Household health care spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts, 2009-2012

Ann C. Foster

Health care spending data produced by the Federal Government include the Bureau of Labor Statistics Consumer Expenditure Survey (CE) and the National Health Expenditure Accounts (NHEA) of the Department of Health and Human Services Centers for Medicare & Medicaid Services.[1]

This article compares annual aggregate CE and NHEA household health care expenditures from 2009 to 2012 to determine the consistency of the estimates. For each year examined, estimates were obtained for all relevant categories and then CE-NHEA spending ratios were calculated.

Findings show the following:

- CE-NHEA ratios for total health care ranged from 0.68 to 0.72.
- CE-NHEA ratios for medical supplies and nonprescription drugs were low, ranging from 0.40 to 0.48.
- The highest CE-NHEA ratios (1.04 to 1.07) were for premium payments to the Medicare SMI (Supplementary Medical Insurance) Trust Fund.
- CE and NHEA differences in definitions, sources, and methods appear to be the main reason for differences in the estimates.

Data sources and methodology

Conducted continuously since 1980, the CE has two components, a quarterly Interview Survey and a weekly Diary Survey. Each component has an independent sample of consumer units. The CE collects information on all spending categories such as food, clothing, housing, and transportation, as well as health care.[2]

Published by the Centers for Medicare & Medicaid Services of the U.S. Department of Health and Human Services, the NHEA are the official estimates of total health care spending in the United States. Dating back to 1960, the NHEA measures annual aggregate U.S. spending for health care goods and services, public health activities, program administration, the net cost of private insurance, and research and other investment related to health care.[3]

The CE and the NHEA differ in the populations they cover. The CE is designed to represent the U.S. civilian noninstitutional population and excludes those living in an institution, such as a nursing home or prison, and active-duty members of the U.S. Armed Forces living on base. The NHEA covers the larger resident population, which includes all persons, both military and civilian, living in the United States.[4]

CE health care data represent payments (after reimbursement) made directly to the providers of care, such as hospitals, and payments to third parties, such as insurance companies, for private group and individual health insurance coverage. Payments to the Federal Government for Medicare Part B and Part D coverage are also included. Like the CE, NHEA household health care spending includes direct payments to providers and amounts paid to third-party insurers.[5]

The CE obtains information from individual consumer units, while the NHEA uses secondary data sources, such as the Services Annual Survey and the Economic Census, both produced by the U.S. Census Bureau.[6] The CE and NHEA also differ in how spending is categorized. In the CE, spending is categorized by the type of service provided, while in the NHEA, the type of establishment providing the service generally determines what is included in a spending category. For example, the CE has separate categories for inpatient hospitalization and other medical services (outpatient hospital care, emergency room services, etc.), but the NHEA places these services in its hospital care category.

Before estimating aggregate expenditures, some adjustments were made to the spending categories so that CE and NHEA components would be as comparable as possible. For example, the CE eye-care services category was combined with the other professional services category to better align the data with the NHEA other professional services category.[7]

The NHEA estimates were adjusted so that they refer to the same population concept as the CE. A multiplier was computed for each year covered by the research. Each multiplier was derived by finding the ratio of the population covered by the CE to the population covered by the NHEA.[8] Although this method accounts for differences in population size, it does not account for spending differences in the populations covered by the two data sources. CE-NHEA spending ratios were then computed.

Findings

Table 1 shows CE estimates of aggregate expenditures for health care and CE-NHEA health care spending ratios. In 2012, CE aggregate medical care expenditures were $438.2 billion or 72 percent of the NHEA estimate of $607.2 billion.[9]

The lowest CE-NHEA ratios were found for medical supplies and nonprescription drugs (0.40 to 0.48) and for physicians' services (0.43 to 0.47). For medical supplies and nonprescription drugs, a major factor is the difference in the items in the CE and the NHEA categories. For example, the CE medical supplies and nonprescription drugs category includes adult diapers; nonprescription drugs; nonprescription vitamins; and topicals and dressings. While spending on these items is part of the NHEA other non-durable medical products category, also included is spending on products such as heating pads; sun lamps; syringes and needles; and home testing kits that are part of the CE medical equipment category.

The difference in items in the CE and NHEA categories is also a factor in the physicians' services category. For example, separately billed laboratory charges are part of the NHEA physicians' services category, but in the CE they are included in the CE hospital care category. The NHEA category also includes services by physicians' offices and freestanding outpatient

care centers such as HMOs (health maintenance organizations). Because the NHEA categorizes spending by establishment, some items, such as prescription drugs purchased at an HMO pharmacy, would be included in this category instead of in prescription drugs as in the CE.[10]

The CE-NHEA ratios for premium payments to the Medicare SMI Trust Fund were quite similar, with a range of 1.04 to 1.07. This could be the result of the way that the CE Interview Survey accounts for Medicare Part B (Medical Insurance) premium payments. Respondents are asked about the number of household members enrolled in Medicare. Each person with Medicare coverage is assumed to have Medicare Part A (Hospital Insurance)[11] and is then assigned the standard Medicare Part B monthly premium ($99.90 in 2012). The CE does not take into account low-income beneficiaries with state buy-in status whose Part B premiums are paid by Medicaid. The NHEA subtracts these amounts from premiums paid to the Medicare SMI. As of July 1, 2012, about 17 percent of Medicare enrollees had state buy-in status for Part B. Accounting for these subsidies in the CE would reduce CE-NHEA ratios for SMI premiums.[12]

In contrast, the CE does not take into account those Medicare beneficiaries with relatively high incomes who have been required to pay a greater share of Part B costs since 2007. Because the proportion of Medicare enrollees subject to this income-related premium is low, CE-NHEA ratios would probably not increase much if the additional premiums paid were taken into account.[13]

Under Part D, individuals eligible for both Medicare and Medicaid receive a low-income subsidy for Medicare drug plan premiums. This would not affect CE-NHEA ratios for Medicare SMI premiums because CE respondents with Part D stand-alone coverage provide information about the amount of the monthly premium paid after any reimbursement is taken into account.

CE and NHEA aggregate expenditures for prescription drugs were also fairly close, with ratios ranging from 0.90 to 0.98. One reason for the close ratios is that the NHEA prescription drugs category includes spending on items from retail outlets and mail-order pharmacies only, while the CE also includes items obtained from other sources, such as health maintenance organizations. Another reason is that the items included in the prescription drugs category are similar in both the CE and NHEA.

CE-NHEA hospital care ratios ranged from 0.85 to 0.95. These ratios reflect that the CE hospital care category includes ambulance charges, payments to establishments providing inpatient mental health and substance abuse treatment, and separately billed laboratory charges that are not part of the NHEA hospital care category.[14]

Conclusions

CE-NHEA ratios for total health care spending and its components varied little between 2009 and 2012. The highest ratios were for premiums paid to the Medicare SMI (Supplementary Medical Insurance) Trust Fund and for prescription drugs, while the lowest ratios were for medical supplies and nonprescription drugs and for physicians' services. Although some alignment of the CE and NHEA data sets was possible, differences in definitions, sources, and methods appear to be responsible for differences in the estimates.

Table 1. Comparison of aggregate household health care expenditures: Consumer Expenditure Survey and National Health Expenditure Accounts, 2009-2012

Expenditure Category	Consumer Expenditure Survey[1] (in Billions)				Ratio of Consumer Expenditure Survey to National Health Expenditure Accounts[2]			
	2009	2010	2011	2012	2009	2010	2011	2012
Health care, total	375.8	381.4	403.9	438.2	0.69	0.68	0.70	0.72
Health insurance, total	215.7	221.7	235.1	256.4	0.71	0.71	0.73	0.76
Private insurance	166.0	171.5	182.3	198.8	0.65	0.65	0.67	0.70
Medicare SMI[3]	49.7	50.2	52.7	57.6	1.07	1.04	1.05	1.04
Medical commodities, total	73.4	73.2	76.7	81.8	0.65	0.65	0.66	0.68
Prescription drugs……	43.7	42.4	42.1	45.6	0.90	0.94	0.91	0.98
Medical supplies and nonprescription drugs……..	18.9	20.7	23.0	23.9	0.40	0.44	0.47	0.48
Medical equipment……..	10.8	10.1	11.5	12.3	0.59	0.52	0.54	0.53
Medical services, total…….	86.7	86.6	92.2	100.0	0.66	0.64	0.65	0.67
Professional services……	65.6	64.7	68.3	71.8	0.61	0.59	0.60	0.60
Physicians' services……..	22.4	22.2	21.9	25.4	0.47	0.44	0.43	0.47
Dental services……..	32.4	31.8	34.9	33.4	0.76	0.74	0.79	0.72
Other professional services	10.8	10.7	11.5	13.0	0.63	0.60	0.62	0.67
Hospital care…….	21.1	21.8	23.8	28.3	0.86	0.85	0.88	0.95

[1] Consumer Expenditure Survey data exclude nursing home care spending.

[2] National Health Expenditure Accounts data exclude home health care; nursing home care; employee and self-employment contributions and voluntary premiums paid for Medicare Part A; and other health, residential, and personal care expenditures.

[3] Premiums paid to the Medicare Supplementary Insurance Trust Fund for Part B and Part D coverage.

NOTE: Sums may not equal totals due to rounding. Expenditure categories have been adjusted to make the two data sources as comparable as possible.

SOURCE: The National Health Expenditure Accounts (NHEA) data used to compute CE/NHEA ratios are from the U.S. Department of Health and Human Services, Centers for Medicare & Medicaid Services, "National Health Expenditures by Source of Funds and Type of Expenditure: Calendar Years 2006-2012,"
http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/tables.pdf
and "National Health Expenditures 2012: Sponsor Highlights,"
http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html
Because retrospective adjustments to NHEA data are made when new data are issued, CE-NHEA ratios may differ from those published in previous years.

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Notes

[1] Other Federal Government sources of health care spending data include the household component of the Medical Expenditure Panel Survey (MEPS) of the Department of Health and Human Services Agency for Healthcare Research and Quality and the Personal Consumption Expenditures (PCE) of the Bureau of Economic Analysis. For more information about these data sources, see Medical Expenditure Panel Survey, "Household Component," Agency for Healthcare Research and Quality, Revised October 25, 2010, http://meps.ahrq.gov/mepsweb/survey_comp/household.jsp and Concepts and Methods of the U.S. National Income and Product Accounts, Chapter 5, "Personal Consumption Expenditures," U.S. Bureau of Economic Analysis, November 2012, http://www.bea.gov/national/pdf/methodology/ch5%202012.pdf

[2] For more information, see BLS Handbook of Methods, Chapter 16, "Consumer Expenditures and Income," http://www.bls.gov/opub/hom/pdf/homch16.pdf.

[3] See "National Health Expenditure Accounts: Methodology Paper, 2012: Definitions, Sources, and Methods," Centers for Medicare & Medicaid Services, http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/dsm-12.pdf

[4] For more information, see "Population Estimates Terms and Definitions," U.S. Census Bureau, http://www.census.gov/popest/about/terms.html.

[5] For more information, see "National Health Expenditures 2012: Sponsor Highlights," Centers for Medicare & Medicaid Services, http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html

In the CE, out-of-pocket health care expenses are any unreimbursed expenses paid directly to the provider of care or to a third-party insurer. The CE classification is similar to the NHEA sponsor concept where household spending includes premiums paid to a third party for private insurance and Medicare as well as amounts paid directly to the providers of care, such as hospitals and pharmacies.

[6] Every 5 years the NHEA undergoes a comprehensive revision that includes the incorporation of newly available source data, methodological and definitional changes, and benchmark estimates from the U.S. Census Bureau's Economic Census which is available for years ending in 2 and 7. For more information about changes made after the 2007 Economic Census, see Centers for Medicare & Medicaid Services, "Summary of National Health Expenditure Account 2009 Comprehensive Revisions," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/benchmark2009.pdf.

The 2009 revisions are reflected in CE-NHEA comparisons for the 2007-2010 period. For more information see, Ann C. Foster, "Household health care spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts," http://www.bls.gov/cex/nhe_compare_200710.pdf.

Earlier CE-NHEA comparisons based on the 2002 Economic Census include "Consumer Expenditure Survey compared with National Health Expenditure Accounts," Consumer Expenditure Survey, 2006-2007, Report 1021, http://www.bls.gov/cex/twoyear/200607/csxnhe.pdf and Ann C. Foster, "Out-of-pocket health care expenditures: a comparison," Monthly Labor Review, February 2010, pp. 3-19, http://www.bls.gov/opub/mlr/2010/02/art1full.pdf. The estimates in these works are not strictly comparable with estimates based on the 2007 Economic Census.

[7] The CE data used in this research are unpublished integrated data showing the most detailed (least aggregated) breakdowns available. The NHEA data were obtained from Centers for Medicare & Medicaid Services, "National Health Expenditures by Source of Funds and Type of Expenditure: Calendar Years 2006-2012," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/tables.pdf and Centers for Medicare & Medicaid Services, "National Health Expenditures 2012: Sponsor Highlights," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NationalHealthAccountsHistorical.html

When the Centers for Medicare & Medicaid Services publish NHEA data for subsequent years, data from previous years are often revised. The NHEA data cited in this research are those released with the 2012 estimates on January 7, 2014. Because of these revisions, data for 2009-2010 that were released with the 2010 estimates on January 11, 2012 and used in "Household health care spending: comparing the Consumer Expenditure Survey and the National Health Expenditure Accounts," may not be the same as comparable estimates released in 2012. The 2009-2010 CE data are the same in both studies.

[8] This method has been used in previous CE data comparison research. For more information, see Ann C. Foster, "Out-of-pocket health care expenditures: a comparison," http://www.bls.gov/opub/mlr/2010/02/art1full.pdf and Thesia I. Garner, George Janini, William Passero, Laura Paszkiewicz, and Mark Vendemia, "The CE and the PCE: a comparison," Monthly Labor Review, September 2006, pp. 20-46, http://www.bls.gov/opub/mlr/2006/09/art3full.pdf.

The following multipliers were used in this analysis for the years 2009–2012:

2009	2010	2011	2012
0.984096	0.97983	0.983014	0.993738

[9] CE estimates exclude spending on nursing home care. NHEA estimates exclude home health care; nursing home care; employee and self-employed contributions and voluntary premiums paid for Medicare Part A (Hospital Insurance); and other health, residential, and personal care expenditures.

[10] The NHEA durable and non-durable medical products categories are limited to products obtained from retail outlets and through mail order. The value of products provided to patients in hospitals (on an in-patient or outpatient basis), nursing homes, and other provider settings are implicit in the spending estimates for those providers' services. Optical goods, such as eyeglasses and contact lenses contact lenses, is an exception. Receipts for these products are subtracted from optometrist receipts and added to the durable medical products category. For more information, see "National Health Expenditure Accounts: Methodology Paper, 2012: Definitions, Sources, and Methods," Centers for Medicare & Medicaid Services, http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/dsm-12.pdf

The CE durable and non-durable medical products categories include all purchases except those provided on an inpatient hospital basis. Purchases of optical goods are also included in the durable medical products category in Table 1.

[11] The Social Security Act allows some people not otherwise eligible for Medicare Part A (Hospital Insurance) to obtain coverage by paying a monthly premium. In 2012, premiums collected from such voluntary participants (or paid on their behalf by Medicaid) amounted to about $3.4 billion. The standard monthly premium was $451, with a reduced premium of $248 for individuals with 30 quarters of covered employment. For more information, see "2013 Annual Report of the Boards of Trustees of the Federal Hospital Insurance and the Federal Supplementary Medical Insurance Trust Funds," May 31, 2013, Centers for Medicare & Medicaid Services, pp.10, 216, http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2013.pdf

It should be noted that the NHEA includes employee and self-employed contributions paid to the Medicare HI Trust Fund and voluntary premiums paid to the HI Trust Fund for Part A coverage. In the CE, employee and self-

employed contributions to the HI trust funds are treated as deductions from income for Social Security purposes, while information about voluntary Part A premiums is not collected.

[12] As of July 1, 2012, 49.7 million persons in the United States were enrolled Medicare Hospital Insurance and/or Supplementary Medical Insurance. Of these enrollees, 8.5 million had state buy-in status, with Medicaid providing assistance with Medicare Part B premium payments. For more information, see "Medicare and Medicaid Statistical Supplement: 2013 Edition," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareMedicaidStatSupp/2013.html, "List and Definition of Dual Eligibles," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareEnrpts/Downloads/Buy-InDefinitions.pdf, and "Medicare Part B Buy-Ins: July 2000-2013," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/MedicareEnrpts/Downloads/BuyIns2013.pdf.

[13] In 2012, 4.8 percent of Part B enrollees paid the income-related premium. For more information, see "Raising Medicare Premiums for Higher-Income Beneficiaries: Assessing the Implications,"(Issue Brief) Washington, DC: Kaiser Family Foundation, January 2014, http://kff.org/medicare/issue-brief/income-relating-medicare-part-b-and-part/

[14] In the NHEA, separately billed laboratory charges are part of the NHEA physician and clinical services category, while ambulance charges, payments to establishments providing inpatient treatment of mental health and substance abuse illnesses are part of the NHEA other health, residential, and personal care category. This category was subtracted from the NHEA total because the majority of these expenses are for residential care facilities that mainly provide assistance with daily living or returning an individual back into the community. For more information, see Centers for Medicare & Medicaid Services, "National Health Expenditure Accounts: Methodology Paper, 2012: Definitions, Sources, and Methods," http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/dsm-12.pdf