

# Medical Spending in the US: Facts from the Medical Expenditure Panel Survey Dataset

Svetlana Pashchenko\*  
University of Surrey

Ponpoje Porapakarm†  
National Graduate Institute  
for Policy Studies

July 16, 2015

## Abstract

We document facts about medical spending of the US population using the Medical Expenditure Panel Survey dataset. We find that for the entire population, around 44% of the total medical spending is paid by private insurance but there is a substantial difference in terms of financing medical care by age: for working age adults (25 to 65 years old) private insurance covers around 57% of the total medical spending, whereas for the elderly (older than 65 years old) the largest payor is the government which covers 65% of the total. Inpatient hospital care accounts for a third of the aggregate medical expenditures. Medical spending is highly concentrated: the top 5% of spenders account for more than half of the total expenditure. Even higher concentration is observed among hospital spending where the top 5% of spenders contribute around 80% to the total expenditure. The concentration in medical spending decreases with age: the Gini coefficient of the total medical spending is 0.75 for people aged between 25 and 64 years old and 0.63 for people older than 65 years old. We find that average medical spending of people in the bottom income quintile is higher than that of people in the top income quintile for all age groups. In terms of persistence of medical spending, we find that the correlation of medical expenditure in two consecutive years is 0.36. When persistence is measured by quintile of medical spending distribution, medical spending of people in the bottom and top quintiles has higher persistence relative to other groups.

Keywords: medical spending, health insurance, health care

JEL Classification Codes: D12, D14, I13, I14

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\*Email: sap9v@virginia.edu

†Email: p-porapakarm@grips.ac.jp

# 1 Introduction

In this article we document facts about medical spending of the US population. The US represent an interesting case study because unlike other developed countries it does not have universal public health insurance. Individuals in the US obtain health insurance from different sources and in most cases the source of insurance coverage changes over the life-cycle. People over 65 are eligible for public health insurance, while the majority of the non-elderly population are covered by private insurance. Certain groups of young adults are uninsured or are covered by means-tested public health insurance. As a result, there exists inequality in terms of access to health care, and an important question is how this may affect medical spending over the life-cycle, as well as concentration of medical spending and its correlation with income.

For our analysis we use the Medical Expenditure Panel Survey dataset. This dataset contains very detailed information about medical spending at the individual level. It covers individuals of all ages but age is top-coded at 85. An important feature of MEPS is that medical spending information is collected at the event level (e.g. visit to a specialist, hospital stay), thus all spending can be linked to a particular health service. Individuals' responses are cross-checked with medical providers and insurance companies, which improves the accuracy of the data. However, since this dataset only includes noninstitutionalized population and excludes hospital stays over 45 days it misses information on catastrophic medical spending.

The paper is organized as follows. Section 2 reviews the related literature. Section 3 provides a brief review of the US health insurance system. Section 4 describes the MEPS dataset and compares certain aggregate statistics constructed from MEPS with other datasets. Section 5 documents facts related to the distribution of medical spending and its correlation over time. Section 6 describes the evolution of medical spending over the life-cycle. Section 7 concludes.

## 2 Related literature

This paper relates to the literature documenting micro-level facts about individual medical spending over the life-cycle in the US. The studies in this area differ in terms of the dataset they use and the subset of the population they consider. In particular, Crystal et al (2000) and De Nardi et al. (2015) use the Medicare Current Beneficiary Survey (MCBS), whereas Fahle et al. (2015), Goldman and Zissimoulos (2003) and Hurd and Rohwedder (2009) use the Health and Retirement Survey dataset (HRS) which includes individuals over the age of 50. Since both the MCBS and HRS datasets do not include young individuals, all the aforementioned studies focus on the elderly population. Evans and Humphreys (2015) and Calónico et al. (2015) use the claims data from private

insurers and focus on non-elderly individuals.

In contrast to the studies above, studies that use MEPS can analyze medical spending of both the elderly and non-elderly population, with the exception of those over 85 years old. To the best of our knowledge, only the study by Jung and Tran (2013) uses MEPS to document individual level facts about medical spending. Specifically, they focus on estimating age profiles of average medical spending controlling for both time and cohort effects. There are also several studies that compare MEPS with other datasets. Bernard et al. (2012), Sing et al. (2006), and Selden et al. (2001) compare the aggregate medical expenditure estimates using the MEPS and National Health Expenditure Accounts (NHEA). Aizcorbe et al. (2012) compare the medical spending of people with employer-based health insurance in MEPS and the MarketScan data. Yabroff et al (2009) compare medical costs among individuals with certain cancer diagnosis using the MEPS and Medicare claims data.

### 3 Institutional framework

One important feature of the US health care system is the absence of universal public health insurance. Public health insurance still plays an important role in the US health insurance system but it covers only certain groups of population. Two largest public health insurance programs are Medicare and Medicaid. Medicare covers people older than 65 years old as well as disabled young people. Medicaid is a means-tested program that covers individuals of all ages whose resources fall below a certain threshold. For many low-income young adults Medicaid is the main source of insurance coverage. For people older than 65 years old Medicaid serves as supplemental health insurance that covers certain categories of medical spending not covered by Medicare, most importantly nursing home stays. Apart from Medicaid and Medicare there exist several other smaller public insurance programs targeted at specific groups of people, for example State Children’s Health Insurance Program (SCHIP), Tricare (for military personnel), and Veteran’s Health Administration. Because public health insurance covers people that on average have high medical spending (the elderly and the disabled), the government contributes a substantial share of the national health expenditure (see Section 5.1).

For non-elderly adults in the US there exists substantial heterogeneity in terms of sources of insurance coverage (Table 1).<sup>1</sup> The majority of non-elderly adults (68%) are covered by private insurance, mostly obtained through employers (59%). Employer-based health insurance (ESHI) is tightly regulated: employers cannot differentiate premiums based on age or health conditions of individuals. Thus all employees of the same company

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<sup>1</sup>In Table 1 individuals with both public and private insurance are added to both categories, so the distribution by coverage does not sum up to 100%.

are charged the same premium as long as they buy the same plan (87% of US firms that offer health benefits to their workers only provide one plan choice, Kaiser Family Foundation, 2013). This is one of the reasons why large firms are more likely to offer ESHI to their employees because in small firms one employee with poor health conditions can increase the premiums for the entire pool of workers. In 2013, 99% of all large firms (with 200 or more workers) offered health benefits to their workers, while among small firms (3-199 workers) only 57% did so (Kaiser Family Foundation, 2013).

Type of insurance	Coverage (%)
Uninsured	18.4
Public insurance	18.2
Private insurance	68.1
Employer-based	59.2
Directly-purchased	9.1

**Table 1:** Distribution of people aged 18-64 years old by insurance status in 2013. Source: US Census

Outside the employer-based market the private health insurance market is rather small: only 9% of non-elderly adults purchase their health insurance directly in the individual market. One important difference between directly-purchased insurance and ESHI is that until recently insurers could risk-adjust prices in the individual market in most states, i.e. sick individuals were charged higher premiums. Moreover, individuals with chronic health conditions could be denied coverage or only offered plans that do not cover preexisting conditions. The situation in the individual market has changed substantially since 2014 when the Patient Protection and Affordable Care Act (ACA), which introduces a number of new regulations in the health system, become effective. In particular, insurance companies are not allowed to adjust premiums based on health conditions of individuals (even though premiums can vary by age) or deny/limit coverage based on preexisting conditions.

Another important characteristics of the US health insurance system is that coverage varies significantly by income level (Table 2). More specifically, among low-income individuals (income less than \$25,000), 21.6% are uninsured and only 26.7% are covered by ESHI, while among high-income individuals (income in the range \$100,000-\$150,000) only 6.3% are uninsured and 86.1% are covered by ESHI. In Section 5 we will discuss how this phenomenon can possibly affect the income-medical spending gradient.

Type of insurance	By household income (\$000)					
	<25	25-50	50-75	75-100	100-150	150>
Uninsured	21.6	18.7	13.1	9.7	6.3	5.3
Public insurance	62.5	45.9	30.8	21.5	17.3	14.1
Private insurance	26.7	50.3	69.7	79.6	86.1	89.8

**Table 2:** Distribution of people by insurance and income in 2013. Source: US Census

## 4 The MEPS dataset

### 4.1 Description

For our analysis, we use data from the 1999-2012 waves of the Medical Expenditure Panel Survey (MEPS), a nationally representative survey of the civilian non-institutionalized population produced by the Agency for Health Care Research and Quality (AHRQ). It includes data on health care use, expenditures, sources of payment, health insurance coverage, health status, demographic and socio-economic characteristics. The survey is designed as a two-year rotating panel. It includes five rounds of interviews covering two full calendar years. Each annual sample size is about 15,000 households. The set of households selected for each panel of MEPS is a subsample of households participating in the previous year’s National Health Interview Survey (NHIS) conducted by the National Center for Health Statistics. While this survey oversamples blacks and hispanics, MEPS further oversamples additional policy relevant subgroups such as low-income households. MEPS adjusts (post-stratifies) person weights so that it produces the same poverty rates by demographic groups as the Current Population Survey (CPS), a dataset used as the source of official poverty statistics in the US (Banthin and Selden, 2006).

MEPS consists of three components: household, medical provider and insurance. The Household Component (HC) data is based on a survey of individuals and it is publicly available. The Medical Provider Component (MPC) is a follow-back survey of medical providers reported by HC respondents and also providers who provide services for patients in hospitals but bill separately from hospitals. MPC data is used to cross-check information collected from the household survey to improve the accuracy of the expenditure data. The Insurance Component (IC) comes from a survey of employers and collects information on health insurance plans offered. Both MPC and IC data are not publicly available.<sup>2</sup> Since in our analysis we use HC, in the following we refer to MEPS HC as MEPS.

In our sample we dropped individuals with missing values of age or medical spending. This leaves us with 257,222 individuals who contribute to 463,495 person-year observa-

<sup>2</sup>IC data is available on the AHRQ website in tabular form only.

tions. For our longitudinal analysis in Section 5.3, we keep only individuals whom we observe for two years, and this reduces our sample size to 198,517 individuals. We use the cross-sectional weights and longitudinal weights provided by MEPS for the cross-sectional and longitudinal pools correspondingly. Since each wave is a representation of the population in that year, when pooling several years (or waves) together the weight of each individual was divided by the number of years (or waves). We use 2014 as the base year. All level variables were normalized to the base year using the Consumer Price Index (CPI).

The MEPS data is collected at the event level and then it is summed up to produce annual utilization and expenditure. MEPS includes the following categories of medical expenses: office-based visits (medical provider visits that took place in office-based settings and clinics), hospital events (inpatient and outpatient care, emergency room visits), dental care, vision aids, home health care, other medical equipment and services, and prescribed medicine. It should be noted that MEPS does not include information on events such as nursing home care and hospital stays longer than 45 days. This, coupled with the fact that age in MEPS is top-coded at 85 years, does not allow to use the dataset to analyze the medical spending of the very elderly and medical spending before death.

MEPS defines medical expenditure as the the sum of direct payments for health care services made by insurers or out-of-pocket. Payments that cannot be linked to a particular patient are not included in MEPS definition of expenditure (e.g. Medicaid Disproportionate Share Hospital payments). Similarly, uncollected liability and bad debt are not counted as expenditures because no payment is made. Moreover, MEPS adjusts household-reported insurance payments because households may not know that their insurer negotiated a discount with the provider. In addition, medical expenditure in MEPS do not include over-the-counter drugs. MEPS also report charges variables with the caution that they do not represent the actual amount paid for the services. The difference between charges and actual payments can be substantial. In our sample, the average charges for all services excluding prescription drugs is \$6,609 while the average expenditures is only \$3,092.<sup>3</sup> This large discrepancy suggests that negotiated discounts, bad debt, and free care are substantial.

MEPS collects income and medical spending information at the individual level. The income sources in MEPS include wage and salary income, business and sales income, interest and dividend income, pension and Social Security income, as well as income from public assistance, Supplemental Security Income (SSI), child support, Temporary Assistance for Needy Families (TANF), and unemployment compensation. All person-level income amounts (both total and separate sources of income) are top-coded at 99th percentile.

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<sup>3</sup>The median charges for our sample is \$802 and median expenditures is \$541.

## 4.2 Comparison to other datasets

MEPS is not designed to yield the aggregate national estimates of medical expenditure. In fact, the discrepancy between MEPS and the aggregate statistics is substantial. Table 3 shows the ratio of the aggregate medical spending computed from the National Health Expenditure Account (NHEA) to the aggregate spending computed from the MEPS.<sup>4,5</sup> Overall, the national average is at least 65% higher than the corresponding statistics in MEPS. Two important sources of this discrepancy is the absence of certain categories of medical care from MEPS (e.g. nursing home care) and the different approach to define medical spending. As mentioned above, medical spending in MEPS is based on the actual payments made for a particular service. In contrast, NHEA estimates are based on providers' revenue even if it is not associated with a particular event (e.g. revenue from hospital gift shops or parking lots).

Year	MEPS	NHEA	NHEA/MEPS
2000	627.9	1,165.7	1.86
2001	726.4	1,265.8	1.74
2002	810.7	1,371.9	1.69
2003	895.5	1,482.1	1.66
2004	963.9	1,592.3	1.65
2005	1,023.8	1,700.9	1.66
2006	1,033.1	1,809.3	1.75
2007	1,126.1	1,921.0	1.71
2008	1,148.4	2,017.3	1.76
2009	1,259.5	2,117.9	1.68
2010	1,263.4	2,196.2	1.74
2011	1,330.7	2,281.8	1.71
2012	1,350.7	2,379.3	1.76

**Table 3:** Medical expenses in the MEPS and NHEA (billions, current dollars) and their ratio

Bernard et al. (2012) and Sing et al. (2006) provide a detailed study of the discrepancy between the NHEA and MEPS estimates. The first study compares the MEPS and NHEA estimates for 2007, and the second compares those for 2002. The authors construct an adjusted NHEA estimate of the aggregate medical spending that excludes nursing home costs, acute health expenditures of people who spend more than 45 days in a hospital, expenditure for active military personnel and foreign visitors, and several other categories of medical expenditure not included in MEPS. The resulting estimate of the aggregate medical spending from NHEA is much closer to its counterpart in MEPS: the difference is reduced to 14% in 2002 and to around 18% in 2007. The authors attribute

<sup>4</sup>The NHEA is based on the aggregate provider revenue data.

<sup>5</sup>When computing the aggregate medical expenses in Table 3 we include all observations even those with missing data on age.

the remaining difference to factors such as the presence of undetected fraudulent billing practices in NHEA, underreporting of prescription drug spending in MEPS, and the underrepresentation of people with more than \$100,000 in total annual health expenditures in MEPS.

To understand how accurately MEPS captures information on the elderly, in Table 4 we compare the average medical spending per Medicare beneficiary and Medicare enrollment for people older than 65 years old in MEPS and the Medicare Current Beneficiary Survey (MCBS).<sup>6</sup> Numbers from MCBS in the table are from De Nardi et al. (2015). MEPS underestimates Medicare enrollment comparing to MCBS, especially in years 1999 and 2000, but after 2001 the gap between the two datasets is around one million individuals. The difference in average medical spending per beneficiary is more substantial: the MEPS estimates are lower and the gap between the two datasets varies between 34% and 64%. This difference is driven by the same factors that account for the difference between MEPS and NHEA described earlier: the absence of information on nursing home care episodes and underrepresentation of high cost cases.

Year	Enrollment (millions)		Mean Expenditure		Expenditure MCBS/MEPS
	MEPS	MCBS	MEPS	MCBS	
1999	32.4	35.0	4,166	6,450	1.55
2000	32.9	35.1	4,065	6,650	1.64
2001	34.2	35.5	4,442	7,030	1.58
2002	34.3	35.9	5,076	7,490	1.48
2003	34.9	36.2	5,272	7,510	1.42
2004	35.5	36.3	5,547	7,690	1.39
2005	35.6	36.6	5,260	7,880	1.50
2006	35.9	36.9	5,972	8,640	1.45
2007	36.7	37.8	6,696	8,990	1.34
2008	37.7	38.7	5,926	9,110	1.54
2009	38.4	39.6	6,247	9,210	1.47
2010	39.2	40.6	6,632	9,340	1.41

Notes: Adjusted to 2014 dollars

**Table 4:** Medicare enrollment and expenditures for the age 65+ population, MEPS and MCBS

To understand how accurate the information on insurance coverage for non-elderly adults in MEPS is, we compare it with the aggregate data from CPS. The CPS Annual Social and Economic Supplement (ASEC) is the most widely-cited source of estimates on health insurance and the uninsured (Smith and Medalia, 2013). ASEC is conducted in February, March and April and respondents are asked about their health insurance

<sup>6</sup>MCBS is a nationally representative survey of Medicare beneficiaries. More details on this dataset are available in De Nardi et al. (2015).



coverage in the previous calendar year. Individuals are considered to be insured if they were covered by some health insurance for part or all of the year, and they are considered uninsured if they did not have any coverage for the entire year. Individuals who report multiple sources of coverage are included in several categories (e.g. public and private insurance). We construct the insurance statistics from MEPS to be as close to the CPS definition as possible. MEPS asks individuals retrospectively about the source of their coverage for each month of the year. We define an individual as insured if he reports having coverage for at least one month of the year. An individual is classified as uninsured if he reports having no coverage for all twelve months of the year. To be consistent with the CPS definition, we add individuals who report having both public and private insurance to both categories (because of this the distribution of individuals by insurance does not sum up to 100%). Table 5 compares the resulting insurance statistics for people aged 18 to 64 years old between MEPS and CPS in 2012. Overall, the insurance coverage in MEPS is close to its counterpart in CPS. The percentage of the uninsured is higher in CPS, however until recently CPS produced higher estimates of the uninsured than other federal studies (Smith and Medalia, 2013). Czajka and Denmead (2008) compare eight datasets including MEPS and CPS and also find that CPS overestimates the number of uninsured comparing to all other datasets. They conjecture that this happens because respondents in CPS answer the question whether they were uninsured for the entire prior year or not based on the current insurance situation.<sup>7</sup>

Type of insurance	MEPS	CPS
Uninsured	18.4	21.0
Public insurance	16.4	16.6
Employer-based insurance	68.7	67.2

**Table 5:** Distribution of people age 18-64 years old by insurance status in 2012 in MEPS and CPS

Table 6 compares median household income in MEPS and CPS. To construct household income in MEPS we use the variable "total person-level income" (TTLP) that was designed to match as closely as possible the CPS definition of income. Since MEPS provides all the information at the individual level we link individuals to a family and then sum income of all family members. MEPS allows to link individuals into family using several definitions of a family. The first definition of family is based on the eligibility for a family insurance plan. The group of individuals linked this way are referred to as the Health Insurance Eligibility Unit (HIEU). The second way to link individuals is based on the CPS definition of a family. The third way is the MEPS definition of a family which differs from the CPS definition in terms of how it treats foster children and cohabitants.

<sup>7</sup>To address this problem CPS redesigned insurance questions in 2013. More details on this are provided in Smith and Medalia (2013).

To construct household income we use the CPS definition of a family and compute the mean and median using the family weights provided in MEPS. The average income in both datasets are almost identical, but the median income is almost 9% higher in MEPS. Czajka and Denmead (2008) provide a more detailed comparison between the MEPS and CPS income distributions and find that MEPS has higher income than CPS between the 20th and 80th percentiles. For the bottom and the top income quintiles, however, MEPS underestimates income comparing to CPS. Czajka and Denmead (2008) caution that this comparison may be not very informative because MEPS post-stratifies the data to CPS poverty distribution, thus it is not clear if the discrepancy in income data is due to the way data is collected or to the post-stratification.

	MEPS	CPS	CPS/MEPS
Average	70,959	71,274	1.00
Median	55,691	51,017	0.92

**Table 6:** Average and median household income in 2012 in MEPS and CPS

## 5 Medical Expenditures in the Cross-Section and Over Time

### 5.1 The Cross-Sectional Distributions

Table 7 displays the distribution of medical spending by payors and by type of care. Payors include out-of-pocket spending, private insurance and the government (Medicaid, Medicare and other public insurance). The sum of contributions by payor does not sum up to 100% because we do not report contributions from Tricare, worker compensation and unclassified sources. For spending by Tricare, this variable is only available since 2000. We do not report spending covered by worker compensation and spending by unclassified sources because it is not clear which type of payors they belong to. The reported in Table 7 expenditure categories are hospital costs (split into inpatient and outpatient), office-based visits, prescription drugs and other costs, which is the sum of dental care, home health care, vision aids and medical supplies and equipment. For all numbers in Table 7 we first calculate the means of each category of medical spending and the mean of total spending, and then take their ratio. Table A1 in the Appendix reports the same statistics but when we first calculate the ratio of each category of spending to the total and then compute the average.

For the entire sample, the largest share of the total medical spending is paid by private insurance (43.8%), followed by the government as the second largest payor (35.4%). This

distribution, however, significantly changes with age: for people between 25 and 64 years old private insurance covers 57.1% of total spending and the government covers 20.4%, while for people older than 65 years old the share of private insurance decreases to 17% and the share of the government increases to 65.4%. This happens because of the change in the source of insurance coverage for most people after age 65 from private to public as discussed in Section 3. Comparing to men, women have higher percentage of their medical costs covered out-of-pocket (18.5% for women vs 16.3% for men) and by Medicaid (11% vs 8.7%) and this difference is particularly marked amongst people older than 65 years old.

In terms of the type of expenditure, the largest category is hospital costs that constitute 42.5% of the total spending, most of which is inpatient care (33.3%). Office-based visits and prescription drugs each accounts for around 20% of the total spending. Women spend considerably more on office-based visits between ages 25 and 65 (26.1% for women vs 21.7% for men), while men spend more on hospital care, especially when they are older than 65 (41.9% for women vs 47.2% for men).

In Table 8 we report the distribution of total and hospital medical spending, as well as the distribution of spending for two most important payor types: out-of-pocket and private insurance for people younger than 65 years old, and out-of-pocket and Medicare for people older than 65 years old. People in the top 5% of the medical expenditure distribution spend on average around \$35,000, which is almost nine times higher than the average for the whole sample (\$3,905). The average spending of the top 5% considerably increases with age: after age 65 the average spending of the top 5% constitutes more than \$65,000. It should be noted that people in the top 5% account for more than half (52%) of the total medical spending. This inequality decreases with age: for people in the age range 25 to 64 years old, the top 5% of spenders account for 49% of total spending, while for people older than 65 years old this number decreases to around 34%. Inequality in hospital care spending is even higher: 70% of population spend almost nothing on hospital care, while those in the top 5% of the distribution on average spend around \$24,000. The usage of hospital care increases with age, but even for people after age 65, 50% have almost zero hospital spending.

The bottom panel of Table 8 shows that on average people pay \$685 out-of-pocket, however the top 5% of spenders pay on average \$5,154. As in the case of total spending, out-of-pocket spending increases substantially with age: people older than 65 years old pay on average \$1,534, while the top 5% of spenders pay \$9,006 on average. It should be noted that the spending contributed by private insurance is more concentrated than the total or out-of-pocket medical spending: the top 5% of spenders account for more than 66% of the total spending by private insurance, while these numbers are 52.0% and 46.7% for total and out-of-pocket spending correspondingly.

	All			25-			25-65			65+		
	All	Men	Women	All	Men	Women	All	Men	Women	All	Men	Women
<i>Payors</i>												
Out of Pocket	17.5	16.3	18.5	18.8	18.1	19.4	18.1	17.0	18.9	16.0	14.2	17.4
Private Insurance	43.8	43.3	44.2	50.9	51.1	50.8	57.1	56.0	57.9	17.0	17.9	16.2
Government	35.4	36.6	34.4	27.5	27.7	27.3	20.4	21.8	19.4	65.4	66.1	64.8
Medicaid	10.0	8.7	11.0	23.9	24.0	23.8	9.8	8.0	11.1	4.0	2.2	5.3
Medicare	21.7	22.0	21.4	0.8	1.0	0.6	6.9	7.9	6.2	57.3	56.5	57.9
Other government	3.7	5.9	2.0	2.8	2.8	2.8	3.7	6.0	2.1	4.1	7.4	1.6
<i>Expenditures</i>												
Hospitals	42.5	44.3	41.1	39.3	38.4	40.1	42.3	44.3	40.9	44.2	47.2	41.9
Inpatient	33.3	35.1	31.9	32.2	31.1	33.3	31.6	33.8	30.0	36.8	39.3	34.7
Outpatient	9.2	9.2	9.3	7.1	7.3	6.8	10.8	10.5	11.0	7.5	7.8	7.2
Office-based visits	23.3	22.0	24.3	25.0	24.3	25.7	24.3	21.7	26.1	20.7	21.2	20.3
Prescription drugs	20.8	20.7	20.9	13.4	15.3	11.7	22.0	22.6	21.6	22.1	20.4	23.5
Other	13.4	13.0	13.7	22.2	22.0	22.5	11.4	11.4	11.4	13.0	11.3	14.3

Notes: This table reports average spending in each category divided by average total medical spending. The sum of expenditures by payors is not 100% because we do not report spending by Tricare, worker compensation and unclassified sources. Private insurance payments is the sum of private insurance and "other private" categories in MEPS. Other government payments include payments by Veterans' Administration, other federal, state and local sources and "other public". Hospital expenditure includes inpatient, outpatient and emergency room spending categories. Other type of medical expenditures is the sum of dental care, home health care, vision aid and medical supplies and equipment categories.

**Table 7:** Percentage of total expenditures, by payors and expenditure type, MEPS data

By Expenditure Type		25-			25-64			65+						
		Total	Hospital	Private Ins.	Total	Hospital	Private Ins.	Total	Hospital	Private Ins.				
Spending Percentile	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total				
All	3,905	100.0%	1,659	100.0%	628	100.0%	4,055	100.0%	1,717	100.0%	9,599	100.0%	4,245	100.0%
95-100%	35,473	52.0%	23,913	80.6%	15,216	55.4%	36,779	49.2%	24,877	77.6%	65,600	34.3%	48,216	58.1%
90-95%	10,662	15.7%	4,129	13.5%	4,048	15.1%	11,409	15.6%	4,852	14.9%	29,418	15.7%	16,929	20.3%
70-90%	4,028	24.1%	473	5.9%	1,412	21.1%	4,538	25.1%	628	7.5%	13,435	29.0%	4,193	20.5%
50-70%	1,116	6.4%	0	0.0%	458	6.1%	1,411	7.8%	0	0.0%	5,709	12.5%	234	1.1%
0-50%	167	1.8%	0	0.0%	82	2.2%	212	2.3%	0	0.0%	1,689	8.5%	0	0.0%
<i>By Payer</i>		25-			25-64			65+						
All		25-			25-64			65+						
Out-of-pocket		Out-of-pocket			Out-of-pocket			Out-of-pocket						
Spending Percentile	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total	Average Spending	Perc. of total				
All	685	100.0%	300	100.0%	734	100.0%	734	100.0%	1,534	100.0%	1,534	100.0%	5,496	100.0%
95-100%	5,154	46.7%	2,625	61.1%	5,294	42.1%	5,294	42.1%	22,532	62.2%	9,006	32.9%	48,941	45.3%
90-95%	1,920	17.6%	674	15.4%	1,393	13.3%	2,074	16.7%	5,563	15.4%	3,972	14.1%	19,126	17.7%
70-90%	780	27.7%	236	20.1%	405	14.5%	930	29.5%	1,764	19.3%	2,127	30.5%	6,950	25.8%
50-70%	214	7.0%	45	3.3%	28	0.7%	317	9.5%	308	3.2%	1,015	14.2%	2,102	8.0%
0-50%	17	1.0%	1	0.1%	38	2.2%	38	2.2%	2	0.0%	282	8.4%	366	3.2%

Adjusted to 2014 dollars.

**Table 8:** Medical spending percentiles

Table 9 shows the quintiles of total and hospital medical spending for men and women, and for different age groups. On average, women spend more than men (\$4,334 vs \$3,456), but this difference disappears with age: for people older than 65 years old average spending of men (\$9,748) is almost the same as that of women (\$9,486). A similar trend is observed in hospital spending: women spend more than men when young but for older group men's spending becomes higher than that of women.

<i>All</i>						
	Total Expenditure			Hospitals		
	All	Men	Women	All	Men	Women
All	3,905	3,456	4,334	1,659	1,530	1,783
Bottom	0	0	12	0	0	0
Fourth	156	83	248	0	0	0
Third	618	422	856	0	0	0
Second	2,048	1,478	2,648	28	1	86
Top	14,161	12,785	15,215	7,575	7,028	8,126
<i>Ages 25-64</i>						
	Total Expenditure			Hospitals		
	All	Men	Women	All	Men	Women
All	4,055	3,470	4,616	1,717	1,537	1,889
Bottom	0	0	18	0	0	0
Fourth	182	63	366	0	0	0
Third	806	457	1,195	0	0	0
Second	2,445	1,647	3,234	44	0	159
Top	14,888	13,220	16,026	8,045	7,147	8,751
<i>Ages 65+</i>						
	Total Expenditure			Hospitals		
	All	Men	Women	All	Men	Women
All	9,599	9,748	9,486	4,245	4,597	3,979
Bottom	439	354	516	0	0	0
Fourth	1,904	1,717	2,046	0	0	0
Third	4,041	3,783	4,223	23	5	40
Second	8,321	8,030	8,527	1,057	1,031	1,071
Top	31,992	33,131	31,090	19,625	21,324	18,338

Adjusted to 2014 dollars.

**Table 9:** Mean total and hospital expenditures sorted by expenditure quintile and gender

## 5.2 The Distribution by Income

To understand how different are medical spending of people in different income group, we report the mean income and medical spending (both total and hospital) for each income quintile in Table 10. For this analysis we exclude people younger than 25 years old since in MEPS income is reported at individual level and many of the very young individuals do not have own income and receive family transfers. One key observation from Table 10 is that the level of the average medical spending does not increase with income quintile. In fact, people in the bottom income quintile spend more than people in the top quintile: spending of the former group is \$6,052 while spending of the latter is \$4,333. This applies to both men and women, people older and younger than 65 years old, and total and hospital spending. To illustrate this issue further, Table 11 displays the ratio of the average medical spending of people in the top income quintile to those in the bottom quintile. This ratio is always less than one, and the largest difference in spending between the top and bottom income quintiles is observed for hospital care for men younger than 65 years old (0.41). It should also be noted that for men, the gap between the top and bottom income quintiles in terms of the average medical spending decreases with age.

Table 12 displays the distribution of medical spending by income for different payors and different categories of expenditure, and Table 13 provides the same statistics separately for people younger and older than 65 years old. As for Table 10, we exclude people younger than 25 years old from this analysis. For the entire sample, out-of-pocket medical spending does not vary significantly by income quintile. However, for people older than 65 years old there exists a monotone relationship between income and out-of-pocket spending: people in the bottom quintile spend \$1,237 out-of-pocket, while this number for people in the top quintile is \$1,715. It should be noted that this is quite different from the relationship between income and *total* medical spending described earlier where the low-income group spend more than the high-income group. Another observation from Tables 12 and 13 is that payments by private insurance are highest for the top income quintiles, while payments by Medicaid are highest for the bottom quintiles. This can be explained by the correlation between income and insurance status described earlier: Medicaid is a means-tested program, while private health insurance is mostly available to high-income people. Unlike Medicaid, another public insurance program, Medicare, is an important source of financing medical spending for people older than 65 years old across all income quintiles. Still, the bottom two quintiles receive more payments from Medicare than the top quintiles. This partly happens because people in low quintiles spend more on medical care in general as described earlier, and partly because private health insurance plays a more important role in financing health care of high-income people.

<i>Ages 25+</i>									
	Mean Income			Mean Expenditure			Mean Hospitals		
	All	Men	Women	All	Men	Women	All	Men	Women
All	41,671	48,532	35,388	5,123	4,561	5,639	2,204	2,068	2,328
Bottom	2,784	6,101	1,132	6,052	6,675	5,440	2,795	3,323	2,417
Fourth	14,435	19,171	11,331	6,810	5,398	7,563	3,097	2,679	3,237
Third	26,397	32,274	21,537	4,867	4,234	5,573	2,183	1,990	2,382
Second	43,411	50,426	37,169	4,323	3,780	5,021	1,790	1,615	2,023
Top	92,425	105,155	79,804	4,333	3,646	5,106	1,634	1,350	1,917
<i>Ages 25-64</i>									
	Mean Income			Mean Expenditure			Mean Hospitals		
	All	Men	Women	All	Men	Women	All	Men	Women
All	44,243	51,109	37,665	4,055	3,470	4,616	1,717	1,537	1,889
Bottom	2,426	6,461	577	5,190	5,379	4,790	2,388	2,644	2,129
Fourth	15,600	21,196	11,341	4,657	3,352	5,613	2,089	1,637	2,355
Third	28,716	34,579	23,496	3,585	2,996	4,008	1,621	1,413	1,715
Second	46,072	52,956	39,758	3,537	3,072	4,291	1,405	1,312	1,730
Top	96,023	108,336	83,396	3,810	3,105	4,619	1,435	1,096	1,726
<i>Ages 65+</i>									
	Mean Income			Mean Expenditure			Mean Hospitals		
	All	Men	Women	All	Men	Women	All	Men	Women
All	30,894	36,269	26,826	9,599	9,748	9,486	4,245	4,597	3,979
Bottom	4,389	5,104	4,053	9,791	10,117	9,669	4,549	5,229	4,258
Fourth	11,814	13,323	11,071	10,439	10,431	10,273	4,855	5,151	4,548
Third	18,223	21,673	16,345	9,987	10,485	9,849	4,551	5,197	4,194
Second	30,567	36,255	26,620	9,238	9,395	9,044	4,062	4,318	3,761
Top	71,688	84,858	60,802	8,864	8,693	8,916	3,523	3,541	3,426

Adjusted to 2014 dollars.

**Table 10:** Income and medical expenditures by income quintile and gender

<i>Total Expenditure</i>			
	All	Men	Women
25+	0.72	0.55	0.94
25-64	0.73	0.58	0.96
65+	0.91	0.86	0.92
<i>Hospitals</i>			
	All	Men	Women
25+	0.58	0.41	0.79
25-64	0.60	0.41	0.81
65+	0.77	0.68	0.80

**Table 11:** The ratio of the mean spending in the top income quintile to the bottom income quintile



	All	Bottom	Fourth	Third	Second	Top
Income	41,671	2,784	14,435	26,397	43,411	92,425
<i>By Payor</i>						
Out of Pocket	888	887	981	858	816	911
Private Insurance	2,183	1,881	1,669	1,979	2,392	2,674
Government	1,878	3,094	3,971	1,803	942	630
Medicaid	394	1,221	861	209	60	23
Medicare	1,286	1,565	2,769	1,399	753	504
Other government	198	308	341	195	128	103
<i>Expenditures</i>						
All	5,123	6,052	6,810	4,867	4,323	4,333
Hospitals	2,204	2,795	3,095	2,184	1,790	1,634
Inpatient	1,713	2,304	2,580	1,708	1,311	1,140
Outpatient	491	491	516	476	479	494
Office-based visits	1,177	1,172	1,306	1,102	1,123	1,196
Prescription drugs	1,129	1,433	1,562	1,053	913	904
Other	613	652	845	528	496	600

All variables sorted by income and adjusted to 2014 dollars

**Table 12:** Mean medical expenditure by income quintile and payor/expenditure type, for people older than 25 years old

The bottom panels of Tables 12 and 13 show how different categories of medical spending vary by income quintile. Spending on hospital care is almost two times higher among people at the bottom quintile comparing to those at the top quintile, and this difference comes from spending on inpatient care. Interestingly, for people older than 65 years old the gap between high- and low- income groups in inpatient hospital spending decreases, while outpatient spending increases monotonically with income for this age group. Spending on office-based visits varies little by income quintiles, while spending on prescription drugs is higher for low-income people.

<i>Ages 25-64</i>						
	All	Bottom	Fourth	Third	Second	Top
Income	44,243	2,426	15,600	28,716	46,072	96,023
<i>By Payor</i>						
Out of Pocket	734	805	693	655	695	809
Private Insurance	2,315	2,014	1,857	2,173	2,465	2,750
Government	829	2,159	1,898	519	215	145
Medicaid	397	1,279	917	171	52	23
Medicare	281	596	737	218	77	37
Other government	151	284	244	131	87	85
<i>Expenditures</i>						
All	4,055	5,190	4,657	3,585	3,537	3,810
Hospitals	1,717	2,388	2,088	1,621	1,405	1,435
Inpatient	1,280	1,926	1,686	1,207	980	965
Outpatient	437	462	402	414	425	470
Office-based visits	985	1,060	952	852	972	1,068
Prescription drugs	892	1,254	1,103	761	732	783
Other	462	488	512	351	429	524
<i>Ages 65+</i>						
	All	Bottom	Fourth	Third	Second	Top
Income	30,894	4,389	11,814	18,223	30,567	71,688
<i>By Payor</i>						
Out of Pocket	1,534	1,237	1,417	1,554	1,599	1,715
Private Insurance	1,628	1,246	1,155	1,523	1,717	2,206
Government	6,274	7,212	7,759	6,730	5,752	4,724
Medicaid	380	970	750	376	108	22
Medicare	5,496	5,828	6,515	5,905	5,245	4,431
Other government	398	414	494	449	400	270
<i>Expenditures</i>						
All	9,599	9,791	10,439	9,987	9,238	8,864
Hospitals	4,245	4,549	4,855	4,551	4,062	3,523
Inpatient	3,528	3,938	4,190	3,820	3,292	2,768
Outpatient	717	611	665	731	770	755
Office-based visits	1,984	1,659	1,817	1,983	2,035	2,248
Prescription drugs	2,122	2,224	2,272	2,210	2,037	1,952
Other	1,249	1,360	1,495	1,245	1,102	1,142

All variables sorted by income and adjusted to 2014 dollars

**Table 13:** Mean Medical Expenditure by Income Quintile and Payor/Expenditure Type, for people older than 25 years old

### 5.3 The correlation of medical spending over time

Table 14 reports the correlation of total and hospital medical spending over time, and Table A2 in the Appendix reports the correlation disaggregated by gender. Since MEPS has only 2-year panel dimension we can compute this correlation only between periods  $t$  and  $t + 1$ . The correlation is reported for the level of medical spending and for the logs. Since in the data many people have zero medical spending, we bottom-coded medical spending at 10% of the mean when taking log, i.e. people whose medical spending is below 10% of the mean were assigned the value of medical spending equal to 10% of the mean.

A: Spending in Levels			B: Spending in Logs		
<i>Total</i>					
	$t$	$t+1$		$t$	$t+1$
All	1.00	0.36	All	1.00	0.61
25-	1.00	0.29	25-	1.00	0.40
25-64	1.00	0.35	25-64	1.00	0.57
65+	1.00	0.32	65+	1.00	0.58
<i>Hospital</i>					
	$t$	$t+1$		$t$	$t+1$
All	1.00	0.19	All	1.00	0.26
25-	1.00	0.09	25-	1.00	0.16
25-64	1.00	0.20	25-64	1.00	0.23
65+	1.00	0.15	65+	1.00	0.26

**Table 14:** Correlation of medical spending in year  $t$  with spending in year  $t+1$ , by age and type of care

The correlation of medical spending in level is 0.36 and in logs it is 0.61. When measured in logs the correlation for people younger than 25 years old is significantly lower as compared to other age groups. Hospital spending is less persistent than total medical spending: the correlation is 0.19 in levels and 0.26 in logs.

To better understand the dynamics of medical spending, Table 15 shows the transition matrix between quintiles of total medical spending distribution between time  $t$  and  $t + 1$ . Table A3 in the Appendix displays the same statistics for hospital spending. The persistence of medical spending varies by quintile of medical spending distribution: for people in the bottom and top quintiles, the probability to stay in the same quintile next period is around 54%, whereas for the middle quintiles this probability varies from 31% to 36%. In other words, individuals who spend little on health care as well as those who already experienced high medical shocks are more likely to continue this spending pattern for more than one period. This also shows that the overall persistence of medical spending measured as the correlation of total expenditures between two consecutive

Panel A: All ages					
<i>Quintile</i>	Next year				
Current Year	Bottom	Fourth	Third	Second	Top
Bottom	53.9	24.9	11.9	5.7	3.6
Fourth	24.6	34.4	23.8	11.3	5.9
Third	11.9	23.4	31.0	22.5	11.2
Second	5.8	11.2	22.2	35.8	25.1
Top	3.8	6.1	11.2	24.7	54.2

Panel B: Younger than 25					
<i>Quintile</i>	Next year				
Current Year	Bottom	Fourth	Third	Second	Top
Bottom	47.0	23.6	13.9	9.0	6.5
Fourth	22.9	28.8	23.1	15.4	9.8
Third	14.1	22.4	25.7	22.6	15.2
Second	9.1	15.1	22.8	28.8	24.2
Top	6.8	10.2	14.5	24.2	44.2

Panel C: Ages 25 to 64					
<i>Quintile</i>	Next year				
Current Year	Bottom	Fourth	Third	Second	Top
Bottom	56.5	23.9	10.5	5.4	3.7
Fourth	23.3	34.4	22.7	12.1	7.5
Third	10.4	22.7	30.9	22.9	13.0
Second	5.6	11.4	23.3	34.5	25.2
Top	4.2	7.6	12.6	25.0	50.6

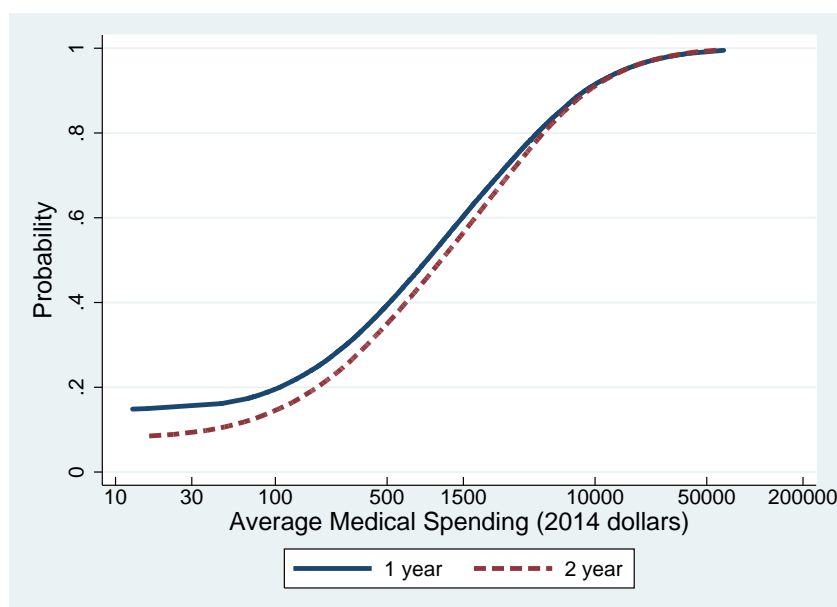
  

Panel D: Older than 65					
<i>Quintile</i>	Next year				
Current Year	Bottom	Fourth	Third	Second	Top
Bottom	59.0	19.3	9.9	6.4	5.5
Fourth	20.9	33.8	21.7	13.9	9.7
Third	9.9	24.1	28.9	21.6	15.6
Second	6.4	14.4	24.5	30.6	24.2
Top	3.9	8.5	15.0	27.6	45.1

**Table 15:** Transition matrices for total medical expenditure

periods underestimates the risk of having a sequence of large medical shocks experienced by people at the top of medical spending distribution. High medical spending at the top is often a result of serious chronic diseases that require expensive treatments that last for more than one year. Note that relatively high persistence at the tails of the distribution happens at all ages, but with age persistence at the bottom becomes higher than that at the top.

Figure 1 plots the cumulative distribution functions for two variables: one-year medical spending and medical spending averaged over two years. The two lines are very close, suggesting that medical spending is persistent.<sup>8</sup> Figure 2 shows that this is also the case for different age groups and for different types of medical care spending (hospital and non-hospital).

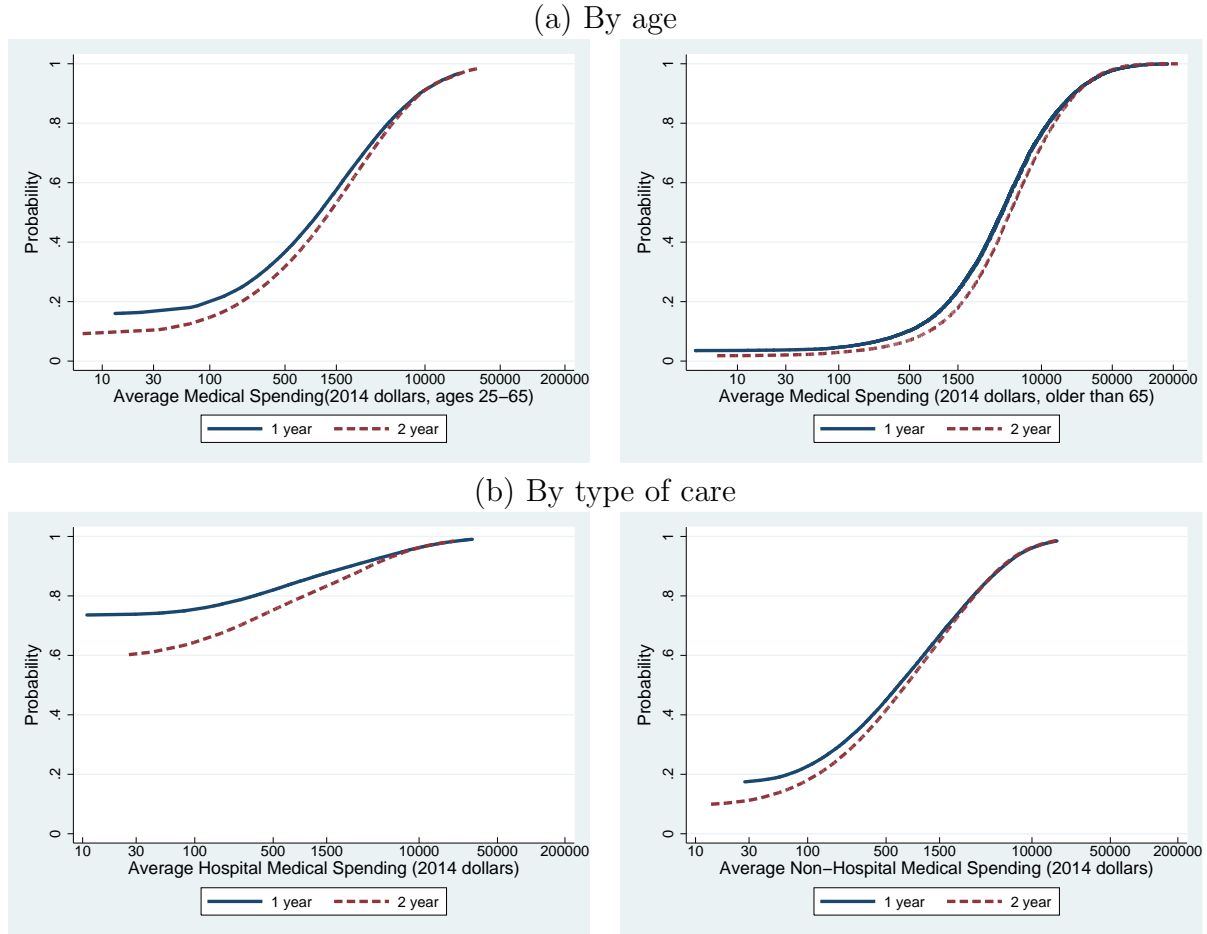


**Figure 1:** CDF of total medical expenditure, averaged over 1 and 2 years.

Table 16 reports the Gini coefficient and the share of the total medical spending by the top 1% and 10% of spenders. We document these statistics for yearly medical spending and for medical spending averaged over two years. Table 16 also shows how these statistics vary by age and the type of care (hospital and non-hospital). For the entire sample, the Gini coefficient is 0.76 for one- and 0.73 for two-year medical spending.<sup>9</sup> Around 63% of the total spending are accounted for by the top 10% of spenders. The concentration decreases with age: for people aged between 25 and 64 years old the Gini coefficient is equal to 0.75, whereas for people older than 65 years old it is 0.63. Similarly,

<sup>8</sup>The more correlated is medical spending in  $t$  and  $t+1$ , the closer together are cumulative distribution functions for the average medical spending over two-year period and for one-year medical spending. For example, if autocorrelation is one the two lines will be the same.

<sup>9</sup>The fact that Gini coefficient of medical spending averaged over two years is close to the Gini coefficient of one-year medical spending also implies high persistence.



**Figure 2:** CDF of total medical expenditure, averaged over 1 and 2 years, by age and type of care.

the contribution of top 10% of spenders to the total is 61.4% for the younger group and 48.9% for the older. Hospital spending is more concentrated than total spending with the Gini coefficient equal to 0.93.

## 6 Average Medical Spending Over the Life Cycle

Figure 3 plots the life-cycle profiles of the average medical spending disaggregated by type of expenditure (top panel) and payor (bottom panel). All categories of expenditure increase with age, and the growth rate noticeably accelerates from age 50 onward. The highest rate of growth is observed among inpatient hospital spending. The bottom panel shows a large change in the relative role of public and private insurance at age 65: before this age private insurance is the major source of financing medical spending, but afterwards Medicare is the main source. Spending financed by private insurance or Medicare increase with age over the segments of the life-cycle when they serve as major payors, while the spending of Medicaid remains relatively stable, primarily due to the absence of nursing home residents in our sample.

	Over 1 year				
	All	By age		By type of care	
		25-64	65+	Hosp	Non-hosp
Gini coefficient of medical spending	0.76	0.75	0.63	0.93	0.73
Percentage spent by top 1% of spenders	21.5%	21.5%	12.8%	39.7%	17.8%
Percentage spent by top 10% of spenders	62.8%	61.4%	48.9%	92.3%	56.2%
	Over 2 years				
	All	By age		By type of care	
		25-64	65+	Hosp	Non-hosp
Gini coefficient of medical spending	0.73	0.72	0.58	0.90	0.70
Percentage spent by top 1% of spenders	18.2%	18.6%	9.6%	31.3%	15.9%
Percentage spent by top 10% of spenders	58.6%	56.9%	42.9%	83.0%	53.2%

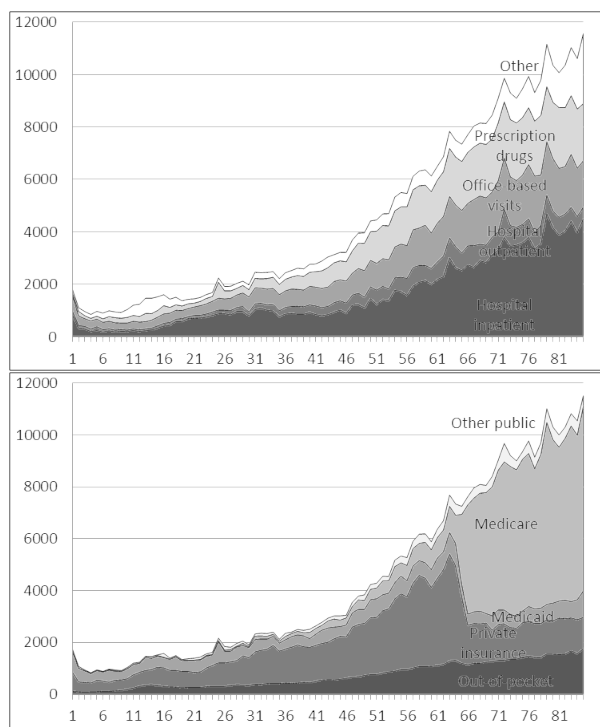
**Table 16:** Measures of the concentration of medical spending by age and type of care

## 7 Conclusion

In this paper we document micro-level facts about medical spending in the US based on the Medical Expenditure Panel Survey dataset. Our main findings are as follows. For the entire population, around 44% of the total medical spending is paid by private insurance but there is a substantial difference in terms of financing medical care by age: for working age adults (25 to 65 years old) private insurance covers around 57% of the total medical spending, whereas for the elderly (older than 65 years old) the largest payor is the government which covers 65% of the total. Inpatient hospital care accounts for a third of the aggregate medical expenditures. Medical spending is highly concentrated: the top 5% of spenders account for more than half of the total expenditure. Even higher concentration is observed among hospital spending where the top 5% of spenders contribute around 80% to the total expenditure. The concentration in medical spending decreases with age: the Gini coefficient of the total medical spending is 0.75 for people aged between 25 and 64 years old and 0.63 for people older than 65 years old. We find that average medical spending of people in the bottom income quintile is higher than that of people in the top income quintile for all age groups. In terms of persistence of medical spending, we find that the correlation of medical expenditure in two consecutive years is 0.36. When persistence is measured by quintile of medical spending distribution, medical spending of people in the bottom and top quintiles has higher persistence relative to other groups.

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**Figure 3:** Average total medical expenditures, by expenditure (top panel) and payor type (bottom panel)

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## Appendix

Supplementary Tables

	All						25-						25-65						65+																				
	All		Men		Women		All		Men		Women		All		Men		Women		All		Men		Women																
<i>Payors</i>																																							
Out of Pocket	32.2	32.3	32.2	32.2	27.9	27.7	28.1	35.7	36.7	35.0	29.4	27.5	30.9	43.8	44.3	43.4	44.3	44.3	45.1	43.4	50.6	50.2	50.9	18.1	19.2	17.3													
Private Insurance	21.1	20.4	21.7	21.7	25.3	24.5	26.1	10.3	9.4	10.9	50.7	51.5	50.2	11.0	10.0	11.8	22.7	22.0	23.3	5.7	3.8	7.2	3.0	2.1	3.8	7.4	6.6	8.0	0.3	0.3	0.3	2.0	2.1	2.0	43.4	41.0	45.1		
Medicaid	2.8	3.7	1.9	1.9	2.4	2.3	2.5	2.6	3.5	1.8	4.3	8.4	1.3	2.8	3.7	1.9	2.4	2.3	2.5	2.6	3.5	1.8	4.3	8.4	1.3	2.8	3.7	1.9	2.4	2.3	2.5	2.6	3.5	1.8	4.3	8.4	1.3		
Medicare	<i>Expenditures</i>																																						
Other government	15.0	14.3	15.7	15.7	12.5	12.5	12.5	15.5	14.1	16.6	19.2	19.7	18.9	10.0	9.6	10.3	9.6	9.5	9.5	9.6	9.5	8.8	10.2	12.7	13.1	12.5	5.0	4.7	5.3	3.0	3.0	2.9	6.0	5.3	6.5	6.5	6.6	6.4	
Hospitals	36.6	36.1	37.0	37.0	43.0	42.6	43.3	34.2	32.9	35.4	30.5	31.2	30.0	36.6	36.1	37.0	43.0	42.6	43.3	34.2	32.9	35.4	30.5	31.2	30.0	24.1	23.4	24.7	14.8	15.0	14.6	26.8	26.3	27.2	36.1	35.0	36.9		
Inpatient	24.2	26.2	22.6	22.6	29.7	29.8	29.6	23.5	26.8	20.8	14.2	14.1	14.3	24.2	26.2	22.6	22.6	29.7	29.8	29.6	23.5	26.8	20.8	14.2	14.1	14.3	24.2	26.2	22.6	22.6	29.7	29.8	29.6	23.5	26.8	20.8	14.2	14.1	14.3
Outpatient	Notes: This table calculates the means of the ratio. Private insurance payments is the sum of private insurance and "other private" categories in MEPS. Other government payments include payments by Veterans'Administration, other federal, state and local sources and "other public". Hospital expenditure includes inpatient, outpatient and emergency room spending categories. Other type of medical expenditures is the sum of dental care, home health care, vision aid and medical supplies and equipment categories.																																						
Office-based visits	The most significant difference from Table 7 in the main text is the percentage of total spending accounted for by public insurance (top panel) and by hospital care (bottom panel). This happens because Table 7 computes the ratio of the means, which put more weight on individuals with high medical costs, and there is significant number of high-cost cases among publicly insured and among individuals with positive hospital spending.																																						
Prescription drugs																																							
Other																																							

**Table A1:** Percentage of total expenditures, by payors and expenditure, MEPS data

A: Spending in Levels			B: Spending in Logs		
<i>Total</i>					
	<i>t</i>	<i>t+1</i>		<i>t</i>	<i>t+1</i>
All	1.00	0.36	All	1.00	0.61
Men	1.00	0.34	Men	1.00	0.61
Women	1.00	0.40	Women	1.00	0.59
<i>Hospital</i>					
	<i>t</i>	<i>t+1</i>		<i>t</i>	<i>t+1</i>
All	1.00	0.19	All	1.00	0.26
Men	1.00	0.21	Men	1.00	0.27
Women	1.00	0.16	Women	1.00	0.24

**Table A2:** Correlation of medical spending in year  $t$  with spending in year  $t+1$ , by gender and type of care

Panel A: All ages					
<i>Quintile</i>		Next year			
Current Year	Bottom-Third	Second	Top	-	-
Bottom-Third	80.7	4.9	14.5		
Second	57.9	13.6	28.5		
Top	53.6	8.8	37.6		
-					
-					

Panel B: Younger than 25					
<i>Quintile</i>		Next year			
Current Year	Bottom-Second	Top	-	-	-
Bottom-Second	85.4	14.6			
Top	68.2	31.8			
-					
-					
-					

Panel C: Ages 25 to 64					
<i>Quintile</i>		Next year			
Current Year	Bottom-Third	Second	Top	-	-
Bottom-Third	80.3	5.0	14.7		
Second	56.6	14.0	29.5		
Top	55.1	8.8	36.2		
-					
-					

Panel D: Older than 65					
<i>Quintile</i>		Next year			
Current Year	Bottom-Fourth	Third	Second	Top	-
Bottom-Fourth	64.2	6.0	15.3	14.4	
Third	43.2	13.7	25.6	17.6	
Second	39.7	11.4	27.2	21.7	
Top	34.8	6.8	24.2	34.2	
-					

Notes: We combine several bottom quintiles into one since the average spending in these quintiles is zero.

**Table A3:** Transition matrices for hospital medical expenditure