Examining the Impact of Medical Expenses on Supplemental Poverty Rates

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Abstract

According to the Centers for Medicare and Medicaid Services, total health care spending in the United States was $4.1 trillion dollars in 2020. The portion of this spending that households are responsible for can make it difficult for households to meet other basic needs. Using data from the 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC), this paper examines the sociodemographic characteristics and health insurance status of those classified as in poverty by the Supplemental Poverty Measure (SPM) after subtracting medical out-of-pocket expenditures (MOOP) from resources. In 2020, subtracting MOOP from after-tax resources increased the Supplemental Poverty Rate by 1.5 percentage points, changing the poverty status of 5.0 million individuals. The largest percentage point changes in poverty rates after subtracting MOOP are seen for those aged 65 and older, living in a household where at least one member reports a disability, non-workers, and those with either direct purchase insurance or Medicare.[2] Further analysis shows that the group that moved into poverty due to the subtraction of MOOP tended to be of higher socio-economic status, with higher incomes and rates of health insurance coverage. While incomes were higher, overall resources before the MOOP subtraction were still relatively near to the poverty thresholds, with nearly 90 percent of this group having resources less than 200 percent of their poverty line. Finally, this paper examines whether any of these results are being driven by imputations rather than reported expenditure amounts, finding some evidence of non-response bias with regards to the reporting of medical expenses. The results contribute to the study of the interaction of medical expenses and the population near poverty while also considering the importance of imputation on poverty measurement.

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[1] Prepared for 2021 APPAM Fall Research Conference. This paper is released to inform interested parties of ongoing research and to encourage discussion of work in progress. The views expressed on methodological or operational issues are those of the authors and are not necessarily those of the U.S. Census Bureau. Any error or omissions are the sole responsibility of the authors. All data are subject to error arising from a variety of sources, including sampling error, non-sampling error, modeling error, and any other sources of error. For further information on data collection, standards, accuracy, see <https://www.census.gov/programs-surveys/cps/technical-documentation.html.>. Contact: john.creamer@census.gov, U.S. Census Bureau, Social, Economic, and Housing Statistics Division, 4600 Silver Hill Road, Washington, DC 20233. The Census Bureau reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied to this release. CBDRB-FY22-SEHSD003-018.

[2] These percentage point changes in poverty rates are not statistically different from each other.

Introduction

In 2011 the U.S. Census Bureau began producing the Supplemental Poverty Measure (SPM) in addition to the official poverty measure (OPM) which had been produced since the 1960s. The SPM expanded the pre-tax cash income OPM definition of household resources by adding additional sources of non-cash income and tax credits and subtracting necessary expenditures such as child care, work expenses, taxes, and medical out of pocket expenses (MOOP).

The MOOP subtraction is of particular interest due to the rising costs of medical care in the United States and how they interact with a households ability to meet basic needs. Research has shown that individuals and households have had MOOP increases which make up a growing share of their income (Banthin et al. 2008; Jackson and Keisler-Starkey 2021). However, criticism has been levied against the SPM treatment of MOOP since it is does not capture the explicit impact of public health assistance programs like Medicare and Medicaid on poverty rates. In addition, subtracting all MOOP with no judgement on whether it is discretionary or necessary may lead to poverty being overstated due to high-price care (Burtless and Siegel 2001) or lead to a more economically well-off population in poverty (Meyer and Sullivan 2012).

Using data from the 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC), this paper expands estimates released annually in the Supplemental Poverty Report (Fox and Burns 2021) and examines the sociodemographic and health insurance characteristics of those moved into SPM poverty due to MOOP. In 2020, 5.0 million people were classified in poverty when MOOP was subtracted from resources. This group had higher median resource totals prior to subtracting MOOP, were more educated, were more likely to be covered by health insurance, and were more likely to own their home when compared to the population in poverty before subtracting MOOP from resources. However, median resources were still a third of median resources of the population not in poverty. As a result, nearly 90 percent of this group had resource levels which were less than 200% of their poverty line. The robustness of the results is confirmed across survey response categories, reducing concerns over non-response bias affecting results.

Altogether, the results of the paper provide a deeper description of the mechanics that drive changes in SPM poverty status stemming from medical expenses. Medical expenses moved a substantial number of people into being classified as in poverty in 2020. While this population tended to be of higher socio-economic status than the overall population in poverty, having higher levels of resources and were more likely to have health insurance coverage, they were still classified near poverty and were at risk of disruption from high costs of medical care, health insurance premiums, and unexpected shocks. Moving forward, the results are informative on the populations who may be affected by future adjustments made to the SPM to better account for the value of health insurance and health needs.

The paper continues with a discussion of the literature around medical expenses and poverty. The data and methods are discussed next, followed by descriptive statistics, analytical results, and a concluding summary.

Background

Total medical expenditures have been consistently rising since the 1970s in the United States. In 2020, total health care spending in the United States was $4.1 trillion dollars, or $12,530 per person, over four times greater than inflation adjusted spending in 1980, which was $795.3 billion dollars (Centers for Medicare and Medicaid Services 2021). Evidence at the individual and household level shows the strain that medical expenses put on family budgets. Banthin et al. (2008) found that 17.7 percent of non-elderly individuals lived in families with medical expenditure burdens greater than 10 percent of family income in the 2000s. Examining the entire population, Jackson and Keisler-Starkey (2020) found that 21.3 percent of all individuals had high medical burdens in 2017. In terms of inequality, Christopher et al. (2018) showed that subtracting MOOP from income in 2014 increased income inequality in the United States as measured by an increase in the Gini index of 2.9 percent in 2014, suggesting that these costs are more restrictive for those with lower incomes.

Past literature has also studied the relationship between MOOP and health insurance, mainly through the provision of public health insurance. For example, Finkelstein and McKnight (2007) provide evidence that Medicare reduces out-of-pocket spending for the elderly, while evidence from the Oregon Health Insurance experiment found that those who gained access to Medicaid experienced lower out-of-pocket spending and medical debt than the uninsured control group in the short term (Finkelstein et al. 2012). Additionally, Levy, Buchmueller and Mikpay (2019) found reductions in quarterly MOOP in Medicaid expansion states, while Abramowitz (2020) found that individuals living in states with Medicaid expansions were more likely to have zero out-of-pocket expenses.

This rise in expenditures, in conjunction with a desire to evaluate the impacts of Medicare and Medicaid on poverty rates, has led to research that has examined incorporating some value of health insurance or health need into poverty measurement (Smeeding 1982; U.S. Census Bureau 1985; Remler, Korenman and Hyson 2019 amongst others). In 1995, the National Academies of Sciences panel tasked to study the measurement of poverty recommended subtracting medical expenditures resources before calculating poverty status to account for these rising costs (Citro and Michael 1995). The recommendation was made primarily to reflect the fact that the increasing cost of health care was comprising a larger share of a family's budget over time as well as the difficulty in determining values of health needs for the population due to the individual nature of health. The current subtraction of medical expenses in the SPM was guided by this recommendation and research at the U.S. Census Bureau (Caswell and O'Hara 2010; Caswell and Short 2011), and has continued.

A weakness of simply subtracting MOOP from resources is that it is only possible to estimate the implicit impact of health insurance through the interaction of premium and non-premium MOOP. Some research has produced counterfactual estimates of the provision of health insurance on SPM rates. Caswell and O'Hara (2010) provide counterfactual poverty estimates of subtracting premium and non-premium MOOP from the resources of the uninsured, finding that premium MOOP had a larger estimated effect than non-premium MOOP. Sommers and Oellerich (2013) produced counterfactual SPM estimates which simulate the impact of Medicaid coverage to overcome this challenge, finding that Medicaid coverage reduced

MOOP by approximately $500 in 2011, which in turn reduced SPM poverty by 0.7 percentage points. Altogether, it could be expected that those with health insurance coverage should have lower non-premium MOOP costs than those without coverage, assuming that the uninsured access care in the same way. However, these reductions in non-premium MOOP may not be greater than the increases in premiums when a person without coverage gains private coverage, even when premiums are subsidized as they are on the healthcare marketplaces initiated with the Affordable Care Act (ACA).

An important aspect to consider when studying MOOP and health insurance is the role that consumer choice plays in overall MOOP. By deducting all reported MOOP from resources, indviduals who choose high-cost care could be considered in poverty based solely on this decision. On the other hand, the uninsured or underinsured may defer care because they lack the resources needed to purchase care and therefore not be considered in poverty even though they may be less well-off from a health perspective (Burtless and Siegel 2001). A potential outcome of this specific behavior is that the provision of health insurance coverage may increase medical spending, raising poverty even though economic well-being likely increases (Banthin 2004). As a result, the composition of the population in poverty may be particularly affected by choice rather than the overall resources a household has. On this front, Meyer and Sullivan (2012) provide evidence that subtracting MOOP from resources means that individuals with higher consumption levels and education are classified as poor with a SPM-like consumption poverty measure.

Data and Methods

Data for the SPM comes from the 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC), which refers to data from the previous calendar year (2020). The CPS ASEC is administered in February, March, and April each year and is the source of official Income, Poverty, Supplemental Poverty, and Health Insurance coverage estimates in the United States. The SPM is created with information from the CPS ASEC survey, data from the Consumer Expenditure (CE) Survey to estimate the thresholds, data from the American Community Survey to estimate the geographic adjustments and data from Housing and Urban Development to estimate the value of housing subsidies. Survey data is used to estimate medical expenses to be subtracted from the resource measure. A tax model is used to estimate tax credits and obligations.

Since 2010, the CPS ASEC has collected information on premium MOOP and non-premium MOOP. Premium MOOP consists of survey-reported premiums on health insurance premiums and Medicare Part B premiums, which are simulated based on information contained in the CPS ASEC. If respondents report receiving Social Security benefits, the reported amount is taken, if they have reported the value of Medicare premiums. For respondents aged 65 and older who report that their Social Security payment was after deductions but did not report a deduction amount greater than $0, the Medicare Part B premium is set at the standard amount per month ($144.60 in 2020) and added to both income and medical expenditures. The remaining sample with Medicare coverage is given a premium simulated based on their income and tax filing status. Respondents who are eligible for both Medicare and Medicaid or

have income less than 135 percent of the poverty line are given a value of zero (Caswell and Short 2011; Fox and Burns 2021).

Information on premium MOOP is only collected for those individuals who report paying some value for primary or supplemental health insurance, while the full sample is asked to report spending on non-premium MOOP and over-the-counter expenses.[3] Non-premium MOOP consists of non-premium medical care, such as co-pays, prescriptions, and medical supplies, and over-the-counter expenditures such as vitamins and pain relievers. The uncapped sum of these components for a SPM-unit is subtracted from resources to get the final SPM resource measure.

Missing values due to survey or item nonresponse are imputed using a statistical hot deck. Respondents who do not respond to any of the questions in the health insurance module are jointly imputed at the health insurance unit level to improve the accuracy of imputations (Berchick and Jackson 2019).[4] Premium MOOP differs from the other medical expense components because there is a logical imputation process in which values of premium MOOP that are reported by dependents are given to policyholders. This impacts approximately 1 percent of individuals aged 18 or older (see Table A6). Lastly, an additional variable has been produced since 2017 which imputes value of premiums paid for individuals who report that they paid some or all their employer sponsored premium but report zero premiums paid in the last calendar year. Additionally, values are imputed for this variable in cases where direct purchase insurance or TRICARE is reported alongside employer sponsored health insurance. Summary tables on the differences between each premium MOOP variable can be found in Table A7.

To estimate the impact of the medical expense subtraction on SPM Poverty rates, two poverty rates are estimated. The first compares SPM resources without subtracting MOOP to the SPM thresholds. The second subtracts the SPM medical expense component from the final SPM Resource value and compares this to the existing poverty threshold for the unit. Results in the appendix provide estimates of the impact of the specific components of MOOP according to the same procedure. The impact of subtractions is examined across the entire population as well as for groups with selected characteristics such as race, Hispanic origin, age, disability, and type of health insurance coverage. With respect to the health insurance coverage types, the CPS ASEC collects information on past calendar year coverage for employer sponsored insurance, TRICARE, direct purchase insurance (either on or off the Marketplace), Medicare, Medicaid and healthcare provided by the Department of Veterans Affairs (VACARE or CHAMPVA). Additional characteristics are considered when describing the population who are not classified in poverty once MOOP is added back such as median SPM cash income, education, self-reported health status, labor force status, and housing tenure.

[3] Individuals who pay no premiums or are not in universe are given a zero value.

[4] Health insurance units are groupings of individuals within a household who are deemed likely to share health insurance

Empirical Results

Average expenditures

Table 1 presents the summary statistics of average overall MOOP and the individual components for the population, selected demographic characteristics, and different insurance type categories in 2020. The estimates are informative in explaining which groups will be most exposed to changes in poverty status due to their medical expenses.

On average, annual MOOP was $1,804 dollars. The highest average component was premium MOOP, averaging nearly $1,000 dollars, while over-the-counter expenses were the smallest at $156 dollars on average. Across the specific demographic characteristics, average MOOP was highest for those aged 18 and over, while it was the lowest for Hispanics.[5] Additionally, average premium MOOP was usually the largest component of MOOP followed by non-premium MOOP. Average over-the-counter expenses ranged from $61 dollars to $234 dollars depending on the characteristic of interest.

Average expenditures by insurance coverage type vary by insurance type, with individuals with employer sponsored or direct purchase having larger amounts of spending compared to those with Medicare, Medicaid, CHAMPVA and no coverage. This finding reflects the fact that those with private insurance are more likely to have premium MOOP and may have different utilization patterns than those with public insurance. For private insurance, those who purchase their health insurance from the Marketplace (for example, healthcare.gov) without subsidies had the highest premium MOOP, averaging $2,653 dollars, over twice as much as the subsidized average and comparable to the average for those who were responsible for paying the entire premium for their employer-based health insurance. The Kaiser Family Foundation Employer Benefits Survey can help benchmark the totals for employer sponsored coverage. In 2020, employees contributed $1,243 on average to single coverage plans and $5,588 to family plans, indicating that the values seen in Table 1 for policyholders who pay some part of their premiums compare reasonably to other benchmarks (Kaiser Family Foundation 2020).

Moving to values of non-premium MOOP, average values were lowest for subsidized coverage on the Marketplace and for those with employer sponsored insurance that was fully paid for while values were higher for those with some unsubsidized premiums or for those responsible for some or all the value of their premium. While there are caveats to this interpretation, the results for private plans suggest that those who are more responsible for paying all or part of their premiums have plans which may not cover as much of their expenditures on co-pays and supplies that they purchase annually compared to plans from the Marketplace or plans paid for fully by employers.

For those with any public plan, premium and non-premium MOOP was on average lower than private plans. Those with Medicare were estimated to have higher premium MOOP costs than other types of public insurance, though in general these costs were lower than the employer sponsored and direct

[5] Average MOOP for aged 65 and older was not statistically different from those aged 18 to 64. Average MOOP was lower for children, however it would be expected that non-premium and over-the-counter expenses for their health would be reported by parents or guardians.

purchase insurance options. With only minimal values of premium MOOP, average MOOP costs for the uninsured are driven by non-premium MOOP and are only higher than average non-premium MOOP for Medicaid recipients. For non-premium MOOP, lower average out-of-pocket expenses may reflect deferred care, complicating direct comparisons.

Table 1: Estimates of Average MOOP by Selected Characteristics, 2020

Characteristic	MOOP	SE	Premium MOOP	SE	Premium Components				Non-Premium MOOP	SE	Non-Premium Components			
					Reported Premium	SE	Medicare Part B	SE			Non-Premium Medical Care	SE	OTC	SE
All People	$1,804	(14)	$1,231	(9)	$979	(8)	$251	(2)	$825	(9)	$669	(9)	$156	(1)
Male	$1,875	(19)	$1,330	(14)	$1,089	(14)	$240	(3)	$786	(11)	$640	(11)	$146	(2)
Female	$1,735	(15)	$1,135	(9)	$873	(9)	$262	(2)	$862	(11)	$697	(11)	$165	(2)
Under 18 years	$327	(16)	$0	(0)	$0	(0)	$0	(0)	$327	(16)	$266	(15)	$61	(1)
18 to 64 years	$2,225	(18)	$1,342	(13)	$1,328	(13)	$14	(1)	$897	(10)	$729	(9)	$168	(2)
65 years and older	$2,239	(40)	$2,438	(21)	$1,020	(18)	$1,418	(10)	$1,219	(32)	$985	(31)	$234	(5)
White, not Hispanic	$2,187	(21)	$1,536	(13)	$1,191	(13)	$345	(3)	$996	(14)	$818	(13)	$178	(2)
Black	$1,270	(32)	$830	(18)	$683	(18)	$148	(4)	$587	(23)	$463	(22)	$124	(3)
Asian	$1,701	(39)	$1,162	(30)	$1,008	(29)	$153	(6)	$692	(20)	$554	(19)	$138	(4)
Hispanic (any race)	$1,077	(17)	$638	(11)	$557	(11)	$82	(2)	$520	(11)	$405	(10)	$115	(2)
With a Disability	$1,771	(32)	$1,298	(18)	$805	(17)	$493	(7)	$966	(22)	$776	(21)	$190	(4)
Any health plan	$1,923	(15)	$1,346	(10)	$1,071	(9)	$275	(2)	$852	(10)	$693	(10)	$160	(1)
Any private plan	$2,402	(18)	$1,616	(12)	$1,412	(11)	$204	(3)	$991	(13)	$820	(12)	$171	(2)
Employment-based	$2,337	(17)	$1,497	(13)	$1,386	(13)	$111	(2)	$952	(11)	$787	(10)	$164	(2)
Employer pays all	$1,152	(27)	$746	(26)	$364	(16)	$168	(7)	$898	(27)	$626	(17)	$162	(4)
Employer pays some	$2,634	(24)	$3,068	(32)	$1,630	(18)	$88	(3)	$1,172	(15)	$839	(14)	$165	(2)
Employer pays none	$3,197	(69)	$3,797	(92)	$2,148	(52)	$265	(16)	$1,225	(47)	$860	(35)	$189	(6)
Direct-purchase	$3,189	(63)	$2,534	(34)	$1,870	(30)	$664	(13)	$1,319	(54)	$1,100	(53)	$219	(6)
Marketplace coverage	$2,414	(97)	$1,489	(51)	$1,488	(51)	$1	(1)	$926	(71)	$759	(71)	$167	(7)
Subsidized coverage	$1,795	(113)	$967	(42)	$965	(42)	$1	(1)	$830	(100)	$675	(98)	$154	(10)
Unsubsidized coverage	$3,791	(153)	$2,653	(123)	$2,653	(123)	$0	(0)	$1,138	(69)	$943	(67)	$195	(12)
TRICARE	$896	(40)	$698	(36)	$381	(26)	$317	(17)	$515	(25)	$377	(24)	$138	(6)
Any public plan	$1,274	(22)	$1,253	(13)	$529	(9)	$724	(6)	$744	(18)	$581	(17)	$163	(3)
Medicare	$2,077	(38)	$2,265	(19)	$895	(15)	$1,370	(10)	$1,183	(31)	$952	(30)	$231	(4)
Medicaid	$381	(13)	$130	(6)	$111	(6)	$19	(1)	$269	(11)	$178	(10)	$91	(2)
VA or CHAMPVA	$1,309	(81)	$1,119	(55)	$533	(48)	$585	(29)	$775	(51)	$590	(47)	$185	(12)
Uninsured	$573	(21)	$25	(3)	$25	(3)	$0	(0)	$548	(21)	$432	(20)	$116	(4)

Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Effect of MOOP on SPM Rates

In 2020, subtracting MOOP from after-tax resources increased the Supplemental Poverty Rate by 1.5 percentage points, changing the poverty status of 5.0 million individuals. As Figure 1 shows, the MOOP subtraction has had the largest impact on SPM rates when compared to the other subtractions from resources like FICA, federal income taxes, work expenses, and child support paid. The MOOP subtraction ranks as the second largest overall change to the SPM resource measure in absolute terms.[6]

Figure 1

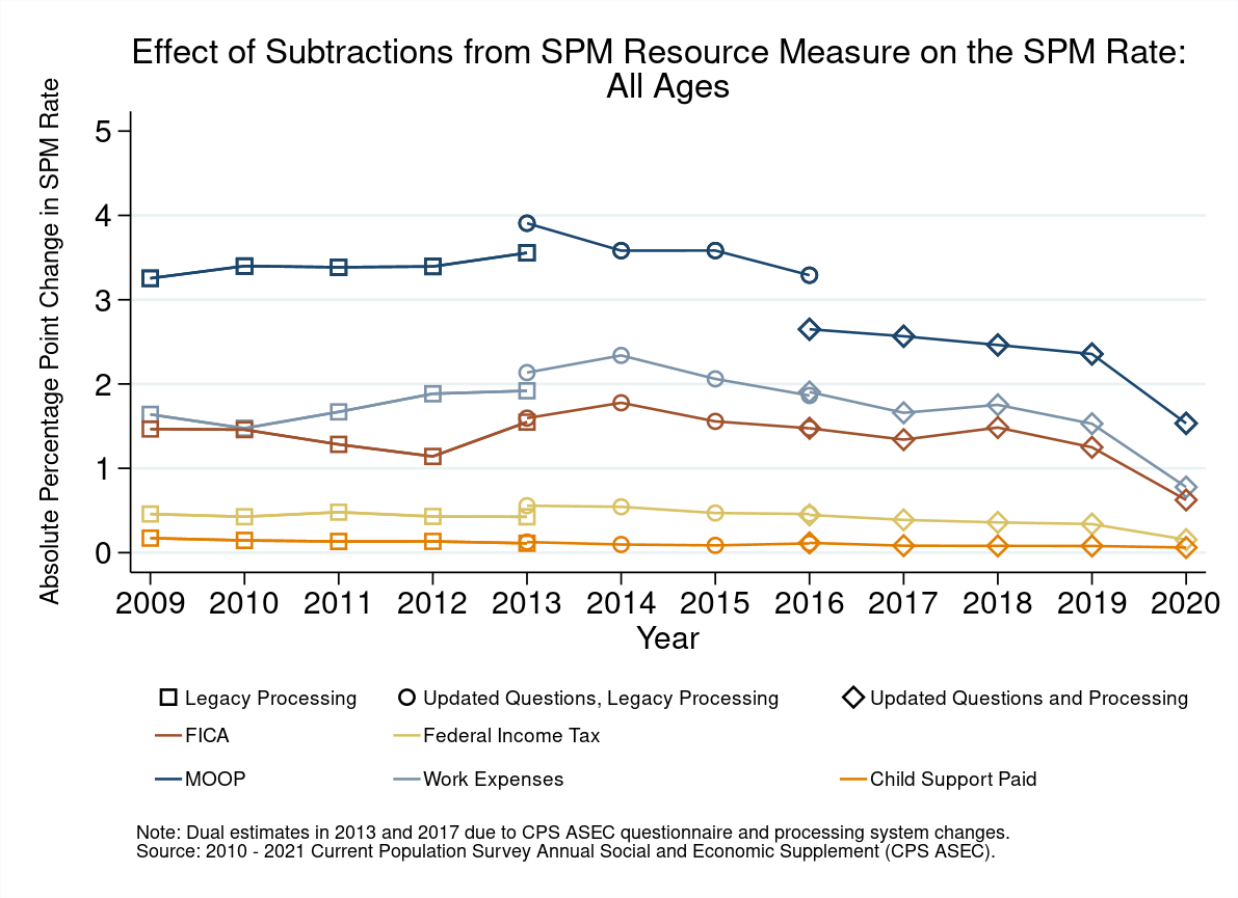


Table 2 presents the impact of the MOOP subtraction on poverty rates for selected demographic, labor force, and health insurance characteristics. Impacts were largest for those aged 65 and older, living in a household where at least one member reports a disability, non-workers, and those with either direct purchase insurance or Medicare.[7] Changes in poverty rates for direct purchase insurance were mainly

[6] The COVID-19 pandemic affected this conclusion in 2020 as the Economic Impact Payments and expanded unemployment insurance in response to the pandemic moved more people out of poverty than previous years.

[7] The percentage point change for Medicare was not statistically different from the change for those aged 65 and older and those who live in a household with a disabled member. The percentage point change for those who live in a household with a disabled member were not statistically different than those aged 65 and older.

driven by those with insurance purchased from the Marketplace. Smaller percentage point changes in poverty were reported for children, Asians, employer-sponsored insurance, and TRICARE.[8]

Table 2: Estimates of SPM and SPM Subtracting MOOP, 2020

Characteristic	SPM Rate	SE	SPM Rate w/o MOOP Subtraction	SE	Difference	SE
All People	9.1	(0.1)	7.6	(0.1)	1.5*	(0.1)
Male	8.6	(0.2)	7.3	(0.2)	1.4*	(0.1)
Female	9.6	(0.2)	7.9	(0.2)	1.7*	(0.1)
Under 18 years	9.7	(0.3)	8.6	(0.3)	1.2*	(0.1)
18 to 64 years	8.8	(0.2)	7.5	(0.2)	1.4*	(0.1)
65 years and older	9.5	(0.3)	6.8	(0.2)	2.7*	(0.1)
White, not Hispanic	6.5	(0.2)	5.0	(0.1)	1.5*	(0.1)
Black	14.7	(0.5)	12.9	(0.5)	1.8*	(0.2)
Asian	8.6	(0.6)	7.1	(0.5)	1.5*	(0.2)
Hispanic (any race)	14.0	(0.4)	12.3	(0.4)	1.6*	(0.2)
At least 1 member of hhld is disabled	13.1	(0.4)	10.3	(0.3)	2.8*	(0.2)
All workers (15 and older)	4.5	(0.1)	3.6	(0.1)	0.9*	(0.0)
Not Working	14.0	(0.2)	11.8	(0.2)	2.2*	(0.1)
Any health plan	8.2	(0.1)	6.7	(0.1)	1.5*	(0.1)
Any private plan	4.1	(0.1)	2.9	(0.1)	1.3*	(0.1)
Employment-based	2.9	(0.1)	2.0	(0.1)	0.9*	(0.1)
Employer pays all	3.2	(0.3)	2.6	(0.2)	0.6*	(0.1)
Employer pays some	2.3	(0.1)	1.4	(0.1)	0.9*	(0.1)
Employer pays none	6.0	(0.5)	3.6	(0.4)	2.4*	(0.3)
Direct-purchase	11.0	(0.4)	7.4	(0.4)	3.6*	(0.2)
Marketplace coverage	13.2	(0.9)	10.1	(0.8)	3.2*	(0.4)
Subsidized coverage	14.9	(1.1)	11.7	(1.0)	3.2*	(0.5)
Unsubsidized coverage	9.5	(1.2)	6.3	(0.9)	3.1*	(0.7)
TRICARE	3.8	(0.5)	2.9	(0.4)	0.9*	(0.3)
Any public plan	15.3	(0.3)	13.1	(0.3)	2.3*	(0.1)
Medicare	10.6	(0.3)	7.7	(0.2)	2.8*	(0.1)
Medicaid	21.0	(0.5)	19.2	(0.5)	1.8*	(0.1)
VA or CHAMPVA	6.3	(0.8)	4.9	(0.6)	1.5*	(0.4)
Uninsured	19.7	(0.6)	17.8	(0.6)	1.9*	(0.2)

In percent. * represents statistically significant differences at the 90% confidence level. Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

[8] The percentage point change for children under 18 years was not statistically different than that of Asians or TRICARE. The percentage point change for TRICARE was not statistically different than the change for employer sponsored coverage.

Table A3 expands Table 2 to consider differences in subtraction isolating premium and non-premium MOOP. Results are comparable between the two types of MOOP, with the overall changes of 0.8 and 0.9 percentage points not being statistically different from each other. Some differences are present by insurance type, reflecting different costs for each type of health insurance coverage. Additionally, Table A4 presents the percentage point changes in poverty using the edited value of survey reported premiums compared to the unedited values, again presenting only small differences in estimates.

Characteristics of Individuals Pushed into Poverty by MOOP Subtraction

Table 3 considers the makeup of the group that has their poverty status change when MOOP is subtracted from resources against the makeup of the population who is in poverty when MOOP is not subtracted from resources. This group has higher median SPM resources prior to subtracting MOOP ($22,580) and was comprised of a larger proportion of individuals with a college degree, homeowners, workers, and holders of private health insurance coverage when compared to the population which remained in poverty after subtracting MOOP from resources. Furthermore, the group was comprised of more individuals aged 65 and older. In contrast, the group who is in poverty when MOOP is not subtracted from resources had higher shares of Blacks and Hispanics as well as a higher proportion of individuals reporting being in excellent, very good, or good health or holding Medicaid coverage. These results agree with the previous research which suggests that individuals who are classified as in poverty due to MOOP appear "better-off" by some measures (Meyer and Sullivan 2012). However, median resource totals which include non-cash benefits are less than a third of median resources for the population not in poverty ($77,686), showing that this group is still not particularly well off economically speaking.

Table 3: Shares of Population in Poverty by Selected Characteristics, 2020

Characteristic	In SPM Poverty w/o MOOP Subtraction	SE	In SPM Poverty w/ MOOP Subtraction		Difference	SE
Median SPM Resources w/o MOOP subtraction	$10,740	(204)	$22,580	(482)	-$11,840*	(566)
Male	46.8	(0.5)	44.8	(0.9)	1.7*	(0.9)
Female	53.2	(0.5)	55.2	(0.9)	-1.7*	(0.9)
Under 18 years	25.1	(0.6)	17.1	(1.0)	6.7*	(1.1)
18 to 64 years	59.5	(0.6)	53.3	(1.1)	5.2*	(1.2)
65 years and older	15.4	(0.5)	29.6	(1.3)	-11.9*	(1.4)
White, not Hispanic	39.6	(0.9)	56.6	(1.8)	-14.2*	(2.0)
Black	21.1	(0.7)	14.7	(1.3)	5.3*	(1.4)
Asian	5.6	(0.4)	5.8	(0.9)	-0.2	(0.9)
Hispanic (any race)	30.5	(0.9)	20.2	(1.7)	8.6*	(1.9)
No high school diploma	14.0	(0.4)	12.2	(0.8)	1.5	(0.9)
High school, no college	22.8	(0.5)	25.7	(1.2)	-2.4*	(1.3)
Some college, no degree	13.0	(0.4)	19.0	(1.1)	-4.9*	(1.1)
Bachelor's degree or higher	11.4	(0.4)	17.5	(1.1)	-5.2*	(1.1)
All Workers	24.1	(0.5)	30.2	(1.0)	-5.0*	(1.1)
Worked full-time, year-round	5.6	(0.3)	11.0	(0.7)	-4.5*	(0.7)
Less than full-time, year-round	18.5	(0.5)	19.1	(1.0)	-0.6	(1.1)
Did not work at least 1 week	75.9	(0.5)	69.8	(1.0)	5.0*	(1.1)
Any health plan	79.9	(0.6)	89.2	(1.0)	-7.8*	(1.2)
Any private plan	24.9	(0.7)	55.9	(1.7)	-25.8*	(1.8)
Employment-based	14.1	(0.5)	31.4	(1.5)	-14.4*	(1.6)
Direct-purchase	10.2	(0.5)	24.4	(1.3)	-11.8*	(1.4)
Marketplace coverage	4.4	(0.4)	6.9	(0.8)	-2.1*	(0.9)
TRICARE	1.1	(0.2)	1.6	(0.5)	-0.4	(0.5)
Any public plan	59.6	(0.8)	51.7	(1.5)	6.6*	(1.6)
Medicare	18.7	(0.5)	33.8	(1.4)	-12.6*	(1.5)
Medicaid	44.9	(0.8)	20.9	(1.4)	20.0*	(1.6)
VA or CHAMPVA	0.6	(0.1)	0.9	(0.3)	-0.2	(0.3)
Uninsured	20.0	(0.6)	10.6	(1.)	7.8*	(1.2)
In excellent, very good, or good health	80.3	(0.5)	74.8	(1.3)	4.6*	(1.4)
Homeowner/mortgage	15.7	(0.7)	27.6	(1.7)	-9.9*	(1.8)
Homeowner/no mortgage/rent free	23.3	(0.8)	30.6	(1.9)	-6.1*	(2.0)
Renter	61.0	(1.0)	41.8	(2.1)	16.0*	(2.3)
Weighted Observations	24,800		5,002			

In percent. * represents statistically significant differences at the 90% confidence level.Standard errors in parentheses; generated using survey replicate weights. Note: Medians calculated for the householder. Health Insurance coverage characteristics do not include infants born in the calendar year.Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

The focus now turns to workers and non-workers to help obtain a better understanding of the dynamics of changes to the composition of poverty across measures. Table 4 presents estimates considering all workers not in poverty in 2020 compared to workers who were in poverty without subtracting MOOP and the subgroup of workers whose poverty status changed once MOOP was subtracted. In 2020, subtracting MOOP from resources changed the poverty status for 1.5 million workers. The median SPM resources before MOOP is subtracted for this group was $27,450 which was higher than the median for all workers who were in SPM poverty before the MOOP subtraction, but less than half of median resources for all workers in the United States who were not in poverty ($74,650). Additionally, 63.4 percent of these workers were part time workers, again a lower share than workers who were in poverty without the subtraction but significantly larger than the overall working population that is not in poverty (35.1 percent).

Table 4: Summary Statistics for Selected Characteristics for Workers

	All Workers Not in Poverty	SE	Workers in SPM Poverty w/o MOOP	SE	Workers in SPM Poverty w/MOOP	SE
Median SPM Resources w/o MOOP subtraction	$74,650	($470)	$13,320	($276)	$27,450	($885)
Part time worker	35.1	(0.2)	76.6	(0.9)	63.4	(2.2)
Full time year-round	64.9	(0.2)	23.4	(0.9)	36.6	(2.2)
Insured	90.6	(0.1)	65.6	(1.1)	83.4	(1.9)
Employer Sponsored	68.8	(0.2)	22.6	(1.1)	49.7	(2.5)
Employer Pays All of Premium	18.6	(0.3)	18.8	(2.3)	8.5	(1.9)
Employer Pays Some of Premium	75.0	(0.3)	67.0	(2.8)	75.8	(2.9)
Employer Pays None of Premium	6.4	(0.2)	14.2	(2.1)	15.7	(2.6)
Direct Purchase	8.7	(0.1)	12.0	(0.9)	21.7	(1.9)
Marketplace Coverage	3.9	(0.1)	7.1	(0.7)	11.3	(1.5)
Subsidized Coverage	2.6	(0.1)	6.1	(0.7)	7.6	(1.2)
Unsubsidized Coverage	1.3	(0.1)	1.0	(0.2)	3.7	(1.0)
Any Public Insurance	15.8	(0.2)	33.6	(1.0)	21.3	(1.7)
Homeowner/Mortgage	46.9	(0.3)	16.6	(1.0)	29.8	(2.4)
Homeowner/Mortgage/rent-free	23.1	(0.2)	16.2	(0.9)	21.6	(2.2)
Renter	29.9	(0.3)	67.2	(1.1)	48.6	(2.6)
Weighted Observations	81,500		6,000		1,500	

In percent. Standard errors in parentheses; generated using survey replicate weights. Note: Medians calculated for the householder Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Health insurance coverage and home ownership rates followed a similar trend, where those moved into SPM poverty with the MOOP subtraction were more likely to be covered by an insurance plan or own a house than those who were in SPM poverty without the subtraction, but less than the overall working population not in poverty. Notably, policyholders who moved into SPM poverty with the MOOP subtraction with employee sponsored insurance were more likely to pay for some or all their health insurance premiums than the other two groups, indicating that these workers were more exposed to the full cost of their premiums.[9] Results in Table A5 provide a closer look into the detailed occupations of these workers, providing evidence that workers who move into SPM poverty with the MOOP subtraction were more likely to be in service-related occupations (such as building maintenance, food prep, etc.) than the overall working population.

Table 5 examines the remaining 3.5 million people whose poverty status changed with the MOOP subtraction, presenting estimates of selected characteristics for these groups. Once again, the median resources for non-workers in poverty due to MOOP was just under half ($20,400) of the median resources for all non-workers not in poverty ($46,740). Those who move into poverty after MOOP is subtracted from resources were older than those who were in poverty without the subtraction as well as the overall non-working population not in poverty. This group had fewer workers in the household than the overall population, due to having more retirees and more individuals who reported the reason for not working in 2020 as illness or disability.[10] Health insurance coverage rates were also comparable for this group, reflecting the older population's access to Medicare.[11] For those with access to employer sponsored health insurance, the population in poverty when MOOP is subtracted had slightly higher rates of employers not contributing to their premiums.

Results for non-workers are more complicated. Similar to Tables 3 and 4, non-workers in poverty with the MOOP subtraction have resource totals that are twice as high as those in SPM poverty without the MOOP subtraction but less than the values of all non-workers. Approximately 40 percent of non-workers were aged 65 and older or report that the reason they were not working to be retirement. Health care expenditures for older populations increase as the need for health care increases. Therefore, it is not a surprise that their medical expenses would be higher to reflect their higher use of care. For the remaining 60 percent of the population, the story is trickier. They lived in households with lower income and were more likely to not be working due to illness or other responsibilities.

[9] The shares for those in SPM poverty and those in SPM poverty due to MOOP with employers who make no contributions to health insurance are not statistically different.

[10] The shares of individuals who live in a household with 1 or more members with a disability in SPM Poverty w/MOOP and SPM Poverty are not statistically different.

[11] The shares of All Non-Workers and Non-Workers in SPM Poverty w/ MOOP with any health insurance coverage are not statistically different.

Table 5: Summary Statistics of Selected Characteristics for Non-Workers

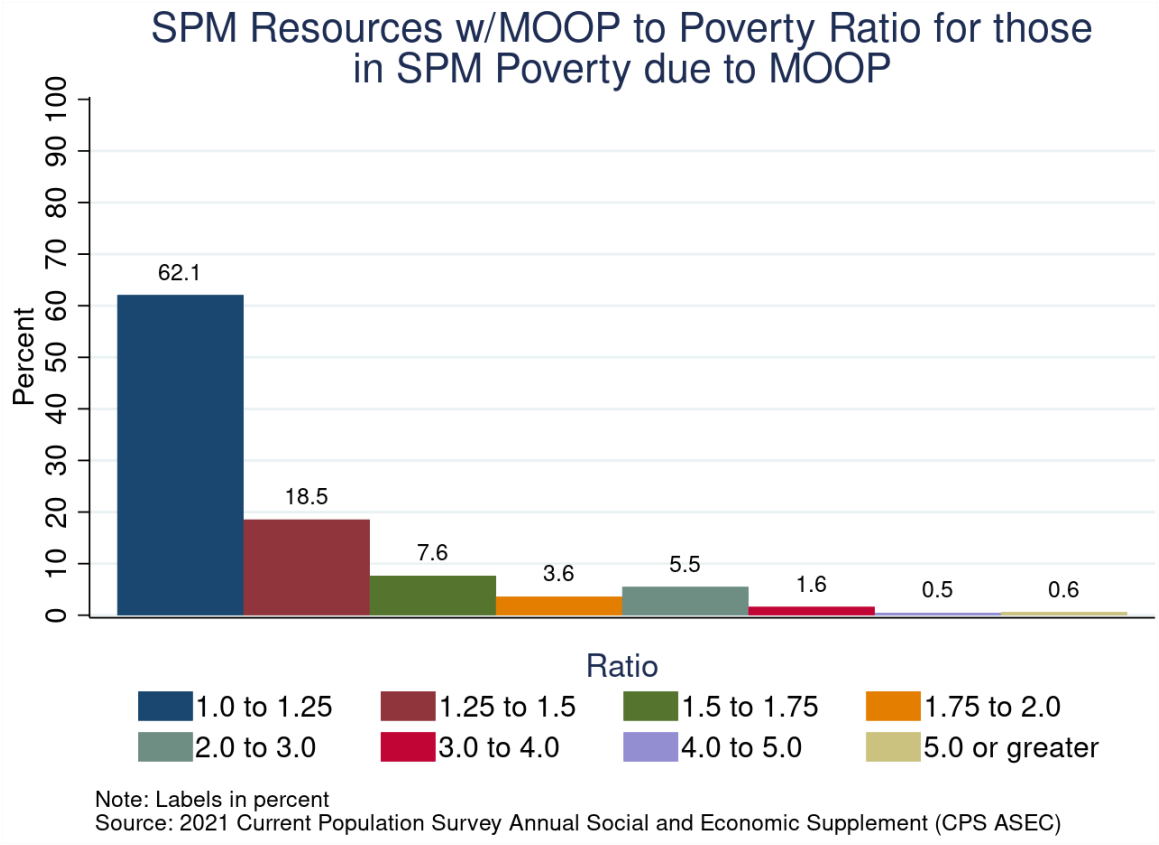
Characteristic	All Non-Workers Not in Poverty	SE	All Non-Workers in SPM Poverty w/o MOOP	SE	Non-Workers in SPM Poverty w/MOOP	SE
Median SPM Resources w/o MOOP Subtraction	$46,740	($361)	$9,265	($257)	$20,400	($425)
Under Age 18	46.4	(0.2)	32.8	(0.7)	24.0	(1.4)
Age 18 to 64	25.5	(0.2)	48.4	(0.7)	36.5	(1.3)
Age 65 and older	28.1	(0.2)	18.9	(0.6)	39.5	(1.6)
Lives in SPM unit with worker	71.6	(0.3)	32.8	(0.9)	42.4	(1.9)
Children under age 15	39.5	(0.1)	27.4	(0.6)	20.0	(1.3)
Ill/Disabled	8.4	(0.2)	16.0	(0.5)	15.8	(1.2)
Retired	30.3	(0.2)	21.6	(0.7)	41.9	(1.8)
Taking care of home	7.9	(0.1)	12.4	(0.4)	9.3	(0.7)
Going to School	11.7	(0.1)	14.7	(0.5)	9.0	(0.8)
Couldn't Find Work	1.4	(0.1)	4.7	(0.3)	2.4	(0.5)
Other	0.9	(0.0)	3.2	(0.3)	1.5	(0.4)
Any Coverage	94.2	(0.1)	84.4	(0.6)	91.7	(1.0)
Employer Sponsored Insurance	43.3	(0.3)	11.4	(0.5)	23.6	(1.5)
Employer paid all premiums	58.7	(0.3)	92.0	(0.5)	3.3	(0.6)
Employer paid some premiums	7.6	(0.2)	2.6	(0.3)	13.9	(1.3)
Employer paid none of premium	30.1	(0.3)	4.3	(0.3)	4.7	(0.8)
Coverage outside of household or no ESI	3.6	(0.1)	1.2	(0.1)	78.0	(1.5)
Direct Purchase	12.0	(0.2)	9.6	(0.5)	25.5	(1.5)
Any Marketplace coverage	2.3	(0.1)	3.5	(0.4)	4.9	(0.8)
Subsidized Marketplace Coverage	1.6	(0.1)	2.7	(0.3)	3.5	(0.8)
Unsubsidized Marketplace Coverage	0.7	(0.0)	0.8	(0.1)	1.4	(0.4)
Public coverage	51.7	(0.3)	-0.3	(67.9)	64.8	(1.6)
Homeowner/Mortgage	40.9	(0.3)	15.5	(0.8)	26.7	(1.9)
Homeowner/Mortgage/Rent-Free	33.1	(0.3)	25.6	(0.9)	34.5	(2.1)
Renter	26.0	(0.3)	59.0	(1.1)	38.8	(2.2)
Weighted Observations (in thousands)	137,000		19,000		3,500	

In percent. Standard errors in parentheses; generated using survey replicate weights. Note: Medians calculated for householder. Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Discussion

The evidence presented in this paper points to a few conclusions about those who are moved into poverty when MOOP is subtracted from resources. First, while this group had higher levels of educational attainment and higher rates of homeownership when compared to the population who were in poverty before subtracting MOOP, they still lag behind the rest of the population not in poverty across most characteristics. This is especially true when examining median resource totals prior to subtracting MOOP, as the group who's poverty status switched with the subtraction has median resources that are a third to half of the rest of the population. Figure 2 emphaiszes this point in relation to poverty thresholds, showing that 62.1 percent of those in poverty due to MOOP had resource to poverty ratios between 100 and 125 percent of their poverty thresholds prior to subtracting MOOP. Overall, nearly 90 percent of those whose poverty status changes once MOOP is considered have income to poverty ratios below 200 percent of the poverty line, further supporting that any large expenses put this group at risk of financial stress. Although the data cannot make any judgement as to whether medical expenses are discretionary or necessary, these estimates should lessen some concerns that individual's choice of care is skewing poverty estimates.

Figure 2



The results also provide evidence that those who are in poverty when MOOP is subtracted seem to be more exposed to the costs of health insurance. For example, over 90 percent of workers in poverty due to MOOP with employer sponsored insurance were responsible for either some or all their premium, while

most non-workers were covered by similar plans. Average premium MOOP for these groups responsible for paying some or all of their employer sponsored premium were over $3,000 dollars (Table 1), over 10 percent of median resources prior to subtracting MOOP. Rates of direct purchase insurance coverage were higher for both workers and non-workers in poverty due to MOOP as well. Therefore, not only are individuals in poverty with the MOOP subtraction near poverty, they also have premium expenses which comprise a non-trivial proportion of their total resources.

Second, the fact that poverty measures are currently rooted in annual resources and are ambivalent to savings and wealth complicate this analysis, especially for retirees and those aged 65 and older with lower incomes. Savings and wealth accumulated over time can serve as a buffer against unexpected shocks or allow for more expensive discretionary medical expenses, allowing individuals to keep a consistent standard of living. Therefore, considering one-off medical expenditures on the ability to cover basic needs potentially captures a poverty transition rather than a change in economic well-being. This example is not unlike the case of someone who uses savings and wealth to cover job interruptions or sabbaticals without any income coming in. In these cases, the measure is not necessarily performing poorly, it is just measuring a specific population that comes with caveats.

The impact of imputation

A growing concern with survey based statistics is increasing survey non-response. Therefore, as a robustness check, it is important to consider how the results vary across response categories. As noted in the data section, there are three primary response categories: survey respondents, respondents with some missing information in the health insurance module, and respondents who do not respond to any of the health insurance questions. Imputation rates for the sample are given in Table A6 while average amounts of overall MOOP and the components are provided in Table A7. Over half of the sample had survey responses for the medical expenditure components on the CPS ASEC, while a quarter were classified as whole unit imputes. Average values are comparable for these two categories, with whole unit imputes being slightly larger than the survey amounts. The remaining balance are imputations for those with some reported health insurance information, or in the case of premium MOOP, logically imputed values (0.9 percent). Values imputed for item non-response (hot-deck imputation) for the overall and premiums categories were larger than both the survey reports and whole unit imputes. Non-premium MOOP was higher for the item non-response compared to survey response but was not statistically different from whole unit imputes. Finally, differences in over-the-counter expenses were not statistically significant across the response categories.

Table 6 shows the percentage point changes in poverty rates for the different response categories. The difference in poverty rates here is defined as the overall poverty rate for the given response category subtracted from the poverty rate with MOOP not subtracted from resources. Since the overall allocation flag for MOOP is used, the impact of how responses affect specific components is not considered in this table. Survey reported changes in poverty rates appear smaller than the imputation procedures for most characteristics, though most changes are not statistically significant. Comparing those with item nonresponse to units with no health insurance information yields few statistically significant differences. In total, the table seems to indicate that imputations are correlated with an increase in SPM poverty once

MOOP is deducted from resources. Combined with the information in Table A7, there is suggestive evidence that health insurance units with missing information have characteristics (such as age) which are associated with higher medical expenditures and thus are given larger values of MOOP. Further research could help solidify conclusions by examining the characteristics of units with missing information and how they differ between some and all missing information and against full survey respondents.

Table 6: Effect of Subtracting MOOP on SPM Rates by imputation type

Characteristic	Survey Reported	SE	Item Imputation	SE	Whole Unit Imputation	SE
All People	1.4*	(0.3)	1.7*	(0.4)	1.7*	(0.4)
Male	1.3*	(0.3)	1.5*	(0.4)	1.6*	(0.4)
Female	1.5*	(0.3)	1.9*	(0.5)	1.9*	(0.5)
Under 18 years	1.1*	(0.3)	1.4*	(0.5)	1.6*	(0.4)
18 to 64 years	1.2*	(0.3)	1.4*	(0.4)	1.7*	(0.4)
65 years and older	2.6*	(0.5)	3.0*	(0.6)	2.4*	(0.6)
White, not Hispanic	1.3*	(0.3)	1.6*	(0.5)	1.6*	(0.4)
Black	1.6	(1.0)	1.8	(1.2)	2.3*	(1.3)
Asian	0.9	(1.0)	2.0	(1.6)	2.4*	(1.2)
Hispanic (any race)	1.6*	(0.8)	2.0*	(1.1)	1.5	(1.0)
At least 1 member of hhld is disabled	2.8*	(0.7)	2.8*	(0.9)	2.9*	(1.1)
All workers (15 and older)	0.8*	(0.2)	1.0*	(0.3)	1.1*	(0.3)
Not Working	2.0*	(0.4)	2.6*	(0.7)	2.4*	(0.6)
Any health plan	1.4*	(0.3)	1.6*	(0.4)	1.7*	(0.4)
Any private plan	1.0*	(0.2)	1.5*	(0.3)	1.6*	(0.3)
Employment-based	0.7*	(0.2)	1.0*	(0.3)	1.2*	(0.3)
Employer pays all	0.6	(0.4)	0.5	(0.7)	0.9	(0.8)
Employer pays some	0.6*	(0.2)	1.0*	(0.3)	1.2*	(0.3)
Employer pays none	2.1*	(0.8)	2.3*	(1.2)	3.1*	(1.5)
Direct-purchase	3.2*	(0.7)	4.1*	(1.3)	3.9*	(1.1)
Marketplace coverage	3.1*	(1.3)	4.0	(2.7)	2.8	(2.4)
Subsidized coverage	3.7*	(1.9)	3.0	(3.6)	2.4	(3.0)
Unsubsidized coverage	1.8	(2.0)	6.2*	(2.8)	3.9	(3.9)
TRICARE	0.7	(0.7)	1.1	(1.8)	1.1	(1.4)
Any public plan	2.2*	(0.5)	2.7*	(0.7)	2.2*	(0.8)
Medicare	2.8*	(0.5)	3.1*	(0.7)	2.6*	(0.7)
Medicaid	1.7*	(0.9)	2.2	(1.6)	1.9	(1.3)
VA or CHAMPVA	1.3	(1.4)	1.1	(1.9)	2.0	(2.1)
Uninsured	1.7	(1.2)	2.2	(1.6)	2.1	(1.4)

In percent. * represents statistically significant differences between the overall sample and the specific response method at the 90% confidence level. Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Conclusion

Many studies have focused on the impact of medical expenditures on the economic well-being of households. By deducting these expenditures from resources, the SPM provides some understanding of

the relationship between these expenditures and poverty rates. However, few studies have examined the isolated impact of these deductions on poverty rates. To fill this gap, this study produces estimates of the overall impact of deducting MOOP from resources on SPM poverty rates. In addition, it provides a more thorough examination of how the group moved into poverty by MOOP expenditures differs from the population in SPM poverty and the overall population in the United States.

In 2020, the MOOP deduction raised poverty rates from 7.6 percent to 9.1 percentage points, an increase of 1.5 percentage points and 5.0 million people. In terms of demographic characteristics, those who are non-workers, aged 65 and older, or lived in a household where a member had a disability had the highest percentage point changes in SPM poverty rates with MOOP added, as poverty rates increased by 2.2 percentage points, 2.7 percentage points and 2.8 percentage points respectively.[12] In terms of health insurance coverage type, SPM poverty rates increased by 3.6 percentage points and 2.8 percentage points for direct purchase insurance and Medicare respectively, the highest of all the coverage types.[13] With respect to direct purchase insurance, the large change in magnitude could be related to the conditions which make people eligible for subsidized marketplace coverage which places them nearer to their poverty thresholds or reflects the fact that they have unsubsidized premiums for their marketplace coverage or direct from insurer coverage. Notably, there are similar effects for employer sponsored insurance with the largest percentage point changes in poverty rates occurring for those in this group who are responsible for paying the full value of their health insurance premiums. Meanwhile, those with Medicare are likely to have higher health needs due to frailty or other medical conditions, and thus have higher MOOP.

Further examination of the group who change poverty status once MOOP is added into resources shows that this group had higher median income, more education, and were more likely to be insured, especially with a private plan. However, subgroup analysis of workers and non-workers provides evidence that weakens the conclusion that this group is "well off". For the 1.5 million workers who are moved into poverty once MOOP is added to resources, median cash income was under half of the value of the overall working population. In this group, 63.4 percent were working part time, almost 30 percentage points higher than the overall working population share. Additionally, these individuals were more likely to be responsible for paying their full or partial monthly premium and substantially less likely to own their own home. Median incomes for non-workers were also under half of the overall non-working population. This group was more likely to be older or retired compared to the overall non-working population, and less likely to live with a worker. Like the working population, this group was more exposed to paying for health insurance, as those who had employer sponsored insurance were more likely to pay the full or partial value of their health insurance premiums while marketplace coverage rates were higher as well.

Finally, examining the impact of the different response classifications in the CPS ASEC highlight some notable challenges facing poverty measurement in relation to imputation methods. Percentage point changes in poverty rates when MOOP is added to resources look to be lower for survey respondents

[12] These percentage point changes are not statistically different.

[13] The percentage point change in poverty rates for direct purchase insurance and Medicare are not statistically different.

compared to those with some or all missing health insurance information, though most differences are not statistically different. Further research is needed to understand the mechanics behind the imputation procedure assigning higher levels of MOOP to non-respondents, as this could bias poverty estimates going forward.

Altogether, these estimates introduce two points which garner further discussion. First, poverty thresholds in the United States are low in comparison to the cost of living for some key national statistics such as health care and housing. As noted in the text, average premium MOOP values are nearly 10 percent of median resources for workers moved into SPM poverty due to MOOP. Second, using current income as the basis for resources means that it is possible to temporarily be classified as in poverty due to employment shocks or health shocks, even though the standard of living for an individual may not change due to savings and wealth. This is especially important when considering retirees who have low incomes but have accumulated savings over the rest of their lives.

However, changing the way the poverty measure is viewed does not fix all criticisms of the MOOP deduction in the SPM. Simply deducting expenditures from resources ignores the fact that many employers in the United States subsidize employee's health insurance premiums. In 2020, these contributions could be valued at two thirds of the total premium for a given health insurance plan (KFF 2020), meaning that some of the changes in poverty status due to premium MOOP may be overstated. Future research could be directed towards including a value of these contributions in resources and examining the impact on poverty rates. In addition, performing a similar analysis on the differences between those in SPM poverty and those in poverty using the Health Inclusive Poverty Measure (Korenman and Remler 2016) may illuminate the benefits of changing how medical expenditures are considered in poverty measurement.

In sum, accounting for out-of-pocket medical expenditures in the Supplemental Poverty Measure framework classifies an additional 5.0 million people in poverty in 2020. Since the introduction of the SPM in 2011, the MOOP subtraction has consistently been one of the most impactful changes to the resource measure on overall poverty rates. While this group of the population had higher median incomes than the overall population in poverty, incomes were a third of the national household median income. Workers were more likely to be part time workers and are more exposed to the costs of their premiums compared to the overall working population. Meanwhile, non-workers were more likely to be retirees or out of work due to illness, indicating an overall lower level of income for these households. In general, this population seem to be the near poor; those who were just above their poverty thresholds and outside of some government assistance programs, but who were at risk of financial trouble with any sort of emergency expense or job loss. Continuing to improve poverty measurement in the future to consider the many complications of health care in the United States is important to ensure the accurate measurement of the personal economic well-being of the United States.

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Appendix

Table A1: Estimates of SPM and SPM without the MOOP Deduction, 2020

Characteristic	SPM Number	SE	SPM Number w/o MOOP Deduction	SE	Difference	SE
All People	29,800	(466)	24,800	(455)	5,002*	(178)
Male	13,840	(254)	11,600	(241)	2,239*	(102)
Female	15,970	(266)	13,200	(267)	2,763*	(94)
Under 18 years	7,079	(197)	6,225	(197)	854*	(62)
18 to 64 years	17,430	(317)	14,770	(294)	2,667*	(113)
65 years and older	5,293	(150)	3,812	(133)	1,482*	(74)
White, not Hispanic	12,650	(292)	9,815	(261)	2,832*	(131)
Black	5,963	(207)	5,229	(195)	735*	(72)
Asian	1,674	(114)	1,382	(98)	292*	(45)
Hispanic (any race)	8,570	(265)	7,561	(266)	1,009*	(92)
At least 1 member of hhld is disabled	7,553	(234)	5,932	(207)	1,621*	(102)
All workers (15 and older)	7,486	(170)	5,977	(166)	1,509*	(73)
Not Working	22,320	(385)	18,830	(371)	3,493*	(133)
Any health plan	24,270	(416)	19,810	(404)	4,461*	(158)
Any private plan	8,976	(228)	6,182	(202)	2,795*	(122)
Employment-based	5,066	(169)	3,493	(146)	1,573*	(97)
Employer pays all	595	(47)	476	(43)	119*	(19)
Employer pays some	1,562	(70)	955	(55)	608*	(44)
Employer pays none	435	(37)	260	(28)	175*	(24)
Direct-purchase	3,739	(140)	2,520	(126)	1,218*	(68)
Marketplace coverage	1,431	(100)	1,088	(89)	343*	(41)
Subsidized cov.	1,113	(96)	875	(87)	238*	(35)
Unsubsidized cov.	318	(40)	213	(31)	105*	(24)
TRICARE	348	(49)	268	(41)	80*	(24)
Any public plan	17,370	(354)	14,790	(345)	2,583*	(115)
Medicare	6,315	(165)	4,626	(142)	1,688*	(84)
Medicaid	12,180	(316)	11,140	(313)	1,043*	(83)
VA or CHAMPVA	189	(23)	145	(19)	44*	(13)
Uninsured	5,499	(194)	4,967	(180)	532*	(56)

Numbers in Thousands. * represents statistically significant differences at 90% level. Standard errors in parentheses; generated using survey replicate weights. Health Insurance coverage characteristics do not include infants born in the calendar year. Note: The disability universe includes those aged 15 and older in civilian households. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A2: Estimates of MOOP impact by Premium and Non-Premium MOOP, 2020

Characteristic	In SPM Poverty w/ MOOP Deduction	SE	In SPM Poverty w/ Premium MOOP Deduction	SE	In SPM Poverty w/ Non-Premium MOOP Deduction	SE
All People	5,002*	(178)	2,559*	(120)	2,851*	(140)
Male	2,239*	(102)	1,115*	(65)	1,303*	(75)
Female	2,763*	(94)	1,444*	(68)	1,548*	(79)
Under 18 years	854*	(62)	356*	(37)	552*	(56)
18 to 64 years	2,667*	(113)	1,264*	(78)	1,561*	(87)
65 years and older	1,482*	(74)	939*	(60)	737*	(56)
White, not Hispanic	2,832*	(131)	1,470*	(97)	1,620*	(102)
Black	735*	(72)	355*	(49)	472*	(56)
Asian	292*	(45)	189*	(34)	100*	(25)
Hispanic (any race)	1,009*	(92)	455*	(51)	571*	(68)
At least 1 member of hhld is disabled	1,621*	(102)	807*	(69)	895*	(71)
All workers (15 and older)	1,509*	(73)	725*	(47)	903*	(57)
Not Working	3,493*	(133)	1,834*	(97)	1,948*	(103)
Any health plan	4,461*	(158)	2,446*	(116)	2,432*	(127)
Any private plan	2,795*	(122)	1,716*	(94)	1,403*	(95)
Employment-based	1,573*	(97)	962*	(76)	778*	(73)
Employer pays all	119*	(19)	61*	(15)	80*	(16)
Employer pays some	608*	(44)	390 *	(36)	268*	(29)
Employer pays none	175*	(24)	108*	(18)	75*	(15)
Direct-purchase	1,218*	(68)	791*	(55)	594*	(53)
Marketplace coverage	343*	(41)	209*	(32)	176*	(27)
Subsidized cov.	238*	(35)	142*	(26)	122*	(22)
Unsubsidized cov.	105*	(24)	67*	(19)	54*	(17)
TRICARE	80*	(24)	23*	(10)	62*	(22)
Any public plan	2,583*	(115)	1,338*	(82)	1,496*	(91)
Medicare	1,688*	(84)	1,048*	(66)	862*	(63)
Medicaid	1,043*	(83)	369*	(46)	738*	(70)
VA or CHAMPVA	44*	(13)	5	(4)	25*	(10)
Uninsured	532*	(56)	107*	(20)	416*	(48)

Numbers in Thousands. * represents statistically significant differences at the 90% confidence level. Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A3: Percentage Point Changes of MOOP and MOOP components on Poverty, 2020

Characteristic	SPM minus SPM w/o MOOP Deduction	SE	SPM minus SPM w/o premium MOOP Deduction	SE	SPM minus SPM w/o non-premium MOOP Deduction	SE
All People	1.5*	(0.1)	0.8*	(0.0)	0.9*	(0.0)
Male	1.4*	(0.1)	0.7*	(0.0)	0.8*	(0.1)
Female	1.7*	(0.1)	0.9*	(0.0)	0.9*	(0.1)
Under 18 years	1.2*	(0.1)	0.5*	(0.1)	0.8*	(0.1)
18 to 64 years	1.4*	(0.1)	0.6*	(0.0)	0.8*	(0.0)
65 years and older	2.7*	(0.1)	1.7*	(0.1)	1.3*	(0.1)
White, not Hispanic	1.5*	(0.1)	0.8*	(0.1)	0.8*	(0.1)
Black	1.8*	(0.2)	0.9*	(0.1)	1.2*	(0.1)
Asian	1.5*	(0.2)	1.0*	(0.2)	0.5*	(0.1)
Hispanic (any race)	1.6*	(0.2)	0.7*	(0.1)	0.9*	(0.1)
At least 1 member of hhld is disabled	2.8*	(0.2)	1.4*	(0.1)	1.6*	(0.1)
All workers (15 and older)	0.9*	(0.0)	0.4*	(0.0)	0.5*	(0.0)
Not Working	2.2*	(0.1)	1.2*	(0.1)	1.2*	(0.0)
Any health plan	1.5*	(0.1)	0.8*	(0.0)	0.8*	(0.0)
Any private plan	1.3*	(0.1)	0.8*	(0.0)	0.6*	(0.0)
Employment-based	0.9*	(0.1)	0.5*	(0.0)	0.4*	(0.0)
Employer pays all	0.6*	(0.1)	0.3*	(0.1)	0.4*	(0.1)
Employer pays some	0.9*	(0.1)	0.6*	(0.1)	0.4*	(0.0)
Employer pays none	2.4*	(0.3)	1.5*	(0.3)	1.0*	(0.2)
Direct-purchase	3.6*	(0.2)	2.3*	(0.2)	1.7*	(0.2)
Marketplace coverage	3.2*	(0.4)	1.9*	(0.3)	1.6*	(0.3)
Subsidized coverage	3.2*	(0.5)	1.9*	(0.3)	1.6*	(0.3)
Unsubsidized coverage	3.1*	(0.7)	2.0*	(0.6)	1.6*	(0.5)
TRICARE	0.9*	(0.3)	0.3*	(0.1)	0.7*	(0.2)
Any public plan	2.3*	(0.1)	1.2*	(0.1)	1.3*	(0.1)
Medicare	2.8*	(0.1)	1.8*	(0.1)	1.4*	(0.1)
Medicaid	1.8*	(0.1)	0.6*	(0.1)	1.3*	(0.1)
VA or CHAMPVA	1.5*	(0.4)	0.2	(0.1)	0.8*	(0.3)
Uninsured	1.9*	(0.2)	0.4*	(0.1)	1.5*	(0.2)

In Percent. * represents statistically significant differences between SPM and SPM without the specified MOOP deduction at the 90% confidence level. Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A4: Estimates of Original and Edited Premium MOOP on Poverty, 2020

Characteristic	SPM minus SPM w/MOOP deduction	SE	SPM minus SPM w/o premium MOOP deduction	SE	SPM - SPM w/o edited premium MOOP deduction	SE
All People	1.5*	(0.1)	0.8*	(0.0)	0.8*	(0.0)
Male	1.4*	(0.1)	0.7*	(0.0)	0.7*	(0.0)
Female	1.7*	(0.1)	0.9*	(0.0)	0.9*	(0.0)
Under 18 years	1.2*	(0.1)	0.5*	(0.1)	0.5*	(0.1)
18 to 64 years	1.4*	(0.1)	0.6*	(0.0)	0.7*	(0.0)
65 years and older	2.7*	(0.1)	1.7*	(0.1)	1.7*	(0.1)
White, not Hispanic	1.5*	(0.1)	0.8*	(0.1)	0.8*	(0.1)
Black	1.8*	(0.2)	0.9*	(0.1)	0.9*	(0.1)
Asian	1.5*	(0.2)	1.0*	(0.2)	1.0*	(0.2)
Hispanic (any race)	1.6*	(0.2)	0.7*	(0.1)	0.8*	(0.1)
At least 1 member of hhld is disabled	2.8*	(0.2)	1.4*	(0.1)	1.5*	(0.1)
All workers (15 and older)	0.9*	(0.0)	0.4*	(0.0)	0.5*	(0.0)
Not Working	2.2*	(0.1)	1.2*	(0.1)	1.2*	(0.1)
Any health plan	1.5*	(0.1)	0.8*	(0.0)	0.9*	(0.0)
Any private plan	1.3*	(0.1)	0.8*	(0.0)	0.8*	(0.1)
Employment-based	0.9*	(0.1)	0.5*	(0.0)	0.6*	(0.0)
Employer pays all	0.6*	(0.1)	0.3*	(0.1)	0.4*	(0.1)
Employer pays some	0.9*	(0.1)	0.6*	(0.1)	0.6*	(0.1)
Employer pays none	2.4*	(0.3)	1.5*	(0.3)	1.6*	(0.3)
Direct-purchase	3.6*	(0.2)	2.3*	(0.2)	2.4*	(0.2)
Marketplace coverage	3.2*	(0.4)	1.9*	(0.3)	2.1*	(0.3)
Subsidized cov.	3.2*	(0.5)	1.9*	(0.3)	1.9*	(0.3)
Unsubsidized cov.	3.1*	(0.7)	2.0*	(0.6)	2.5*	(0.7)
TRICARE	0.9*	(0.3)	0.3*	(0.1)	0.5*	(0.2)
Any public plan	2.3*	(0.1)	1.2*	(0.1)	1.2*	(0.1)
Medicare	2.8*	(0.1)	1.8*	(0.1)	1.8*	(0.1)
Medicaid	1.8*	(0.1)	0.6*	(0.1)	0.7*	(0.1)
VA or CHAMPVA	1.5*	(0.4)	0.2	(0.1)	0.3*	(0.1)
Uninsured	1.9*	(0.2)	0.4*	(0.1)	0.4*	(0.1)

Numbers in Thousands. * represents statistically significant differences at the 90% confidence level. Standard errors in parentheses; generated using survey replicate weights. Note: The disability universe includes those aged 15 and older in civilian households. Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Edited premium MOOP reconciles inconsistencies between respondent's reported premiums and whether their employer contributes to their premiums. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A5: Summary Statistics for Selected Characteristics for Workers

Occupation Type	All Workers not in Poverty	SE	Workers in SPM Poverty w/o MOOP	SE	Workers in SPM Poverty w/MOOP	SE
Mangement	12.2	(0.1)	5.4	(0.5)	7.5	(1.3)
Business and finacial operations	5.8	(0.1)	1.2	(0.2)	4.1	(1.0)
Computer and mathematical science	3.8	(0.1)	1.0	(0.3)	1.8	(0.7)
Architecture and engineering	2.0	(0.1)	0.2	(0.1)	0.8	(0.4)
Life, physical and social science	1.0	(0.0)	0.6	(0.2)	0.3	(0.3)
Community and social service	1.8	(0.1)	0.8	(0.2)	1.1	(0.5)
Legal	1.2	(0.1)	0.2	(0.1)	0.6	(0.3)
Education, training and library	6.0	(0.1)	3.0	(0.4)	4.5	(1.0)
Arts, design and entertainment	2.1	(0.1)	2.3	(0.3)	2.8	(0.8)
Healthcare practioner and technical	6.1	(0.1)	1.3	(0.2)	3.6	(0.8)
Healthcare support	3.1	(0.1)	5.4	(0.5)	6.1	(1.0)
Protective support	2.0	(0.1)	1.3	(0.3)	0.8	(0.4)
Food prep and serving	5.1	(0.1)	12.5	(0.8)	8.4	(1.1)
Building grounds cleaning and maintenance	3.3	(0.1)	9.2	(0.6)	8.6	(1.2)
Personal care and service	2.4	(0.1)	5.0	(0.4)	3.3	(0.8)
Sales and related	9.4	(0.1)	11.5	(0.7)	10.6	(1.5)
Office and administrative support	10.7	(0.1)	8.3	(0.6)	9.4	(1.2)
Farming fishing and forestry	0.7	(0.0)	1.8	(0.3)	1.6	(0.5)
Construction and extraction	4.9	(0.1)	10.3	(0.7)	6.1	(1.2)
Installation maintenance and repair	3.2	(0.1)	2.2	(0.4)	2.8	(0.7)
Production	5.1	(0.1)	4.8	(0.5)	5.9	(1.0)
Transportation and material moving	7.5	(0.1)	11.4	(0.8)	8.9	(1.1)
Armed Forces	0.6	(0.0)	0.1	(0.1)	0.5	(0.4)
Weighted Observations (in thousands)	81,500		6,000		1,500	

In percent. Standard errors in parentheses; generated using survey replicate weights. Note: Health Insurance coverage characteristics do not include infants born in the calendar year. Employer contributions data based on policyholders only. Source: 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A6: Imputation Rates by Type for MOOP Components

Component	Reported	SE	Imputed by Hot-Deck	SE	Logical Imputation	SE	Whole-Unit Imputation	SE	Not in Universe	SE
Premium MOOP	55.7	(0.3)	17.5	(0.2)	0.9	(0.0)	25.7	(0.3)	25.1	(0.1)
Non-Premium MOOP	60.0	(0.3)	13.8	(0.2)	-		25.9	(0.3)	-	
Over-the-Counter Expenditures	60.4	(0.3)	13.5	(0.2)	-		25.9	(0.3)	-	

Standard errors in parentheses; generated using survey replicate weights. Note: Response categories for Premium MOOP reflect percentages of those in universe. Therefore, the row sums to over 100 percent when adding the percentage not in universe. Infants born after the end of the calendar year are excluded from estimates of health coverage in the previous calendar year. Source. 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).

Table A7: Average MOOP by Imputation Status

Component	Full Population	SE	Survey Reported	SE	Hot Deck Imputation	SE	Logical Imputation	SE	Whole-Unit Imputation	SE
Overall MOOP	$1,804	(14)	$1,679	(19)	$2,038	(24)	$3,784	(367)	$1,850	(32)
Premium Out of Pocket	$979	(8)	$1,220	(17)	$1,603	(23)	$2,320	(144)	$1,270	(15)
Non-Premium MOOP	$669	(9)	$639	(9)	$705	(16)	-		$729	(26)
Over-the-Counter Expenditures	$156	(1)	$156	(2)	$161	(3)	-		$154	(2)

Standard errors in parentheses; generated using survey replicate weights. Note: Overall MOOP is classified as one of the imputation categories if a single component is imputed. Values may not sum correctly due to each average amount being calculated for the specific category. Medicare premiums omitted because they are simulated values. Source. 2021 Current Population Survey Annual Social and Economic Supplement (CPS ASEC).