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# **Health Care, Health Insurance, and the Distribution of American Incomes**

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## *Abstract*

Cash income offers an incomplete picture of the resources available to finance household consumption. Most American families are covered by an insurance plan that pays for some or all of the health care they consume. Only a comparatively small percentage of families pays for the full cost of this insurance out of their cash incomes. As health care has claimed a growing share of consumption, the percentage of care that is financed out of household incomes has declined. Because health care consumption is more important for some groups in the population than others, the growth in spending and changes in the payment system for medical care have reduced the value of standard income measures for assessing relative incomes of the rich and poor and the young and old. More than a seventh of total personal consumption now consists of health care that is purchased with government insurance and employer contributions to employee health plans. This paper combines health care spending and insurance reimbursement data in the Medical Expenditure Panel Study and money income and health coverage data in the Current Population Survey to assess the impact of health insurance on the distribution of income. Our estimates imply that gross money income significantly understates the resources available to finance household purchases. The estimates imply that a more complete measure of resources would show less inequality than the income measures that are currently used. The addition of estimates of the value of health insurance to countable incomes reduces measured inequality in the population and the income gap between young and old. If the analysis were extended over a longer period, it would show a sizeable impact of insurance on inequality trends in the United States.

# Health Care, Health Insurance, and the Distribution of American Incomes

## 1. Introduction

THE GROWTH OF HEALTH CONSUMPTION and third-party insurance reimbursement has a sizeable and largely unexamined impact on the U.S. income distribution. Americans' consumption of medical goods and services represents a growing percentage of their total consumption. Much of this spending is excluded from standard measures of money income and household well-being. When the Census Bureau calculates median income or changes in the shape of the household income distribution, its standard measure of income includes only money income sources, such as wages, self-employment earnings, social security benefits, and interest and dividend payments. The money income measure excludes the consumption households enjoy when their employers and the government pay for part or all of their health care. This measurement issue was unimportant when employer premiums and government health benefits accounted for a small fraction of total consumption, as was the case before the mid-1960s. It represents a much more serious problem when these funding sources pay for more than a seventh of personal consumption, as is the case today. Actual household spending on medical bills and health insurance premiums similarly provides an unreliable indicator of the health care consumption enjoyed, on average, by people who are covered by a group health plan. Some health consumption is financed with employer contributions to employee health plans, and almost half of health care consumption is financed with government-provided insurance, primarily medicare and medicaid.

This paper develops and examines alternative measures of income that combine estimates of households' annual cash income and the health care consumption they obtain that is not financed out of current cash income. The Census Bureau has developed and published expanded income measures that include the insurance value of major kinds of government and employer-provided health insurance (U.S. Bureau of the Census 1993). The paper extends the earlier Census analysis by examining the actual distribution of health care consumption and health care financing across U.S. households. In addition, it analyzes the relationship between health consumption and insurance reimbursement patterns, on the one hand, and age and position in the income distribution, on the other.

The U.S. national income and product accounts (NIPA) show that an increasing percentage of health care consumption is financed with money that is not counted in standard measures of household income. Using detailed information on household health care consumption, health insurance coverage, and out-of-pocket spending on medical care and health insurance in the Medical Expenditure Panel Survey (MEPS), we can make plausible estimates of the portion of health consumption that is financed out of a household's own income and the fraction of care that is financed by someone else. Health care financed by someone else represents an addition to a household's claim over resources that is not included in standard Census Bureau measures of household income. How big are these claims? How are they distributed across young and old and among people at different positions in the income distribution? Because aged and disabled Americans consume a disproportionate share of health care goods and services, and because they receive generously subsidized insurance under public programs, their cash incomes provide a particularly misleading picture of their claims on real resources.

The findings of the analysis can be summarized briefly. Using the Census Bureau's estimates of the insurance value of medicare, medicaid, and employer contributions to employee health plans, it appears that the standard money income statistics understate true income by more than 10 percent. Not surprisingly, the understatement is much greater for the population 65 and older. Because the Census Bureau's estimates of insurance value are much more equal than disposable incomes, the Gini coefficient of income inequality would fall substantially if the Census estimates of insurance value were added to money income. The gross incomes of Americans in households headed by a person under 65 would increase 8.2 percent, and the incomes of households headed by someone past 65 would increase slightly more than 37 percent, significantly improving the relative income position of the aged. The health spending reports in the MEPS do not show such a large effect of subsidized health insurance on the relative income standing of the aged. The estimated difference between household spending on health and household consumption of health care that is observed in the MEPS sample is smaller than the Census Bureau's estimates of insurance value. If we subtract MEPS households' out-of-pocket spending on health care and insurance premiums from their total consumption of health care, the difference represents a claim on resources that is not financed out of household income. Based on interview data obtained in the 2001-2005 MEPS panels, it appears that these claims represent

a little more than 7 percent of household money income. Not surprisingly, there are wide disparities in these claims across households. If the claims were added to household cash incomes, Americans who are 65 or older would see their measured incomes rise about 20 percent, but the nonaged would see their incomes rise by only about 5½ percent. Including these claims in measured income would reduce inequality, but by a smaller percentage than including the Census Bureau's estimate of the insurance value of government and employer provided insurance. The estimates in this paper show that the income adjustment needed to reflect the cash value of health insurance represents a growing percentage of money income over the 10 years in our analysis period.

One of the most striking findings in this paper is the remarkable equality of health care consumption across the income distribution. Americans in households in the bottom one-fifth of the income distribution consume approximately the same health care goods and services as Americans further up in the distribution. This does not mean that access to good health care is equal for people everywhere in the distribution. Americans with a lower rank in the income distribution on average have worse health than Americans with higher incomes. Controlling for the state of a person's health, Americans with lower incomes consume less health care goods and services than Americans who have higher incomes.

The remainder of the paper is organized as follows. The next section presents statistics on aggregate consumption and health care purchases that show the importance of third-party payments for medical care in overall consumption and income. The following section describes the health consumption and insurance data available in the MEPS household file and shows how these data can be used to calculate the net income gains that individual households obtain from their insurance coverage. Section 4 analyzes the health consumption and insurance reimbursement patterns in the MEPS survey to determine the income distributional effects of the U.S. health insurance system. The following section analyzes experimental income estimates developed by the Census Bureau that include the value of government and employer-provided insurance in consumer incomes. These estimates are tabulated to see the effects of including insurance value in the measure of household income. Section 6 then compares the estimates based on the MEPS survey with the Census Bureau estimates of insurance value and shows the impact of the two sets of estimates on the age distribution of U.S. income. The paper concludes

with a brief description of implications of the study for measuring the shape and trend of the U.S. income distribution.

## **2. Health Care Consumption and Personal Income**

In 1960 expenditures on health care, including outlays on the administration of private health insurance, accounted for approximately 7 percent of total U.S. personal consumption. By 2007 this fraction had risen to about 20 percent. Strikingly, however, relatively little of the increase in health spending was financed directly out of household budgets. Between 1960 and 2007 the proportion of health spending paid out of public budgets more than doubled, and the fraction financed through third-party payments from private health insurers increased substantially. The actual fraction of health care costs paid as out-of-pocket payments by households fell by approximately one-third between 1960 and 2007 (Centers for Medicare and Medicaid Services, Office of the Actuary, 2008). In spite of the dramatic increase in Americans' health care consumption, a smaller percentage of household expenditures is now devoted to medical care, including health insurance premiums, than was the case in 1960.<sup>1</sup>

As a result of the impressive rise in third-party payments for medical care, people in many households consume substantially more health services than they could afford if they had to pay for these services out of current income and savings. The personal incomes of these health care consumers thus provide a substantial understatement of their actual or potential consumption of goods and services. Of course, many consumers face unusually high health costs in comparison to their incomes. Nonetheless, the rising cost and utilization of health care and the wide disparities in health consumption across the population mean that standard measures of personal income give a misleading picture of Americans' capacity to consume goods and services.

NIPA statistics on personal income and consumption offer an indication of the rising importance of health care consumption and third-party medical payments in the consumption of American families. In 2008 personal consumption of medical goods and services, including the cost of administering the private health insurance system, accounted for one-fifth of total U.S.

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<sup>1</sup> In the 1960–61 Consumer Expenditure Survey, 6.7 percent of household expenditures was devoted to health care consumption; in the 2007 Survey, the share devoted to health care was just 5.7 percent (Jacobs and Shipp, 1990, p. 21; and < <ftp://ftp.bls.gov/pub/special.requests/ce/standard/y0007/multiyr.txt> > [accessed on Sept. 21, 2009]).

personal consumption according to the NIPA (see Figure 1). This is very close to the combined share of personal health consumption and the administrative cost of private health insurance as estimated in the National Health Expenditure Accounts (NHEA).<sup>2</sup> Most personal health care consumption and a large percentage of the administrative cost of the health insurance system are financed with government outlays and employer contributions to employee health plans. Only a comparatively small fraction of these outlays is financed directly out of household budgets. The 2007 national health accounts show, for example, that about 14 percent of personal health care is financed with out-of-pocket consumer payments. The other 86 percent is paid with public and private health insurance and direct provision of services by employers, public hospitals and clinics, and philanthropic institutions. Of course, consumers must pay for part of the cost of health insurance with out-of-pocket premium payments, and these premiums must be paid out of household budgets. Even taking the premium payments into account, however, consumers pay for less than one-quarter of the total cost of the health care and private health insurance services they receive. More than three quarters of personal health care consumption and the administration of the health insurance system is financed out of government budgets, employer contributions to employee health plans, and philanthropy.

The percentage of health care paid out of household budgets has declined over time (see Figure 2).<sup>3</sup> In 1960 consumers paid for almost two-thirds of the cost of personal health care and private health insurance administration through out-of-pocket payments to health care providers and insurers. The rise of employer-based and government-provided insurance has sharply reduced the proportion of care that must be paid directly by consumers. In 2007 households paid for only about 23 percent of the health care and private health insurance services they consumed.

The standard money income statistics published by the Census Bureau do not include either employer contributions to employee health plans or government payments for personal

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<sup>2</sup> The NHEA, which are estimated and published by the Center for Medicaid and Medicare Services, show somewhat higher estimates of total spending on personal health care and private health insurance administration (see Figure 1). Nonetheless, the long-term trends in personal health consumption and the cost of the private health insurance system are very similar in the NIPA and national health expenditure statistics.

<sup>3</sup> The NHEA do not provide a direct estimate of the health insurance premiums paid by consumers out of their cash incomes. The most consistent source of historical data on consumer premium payments is provided by the Bureau of Labor Statistics Consumer Expenditure Survey. These are the data that are added to the NHEA estimates of consumer out-of-pocket spending for personal health care to obtain the estimates of total consumer cash outlays on health care and insurance premiums shown in Figure 2.

health care in the definition of household income. The main Census Bureau income definition (“money income”) focuses on cash income directly received by households, a measure that is closely related to the income that would be reported on tax returns. Figure 3 shows employer and government payments for personal health care and the administration of the private health insurance system, measured as a percent of total U.S. personal consumption.<sup>4</sup> The estimates exclude the portion of personal health care that is financed out of households’ money income, that is, with out-of-pocket payments for care and health insurance premiums. Personal consumption expenditures are reported directly in the NIPA statistics (in NIPA Table 1.1.5). The estimates in Table 3 show the trend and rough order of magnitude of the additions to household cash incomes that must be made to reflect the health consumption made possible by employer health insurance contributions and government provision of health insurance.<sup>5</sup>

Our estimates show the growing importance of employer health insurance contributions and government health insurance payments in paying for Americans’ consumption. In 1960, only 2.5 percent of total personal consumption consisted of health care and private health insurance services financed out of employer premium contributions and government insurance payments. In 2007, 15.5 percent of total personal consumption was financed in this way. Employer contributions for health insurance plans and government health insurance payments represent forms of personal income that are excluded from the definition of money income. The long-term rise in health spending and the growing importance of third-party payments for health consumption mean that the standard money income statistics understate the long-term increase in both personal income and consumption as those concepts are defined in the NIPA statistics (Burtless 1996, pp. 272-74). The understatement is much larger for groups in the population that have enjoyed the fastest growth in third-party reimbursement of health care consumption. These

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<sup>4</sup> The estimate of government payments for personal health care is net of consumers’ premium payments for coverage under government insurance plans. That is, we subtract premium payments for medicare from medicare benefit outlays in order to calculate the net health consumption that is financed with government insurance payments.

<sup>5</sup> Estimates of aggregate money income are difficult to derive from the NIPA tables because the conceptual basis of the NIPA definition of personal income differs from that of the Census Bureau definition of money income. Previous papers have described methods for converting NIPA income statistics into a series that reflects the Census Bureau concept of money income (see Roemer 2000; Ruser, Pilot, and Nelson 2004; and Bosworth, Burtless, and Anders 2007). When these methods are applied, it turns out that the estimates shown in Table 3 approximate the additions to money income that would occur if employer health insurance contributions and net government payments for health insurance were added to the aggregate total of U.S. money income.



groups include the aged, poor, and disabled, so it seems likely the understatement of income affects not only the trend in median income but also the relative improvement of incomes in the lower tail of the income distribution.

### **3. Effects of Employer Insurance Contributions and Government Health Benefits on Measured Incomes: Census Bureau Estimates**

The nation's principal source of information about trends in median household income as well as the distribution of income is based on annual Census Bureau interviews conducted as part of the Current Population Survey (CPS) program. Results of the survey are published in late summer when the Census Bureau releases tabulations showing trends in money income, poverty, and health insurance coverage in the previous calendar year. The money income statistics are widely interpreted as providing authoritative information on trends in middle class income and the distribution of American well-being (see, for example, Eckholm 2009 and Morello and Keating 2009). As shown above, however, the statistics provide a very incomplete picture of household resources available to pay for consumption, especially health care consumption.

Recognizing the limitations of its standard definition of money income, the Census Bureau has attempted to measure household income under a number of more comprehensive definitions, including ones that account for most personal health benefits funded or directly provided by employers and the government (U.S. Bureau of the Census 1993; Cleveland 2005). An ideal measure of the impact of health insurance on individual well-being would estimate the market value of the insurance that is provided to individual consumers or to household members who are covered by an insurance policy. It would then subtract from this market valuation the premium contribution that each consumer must pay in order to obtain insurance. In 2008, for example, the average cost of insuring a single worker under an employer-sponsored health insurance plan for one year was \$4,704. On average, workers' premium contributions paid for 16 percent of the cost of the plan, and employers paid for the rest. Family coverage required total annual premiums averaging \$12,680. Workers paid average premiums that covered 27 percent of this annual charge.<sup>6</sup> Aged and disabled Americans who are enrolled in Medicare usually pay monthly premiums for coverage, and these premiums should be subtracted from the market value of Medicare coverage to determine the value of Medicare to enrollees.

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<sup>6</sup> These estimates are based on results from an annual survey of employers sponsored by the Kaiser Family Foundation rather than the MEPS (see Claxton *et al.* 2008).

The Census Bureau has tried to incorporate a measure of the insurance value of employer-provided insurance and major government insurance programs in a more comprehensive definition of income. In one of its current income definitions, for example, the Bureau includes estimates of the value of employer contributions to employee health plans for workers who say they were covered by an employer plan. Predicted employer contributions are imputed to each worker in the CPS sample based on model estimates developed using data from a separate survey of employers. In that survey employers were asked about the contributions they made to plans covering their workers. In another income definition the Bureau includes estimates of the “fungible insurance value” of medicare and medicaid for people in the CPS sample who say they were insured by medicare or medicaid for part or all of the previous year. The Bureau estimates the insurance values of medicare and medicaid by calculating the average medicare and medicaid outlay per enrollee, by risk class, separately in each of the 50 states. In its income estimates for 1992 the Bureau defined two risk classes for medicare (older than age 65 and disabled) and four risk classes for medicaid (older than 65, younger than 65 and disabled, age 21-64 and not disabled, and age 0-20 and not disabled).

The Census Bureau developed its alternative income definitions in part to estimate poverty rates under a more comprehensive measure of family resources. The Bureau did not believe it could include 100 percent of the medicare and medicaid insurance valuation for respondents with low cash incomes. This explains its decision to count only the “fungible” value of insurance in its alternative measure of income. The fungible value of health insurance is zero in the case of families who do not have enough cash and near-cash resources to pay for their minimum food and shelter costs. As cash and near-cash resources rise above this threshold an increasing percentage of the insurance value of medicare and medicaid is counted as fungible and included in family income. The full insurance amount is included in income when a family’s cash and near-cash resources are greater than the difference between family resources and the minimum resource threshold (U.S. Bureau of the Census 1993, pp. B1-B3). The Census Bureau’s most comprehensive definition of income includes both its estimates of employer contributions to employee health plans and the estimated “fungible” value of government insurance programs.

Before proceeding further, it is useful to consider how household incomes can be compared when two households have an unequal number of members. Because larger

households need more money than smaller households to enjoy the same standard of living, it is necessary to adjust households' reported incomes to reflect this fact. A common adjustment, which we use here, is to assume that household spending needs go up in proportion to the square root of the number of household members. Formally, size-adjusted (or "equivalent") income ( $\hat{I}$ ) is equal to unadjusted household income ( $I$ ) divided by household size ( $S$ ) raised to an exponential value ( $e$ ), that is,  $\hat{I} = I / S^e$ . Our assumption implies that the value of  $e$  is  $1/2$ . For purposes of this calculation, we usually assume that household members share their incomes equally, implying that every person in the household has an identical income. This allows us to calculate personal "equivalent" income for each sample member enrolled in a survey.

How does the inclusion of health care benefits in the definition of income affect the average amount of household income found in the annual CPS income surveys? We have analyzed this question using public-use CPS files covering household incomes received in the 10 calendar years from 1996 to 2005. Even though the full insurance value of medicare and medicaid is not reflected in the Census Bureau's "fungible" insurance value estimates, the Bureau's imputations of medicare, medicaid, and employer health insurance contributions add an average of 9.3 percent to the household-size-adjusted gross money income reports obtained in the 10 years we analyzed. The addition to average size-adjusted income has grown over time, especially since the late 1990s. In 1998-1999 the inclusion of employer health insurance contributions and the fungible value of medicare and medicaid in household income added 7.9 percent to average size-adjusted gross money income in the annual CPS income survey files. By 2004-2005 the inclusion of these items added 11.7 percent to the average amount of size-adjusted money income. Thus, the Census Bureau estimates of insurance value, like the aggregate estimates shown in Figure 3, show a strong upward trend in the economic value of health benefits.

Of crucial importance is how these insurance benefits are distributed across different groups in the population. The Census Bureau treats employer insurance contributions as an addition to wage income, and it imputes the income to the employee or retiree who is covered under the employer plan. However, other household members may also derive benefits from the employer's contributions, so part of the benefits from the employer contribution should also be attributed to dependents covered by the plan. The Census Bureau's estimates of employer contributions for group health plans do not allow us to identify which household members derive

benefits from the extra health consumption that the insurance contributions allow. In a family where more than one member is covered by the employer's plan it is unlikely benefits are concentrated solely on the wage earner whose employment gives rise to the family's insurance coverage. If the benefits are spread equally across household members, it seems plausible to treat health benefits as equally available to all members of the household. We use this same assumption when adding the "fungible" insurance value of medicare and medicaid to a household's income. We assume the extra income is available equally to all household members, even though some members may not be covered by the insurance policy.

This is the assumption used in Figure 4 to assess the value of health benefits estimated by the Census Bureau. The Bureau's estimates of the fungible insurance value of medicare and medicaid and employer contributions to employee health plans are treated as an addition to household income. They are assumed to be equally available to all household members, regardless of age, and they are translated into additions to equivalent household income. The two panels of Figure 4 show the distribution of the resulting income gains across the age distribution, with the gains measured as a percentage of the age group's average size-adjusted gross money income. The estimates reflect average values for the 1996-2005 decade. The Census Bureau's estimates imply that the income additions resulting from the medicaid program are fairly evenly distributed across the age distribution. In contrast, the benefits of the medicare program are concentrated in the aged population, and the income gains attributable to employer subsidies for worker and retiree health plans are concentrated on the working-age population and its dependent children. The bottom panel in Figure 4 shows how the age distribution of health benefits changed between the 1996-2000 and 2001-2005 periods. Note that the estimated additions to income from health insurance coverage are uniformly higher in the later period compared with the first. This is consistent with the time series trends reported in the NIPA and NHEA.

Figure 5 shows the implications of the Census Bureau estimates for the age distribution of relative equivalent personal income. For each income definition, the numbers in the chart show the average equivalent income in an age group measured relative to the population-average income under the same definition. The bold solid line shows the age distribution of the Bureau's standard income measure, before-tax money income. These estimates suggest that older Americans have the lowest average equivalent incomes of any age group. The peak equivalent

lifetime income is attained by Americans between 50 and 54, whose average money income is 35 percent higher than the average for Americans of all ages. Equivalent money income falls off sharply after age 60. People who are between 70 and 74 have average money income that is 20 percent below the population average, about the same income deficit as that of children between ages 0 and 4. Americans older than 74 have the lowest equivalent money incomes in the population. (The lifetime income pattern is similar if we use median incomes rather than mean incomes to assess the positions of different age groups.)

The broken line in Figure 5 shows the distribution of equivalent personal incomes if the Census Bureau's estimates of the "fungible" value of government insurance and employer contributions for health insurance are added to money income. The inclusion of these items in countable income reduces slightly the estimated relative incomes of young and working-age Americans and significantly increases the relative incomes of the population 65 and older. Among the oldest old, those past age 80, equivalent average income rises from 66 percent of the population average under the Census Bureau's standard money income definition to 78 percent of the population average under the broader income definition considered. Under the broad income definition, the population between 65 and 69 has equivalent income that is 4 percent higher than the population-average income while under the narrower definition its average equivalent income is 6 percent lower than the population-average income. The apparent improvement in the relative income position of the elderly is the result of adding the value of health benefits, mostly medicare, to their disposable cash and near-cash incomes.

The impact of health benefits on the overall income distribution is even more striking. Figure 6 shows the distribution of employer health insurance contributions and the "fungible" value of government insurance plans across the income distribution. The estimates cover two different periods, 1996-2000 and 2001-2005. Persons are ranked according to their "equivalent" or household-size-adjusted money incomes from lowest to highest and then divided into 10 equal-size groups. The average household-size-adjusted value of health benefits is then calculated for persons in each tenth of the income distribution. The size-adjusted amounts are displayed in the top panel of Figure 6. The amounts indicated by the bars reflect average insurance values in 1996-2000, and those indicated along the line reflect average insurance values in 2001-2006. (The insurance values were converted into constant 2005 dollars to make the values comparable in the two time periods.) As expected, the average value of health

insurance increased over time. For the average person in the population, the household-size-adjusted value of insurance increased from \$3,269 to \$4,220, or 29 percent. This was a much faster rate of increase than the rise in real money income, which only increased 3.6 percent in the same period.

Even more remarkable is the relative equality of the Census estimates of health insurance value across the income distribution. In both 1996-2000 and 2001-2005 the average insurance value in the bottom two tenths of the income distribution is equal to or greater than the value for the remainder of the population. The insurance values in the bottom tenth of the distribution would be considerably higher than the amounts shown if the insurance values of medicare and medicaid were not limited by the Census Bureau to the “fungible” value of such insurance. The bottom panel of Figure 6 shows insurance values in each tenth of the income distribution measured as a percent of the average money income in the same tenth of the distribution.<sup>7</sup> The (size-adjusted) insurance values represented 8.3 percent of (size-adjusted) money income in 1996-2000; they represented 10.3 percent of money income in 2001-2005. These estimates suggest that the statistics on money income understate the rise in overall income enjoyed by Americans over the full period. Since insurance values are relatively equal across the income distribution while money incomes are highly unequal, the value of insurance represents a much greater fraction of money income toward the bottom of the income distribution. If insurance values were added to the incomes of Americans in the bottom one-tenth of the money income distribution, they would have increased measured incomes by 64 percent in 1996-2000 and by 90 percent in 2001-2005. The proportional additions to income are considerably smaller at the top of the distribution. In 1996-2000, the average insurance value of Americans in the top one-tenth of the money income distribution represented 3.4 percent of their average money income. In 2001-2006 to comparable percentage had risen to just 4.0 percent of average money income. Thus, increases in the value of employer contributions to employee health plans and in the value of government-provided insurance have had a considerably bigger proportional impact on low-income Americans compared with middle- and high-income Americans.

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<sup>7</sup> Both the insurance value and gross money income are adjusted to reflect household size.

#### **4. Measuring the Impact of Health Insurance on Consumer Incomes in the MEPS**

The introduction of the MEPS in 1996 greatly improved analysts' ability to measure the impact of health benefits on the distribution of personal income. Like the annual income supplement to the CPS, the MEPS household survey provides information on cash income and its components for a nationally representative sample of the noninstitutionalized population. In addition, the MEPS obtains unusually comprehensive information on health care utilization, spending on health care and insurance, and sources of payment for personal health care goods and services. The MEPS research program has three basic components, a survey of representative households, a survey of the medical providers who supply services to these households, and a national survey of public and private employers to gather information on the types and cost of employee health insurance offered.<sup>8</sup> For purposes of estimating the distribution of health care consumption and payments in the noninstitutionalized population, the first two surveys are the most important components of the project. They provide detailed information on utilization of health care providers, the cost of medical goods and services these providers supply, and the sources of payment for the care received by people in the household sample. Because the reports of household respondents are cross-checked against the responses of providers, the MEPS provides much more accurate information about the cost and sources of payment for medical services than would be possible in a survey aimed solely at households.

The MEPS household survey collects information from a given sample (or panel) of families in five separate surveys that cover overlapping time periods over two calendar years. The analysis reported here is based on income, medical care, and health spending reports of the MEPS panels covering calendar years 1996-2005, the same calendar years covered by our analysis of the CPS income survey. The MEPS household survey gives us information on incomes, health spending, and insurance reimbursement for a total of 205,000 person years, or slightly more than 20,000 observations per year. Most of our analysis focuses on the incomes and health spending of the sample members who were present in families at the end of December in each calendar year. This sample restriction is intended to make the sample comparable to the one in the annual income supplement to the CPS survey, which enrolls a sample of people at selected addresses at a particular point in time. Census interviewers ask CPS respondents about

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<sup>8</sup> For a more detailed description of the MEPS program and its component surveys, see the introductory material in Bernard and Banthin (2007).

household composition at the time of the interview and about personal income and labor force experience in the previous calendar year. Since MEPS households are included in the sample for a period of two years, it is possible that some household members who were present before or after December in a particular calendar year will be absent from the household in December. In order to focus on a sample that is comparable to the CPS sample, we exclude the incomes and health care spending of these absent family members from our analysis.

Although the MEPS household survey provides extensive information on the types of providers who supply medical care to people in the sample, our focus is on the total cost of care received, the portion of costs that are directly paid by the person receiving care or by other family members, and the cost of health insurance premiums. The MEPS household survey files permit us measure the total cost of care received by individual household members and to determine the fraction of this cost that is paid by the household and by individual third-party payers – medicare, medicaid, private insurance, workers’ compensation, and so on. Although total health expenditures and medical out-of-pocket payments are separately observed for every household member, it is more difficult to allocate premium payments across individual members, except when the insured family unit consists of just one person. Many employers provide less generous premium subsidies to an employee’s dependents than they do to the employee. This means the net cost to the family of obtaining insurance for the employee is cheaper than the net cost of insuring each of the employee’s dependents. Our calculations assume, however, that the household’s out-of-pocket premium payments represent an equal expense for every household member who is covered by the insurance plan.

The MEPS data have some important limitations for assessing the market value of insurance plans covering the survey respondents. Although the MEPS collects extensive cost data from employers, none of these cost data are linked to individual health consumers or to households in the MEPS household survey. As a result, we do not know the cost to employers of paying health insurance premiums on behalf of respondents in the MEPS household sample. As noted above, the MEPS household data file includes information on payments from employer-sponsored insurance plans to reimburse providers and households for the cost of medical care. It does not, however, contain any information about employers’ costs of managing their health insurance plans or paying for third parties to manage their health plans. Thus, an important component of respondents’ health consumption – their consumption of health insurance



administrative services – is missing from our files although it is counted as part of medical consumption in the NIPA. In addition, the MEPS household survey has incomplete information on respondents' insurance premium payments. For calendar years 1996-2000 respondents were not asked to report employees' premium payments for their employment-based insurance coverage. Starting in 2001, these premium amounts began to be reported to interviewers. For all 10 years in our analysis period, the MEPS household survey fails to include any information about premium payments for medicare. Thus, we had to impute medicare Part B premiums to respondents in every month when they said they were enrolled in medicare but were not simultaneously enrolled in medicaid.<sup>9</sup>

The MEPS household survey data can be used to measure well-being, including health consumption, in a way that focuses on each person's or each household's utilization of health care resources. The data in the household survey file permit us to observe the total health consumption received by each member of the MEPS sample. We then subtract from this consumption the money payments made by the family in order to obtain the consumption. The net increment to personal income from health insurance,  $\delta_Y$ , is

$$(1) \quad \delta_Y = H - M - P,$$

where  $H$  = Total health consumption;

$M$  = Out-of-pocket spending for health consumption; and

$P$  = Consumer premium payments for health insurance.

The excess of a person's total health expenditures (including the part reimbursed by insurers) over the out-of-pocket payments made by the consumer for health care and insurance premiums represents a claim on resources in addition to the claim reflected by the person's money income. Many consumers who are covered by health insurance receive little or no health care during the year, of course. These consumers may pay more for insurance than the amount of care that is

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<sup>9</sup> Medicare premium amounts for 1996 through 2005 are reported in O'Sullivan (2004, p. 5). State medicaid programs pay for the medicare Part B premiums of medicare enrollees who are also enrolled in medicaid. Our imputation procedure will result in some errors. A small percentage of medicare enrollees must pay a premium for Part A benefits, because they did not become eligible for medicare Part A as a result of their own or a spouse's employment in medicare-covered jobs. We understate the premium payments of these enrollees. A larger number of medicare enrollees is enrolled in Part A of medicare but declines to enroll in medicare Part B, either because they have other insurance coverage or because the Part B premium seems too high. Finally, some low-income people enrolled in medicare Part B are entitled to pay less than the standard Part B premium even though they are not enrolled in the medicaid program. Our imputation procedure overstates the Part B medicare premiums of the last two categories of enrollees.

reimbursed by their insurance plan. The net claim on health care resources can be summed across all household members and added to total household income. It can also be estimated at the individual level and treated as an income component that differs from one household member to another.

Many social scientists are uneasy with an income definition that treats actual health care consumption in excess of out-of-pocket medical payments as an addition to income. People who consume more-than-average health care services ordinarily do so because they are sick or injured. Those who consume the most costly services are the sickest and most seriously impaired. It is hard to argue that a person who receives third-party payments covering \$100,000 of medical care is \$100,000 better off than a person enrolled in the same insurance plan who is so healthy he or she never sees a doctor or the inside of a hospital. While this observation is valid, it simply means that we cannot use estimates of actual resource utilization to make interpersonal comparisons of well-being between two particular individuals. We can, however, use our proposed measures to compare resource utilization for different groups in the population at the same point in time or at different points in time. In particular, we can determine whether standard measures of money income understate or overstate the relative income position of different population groups.

## **5. The Distribution of Benefits Derived from Health Insurance: Impacts of Health Status, Income, and Age**

Health outlays differ considerably from one person to the next. In a society with broad health insurance coverage, the main reason for spending differences is the disparity in health statuses across individuals. The distribution of health spending across the population is much more unequal than the distribution of income. Tabulations of the 2004 MEPS household survey show that the bottom 50 percent of health consumers accounted for just 3.1 percent of total health care expenditures. In contrast, the top 1 percent of spenders accounted for 22.5 percent of spending, and the top 15 percent of consumers accounted for almost three-quarters of total spending (Kaiser Family Foundation 2007, p. 5). This concentration of health care expenditures is much more pronounced than the concentration of income. Not surprisingly, people who are in poor health receive an outsize share of personal health spending in a given year. The state of a person's health is more important than family income in determining the total cost of care a person receives.

Figure 7 shows the relationship between individual health care spending, on the one hand, and income and reported health status, on the other. The calculations are based on 10 years of data in the MEPS household survey. MEPS respondents were asked to assess the health status of every household member on a five-point scale (“Excellent,” “Very good,” “Good,” “Fair,” and “Poor”). They were also asked about their family’s gross money income. We used the annual income data to classify every person in the MEPS sample into five equal-size income classes. To make this classification we first computed the household-size-adjusted annual income of each household and person in the sample, as we did when we calculated the income ranks of households and persons in the CPS samples.

The results in Figure 7 show average health spending amounts for people in cells defined by respondents’ reported health status and position in the income distribution.<sup>10</sup> To keep the chart simple we only show results for three of the five income groups, the bottom, middle, and top fifths of the distribution. Among people who report the same health status, income has a fairly consistent effect on total health care consumption: People with higher incomes tend to consume more health care. However, the impact of income on health consumption appears small in relation to the impact of individual respondents’ health status. Holding constant health status, a person in the middle fifth of the income distribution receives medical care that costs roughly 15 percent more than the care received by a person in the bottom fifth. A person in the top fifth of the income distribution receives care that costs about one-third more than a person in the bottom fifth. These are sizeable spending differences to be sure, but they are dwarfed by the spending differences between people who are in poor and excellent health. A person in the bottom fifth of the income distribution who is in poor health receives care that costs more than seven times as much as the care received by a person in the top fifth of income who is in excellent health.

Health care consumption increases with age, and a principal reason is that poor health becomes more common as people grow older. Figure 8 shows the percentage of respondents with poor health in four broad age groups. The results are separately tabulated for people with different ranks in the income distribution. Once again, the tabulations reflect average responses for 10 calendar years of the MEPS household survey. In each age group poor health is more

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<sup>10</sup> The estimates were obtained by averaging the results from ten separate regressions, one each for the ten calendar years included in the analysis. To convert spending amounts into constant 2005 prices each year’s estimate was deflated using the personal consumption expenditure deflator for medical care.

common among people with lower household incomes. Many adults with below-average income may in fact be needy as a result of their health. Poor health could prevent them from working in a full-time job or in any job at all. Within each income category poor health is much more common at older ages. Among adults in the middle income category, 18 percent of respondents age 65 and older report being in poor health compared with less than 5 percent of respondents between 18 and 44. The spending totals shown in Figure 7 show why the differences in the prevalence of poor health will have pronounced effects on health expenditures across age groups.

Even holding constant respondents' health status and position in the income distribution, the distribution of annual health consumption is highly skewed. Figure 9 shows selected results from quantile regressions predicting annual health care expenditures in the 2001-2005 MEPS household surveys. The regressions are performed with health spending amounts that have been converted to constant 2005 prices using the personal consumption expenditure deflator for medical care. The results displayed in Figure 9 focus on MEPS respondents with annual size-adjusted incomes in the middle one-fifth of the income distribution.<sup>11</sup> To simplify the chart we have only plotted regression coefficients for three of the five health statuses; the results for "very good" and "fair" health are not shown. For each of the health statuses displayed, the figure plots the 20 distinct quantile regression estimates from  $\tau = 0.05$  to  $\tau = 0.98$ . For respondents within each health status group, health spending is highly concentrated. Respondents in the bottom 10 percent of the expenditure distribution consume little health care regardless of their reported health status. Among respondents in excellent health, about three-quarters are predicted to consume less than \$1,000 in health care per year. In contrast, among respondents who describe their health as poor, three-quarters will consume more than \$2,600 in medical goods and services in a year.

A well-functioning insurance system should protect consumers against very large personal outlays on medical care, no matter what their health status. The U.S. insurance system offers excellent protection to many people, moderate protection to some, and debatable protection to others. The top panel in Figure 10 shows out-of-pocket outlays on health care consumption for the same three groups of MEPS respondents considered in Figure 9. All

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<sup>11</sup> The full set of regressions is run using all person-year observations from the 2001-2005 MEPS household survey. The independent variables in the regressions include a full set of interactions between the health status indicator and the person's position in the income distribution.

respondents had incomes in the middle one-fifth of the income distribution and were in excellent, good, or poor health. For each health status the chart displays quantile regression results showing the distribution of out-of-pocket outlays for medical goods and services, excluding health insurance premiums.<sup>12</sup> The results suggest that 30 percent of middle-income respondents who are in poor health spend at least \$2,000 a year on their health care. Only 8 percent of respondents who are in good health and about 2 percent of respondents who are in excellent health spend that much in a year. About 5 percent of respondents in poor health spend at least \$6,000 a year on care.

Most Americans must pay premiums for their insurance coverage. Starting in 2001 the MEPS household survey asked about health insurance premiums paid by respondents for their employer-sponsored insurance. (In earlier years MEPS interviewers only asked about premium payments for private insurance not provided through employers.) The data on private insurance premium payments plus our imputations of medicare insurance premiums allow us to estimate the total insurance premiums paid in behalf of each MEPS household member who is covered by private insurance or medicare. The bottom panel in Figure 10 shows quantile regression estimates of the distribution of these premium payments for 2001-2005 MEPS respondents in the middle income group who were in excellent, good, or poor health. About one-quarter of the respondents in poor health and one-third of the respondents in good or excellent health do not report any spending for health insurance. Some of these people are uninsured while others receive free insurance from medicaid or an employer. On average people in poor health report paying higher insurance premiums than people who are in good or excellent health. The premium differences are, however, much smaller than the spending differences for medical goods and services.

People covered by health insurance typically pay far less for premiums than the expected value of the insurance protection they receive. Medicaid enrollees pay no premiums at all, and people insured by medicare pay premiums that cover only a little more than a tenth of program costs. Workers and retirees enrolled in employer-sponsored insurance typically receive large subsidies from their employers for coverage. In a given year, however, some insured workers receive reimbursement for very large health costs while others pay higher premiums than they

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<sup>12</sup> Consumer outlays for medical goods and services and health insurance premiums are converted into constant 2005 dollars using the CPI-U-RS deflator

receive back as reimbursement for their health care consumption. Figure 11 shows the distribution of annual gains and losses from insurance for middle-income MEPS respondents who were in excellent, good, or poor health in 2001-2005. Once again, the distributions are estimated using quantile regression. The dependent variable in the regression is the difference between insurance reimbursement payments received in a year and the person's premium costs for insurance.<sup>13</sup> The top panel of Figure 11 shows the pattern of net insurance gains and losses in the bottom half of the distribution. Note that about 15 percent of middle-income respondents in poor health and 35 percent of people in good health are predicted to make larger annual premium payments than they receive in health insurance reimbursement. The value of health insurance for most people is revealed in the bottom panel of Figure 11. It plots the distribution of gains from insurance for people in each health category who derive the biggest net gains under their insurance plans. About one-fifth of middle-income people who have poor health can expect to derive net benefits that will be \$20,000 a year or more. For respondents who report good or excellent health, the percentage obtaining large net gains from insurance is far smaller. Among middle-income individuals who are in excellent health, for example, less than 5 percent can expect to receive net benefits that exceed \$3,500 a year.

Aggregate health care spending has risen faster than total consumption and total household income. This trend has important consequences for groups in the population that are heavy users of the health care system. Since the elderly are major consumers of care, they have been disproportionately affected by the long-term trend toward higher prices and more intense utilization of medical goods and services. Figure 12 shows the age distribution of total health consumption when total health care consumption is measured as a percent of the age group's aggregate money income. The calculations are performed using MEPS household survey data that are tabulated at the individual level. To calculate each person's gross money income, the household's total money income is simply divided equally among all household members. The survey files show consumption of health care goods and services on an individual basis. Thus,

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<sup>13</sup> The dependent variable is calculated by subtracting the person's out-of-pocket spending on medical care and health insurance premiums from his or her total consumption of health care. In some cases this approximation slightly overstates the net gain or loss from health insurance, because it includes some health consumption that is received as charity care from providers. On the other hand, because our estimate of health consumption excludes nearly all of the administrative cost of managing the health insurance system, it seriously understates the total subsidy that the insured population receives from insurance.

the estimates shown in the chart reflect each age group's actual health consumption measured as a percent of the age group's pro rata share of household money income. The figure shows that health consumption represents a monotonically rising share of income as adults grow older. Among people who are between 75 and 79, the consumption share is 4.2 times larger than it is for people between 35 and 39; it is 1.7 times larger than for people between 65 and 69.

Figure 12 also shows how the income share represented by health consumption has increased over time. The bars indicate the average income shares in the five years between 1996 and 2000, while the line indicates the shares in 2001-2005. Note that the income share increased in every age group between the two periods. For MEPS respondents in all age groups, health consumption (excluding premium payments for insurance) represented 10.0 percent of gross income in the earlier period and 12.6 percent of income in the second. Both these estimates are substantially lower than the health consumption share implied by aggregate totals reflected in the NIPA and NHEA. There are a number of reasons for the large discrepancy. Estimates based on the NIPA and NHEA include the administrative costs of the health insurance system, and these are largely excluded from the MEPS household survey responses. In addition, the NIPA and NHEA estimates include the health consumption of the institutionalized population, while the MEPS household survey is restricted to the noninstitutionalized population. Since many of the institutionalized are in nursing homes or other long-term care facilities, their average health care consumption is likely to be much higher than the average consumption observed in the noninstitutionalized population. Finally, the MEPS household survey misses some of the health care spending of the sample that is enrolled (see Sing *et al.* 2006). Even so, both the MEPS survey responses and the NIPA and NHEA statistics show a considerable rise in health spending relative to household income during the 1996-2005 period.

Part of the health spending reported in the MEPS interview is financed out of household budgets and part is financed through health insurance reimbursement payments that are larger than household premium payments to insurers. The MEPS interviews do not provide complete information about household premium payments between 1996 and 2000, but they do give information covering 2001-2005. These data can be used to calculate the share of 2001-2005 health care consumption that was financed with out-of-pocket household spending on health services and insurance premiums. Figure 13 shows the results of these calculations by age group. Like the tabulations in Figure 12, the results in Figure 13 show health outlays measured

as a percent of gross money income.<sup>14</sup> The lower, dark part of each bar indicates the amount of spending that is financed out of household budgets, either as out-of-pocket payments to providers or as health insurance premiums. These payments absorb a rising percentage of money income as adults grow older. People who are between 75 and 79 devote approximately three times the proportion of their household budgets to medical care and insurance premiums as do 25-to-29 year-olds. The lighter portion of each bar shows the net reimbursement payments from insurance that each age group receives, measured as a percentage of the group's gross money income. Net reimbursement payments, which are not included in the Census Bureau's definition of money income, are much larger for older age groups than for the young. If the net reimbursement payments were counted in income, the gross income of 25-to-29 year-olds would rise 3.6 percent and the income of 75-to-79 year-olds would increase almost 27 percent.

The gains in income would be proportionately larger for people near the bottom of the income distribution. Consumption of health care goods and services is relatively equal across the income distribution. Moreover, Americans who have low incomes receive third-party reimbursement for a larger percentage of their consumption. Figure 14 shows average health care consumption, excluding premium payments for health insurance, across the income distribution. The top panel of the chart shows consumption levels in the population under age 65, while the bottom panel shows consumption among the elderly. Individuals in each age group are divided into fifths of the household-size-adjusted income distribution, and average spending amounts are calculated within each fifth of the distribution for the 1996-2000 and 2001-2005 periods. Among those under 65, health consumption is modestly higher in the top income group than it is in the bottom four-fifths of the distribution. On the other hand, consumption is slightly higher at the bottom of the distribution than it is in the middle of the distribution. In the elderly population health consumption tends to fall in higher ranks of the income distribution. In both periods covered by the chart, health consumption is noticeably higher in the bottom fifth of the income distribution compared with the middle or top of the distribution. These spending patterns are the result of broad insurance coverage in the population, which protects most of the poor and seriously ill from paying for the full cost of the care they receive. The affluent can afford to pay for more expensive care, and many of them are covered by excellent health

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<sup>14</sup> Once again, each person's gross money income is calculated under the assumption that his or her household's total money income is divided equally among all household members.



insurance. However, compared with people who have low incomes the affluent are less likely to suffer from poor health.

For the 2001-2005 period we can calculate the cost to households of paying for health consumption and insurance premiums. These costs are displayed in Figure 15. As in Figure 13 we show health spending measured as a percent of gross money income. The lower, dark part of each bar indicates the amount of health consumption that is financed out of household budgets, either as out-of-pocket payments to providers or premium payments to health insurers. The lighter part of each bar shows the net reimbursement payments from insurance that each income group receives, measured as a percentage of the group's gross money income. The top panel in the chart shows estimates for the nonaged population, and the bottom panel displays estimates for the elderly. Note that the relative burden of paying for health care and insurance premiums is greater for people in lower ranks of the income distribution than for the well-to-do, and it is greater for the aged than the nonaged. People under 65 who are in the bottom one-tenth of the income distribution devote 18 percent of their household budgets to medical care and insurance premiums, whereas the nonaged who are in the middle of the income distribution spend only 5 or 6 percent of their gross incomes on these items. The aged population devotes a much larger fraction of its household budget to health care and insurance expenses. On the other hand, both the poor and the aged receive out-size supplements to their money incomes as a result of net reimbursement payments from insurers. These reimbursement payments, which are excluded from the definition of gross money income, are proportionately more important for the poor and the elderly than they are for the rich and the nonelderly. If the net reimbursement payments were added to gross money income they would boost incomes in the bottom tenth of the income distribution by 65 percent in the nonelderly population and by 130 percent in the aged population. In the middle of the distribution, the net value of the reimbursement payments would add about 6 percent to the gross incomes of the nonelderly and 25 percent to the incomes of the elderly.

If Americans' net gains from health insurance were treated as equivalent to an increase in their gross money income, the apparent improvement in average income would be bigger for the elderly than for the young. Figure 16 shows the age distribution of these income gains in the five years between 2001 and 2005. The top panel in the chart displays the age distribution of household-size-adjusted (or equivalent) annual income under two definitions. Under the first

definition we simply calculate the size-adjusted household income of every person in the population using the Census Bureau's concept of gross money income. Under our second income definition we add the household's net gain from health insurance to its gross money income to derive total household income. Our size adjustment procedure under both definitions assumes that income is shared equally among every person in the household. Thus, if the household contains both a 28-year-old and a 77-year-old, the net insurance gains of each person are added to the household's gross money income before the household size adjustment is performed. Not surprisingly, the inclusion of net insurance gains in the definition of household income improves the relative position of households containing an older person. Under the more expansive definition of income the average equivalent income of 75-79 year-olds is increased by \$6,340 (or 23 percent) whereas the average equivalent income of 25-29 year-olds is only raised by \$1,750 (or 5 percent).

As noted above, the net income gains from insurance are highly variable across the population. This is shown in the bottom panel of Figure 16, which compares the average and median gain from insurance in each age group. Unlike the estimates in the top panel, these estimates are not adjusted for household size. The estimates of net gain from insurance are calculated at the individual level. For each person in the MEPS household survey we calculated the difference between insurance reimbursement payments for care received by the individual and insurance premium payments made by the household in behalf of the individual. For individuals in each age group, the median gain from insurance is considerably lower than the average gain. For all the younger age groups, the median gain is \$0 or close \$0. This implies that the median person has no insurance and no medical care costs or has received reimbursement payments that are very close to the annual premium payment. As indicated in the top panel of Figure 11, there are many people who pay more in insurance premiums than they receive back in insurance reimbursement payments, but in no age group does this represent the situation of the median respondent.

The large difference between the median and average net gain from insurance, especially among older adults, shows why it is so hard to assess the value of health insurance for most Americans. Relatively few people purchase unsubsidized insurance in the open market, and those who do are differentially selected on the basis of poor health or strong risk aversion. The value of insurance differs widely depending on the underlying health status of the insured

person. People who are in poor health derive much greater benefits from comprehensive insurance than people who are in good or excellent health. In addition, the value of a particular plan depends on features of the plan that are rarely ascertained in household interviews and may be unknown to survey respondents. These features include deductibles, copayments, coinsurance rates, exclusions, and coverage limits. In the MEPS household survey we observe the actual pattern of insurance reimbursements across health care consumers, but it is difficult to predict what reimbursements a healthy individual would receive if he or she experienced serious illness or a five-day stay in a hospital. Nonetheless, Figures 13, 15, and 16 offer compelling evidence on the age distribution of net benefits Americans receive under the health insurance system. The combined evidence in Figures 14 and 15 provides equally powerful evidence that these net benefits are strongly redistributive. Both absolutely and as a percentage of their money incomes, the net benefits provided through public and private health insurance are tilted heavily toward Americans with lower incomes. Total health care spending is fairly equal up and down the income distribution, but higher income Americans pay for a larger percentage of the health care they consume through out-of-pocket payments for health care and health insurance. These results imply that a substantial amount of income is excluded from standard measures of household income. Furthermore, the amount that is excluded is absolutely and proportionately much more important for the aged and the poor than it is for the nonelderly and the nonpoor.

## **6. Conclusion**

Cash income offers an incomplete picture of the resources available to finance household consumption. Most American families are covered by an insurance plan that pays for some or all of the health care they consume. Only a comparatively small percentage of families pays for the full cost of this insurance out of their cash incomes. As health care has claimed a growing share of consumption, the percentage of care that is financed out of household incomes has declined. Because health care consumption is more important for some groups in the population than others, the growth in spending and changes in the payment system for medical care have reduced the value of standard income measures for assessing relative incomes across age groups and across the income distribution.

This paper has examined the distribution of health consumption and insurance over the decade between 1996 and 2005. It compares the implications of two sets of estimates of effects of the current health care system on the distribution of income across persons and across age

groups. One set of estimates is based on the Census Bureau's valuation of insurance benefits under employer-provided and government health plans. The other is based on direct observation of health care consumption and insurance reimbursement in the MEPS household survey. Both sets of estimates imply that money income significantly understates the resources available to finance household purchases.<sup>15</sup> Both also show that a more complete measure of resources would show less inequality than the income measures that are currently used. The addition of estimates of the value of health insurance to countable incomes reduces measured inequality in the population, because the additions are proportionately much bigger for people at the bottom of the income distribution than they are for people in the middle and at the top. The inclusion of health insurance in the definition of income also has a large impact on the relative income position of the aged, who consume more health care and receive more generous insurance subsidies than the nonaged.

An important goal of U.S. health policy is to improve access to good health insurance among the elderly and low income populations. Although this goal has not been fully achieved, especially among the nonelderly poor, a large percentage of the poor and elderly are now covered by generously subsidized insurance. Under the standard definition of money income, very little of the consumption that is financed by generous health insurance is included in household income. Using a broader income definition that includes these income flows, the relative position of the nation's low income and aged populations is substantially improved. The distributional analysis in this paper focuses solely on the experience of households between 1996 and 2005. It is conceivable that an examination of a longer time span would show sizeable impacts of public and private health insurance on the estimated trend in U.S. income inequality. The apparent effects of health insurance on the current health consumption of the poor and aged are very large. Public and private health insurance paid for much smaller percentages of personal consumption in 1960 and 1980. It is almost certain it played a smaller role in redistributing resources from rich to poor in those years. A useful extension of this research would be to examine the impacts of health insurance on the distribution of incomes over the full period since 1979 when U.S. money income inequality has been rising.

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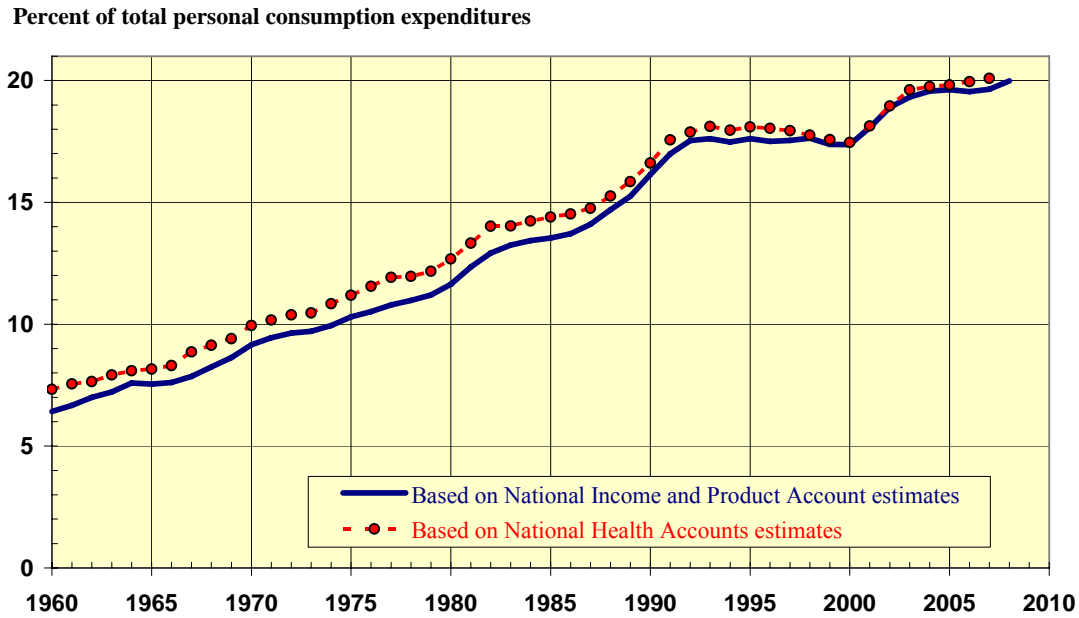
<sup>15</sup> In Burtless and Svaton (2009) we show that the exclusion of health insurance benefits from estimates of disposable (after-tax) income leads to a serious overstatement of inequality, an understatement of income growth between 1996 and 2005, and an overestimate of the income difference between the aged and the nonaged.

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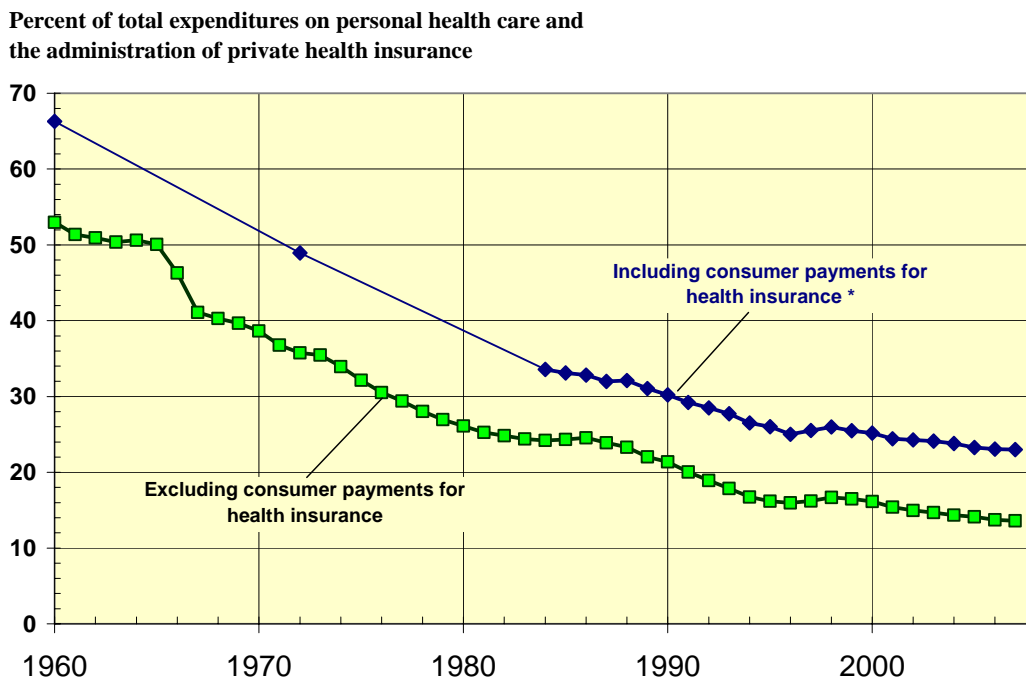
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**Figure 1. Consumption of Health Care as a Percent of U.S. Personal Consumption Expenditures, 1960-2008**



Source: Authors' tabulations of U.S. National Income and Product Account statistics and National Health Expenditure Accounts. (Data accessed September 21, 2009.)

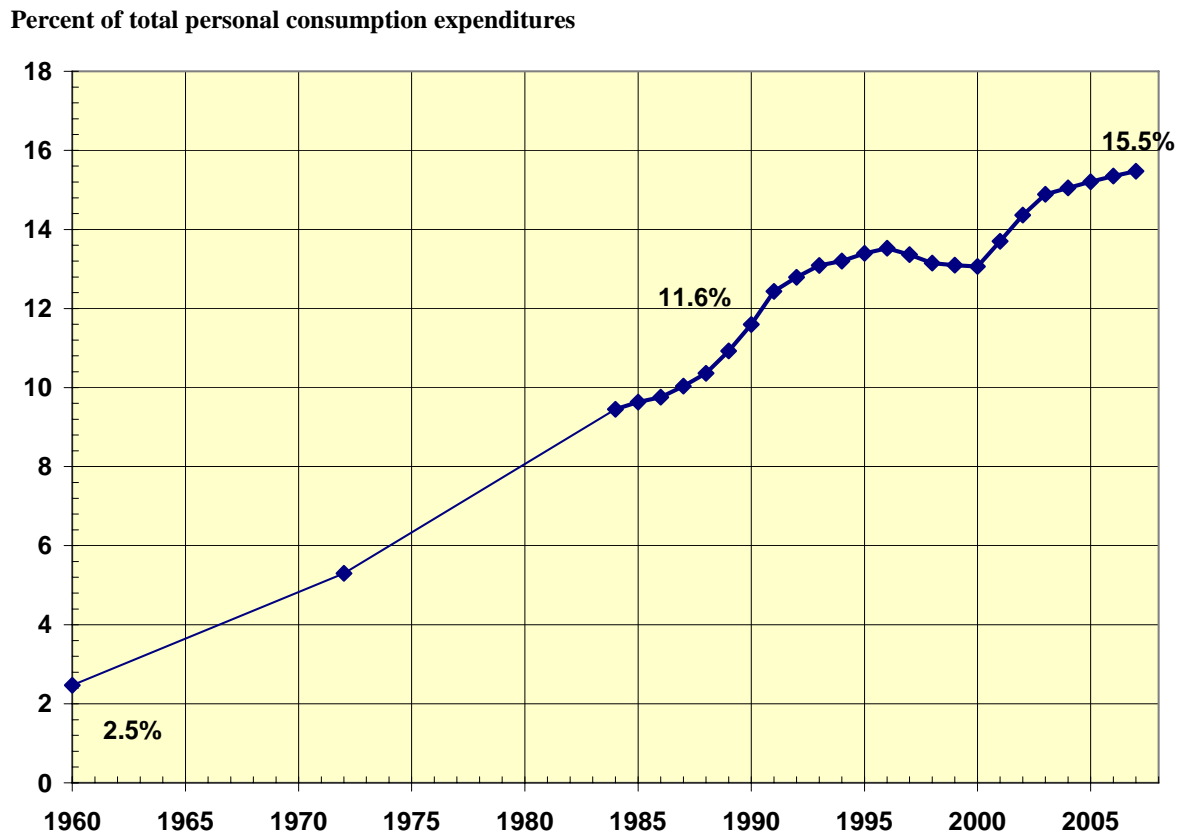
**Figure 2. Consumer Out-of-Pocket Payments for Personal Health Care and Health Insurance, 1960-2007**



\* Consumer payments for private and public health insurance premiums as reported in the Consumer Expenditure Survey, 1960, 1972-73, and 1984-2007.

Source: Authors' tabulations of U.S. National Health Expenditure Accounts, U.S. BLS (2006), and U.S. BLS Consumer Expenditure Survey data. (Data accessed September 21, 2009.)

**Figure 3. Percentage of U.S. Personal Consumption Expenditures Financed with Employer Contributions to Health Plans and Government Health Insurance, 1960-2007**

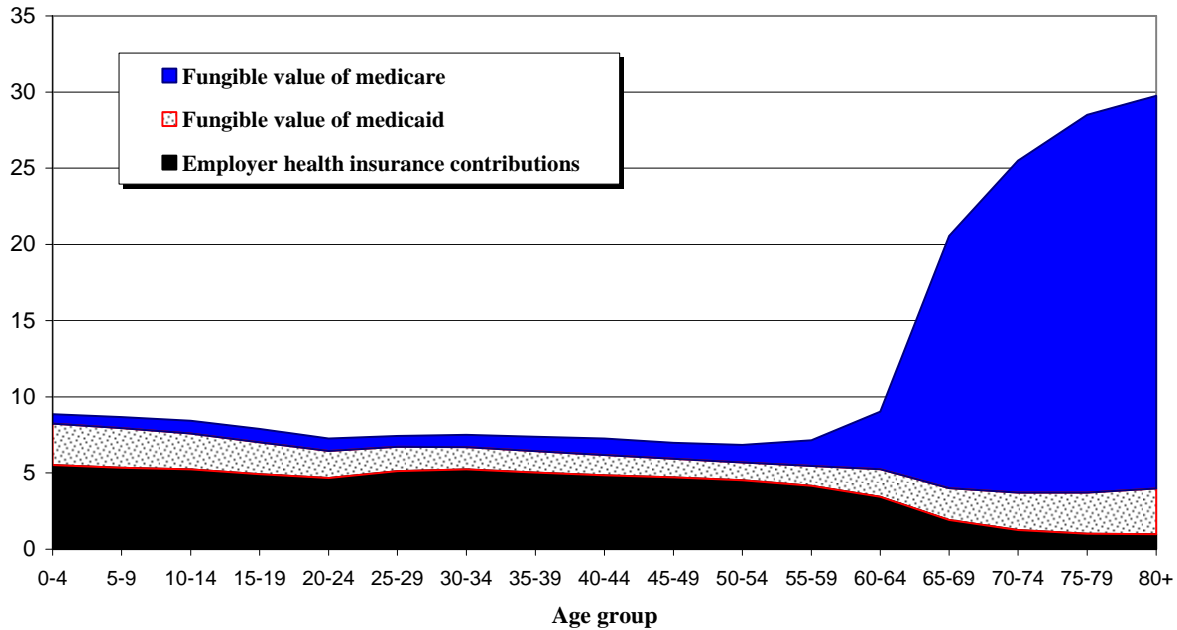


Source: Authors' estimates based on U.S. National Income and Product Accounts data, U.S. National Health Expenditure Accounts, U.S. BLS (2006), and U.S. BLS Consumer Expenditure Survey data. (NIPA, NHEA, and CES data accessed September 21, 2009.)

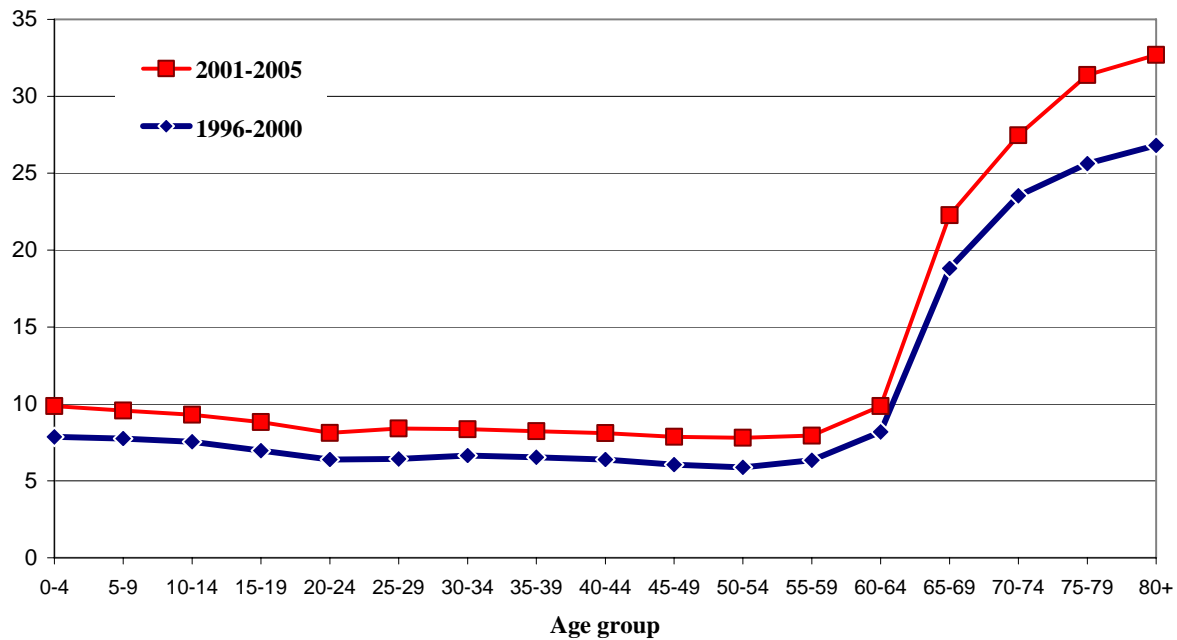


**Figure 4. Additions to Size-adjusted Money Income from Inclusion of Employer Insurance Contributions and Fungible Insurance Value by Age, 1996-2005**

Percent of size-adjusted money income:  
1996-2005 average



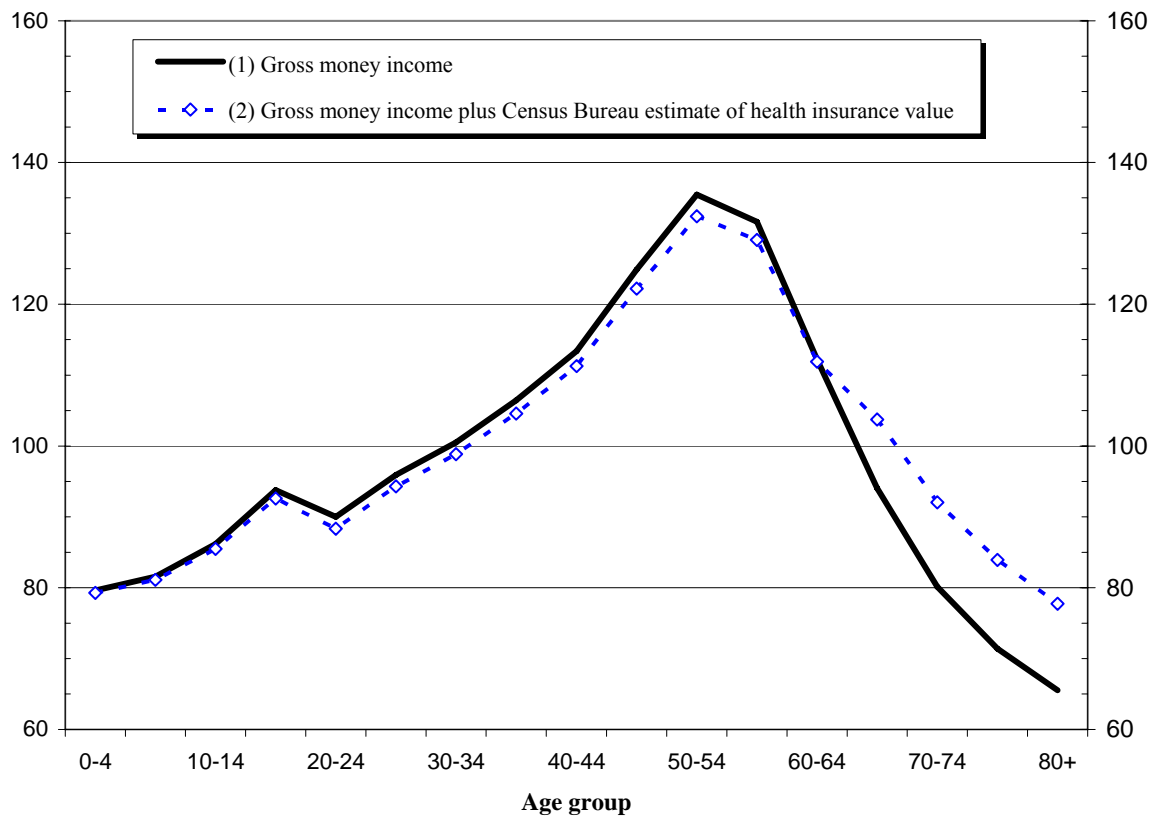
Percent of size-adjusted money income:  
1996-2000 and 2001-2005



Source: Authors' tabulations of 1997-2006 March CPS files.

**Figure 5. Age Profile of Income under Alternative Income Definitions, 1996-2005**

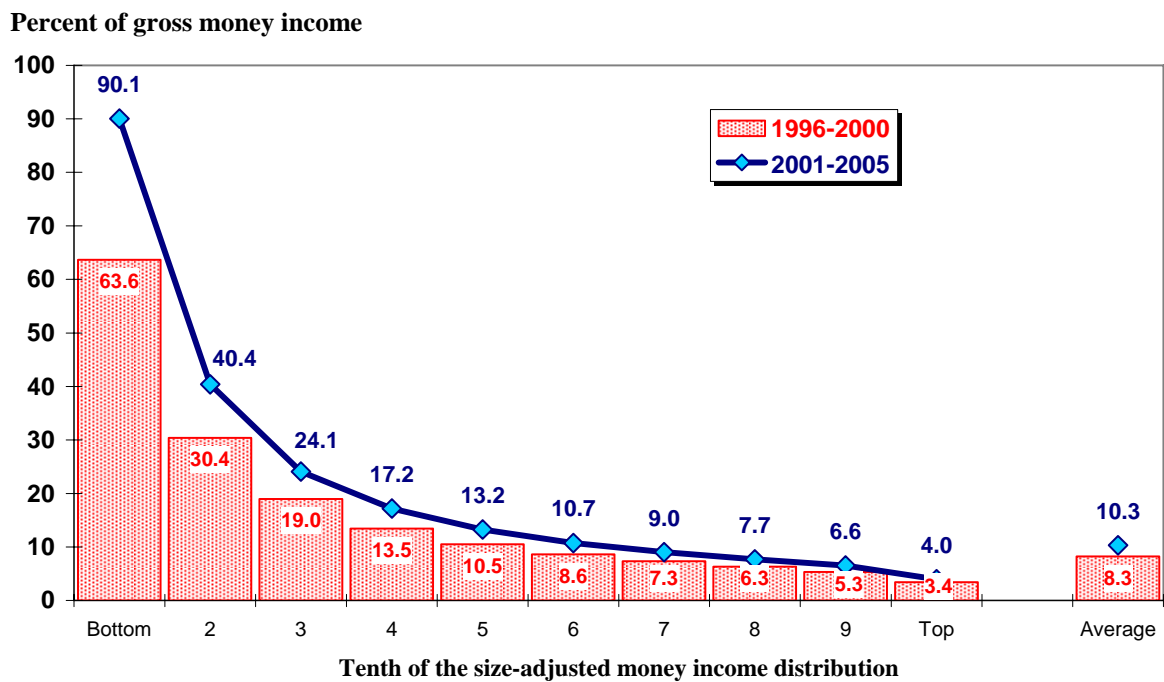
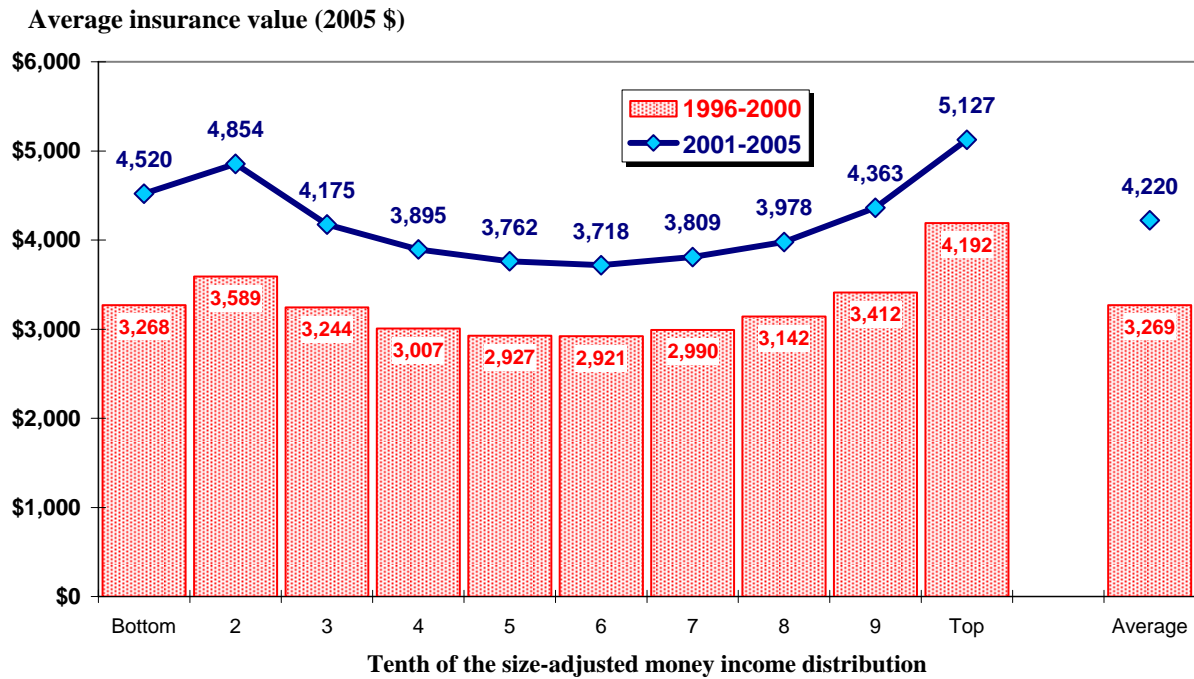
Population average income under definition = 100



Note: All income amounts represent averages for the 1996-2005 period after conversion into constant 2005 dollars using the CPI-U-RS price deflator. The incomes of persons in each age group are 'equivalent' or household-size-adjusted incomes (see text).

Source: Authors' tabulations of 1997-2006 March CPS files.

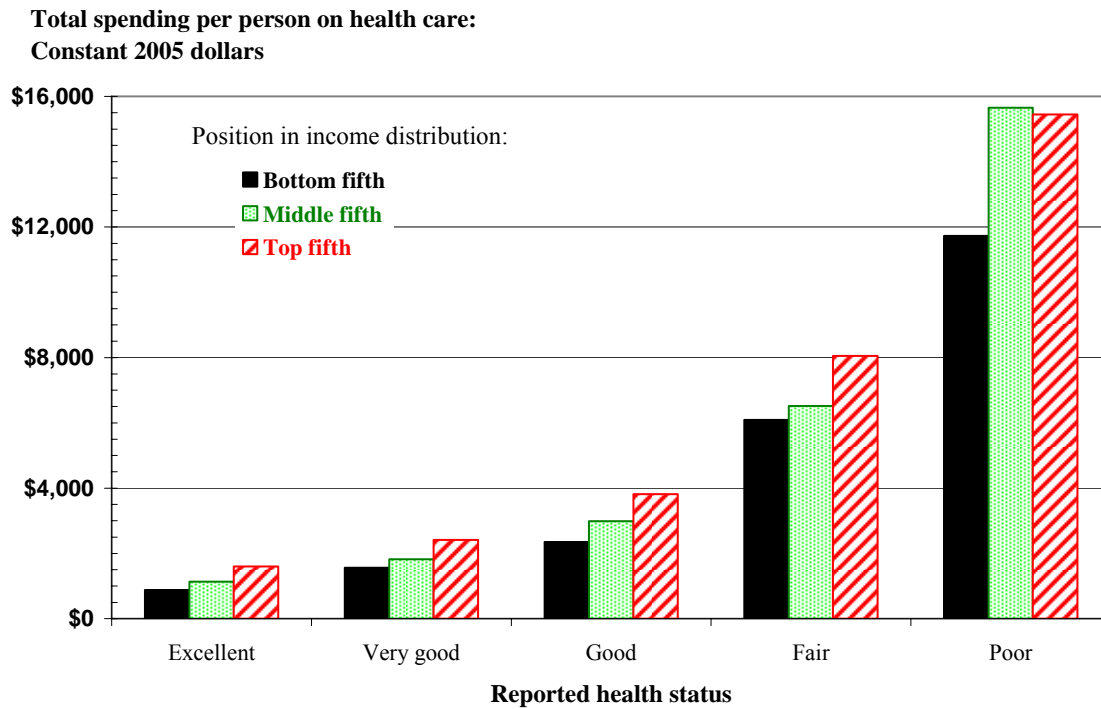
**Figure 6. Employer Health Contributions and Fungible Health Insurance Value of Government Insurance across the U.S. Income Distribution, 1996-2005**



Note: All income and insurance value amounts represent averages for the indicated time periods after conversion into constant 2005 dollars using the CPI-U-RS price deflator. The incomes of persons in each age group are 'equivalent' or household-size-adjusted money incomes (see text).

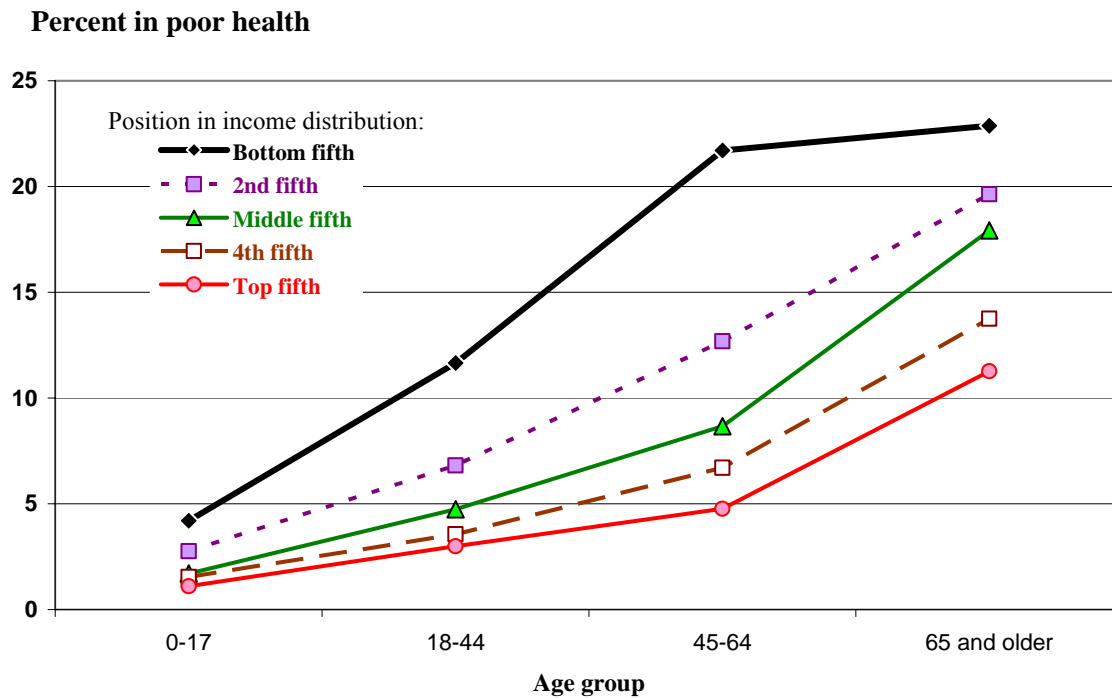
Source: Authors' tabulations of 1997-2006 March CPS files.

**Figure 7. Relation of Health Status, Income, and Health Care Consumption, 1996-2005**



Source: Authors' tabulations of 1996-2005 MEPS household files.

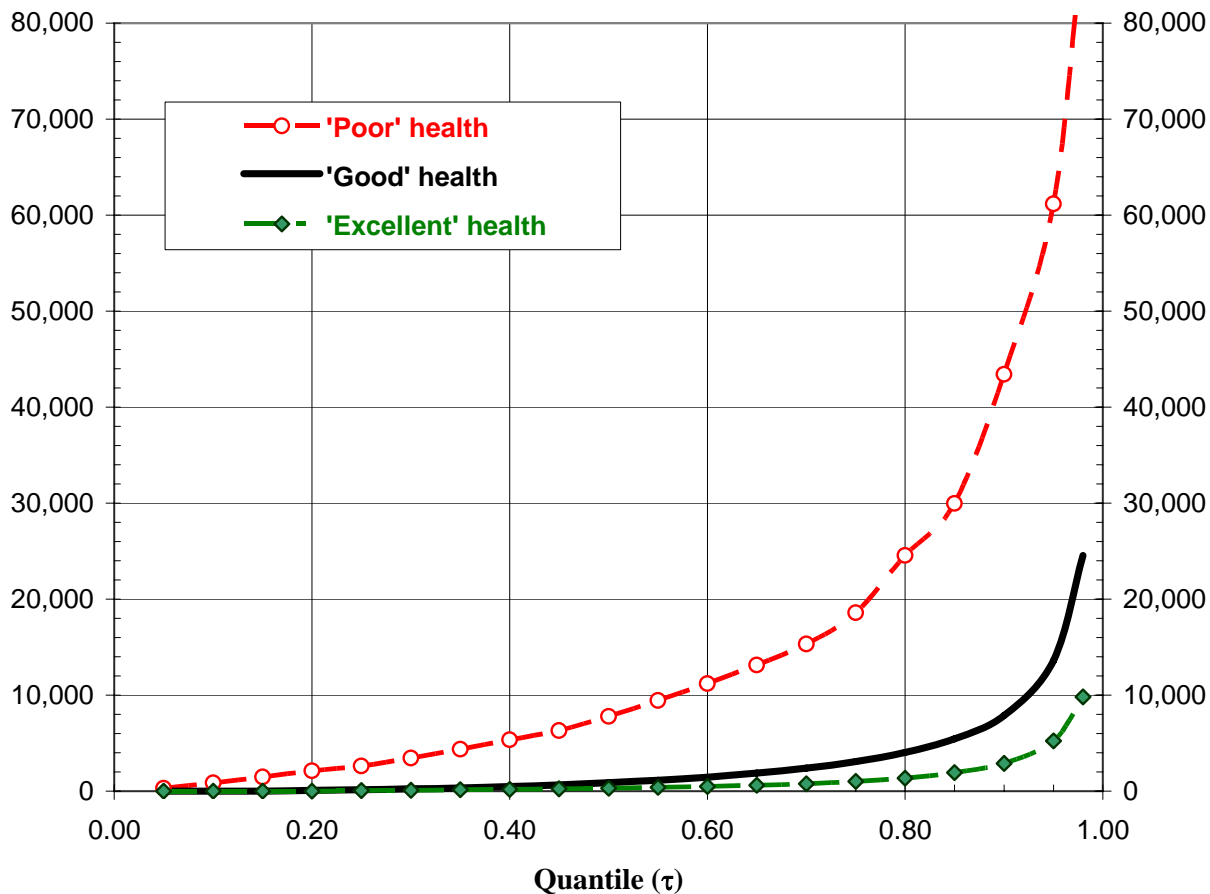
**Figure 8. Relation of Health Status, Age, and Income, 1996-2005**



Source: Authors' tabulations of 1996-2005 MEPS household files.

**Figure 9. Quantile Regression Estimates of Total Health Care Spending among Persons in Middle Fifth of Income Distribution, by Health Status, 2001-2005**

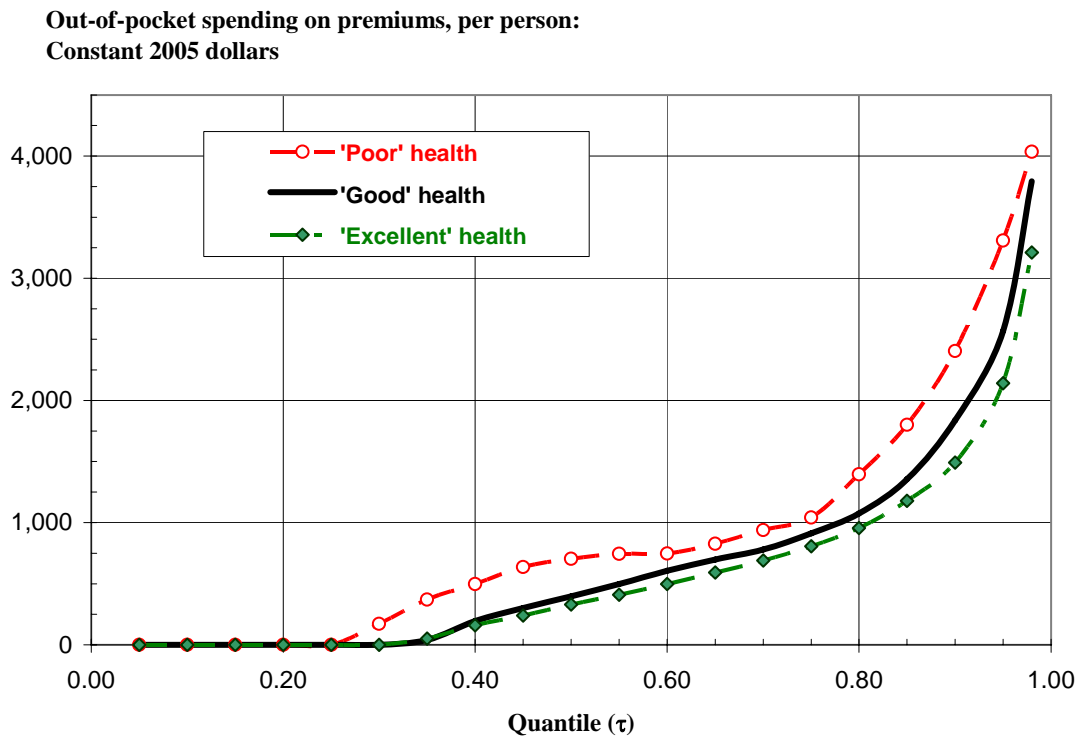
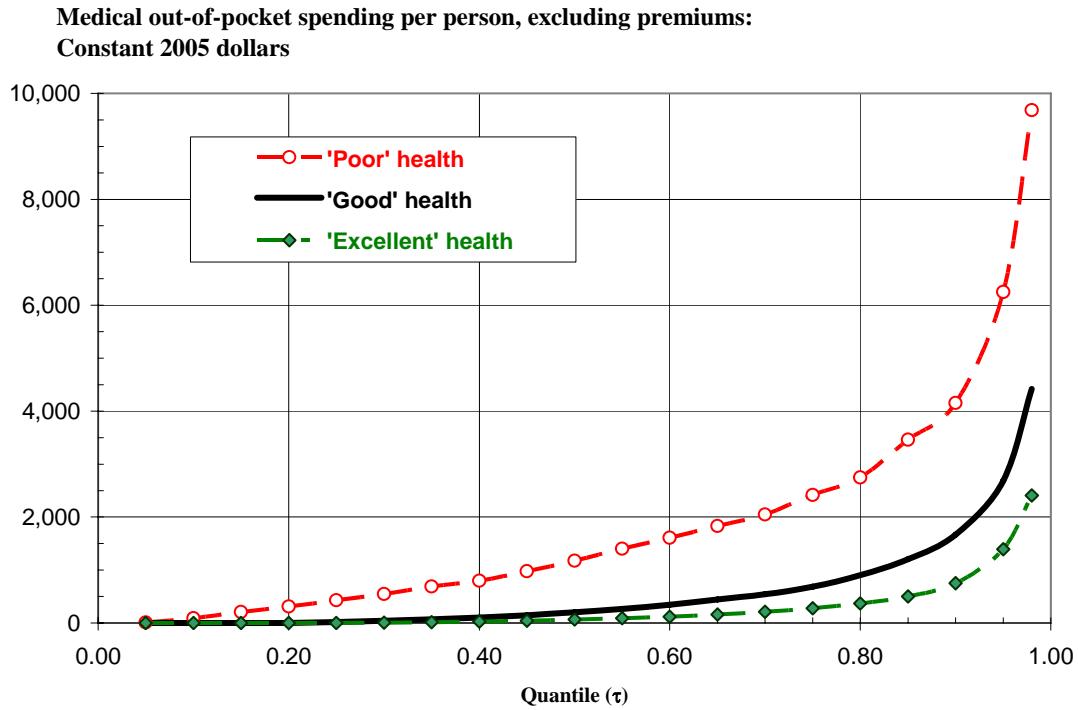
Annual spending per person on health care:  
Constant 2005 dollars



Note: Spending amounts are converted to 2005 dollars using the PCE medical deflator.

Source: Authors' tabulations of 2001-2005 MEPS household files.

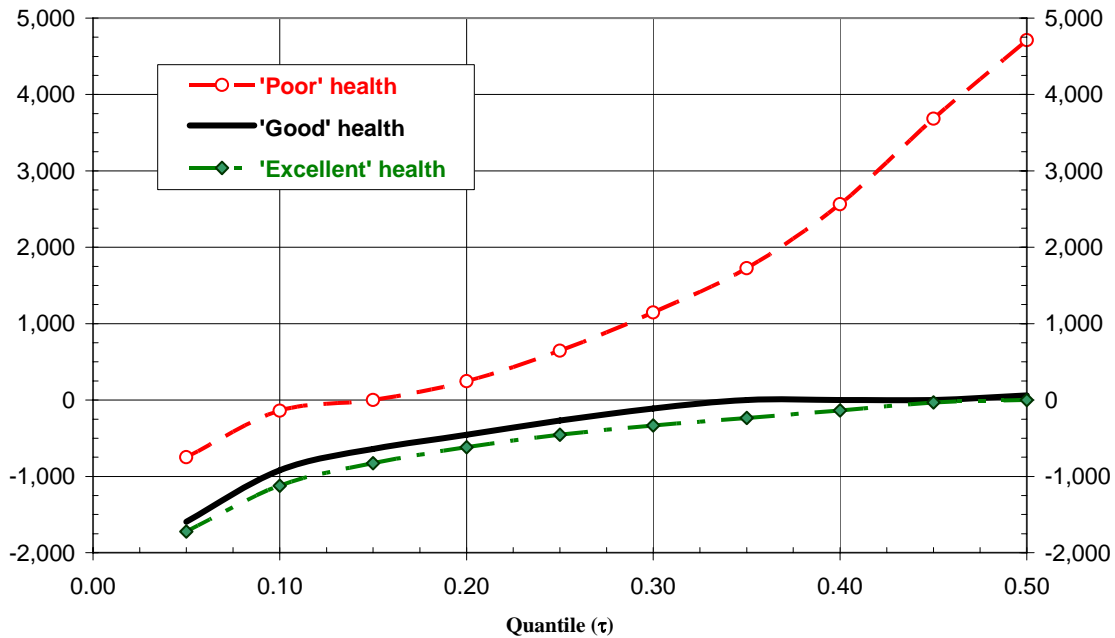
**Figure 10. Quantile Regression Estimates of Out-of-pocket Health Spending among Persons in Middle Fifth of Income Distribution, by Health Status, 2001-2005**



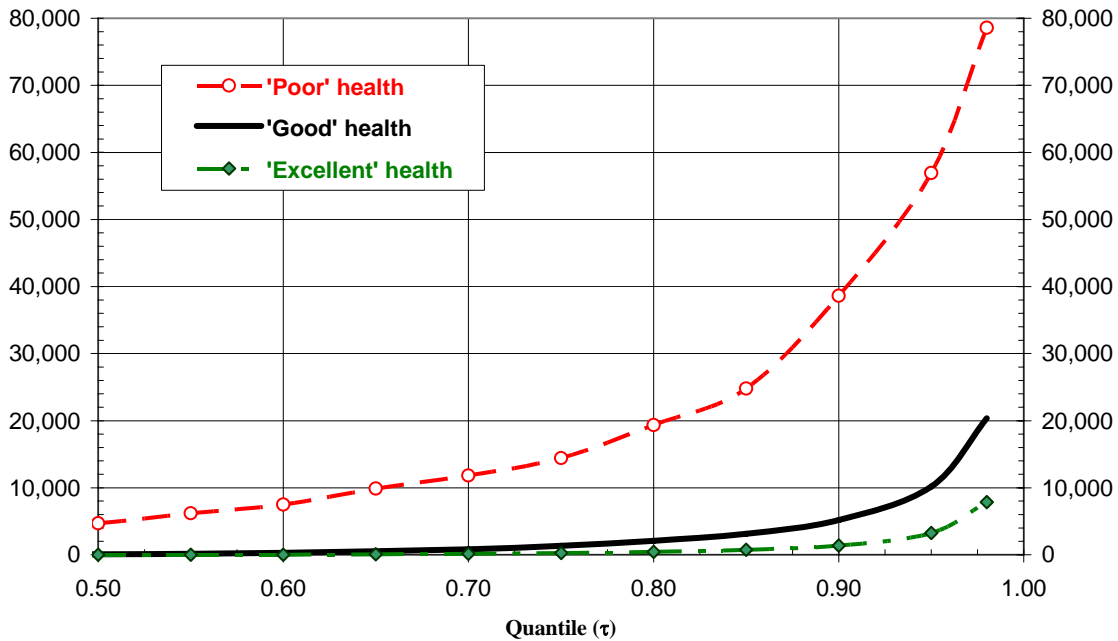
Note: Spending amounts are converted to 2005 dollars using the CPI-U-RS deflator.  
Source: Authors' tabulations of 2001-2005 MEPS household files.

**Figure 11. Quantile Regression Estimates of Net Gains or Losses from Health Insurance among Persons in Middle Fifth of Income Distribution, by Health Status, 2001-2005**

Net gain or loss from insurance, per person:  
Constant 2005 dollars ( $0 < \tau < 0.5$ )



Net gain or loss from insurance, per person:  
Constant 2005 dollars ( $0.5 < \tau < 1.0$ )

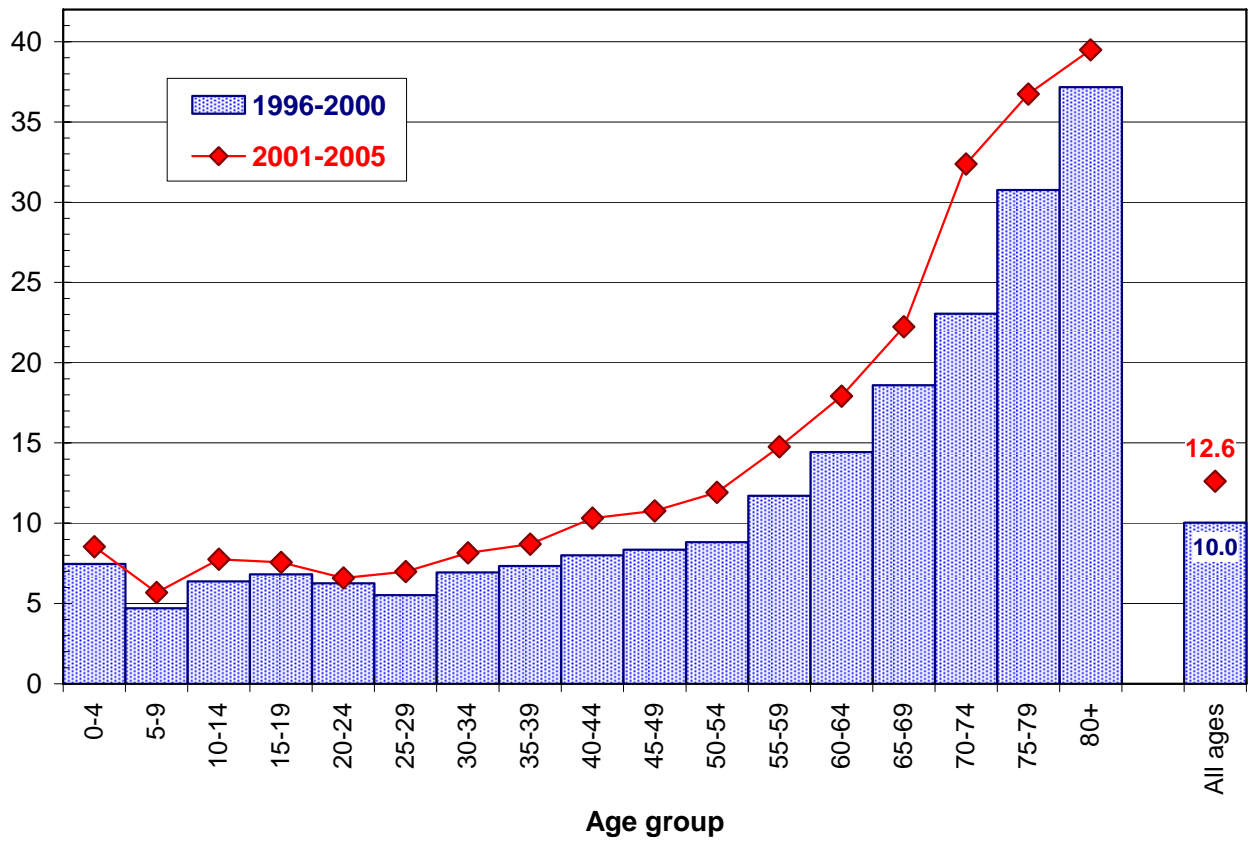


Note: 'Net gain or loss from health insurance' is all reimbursement payments made by insurance plans minus person's premium payments. Spending amounts are converted to 2005 dollars using the CPI-U-RS deflator.

Source: Authors' tabulations of 2001-2005 MEPS household files.

**Figure 12. Consumption of Health Care as a Percent of Gross Money Income by Age Group, 1996-2000 and 2001-2005**

**Total health consumption as percent of gross money income**



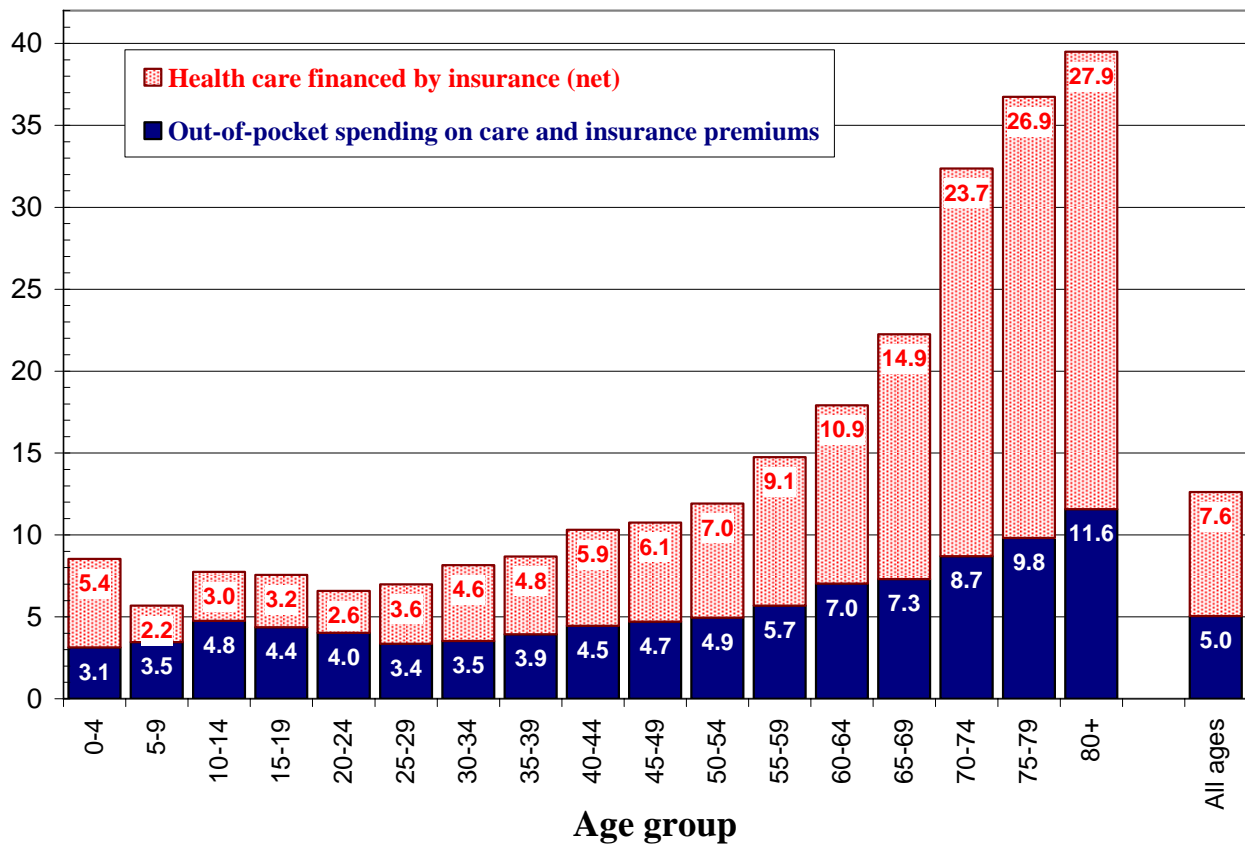
Note: Estimates reflect total health care expenditures in each age group divided by the age group's share of household income. See text.

Source: Authors' tabulations of 1996-2005 MEPS household files.



**Figure 13. Consumption and Financing of Health Care as a Percent of Gross Money Income, 2001-2005**

**Spending on health care and insurance  
as percent of gross household income**

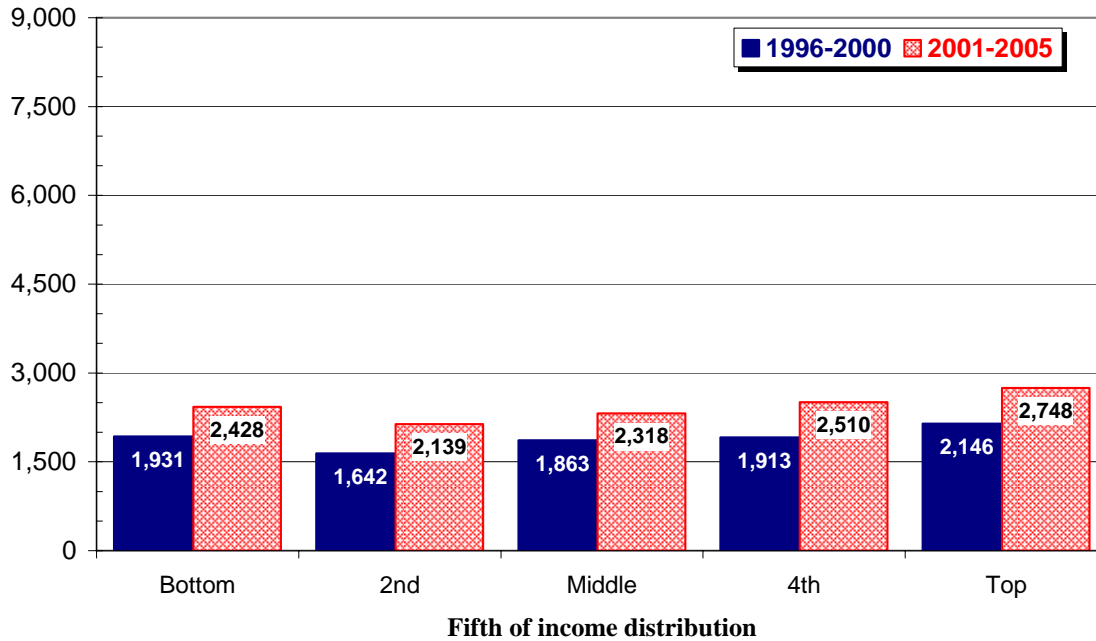


Note: Estimates reflect out-of-pocket health care expenditures and net insurance reimbursements in each age group divided by the age group's share of household income. See text.

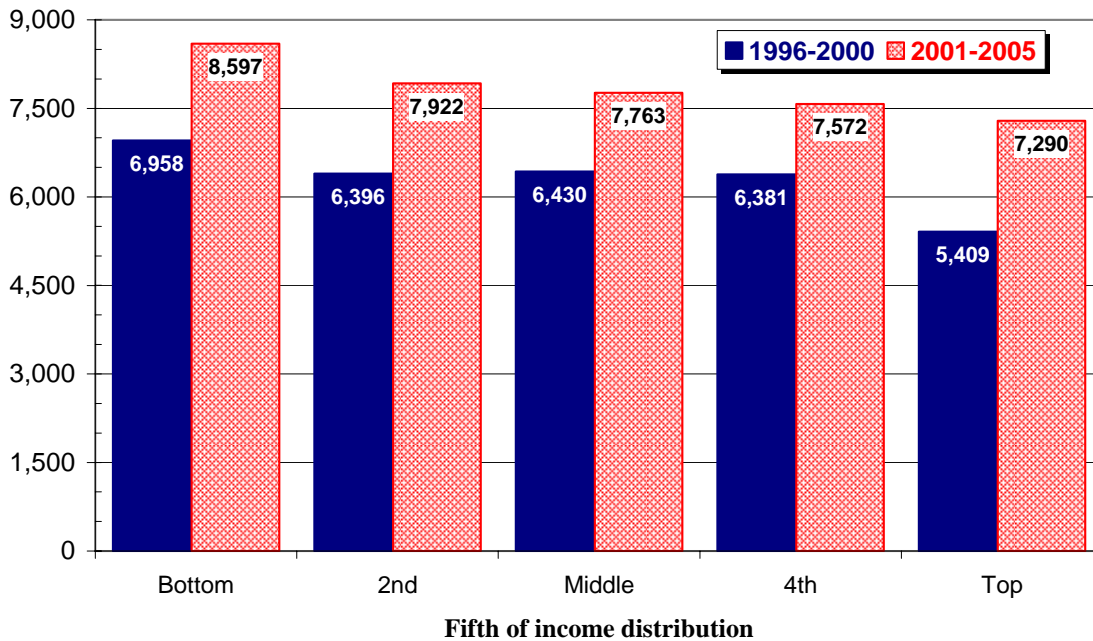
Source: Authors' tabulations of 2001-2005 MEPS household files.

**Figure 14. Total Health Care Expenditures by Fifth of the Income Distribution, 1996-2000 and 2001-2005**

**Total spending per person on health care:  
Population under age 65**



**Total spending per person on health care:  
Population age 65 and older**

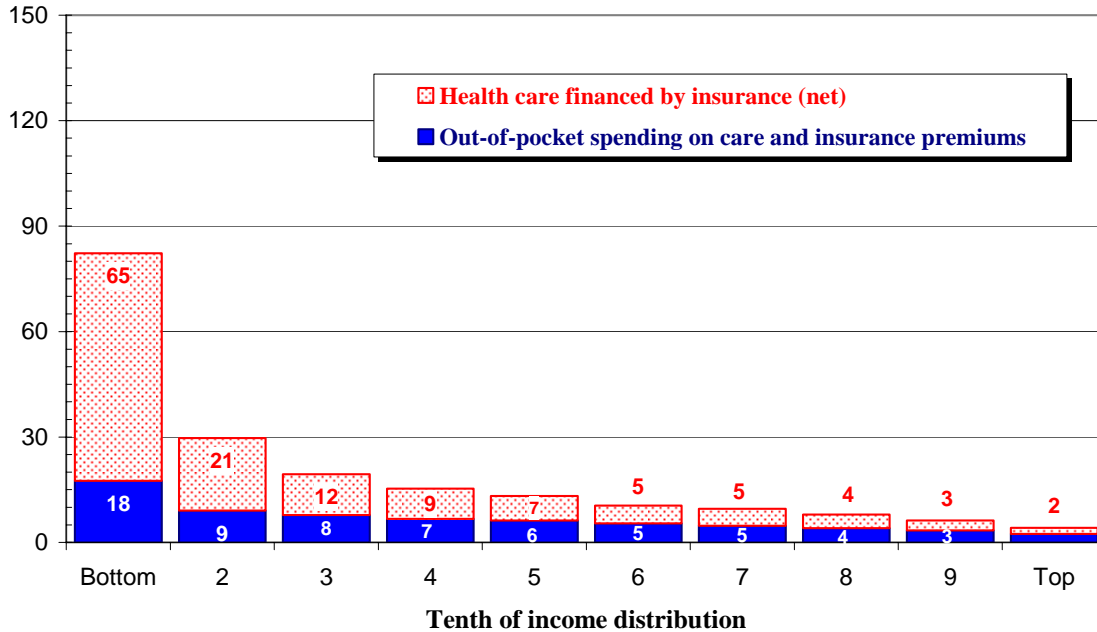


Notes: Spending amounts are converted to 2005 dollars using the PCE deflator for medical goods and services. Estimates reflect average health care expenditures for persons in each income category.

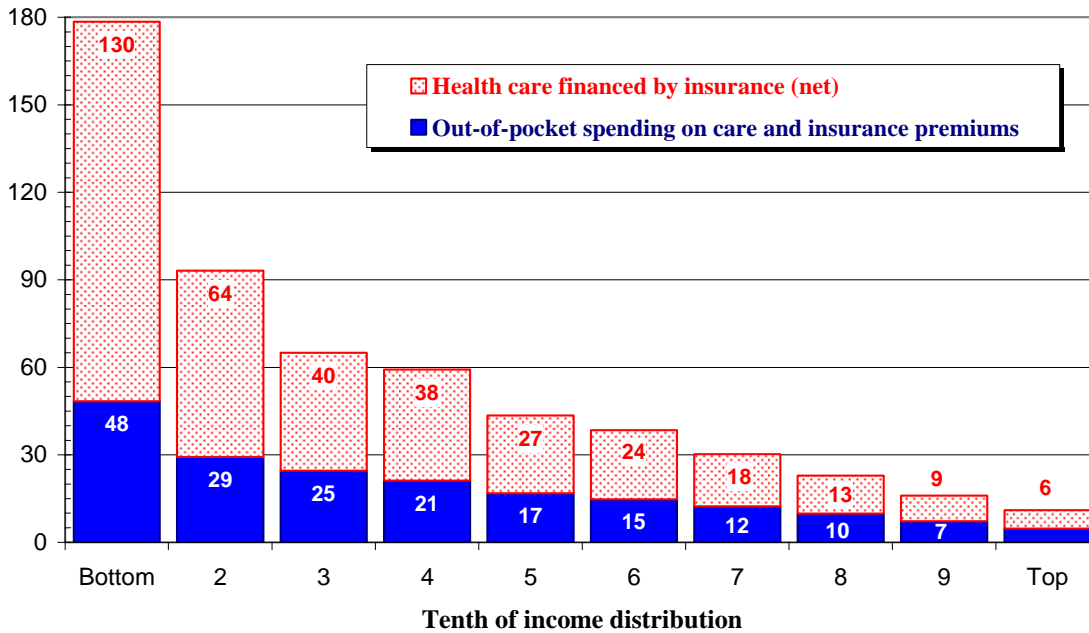
Source: Authors' tabulations of 1996-2005 MEPS household files.

**Figure 15. Consumption and Financing of Health Care as a Percent of Gross Money Income by Position in the Income Distribution, 2001-2005**

**Spending on health care and insurance as percent of gross household income: Population under age 65**



**Spending on health care and insurance as percent of gross household income: Population age 65 and older**

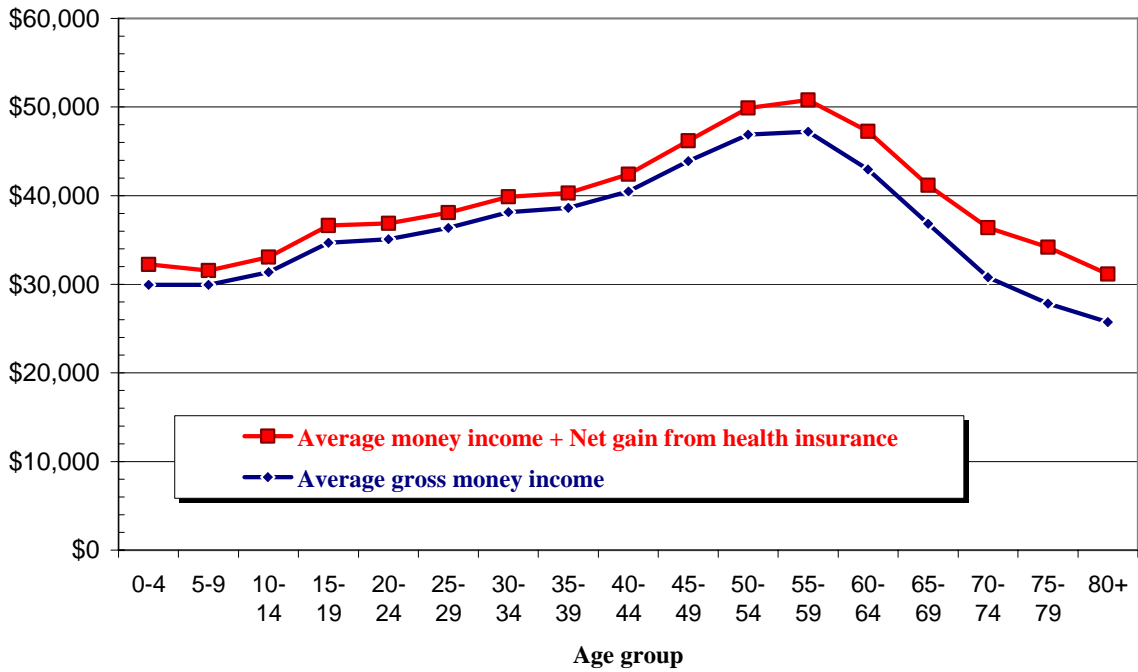


Note: Estimates reflect out-of-pocket health care expenditures and net insurance reimbursements in each income group divided by the group's total money income. See text.

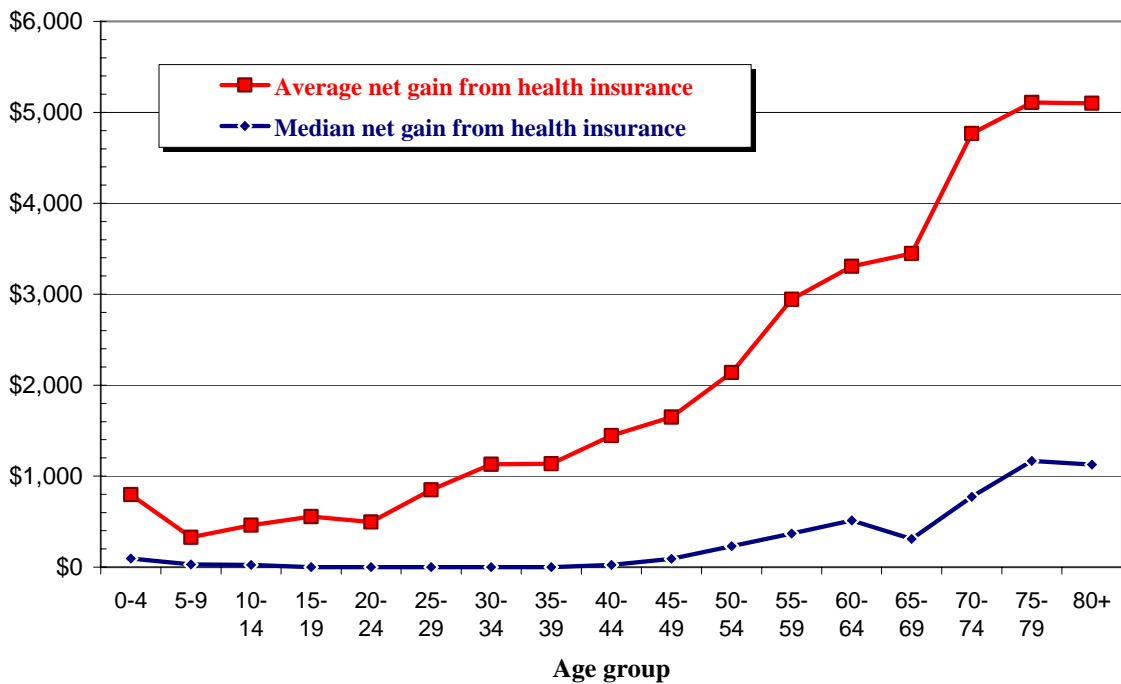
Source: Authors' tabulations of 2001-2005 MEPS household files.

**Figure 16. Age Distribution of Net gains from Health Insurance, 2001-2005**

Average size-adjusted income:  
Constant 2005 dollars



Net gain from health insurance per person:  
Constant 2005 dollars



Note: All income, premium, reimbursement, and health spending amounts have been converted to constant 2005 dollars using the CPI-U-RS deflator.

Source: Authors' tabulations of 2001-2005 MEPS household files.