getzen, T.E., "Health Care is an Individual Necessity and a National Luxury: Applying Multilevel Decision Models to the Analysis of Health Care Expenditures," *Journal of Health Economics*, 2, (2000): 259-270.

[12] Manning, W.G., et al., "Health Insurance and the Demand for Medical Care: Evidence from a Randomized Experiment," *American Economic Review*, Vol. 77, No. 3, June 1987.

care spending.[13] This is estimated as a function of a lagged measure of input price inflation (IPI) for medical goods and services.[14] Coefficients for lagged IPI are fitted along a linear path over a lag extending from the current year to two years previous. Approximately 60 percent of the effect of changes in input price inflation is estimated to occur within a year. The effects of other factors (economy-wide price inflation, productivity growth, industry profitability) are captured indirectly through their influence on IPI, and through a first-order autocorrelation adjustment.

Our measure of input price inflation is based on the cost structure of health providers as estimated in input price indexes by type of medical providers. The effect of each component of provider costs is represented by a proxy series that is selected to track the input prices of each individual service and commodity. The effects of other factors (economy-wide price inflation, productivity growth, industry profitability) are captured indirectly through their influence on IPI, and through a first-order autocorrelation adjustment.

However, due to the limited coverage of the available time-series data available for medical providers, this input price index has historically excluded compensation for self-employed workers, including a substantial fraction of physicians and other medical professionals. Thus, true input price inflation will be under or overstated depending on the growth differential between compensation for employed versus self-employed workers. For this reason, we include growth in physician income in our model as a proxy for supervisory and self-employed provider compensation not covered by our input price indexes. This substantially improves the fit of the model. Our data reveal that physician incomes have been generally growing at a slower pace in comparison with other inputs to medical care since 1992, a finding that is consistent with a concurrent slowdown in output price inflation relative to our index of input price inflation.

We developed an historical physician income series through 2007 using a weighted index of IRS Statistics of Income (SOI), Bureau of Labor Statistics (BLS), and the Medical Group Management Association (MGMA) data which reasonably tracks physician income historical series from other sources.

Physician income is projected based on the assumption that rates of increase in physician compensation will tend to track rates of compensation for alternative occupations over long periods of time (we use the BLS employment cost index (ECI) as a proxy). We include real private physician spending as a proxy for approximate change in the volume of services that are reflected in our measure of physician income, in order to approximate a wage measure. The model also includes growth in real practice expenses, which is assumed to take away from physician income.

Health Spending for Public Health Insurance and Other Health Programs

In our model of growth in real per capita private spending on PHC, growth in real per capita public spending has a negative coefficient, reflecting the impact of any shifts in population across public and private forms of coverage, as well as any cost-shifting effect. The negative coefficient on this variable in our model reflects in part that neither public nor private spending is expressed in per enrollee terms. Rather, spending is on a per capita basis—the denominator is total population. While it would be conceptually preferable to estimate a model based on growth in spending per enrollee, there are serious

[13] A methodology for estimating price indexes including the impact of reform is in development and forthcoming in future projections releases.

[14] The input price index used is a weighted average of OACT's input price indexes for hospital services, physician services, home health services, nursing home services, and pharmaceuticals.

flaws in the available data for this purpose. Data for private enrollment is defined to include all persons with private coverage. This includes Medicare beneficiaries with private supplementary coverage, so that there is a substantial overlap between the series. Since private spending reflects only the supplementary spending for these enrollees, this tends to distort per enrollee trends. In addition, the history for private health insurance enrollment stems from multiple sources. Prior to 1987, the time series is subject to inconsistencies over time due to variations in survey questions. Another issue concerns the effect of linked fluctuations in Medicaid and PHI enrollment over the business cycle. Slower economic growth lead to an influx of a population (e.g. children and non-disabled adults) that is relatively low-cost relative to the existing Medicaid population (which is relatively heavily weighted towards the institutionalized). This shift distorts per enrollee growth both for private spending and for Medicaid.

Models for spending by Type of service

Models for spending growth and price inflation for individual types of medical services are similar in specification to the aggregate model. Spending projections generated for each of the types of services are then constrained for consistency with the aggregate spending projection.[15] Our choice of this type of model reflects our finding that the model is substantially more robust at the aggregate level.[16] Key structural variables in most sector models are:

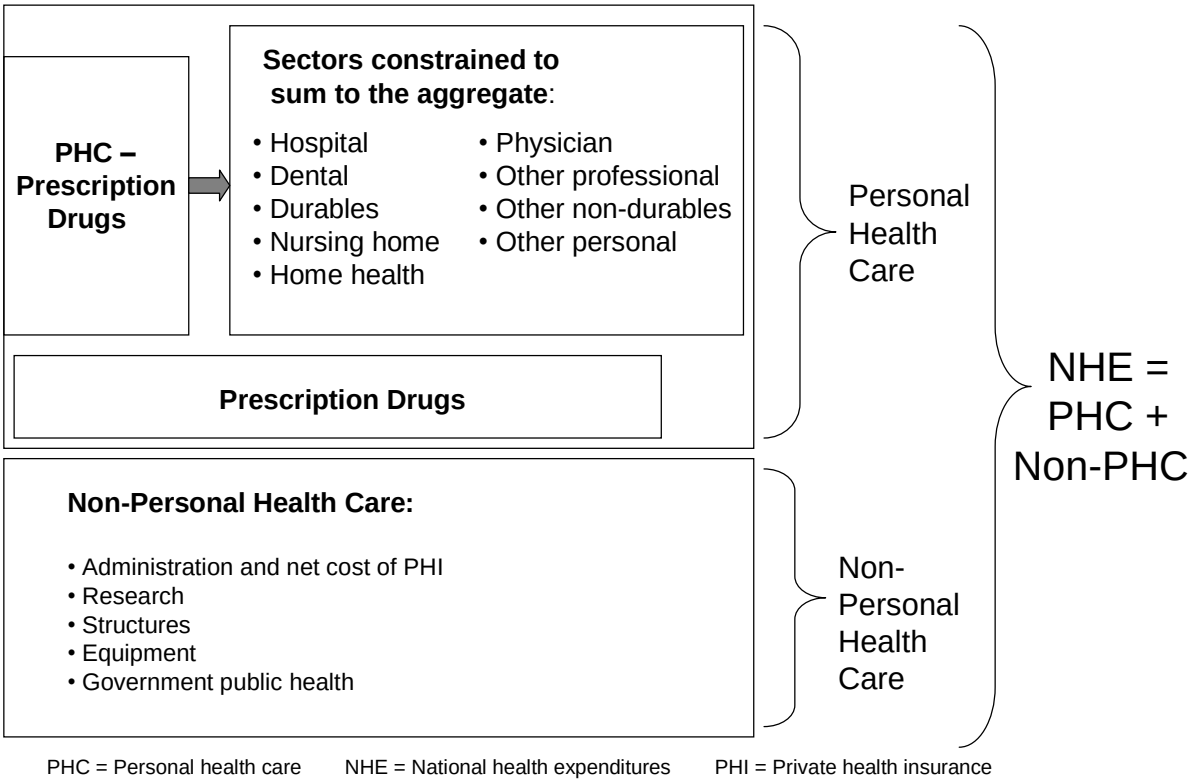
- Disposable personal income growth (less Medicare and Medicaid, real per capita)
- Relative price inflation for the sector
- Public spending growth for the sector (real per capita)

Models for individual sectors of the NHE Projections Model are discussed below. Sectors are broken into personal health care (PHC) and non-personal health care (Non-PHC) categories.

[15] See discussion of sectoral constraints under 'Type of Service.'

[16] There are several possible reasons for this finding. First, spending for the different types of services is interdependent. Conceptual and measurement issues with the data make it difficult to convincingly capture complementary and substitutive relationships across types of services. When shifts across services are believed to have occurred on a large scale, it is difficult to accurately capture the effect on patterns of growth. For example, such a shift occurred following the introduction of Medicare's prospective payment (PPS) system for most inpatient hospital services. The magnitude and timing of the impact of PPS on hospital and physician spending is not straightforward, and the selection of proxies to capture this effect is difficult. However, the manner in which such events are specified matters, since it affects the coefficients obtained on the model variables. Working with aggregate growth rates captures the net effect on health spending of factors that cause sectoral shifts. Second, data on relative prices across types of medical services are somewhat flawed for our purposes and are not always consistent across services; thus, obtaining reasonable cross-price elasticities is difficult. Third, health services tend to be purchased as bundles that incorporate types of services extending across several different sectors, while the data are not measured in such a way that we can track the behavior of the market for these linked bundles. Aggregation across all types of medical care ameliorates these problems.

Sectoral Composition of NHE Projections Model



PHC = Personal health care NHE = National health expenditures PHI = Private health insurance

Differences across the models for different types of services are the inclusion of constant terms, varying lag structures for the income effect, the relative importance of the three variables, the inclusion of dummy variables to capture phenomena specific to the sector. In a few cases, the additional independent variables are included that are specific to the individual sector where relevant data is available.

The lag on the income term in the models for each type of service generally tend to vary with the share of spending that is accounted for by consumers' out-of-pocket expenses: the greater the out-of-pocket share, the shorter the lag, as consumers respond more quickly to changes in their income.

The table below summarizes the independent variables used to model real per capita spending growth for each of the personal health care sectors. For the sectors with the greatest share of NHE, we have provided some additional descriptive information about their sector models. Only minor changes in specification were made to individual sectoral models, which remain largely unchanged from the models of previous years.

SECTOR	DEPENDENT VARIABLE	INDEPENDENT VARIABLES
Hospital services	Real private hospital services per capita	Real disposable personal income (PDL, 5 years) (+) Relative price(−) Public spending growth (−) Dummy, 1984 (−) Dummy, 1984 * time trend (+) Time trend (−)
Physician and Clinical services	Real private physician services per capita	Real disposable personal income (4 year moving average, lagged one year) (+) Relative price (−) Dummy, 1983-85 (+) Dummy, 1993-96 (−)
Other Professional services	Real private other professional services per capita	Real disposable personal income (+) Real per capita public spending growth (−) Dummy, 1992– (−)
Prescription Drugs	Real aggregate drug spending per capita*	Real disposable personal income (3 year moving average) (+) Relative price * Share paid out-of-pocket (−) New drug introductions (+) Generic dispensing rate (−)
Over the Counter Drugs and Other Nondurables	Real private other nondurables spending per capita	Real disposable personal income (2 year moving average) (+) Relative price (−)
Durables	Real private durables spending per capita	Real disposable personal income (PDL, 2 years) (+) Relative price (−) Public spending growth (−)
Dental services	Real private dental services per capita	Real disposable personal income (+) Relative price (−) Dummy, 1981 (+)
Nursing Care Facilities and Continuing Care Retirement Communities	Real private nursing home services per capita	Per enrollee Medicaid spending (+) Public spending (−) Time trend (−) Dummy, 1990 (+) Dummy, 1994 (−) Dummy, 1995 (+) Dummy, 1999 (−)
Home health services	Real private home health services per capita	Medicare spending growth, lag 2 years (+) Medicaid spending growth (−) Dummy, 1988 (+) Dummy, 1998 (+)

*The prescription drug model is based on aggregate expenditures rather than private expenditures, due to complications in projecting shifts in payments predicted associated with the introduction of Medicare's Part D prescription drug coverage. See the Prescription Drug section below.

Hospital Services

Real per capita growth in private hospital spending is well explained by the variables in our template model specification. Given the low out-of-pocket share on average for hospital services (inpatient and outpatient), we anticipate a long lag between a change in household income and the time of impact on hospital spending. Our results are consistent with this expectation we estimate coefficients on lagged income growth with a polynomial distributed lag, which indicates the peak effect of income fluctuations occurs with a lag of 3 to 4 years.

Attempts to fit an out-of-pocket variable, either in combination with the price term (i.e. effective price to consumers) or separately, were unsuccessful. However, in the hospital sector, this share is low and fairly stable (just over 3 percent for 1995 through 2003) so effects are likely to be small.

Public real per capita spending has a negative coefficient as expected, capturing shifts in enrollment between private and public coverage, as well as any short-term cost-shifting effects between private and public payers.

The combined effect of historical fluctuation in the effects of managed care and the Medicare prospective payment system (PPS) for this sector are represented in the current model as a structural change in the relationship of growth to price and income variables that is largely one-time in nature, beginning after the introduction of PPS (from 1984). The alterations in provider incentives associated with PPS, coupled with similar pressures from the expansion of managed care in the late 1980s through the 1990s, produced an initial reduction in growth that tapers off gradually over time. This reflects diminishing potential for additional reductions in inpatient utilization over time.

Physician Services

The estimated lag structure for the income term in the physician model indicates an effect which extends over four years, but is evenly weighted across periods (effectively a shorter average lag as compared with the hospital model). The sum of coefficients on all lags of the income term is substantially smaller than for the hospital sector, close to the coefficient in the aggregate model for PHC. Relative price inflation fits only weakly in this model as compared with PHC, and growth in real per capita public spending on physician services has a smaller estimated negative effect than the aggregate model.

In general, our template specification fits real per capita growth in physician spending somewhat less well than hospital spending. This primarily reflects two outlying periods: much higher than predicted growth in 1984 and 1985 and much lower than predicted growth in 1993 through 1996. Absent these periods, the pattern of growth implied by the income and relative price term produces a fairly good fit. Through 1983, the physician share of personal health care spending remains close to flat, drifting slightly downwards (from 24.0 percent in 1965 to 22.0 percent in 1983). From 1984 through 1994, the share rises, reaching 26.0 percent by 1992 before beginning to move downwards to 25.3 percent by 2001. Without some control for the period of rapid growth in the early 1980s, it is difficult to obtain a model with acceptable fit and reasonable coefficients.

We have included a dummy variable to capture the period of rapid growth from 1983 through 1985, while the faster growth later in the decade is consistent with the income term. Our interpretation of this variable is that it captures a non-recurring substitution effect of professional services for inpatient care. This period saw a major shift in provider incentives associated with the introduction of inpatient PPS under

Medicare (spillover effects for private spending) and the initial surge in managed care enrollments. In this sense this pattern of growth is a counterpart of the changes in inpatient utilization generated by these developments. The effect of the inclusion of this dummy is that the resulting model will tend to project a pattern of growth for physician services that is more consistent with the near-stable share of PHC in the pre-1984 and post-1994 data rather than the more rapid growth of the mid-1980s.

Prescription Drugs

Prescription drugs differ in important ways from other types of medical care. First, it is a product, not a service, so the cost structure of the industry differs substantially from sectors such as hospital, physician, or nursing home, where labor costs play a critical role in driving price. Second, historically, prescription drug spending has had a much larger consumer out-of-pocket share than other types of medical care, so that demand tends to be more sensitive to price. Third, the public sector has historically played a relatively small role in funding prescription drug spending. We also have access to additional information on supply and demand factors for this sector, in the form of data on new drug introductions, generic dispensing rates, research spending, patent expirations, and direct-to-consumer (DTC) advertising. As a result, our model for prescription drugs is somewhat different from those developed for other sectors.

As opposed to the other sectors, the dependent variable in the prescription drug model is real aggregate per capita drug spending (not private only). This change was made because the start of Medicare drug coverage in 2006 produced a massive shift in the source of payments for drugs, resulting in a sharp drop in private drug spending growth in 2006, but otherwise had little estimated effect of overall growth in drug spending. Therefore, our model projects total prescription drug spending without simulating an explicit effect for Part D. We use data from the President's FY 2012 Budget to adjust the projections to incorporate the effects of Medicare drug coverage and to produce forecasts for private, Medicaid, and Medicare spending that are consistent with actuarial estimates of the magnitude of the shift in spending due to Part D.

Our income variable fits with a shorter lag than in our aggregate model. This is the expected result based on the larger share paid on an out-of-pocket basis historically. Relative price inflation has a strong fit. A recent change to this model was the redefinition of the price variable as the product of the out-of-pocket prescription drug share and the prescription drug price index. This change is intended as a conceptual change to account for the fact that consumers' out-of-pocket share has declined steadily over the last twenty years. However, the fact that available data does not distinguish out-of-pocket spending by the uninsured and by Medicare beneficiaries from the fixed co-payments often required within managed care limits our ability to capture this effect. Public spending growth is not included as a variable in this model due to its relatively minor role in the historical period (prior to 2006) and because the dependent variable is overall drug spending and not private drug spending.

Patterns of growth over the most recent ten to fifteen years of data are difficult to explain as the effects of several different factors must be disentangled. The out-of-pocket share of spending by consumers dropped sharply as privately insured patients moved into managed care plans that generally have lower co-payments (this phenomenon largely did not apply to Medicare beneficiaries, who continued to pay a relatively large share of drug costs out-of-pocket). Also, changes to regulations in 1997 dropped some of the earlier restrictions on television advertising for prescription drugs. In addition to income and relative price terms, our model for real per capita drug spending includes a four-year moving average of the number of new prescription drugs introduced. In addition, the rising generic dispensing rate, which has

played an increasing role in depressing growth in prescription drug spending in recent years, is now included in our model. We have adjusted the drug price model downward in all years (but the largest effect is in 2012 and 2013) to reflect the impact of a large number of top-selling brand-name prescription drugs losing their patent protection in 2011 and 2012. Large price declines for individual drugs do not typically occur until about 6 months after the patent expires; therefore, the main effect on price in the annual numbers is usually seen the year after patent expiration.

Relative Price Inflation by Type of Service

Our model for sectoral prices address relative price inflation in comparison to all types of personal health care. Price for personal health care is in turn driven by projections of input price inflation. Changes in public policy that could be expected to influence relative prices differentially across NHEA sectors (such as the imposition of price controls in the early 1970s and the introduction of the prospective payment system for Medicare hospital inpatient services in 1983) are captured through the use of dummy variables. We also included managed care proxy in selected models (hospital, dental) where the effect on historical relative prices was substantial.

Variables included in models of relative price inflation are shown in the table below:

SECTOR	DEPENDENT VARIABLE	INDEPENDENT VARIABLES
Hospital services	Hospital price inflation (relative to medical services)	Relative growth in hospital compensation rates (+)
Physician services	Physician services price inflation (relative to medical services)	Constant (+) Real Physician income growth (+) AR (1)
Other Professional Services	Other professional services price inflation (relative to medical services)	Physician price inflation (+) Autoregressive error term (+)
Prescription Drugs	Drug price inflation (relative to economy-wide consumer price inflation)	Relative input price inflation, lagged one year (−) Growth in drug research spending (PDL over 4 years) (+) Dummy, 1993 forward (−)
Dental services	Dental price inflation (relative to medical services)	Medical Services price growth (−) Dummy, 1976 (−) Dummy, price controls, 1973 to 1974 (−) Dummy, 1981 to 1985 (−) Autoregressive error term (+)
Nursing Care Facilities	Nursing home price inflation	Nursing home input price inflation
Home health services	Home health price inflation	PHC price inflation growth (+) Autoregressive error term (+)

Generally, it proved difficult to achieve a good fit for the relative price regressions for individual sectors than for the real per capita spending regressions. This reflects the combination of flaws and inconsistencies in the price data, and the difficulty in capturing the effects of government policy and institutional change on relative price across types of services. Note, however, that where the regression fit for relative price inflation is not good (e.g. physician services) the resulting equation will generate a

forecast which tends to track the price inflation forecast for the denominator, which often accounts for a very high fraction of variation.

Models for spending by payer

Our model for health care spending by payer or source of funds (e.g. private health insurance (PHI), out-of-pocket spending (OOP), and other private spending) is "bottom-up" in nature. The aggregate breakout of spending for personal health care is determined by the sum of trends for each type of service. In this area aggregation can be expected to obscure trends that apply to specific types of services. Prescription drugs, physician services, nursing home care, and dental services account for about two-thirds of out-of-pocket spending. Each of these sectors is influenced by a different mix of factors. Information on out-of-pocket cost-sharing and other issues of PHI design is generally more available at the sectoral level, and since cost-sharing takes very different forms – information cannot easily be aggregated across sectors. In addition, since the out-of-pocket share of private spending differs markedly across sectors, shifts across sectors (for example, hospital to drug spending) will have important effects on aggregate trends.

For each type of service (hospital, physician, etc.) projections of the growth in spending for PHI and out-of-pocket in comparison relative to total private spending are based on econometric models for growth in real per capita spending. For example, PHI spending on prescription drugs is projected as a share of total spending on prescription drugs as a function of growth in total private spending by type of service, and trends in insurance coverage (growth in enrollment in PHI, Medicaid and Medicare). Trends in insurance coverage (private, Medicaid, and Medicare enrollment, and the uninsured population) also influence the composition of private spending by payer, since the fraction paid out of pocket differs substantially across these groups. In addition, growth in disposable personal income may have an impact on the relative pace of growth in out-of-pocket spending through its influence on discretionary medical spending.

Sector-level spending for PHI, out-of-pocket, and other private funds are adjusted for consistency with aggregates across two dimensions. First, the sum of spending for all private sources of funds by sector must equal total private spending for all sources of funding. Second, spending for PHI across all types of services must equal the aggregate spending for PHI. Spending at the level of type of service by source of funds is adjusted for consistency with aggregates based on iterative proportional fitting.[17]

In addition to our model of private sources of funds, we also project sources of public funds other than Medicare and Medicaid. These sources account for approximately 25 percent of total public spending. Other federal and other state and local spending (exclusive of Medicare and Medicaid spending) are projected based on econometric models similar to those used to project real per capita private spending models.

[17] "Iterative proportional fitting, also known as iterative proportional scaling, is an algorithm for constructing tables of numbers satisfying certain constraints." From Speed, T.P., "Abstract: Iterative Proportional Fitting," *Encyclopedia of Biostatistics*, 15 July 2005, http://mrw.interscience.wiley.com/emrw/9780470011812/eob/article/b2a10027/current/abstract (accessed 22 February 2008).

Spending Projections for Department of Defense (DOD) and Department of Veterans' Affairs (VA) Health Insurance Programs

This year's projection model includes the addition of separate econometric type of service estimates for both the VA and DOD healthcare systems. In prior projections, VA and DOD expenditures were included with Federal Other Public spending projections. Currently the modeling process produces separate aggregate spending projections for both VA and DOD. These estimates are then adjusted using data from published federal budget requests for the upcoming fiscal year. Within these aggregate projections, iterative proportional fitting is utilized to control spending within benefit categories to the aggregate spending totals for each program to produce more reasonable type of service totals.

Expenditures for both the VA and DOD are mainly driven by fiscal policy, demographics, economic conditions, and to a lesser extent overseas military operations. VA spending is expected to exhibit countercyclical elements as eligibility is in part determined by income as well as the presence of other insurance coverage along with a myriad of other factors. Beneficiary populations within both the VA and DOD tend to be less healthy and more costly to care for than the general population on a per-beneficiary level. In addition, these enrollees are faced with significantly less cost sharing and enrollment fees than in other sources of healthcare leading to an expected faster growth in per beneficiary spending. Moreover, recent changes in benefit structure and enrollment expansions are both expected to increase government spending on VA beneficiaries in the near future as long as adequate funding to meet the needs of these beneficiaries is appropriated by Congress. As the decade unfolds, it is anticipated that spending growth for both the VA and DOD will decelerate due to expected budgetary contractions, improving economic conditions, and a slow-down in reliance and enrollment growth.

The current state of economy, military action, and fiscal policy all introduce an added layer of uncertainty into the projections for both of these programs. The ACA is not assumed to impact either the VA or DOD healthcare system, leaving these projections unaffected by the OHRM. The methodology used to create these estimates will likely evolve in the coming projection cycles as experience of model accuracy and additional data become more available.

Models for Spending by Sponsor of Payment

Sponsor of payment categories define what group holds the ultimate responsibility for financing or supplying the funds needed to support healthcare spending by direct payers. A major focus here is the relative spending for households and business that support payment for insurance coverage – trends at the level of payment for premiums that may be masked by focusing on the direct source of payment for care. For example, NHE spending by payer for PHI contains premiums paid to insurance companies financed through multiple sources, including employers and employees (households contributions to premiums), and households as the source of dedicated tax revenues including the payroll tax that is the major source of funding for Medicare Part A. The expansion of the model to address patterns of spending by sponsor was directed towards estimating the impact of the ACA. However, this perspective is also useful in weighing the impact of rising spending on different groups in the private sector.

Employee sponsored health insurance (ESI) premiums and other private health insurance (OPHI) were projected for households and employer for types of insurance (group and individual) and sector of employment (public or private). Additionally, payments by employers for workers compensation and

temporary disability insurance to state and local governments were forecast econometrically using macroeconomic trends and were applied through the model's accounting identities.

To maintain consistency within total expenditures across sponsor and payer estimates, iterative proportional fitting is used to adjust the matrix of spending for each cell relative to totals. For example, projections of ESI and OPHI must be adjusted to equal total PHI spending.

A number of categories of spending are projected exogenously based on the current trustees' report financing assumptions for both Medicare and Medicaid. These categories include:

- Worker contributions to HI trust fund and Taxation of Benefits
- Employer contributions to HI trust fund
- SMI Part B and D Premium revenues
- Medicaid Buy-Ins for Medicare premiums
- State Medicaid Phase Down payments

For additional information on the accounting identities used to produce these estimates please see the historical NHE sponsor methodology paper.[18]

b. Model for Enrollment in Private Health Insurance

Within our model for private health insurance enrollment, we take trends in Medicaid and Medicare enrollment as exogenous inputs, based on the 2011 Trustees Report with updates for recent data. Growth in enrollment in private health insurance per capita (PHI) is projected as a function of macroeconomic indicators, which capture the loss of coverage due to rising unemployment and slowing real income growth, and by projections of Medicaid enrollment. As a greater share of the working-age population becomes eligible for Medicaid, declines in private health insurance enrollment are partially offset by increases in Medicaid enrollment.

The variables in our current model are lagged values of two macroeconomic indicators, and Medicaid enrollment:

- Civilian unemployment rate. Increased unemployment reduces PHI enrollment.
- Real disposable personal income (DPI). The model includes a polynomial distributed lag on growth in DPI. A four-year lag is included, but the current year and previous year's income growth account for almost all of the impact.
- Medicaid enrollment

Econometric models for private spending growth and private health insurance enrollment are separate, however, projections are linked in that both are primarily driven primarily by common macroeconomic trends. The model for private health insurance enrollment places greater emphasis on labor market conditions, and the implications of this analysis feed back into spending projections as trends in private spending per enrollee and private health insurance spending per enrollee are monitored and adjusted during the projections process.

[18] "Methodology for Estimates by Sponsor" http://www.cms.gov/NationalHealthExpendData/downloads/bhg_methodology_09.pdf

4. EFFECTS OF THE AFFORDABLE CARE ACT (ACA) ON NHE PROJECTIONS

Impact Estimates for ACA coverage expansions, Immediate Reforms, Non-Expansion Modifications to Medicare and Medicaid, the Excise Tax on High-Cost Insurance Plans, and Industry Fees

The Office of the Actuary Health Reform Model (OHRM) and related actuarial cost estimates are used to estimate the impact of the ACA coverage expansions, Immediate Reforms, Non-Expansion Modifications to Medicare and Medicaid, and the Excise Tax on High-Cost Insurance Plans. The OHRM simulates the impact of health reform legislative provisions on both household and employer decision-making in regard to health insurance coverage and health spending. The impacts of reform generated by the model are then combined with actuarial cost estimates prepared by the Office of the Actuary for the Medicare and Medicaid provisions unrelated to the coverage expansions. These combined impacts are then applied to the baseline nominal NHE projections calculated as described in prior sections. For more information on this portion of our ACA estimates, please see the OHRM methodology paper.[19]

ACA Impacts on the Net Cost of Private Health Insurance, Government Administration, Government Public Health Activity, Non-Commercial Research, and Structures & Equipment

The OHRM model output and actuarial cost estimates cover many of the ACA's provisions; however, the impact for a subset of provisions had to be estimated separately using differing methods based on nature of each provision.

Our estimates of the net cost of insurance take into account two important factors. First, we constrain our estimates to reflect the minimum medical loss ratio provisions of the ACA. Secondly, we apply different net cost assumptions for each type of available coverage through the projection period. This method allows us to capture the effect on net cost of the expansion of health insurance coverage and shifts in coverage that will take place under ACA.

Our estimates of government administration reflect the ACA impact on Medicaid administrative costs, the costs to the federal and state governments to initialize and operate Health Insurance Exchanges, administrative costs associated with the Early Retiree Reinsurance Program (ERRP) and Co-ops, and the HHS Implementation Fund authorized by the ACA. The Medicaid administrative costs are based on actuarial budget projections; the estimates for the ERRP and Co-ops are also based on budget data. The estimate associated with the HHS Implementation Fund reflects the ACA appropriation for the fund ($1 billion). We assumed that the fund would be expended over the 2010-2013 period; for subsequent years, we extrapolated the 2013 allocation by projected growth in the consumer price index.[20] The estimates associated with exchange start-up and operations are based, in part, upon the published historical experience of the Massachusetts Commonwealth Connector Authority in terms of operating costs.[21]
The ACA also appropriated or authorized sums for a number of other programs that fall under the scope

[19] OHRM methodology paper (forthcoming).
[20] The projections of the CPI used in this estimate are the same as used in the baseline projections (2011 OASDI Trustees macroeconomic assumptions)
[21] Kingsdale J. Health insurance exchanges – key link in a better-value chain. N Engl J Med (Waltham). 2010 [cited 2010 Jul 2] (10.1056/NEJMp1004758) and Kingsdale J. Establishing a health insurance exchange: Testimony before Joint Hearing of the Senate and Assembly Health Committees [Internet]. Sacramento (CA): State of California; 2010 May 12 [cited 2010 Jul 22]. Available from http://senweb03.senate.ca.gov/committee/standing/health/California_Testimony_of_Jon_Kingsdale.pdf

of the NHE. These programs include (but are not limited to) funding for non-commercial research endeavors (including patient-centered outcomes research), the Prevention and Public Health Trust, and investments in community health centers. Specific dollar value appropriations were then assigned to the proper NHE sector and payer categories. Provisions that authorized "sums as necessary" were excluded, given the lack of specificity on which to base an estimate.

ACA Impact on Sponsor Analysis

In order to overlay the effects of the Affordable Care Act, projected healthcare reform payer impacts from the OHRM were separated on a sponsor basis for each provision. Final Post-ACA payer and sector quantities for Medicare, Medicaid (Federal/State), Other Public (Federal/State), and Other Private are utilized without the need to split impacts over multiple sponsors. However, impacts to PHI are an exception, as private businesses, households, governments all participate in this portion of the health economy. Spending impacts associated with ESI drops and take-ups must be then split among non government employed sponsors in order to get the final impact of the introduction of exchanges to ESI on a sponsor basis. Lastly, the impact of increased insurance spending by exchange enrollees is added to total household spending along with Post ACA OPHI in order to get the final PHI spending effect due to the introduction of the Exchanges and Medicaid expansion.

Moreover, premium subsidies for employees, as well as premium tax credits for small employers are subtracted from the total exchange premium cost and private business health insurance spending respectively. These are then added into other federal spending to reflect the source of the subsidy's funding. In addition, PHI spending impacts from dependent coverage provisions, high risk pools, early retiree reinsurance program, and excise tax were allocated between the sponsors in a comparable manner. Finally, the impact of industry fee provisions to PHI is distributed in a dollar weighted fashion among the sponsors after the rest of the NHE impacts of the ACA had been taken into account.

5. CONCLUDING NOTE

Our projection process combines to give us a sound and defensible projection methodology based on accepted econometric and actuarial projection techniques. As with any projection, we are constantly reviewing the accuracy of our projections and working to make improvements in the methodology. Please e-mail DNHS@cms.hhs.gov with any comments, feedback, or suggestions on our NHE Projection Model.