

# Using the CPS-ASEC to Estimate the Ill or Disabled U.S. Population

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## Introduction

In 2016 approximately 15 million U.S. adults were recorded as having an illness or disability. Of those individuals, 28.5% were poor according to the official poverty measure (OPM). Comparatively, 11% of non-disabled individuals fell below the same poverty threshold (Semega, Fontenot & Kollar, 2017). The disproportionate number of disabled adults in poverty has been highlighted in research literature throughout the past two decades (Elwan, 1999; Palmer, 2011). Adults with a disability are more susceptible to income poverty than those without a disability (Fremstad, 2009). Also, those in poverty, or fluctuate in and out of poverty, have additional expenses when ill and unable to work. Using data from the 2017 Current Population Survey Annual Social and Economic Supplement (CPS ASEC),<sup>1</sup> I created an indicator to identify ill or disabled individuals between the ages of 18 to 64 to analyze the poverty rate differences by family type (living alone, living in family with children and living in family without children). Doing this allows us to compare the susceptibility of adults who live on their own and thus are unable to share resources, with those who live in families. I then compare the supplemental poverty measure (SPM) rate of these adults to the official poverty (OPM) rate to show the differences between the two estimates. The SPM is an extension of the official measure that accounts for governmental aid received in both cash and non-cash form, including taxes and major nondiscretionary expenses (Fox, 2017). Although the SPM is not a replacement for the OPM, it is another indicator of economic status, especially for those affected by federal policy (Provencher, 2011). Comparing these two measures provides deeper insight into who among the ill and disabled population is more susceptible to poverty, after accounting government aid.

## Data and Method

Using the responses from select questions in the CPS ASEC, I created an indicator to identify those who (i) self-reported a disability, (ii) were receiving benefits for their health condition, or (iii) noted being out of the workforce, unemployed or missing work due to an illness or disability. I used five Census Bureau recommended variables<sup>2</sup> to identify these individuals, along with six disability indicators adopted by the US Department of Health and Human Services (Ward, Myers, Wong & Ravesloot, 2017). My indicator attempts to categorize any adult with a disability or limiting health condition that may have an economically consequential impact, especially for lower income adults.

## Results

Among the adults recorded as ill/disabled by the indicator, 52.6 percent were male and 48.4 percent were female. The average age of an ill or disabled adult male was 48 and female 46 -see Table 1 below

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<sup>1</sup> The CPS ASEC used in this project was sourced from IPUMS-CPS: Sarah Flood, Miriam King, Renae Rodgers, Steven Ruggles, and J. Robert Warren. *Integrated Public Use Microdata Series, Current Population Survey: Version 6.0 [dataset]*. Minneapolis, MN: IPUMS, 2018. <https://doi.org/10.18128/D030.V65.0>

<sup>2</sup> See "Uses and limitations of CPS data on work disability" published on the Census Bureau's website, <https://www2.census.gov/programs-surveys/demo/guidance/disability/cpstablexplanation.pdf>

for the percentages. The largest difference between genders is among those in the 50-54-year age group, where there is a 1.1 percentage point difference (meaning there are more ill or disabled women than men in this group). The difference between all other age groups is less than one percentage point.

*Table 1: Percent of Adults with an Illness or Disability by Age Group*

Age Group	Men		Women		Difference
	Estimate	m.o.e	Estimate	m.o.e	Estimate
18-24	8.0	0.6	7.8	0.6	-0.1
25-29	9.0	0.8	10.1	0.8	-0.5
30-34	9.4	0.8	10.4	0.7	-0.6*
35-39	11.9	0.8	12.1	0.8	-0.3
40-44	12.7	0.9	13.6	0.8	-0.6
45-49	15.4	1.0	16.2	0.9	-0.7*
50-54	19.5	1.0	20.8	1.0	-1.1*
55-59	25.0	1.1	24.2	1.1	-0.3
60-64	29.9	1.3	28.6	1.2	-0.8

'Estimate' values in the table are the percent of adults in each age category who are ill or disabled.  
 Estimates with an \* are statistically significantly different by the 10 percent significant level.  
 Data source: Current Population Survey, 2016. IPUMS-CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org).

### *What types of families do ill or disabled adults live in?*

I compared the family types of ill or disabled adults to identify those who lived alone or lived in a family and shared resources with other adults or children. I used the SPM family definition<sup>3</sup> to create three unit categories; (i) single person, (ii) families without children and (iii) families with children –see Table 2 in the appendix for the numbers and percents of each. Most adults with an illness or disability lived in families without children, and a greater percentage lived on their own (22.2 percent) than those without an illness or disability (14.1 percent).

*Table 2: Adults with an Illness or Disability in Poverty*

	Total Individuals				Poverty Rates									
					Official				SPM				Difference	
	N	m.o.e	Estimate	m.o.e	N	m.o.e	Estimate	m.o.e	N	m.o.e	Estimate	m.o.e	N	Estimate
Adults with an illness or disability	30310.0	427.4	15.4	0.2	7596.8	223.1	25.1	0.6	7358.3	222.4	24.3	0.6	-238.4*	-0.8
Lives alone	6721.7	219.9	22.2	0.6	2922.3	144.1	43.5	1.6	2523.7	136.1	37.5	1.6	-398.6*	-5.9*
In family without children	14425.8	322.1	47.6	0.7	2202.0	125.8	15.3	0.8	2657.2	138.5	18.4	0.9	455.2*	3.2*
In family with at least one child	9162.6	219.2	30.2	0.6	2472.5	117.2	27.0	1.1	2177.4	110.9	23.8	1.1	-295.1*	-3.2*
Adults without an illness or disability	167008.6	653.0	84.6	0.2	16785.1	326.7	10.1	0.2	19895.4	358.2	11.9	0.2	3110.3*	1.9*
Lives alone	23572.3	422.1	14.1	0.2	3980.8	176.3	16.9	0.7	4987.4	198.1	21.2	0.7	1006.6*	4.3*
In family without children	71118.2	682.0	42.6	0.3	3853.1	168.3	5.4	0.2	6051.3	207.8	8.5	0.3	2198.2*	3.1*
In family with at least one child	72318.2	552.6	43.3	0.3	8951.1	223.2	12.4	0.3	8856.7	222.7	12.2	0.3	-94.4	-0.1

N represents the number of adults in thousands and 'Estimate' is in percent. Estimates with an \* are statistically significant at the 10 percent significant level.  
 The estimate of 'Total Individuals' with and without an illness or disability sum to one, and the estimate of the family types each adult can be in too sum to one.  
 Data source: Current Population Survey, 2016. IPUMS-CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org).

### *How many ill and disabled adults are poor?*

According to the indicator, 24.3 percent of adults who are ill or disabled are in poverty by the SPM,

<sup>3</sup> The SPM definition of family is broader than the OPM's definition and includes unmarried partners and their relatives (Provencher, 2011) thus, we use the former to capture a greater range of family structures and types.

while 11.9 percent of adults without an illness or disability fall below the same threshold –see Table 2 in the appendix for the percentage of adults by condition and family type. Using the OPM, there is an even larger difference in poverty status by ill/disability status. When comparing adults with and without an illness or disability, a greater percentage of ill or disabled are impoverished no matter their family structure. According to both measures, the largest difference between adults with and without an illness or disability is among those who live alone.

#### *What differences do the SPM and OPM show?*

Table 2 in the appendix shows the estimated differences between the two poverty measures. As an extension of the OPM, the SPM accounts for additions and subtractions to total resources that the latter does not. Thus, differing calculations of total resources will affect how many individuals are estimated to fall below the poverty threshold. The largest differences between the OPM and SPM are among adults who live on their own, with the OPM estimates having approximately 400 thousand more ill or disabled adults in poverty than the SPM. Statistically significant differences also exist among the two other family types. However, for adults in families without children, the SPM estimates more adults in poverty than the OPM.

#### *Analysis on ill or disabled adults using the SPM*

I replicated the analysis from the Supplemental Poverty Report<sup>4</sup> to identify the most consequential additions and subtractions to total resources. I calculated changes in the SPM by comparing the original rate (shown in Table 2 in the appendix) to a recalculated rate, which excludes an element from each family's total resources. Each percentage point change between the original and recalculated rate illustrates the effect each element has on alleviating (or increasing) poverty. Each SPM family member has the same poverty status, and a family's total resource summation accounts for all member's benefits and expenses. Thus, I will analyze SPM rate changes at the family level for this analysis.

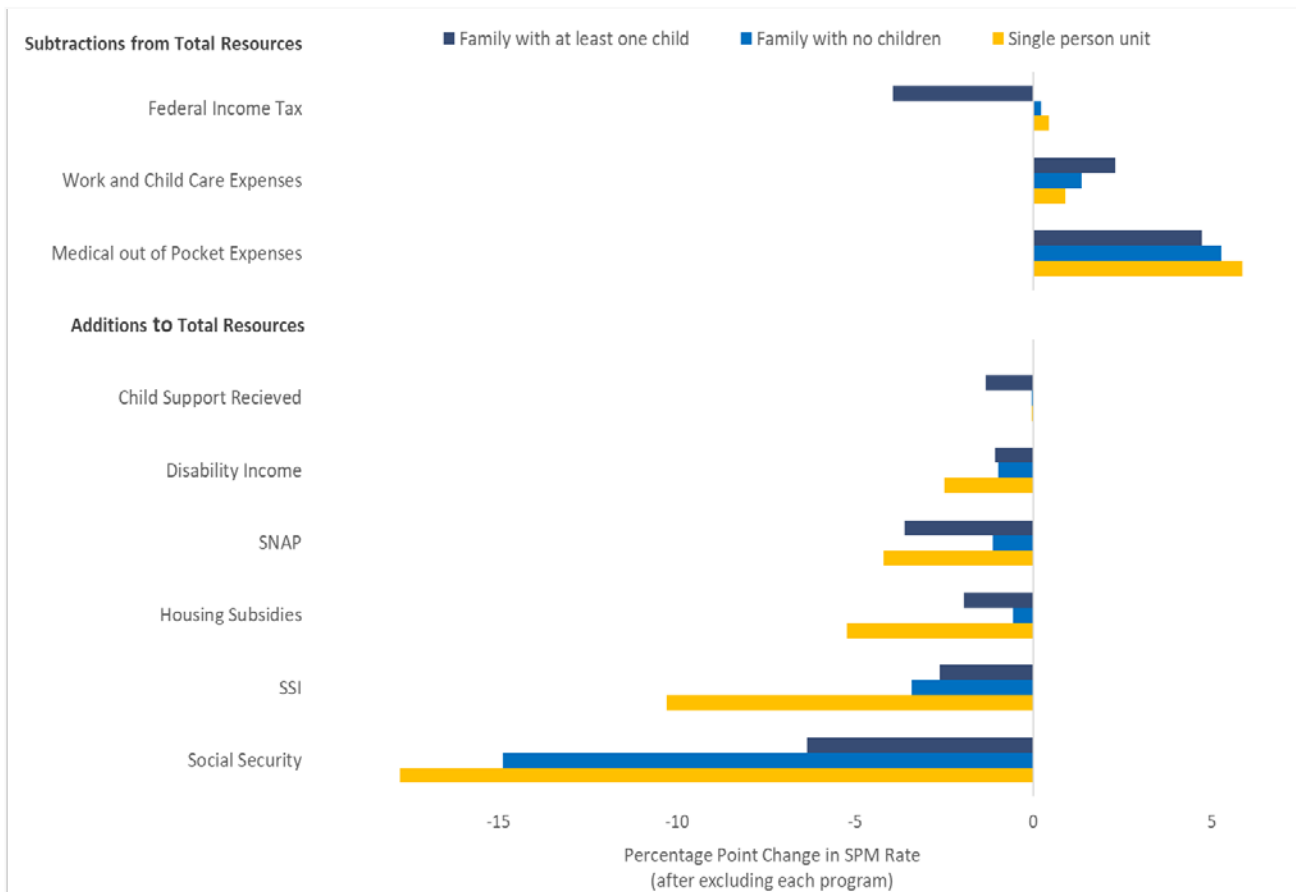
Figure 1 below shows the effect of select elements on the SPM rate for each family with an ill or disabled adult. For example, among families with an ill or disabled adult, removing Social Security benefits from their total resource summation decreases the poverty rate by 17.7 percentage points for single person families, 14.9 percentage points for those in families without children, and 6.3 percentage points for those in families with children. Among subtractions from total resources, medical out-of-pocket expenses increase poverty by the largest amount for all family types, increasing the poverty rate by 5.9 percentage points for adults who live on their own, 5.3 percentage points for those in families without children, and 4.7 percentage points for those in families with children. Federal income tax<sup>5</sup> is the only program whose direction differs by family type. This is due to the inclusion of refundable tax credits in this category, which reduces poverty for families with children. The inclusion of federal income taxes is only statistically significant for those in families with children, their total resource calculation decreasing the supplemental poverty rate by 3.9 percentage points.

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<sup>4</sup> See page 10 of the "Supplemental Poverty Measure: 2016", <https://www.census.gov/content/dam/Census/library/publications/2017/demo/p60-261.pdf>

<sup>5</sup> An SPM family's federal income tax considers their total liability after all tax credits are considered. For more information about the IMPUS CPS variable used for to account for federal income tax see [https://cps.ipums.org/cps-action/variables/SPMFEDTAXAC#description\\_section](https://cps.ipums.org/cps-action/variables/SPMFEDTAXAC#description_section).

Figure 1: Effect of Individual Programs on the Supplemental Poverty Rate: 2016



Data source: Current Population Survey, 2016. IPUMS-CPS, University of Minnesota, [www.ipums.org](http://www.ipums.org).

## Conclusion

Adults with an illness or disability are more likely to fall into poverty than those who are not. And, among those who are ill or disabled, a greater percentage who live alone fall below the poverty threshold. In my analysis, I determine the most influential additions and subtractions to total resources that affect the SPM status of ill or disabled adults. My results shed light on which governmental programs are most influential and where additional aid may be needed. Continuing to use the SPM to analyze the economic status of ill or disabled adults may provide additional understanding of the disadvantages these adults and their families continue to face.

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## References

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