More Likely to Be Poor Whatever the Measure: Working-Age Persons with Disabilities in the United States*

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Objective. This article examines whether disability is a correlate of poverty when poverty is measured using (1) the official poverty measure; (2) the supplemental poverty measure (SPM); and (3) two multidimensional poverty measures created by the authors. *Methods.* Data from the Current Population Survey are used to explore the relationship between poverty and disability for each measure. Differences across disability status were tested for statistical significance. *Results.* Disability is associated with poverty, irrespective of the poverty measure under use. The gap in poverty rates between persons with and without disabilities is smaller when using the SPM as compared to the official poverty measure. The gap in poverty rates between persons with and without disabilities is highest when using multidimensional poverty measures. *Conclusion.* Working-age persons with disabilities are more likely to be poor whatever the measure under use. They are a disadvantaged group in the United States.

In the United States, persons with disabilities are more likely to be income poor or materially deprived than persons without disabilities (Brault, 2012; Burkhauser, Rovba, and Weathers, 2009; Cooper, O'Hara, and Zovistoski, 2011; Huang, Guo, and Kim, 2010; Meyer and Mok, 2006; She and Livermore, 2007), yet disability continues to occupy very little room on the poverty research, advocacy, and policy stage (Fremstad, 2009). Traditional notions of poverty narrowly focus policy responses on addressing income disparities. Poverty researchers and policymakers have recently been embracing alternative poverty measures that have particular relevance for reconceptualizing how we study poverty among persons with disabilities (National Research Council, 1995; Short, 2011). On the international stage, poverty is increasingly understood broadly as a deprivation of well-being rather than purely as a lack of income or other financial resources (Alkire and Sarwar, 2009; OECD, 2011; Sen 1997, 1999; Stiglitz, Sen, and Fitoussi, 2009). This article adopts such a lens

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SOCIAL SCIENCE QUARTERLY, Volume 96, Number 1, March 2015

DOI: 10.1111/ssqu.12098

by considering poverty as a well-being deprivation, a notion comprising both material and nonmaterial dimensions.

In particular, this article examines whether disability is a correlate of poverty when poverty is measured using (1) the official poverty measure; (2) the supplemental poverty measure (SPM); and (3) two multidimensional poverty measures created by the authors. This article provides insights to researchers and federal, state, and community-based agencies that seek to monitor and improve the well-being of persons with disabilities and the poor.

Background and Hypotheses

In the United States, poverty is more common among certain subgroups of the population, including persons with lower educational attainment, persons who are black or Hispanic, persons living in female-headed households, and persons with disabilities (Cellini, McKernan, and Ratcliffe, 2008; Edin and Kissane, 2010; She and Livermore, 2007, 2009). Research has suggested a complex web of factors that contribute to poverty: labor market characteristics, variations in federal and state welfare policies, and changing family structure (Edin and Kissane, 2010).

Poverty is generally measured in one of two ways in the United States. The most commonly used measure is termed the official poverty measure. The official poverty measure relies solely on a family's income,[1] and is based on a set of pretax income thresholds that do not include either capital gains or in-kind benefits. Thresholds vary by family size and composition (Short, 2011:1–2). The SPM is a new poverty measure developed by the U.S. government. The SPM thresholds are adjusted to the needs of different family types and to geographic differences in housing costs using an equivalence scale. The SPM family resources are defined as the value of cash income from all sources plus the value of in-kind benefits that are available to buy the basic bundle of goods minus necessary expenses for critical goods and services including income and payroll taxes, childcare and other work-related expenses, child support payments to another household, and medical out-of-pocket costs.

We propose that the inclusion of additional dimensions of well-being is needed in poverty calculations, as both the official and SPM measures of poverty do not fully capture the deprivations faced by vulnerable populations such as persons with disabilities. The literature on persons with disabilities in the United States and on well-being in other countries supports the inclusion of nonincome and nonmaterial dimensions of well-being (OECD, 2011). The dimensions include education, employment, economic resources and expenditures (including food security), health and healthcare, political participation, and social inclusion. More detail about the literature and rationale for inclusion of these additional dimensions is included in Appendix A. Given that available literature supports the idea that persons with disabilities are less well off than persons without disabilities along a number of income and nonincome dimensions, following is our first hypothesis:

Hypothesis 1: *Among working-age individuals in the United States, disability is associated with poverty, irrespective of the poverty measure under use.*

[1] Income includes earnings, unemployment benefits, workers' compensation, Social Security, Supplemental Security Income, public assistance, veterans' payments, survivor benefits, pension or retirement income, interest, dividends, rents, royalties, income from estates, trusts, educational assistance, alimony, child support, assistance from outside the household, and other miscellaneous sources of income.

The extent of the disability gap in poverty rates, in other words, the difference in poverty rates between persons with and without disabilities, may, however, vary depending on the poverty measure under use. In considering resources, the SPM includes in-kind benefits such as Supplemental Nutrition Assistance Program benefits and housing subsidies, which people with disabilities are more likely to receive (Houtenville and Brucker, 2013). Including these government transfers will boost the calculated inflow of resources to an individual, leading some (Fremstad, 2009) to suggest that the SPM would undercount poverty among people with disabilities. At the same time, under the SPM, resources are net of medical out-of-pocket costs, which have been shown to be higher for persons with disabilities (Mitra, Findley, and Sambamoorthi, 2009). It is thus unclear how the disability gap in poverty rates compares using the SPM and official measure. Given the higher levels of in-kind program participation found among persons with disabilities, however, we propose the following as our second hypothesis:

Hypothesis 2: *The disability gap in poverty rates between persons with and without disabilities will be lower using the SPM instead of the official poverty measure.*

Finally, one can note that two of the measures used in this article, the official poverty measure and SPM, are income-based measures of poverty. Because of the wide range of social safety nets available for income support and the higher participation of persons with disabilities in such safety nets, one can speculate that poverty measures that focus on income will yield a smaller disability gap in poverty rates than other poverty measures that incorporate nonincome and nonmaterial dimensions of well-being. This leads to our third hypothesis:

Hypothesis 3: *The disability gap in poverty rates is higher when using multidimensional poverty measures instead of the SPM or official poverty measure.*

Data and Methods

Sample

We use data from the Current Population Survey (CPS), a national household survey that has traditionally been used to measure the incidence of poverty in the United States (Short, 2011). Every month, the CPS collects nationally representative data from approximately 112,000 noninstitutionalized persons 15 years old and over. Each household is interviewed once a month for four months and then reinterviewed again eight months later, once a month for four months. We use basic monthly CPS data and data from several supplements. This study focuses on working-age individuals aged 25–61.

Measuring Disability

To measure disability, this study uses self-reported information on sensory, functional, activity, and work limitations. The CPS disability data include six disability-related binary questions: four questions on sensory and functional limitations (limitations in seeing, hearing, walking or climbing stairs, remembering/concentrating), and two questions on activity limitations (limitation in dressing or bathing, in doing errands). We identify a person as having a sensory, functional, or activity limitation if the person answers "yes" to any of these six questions. The CPS also has a long tradition of measuring disability as a work limitation in the March CPS. Each working-age individual is asked if he or she has "a

health problem or a disability which prevents work or which limits the kind or amount of work." To test the sensitivity of our primary results to the measurement of disability, we also present results, when feasible, based on two other measures of disability: one that indicates a work limitation, and one that indicates any form of disability (a sensory/functional/activity or a work limitation).

Measuring Poverty

This article uses several measures of poverty. We first use the U.S. official poverty measure and SPM. We also create two versions of a third type of poverty measure: a multidimensional measure that incorporates material and nonmaterial measures, using the dual cutoff method developed by Alkire and Foster (2011). In brief, this method counts deprivations for a set of dimensions that affect an individual at the same time. An individual is considered multidimensionally poor if the number of deprivations of the individual is equal or above a set threshold. For the two measures used in this study (what we have termed an *economic measure* and a *socioecopolitical measure*), individuals need to be deprived in at least two of five dimensions to be identified as poor.[2] Details on the calculation of this measure are included in Appendix B. The CPS contains data on eight dimensions of well-being that are relevant to this study: educational attainment, employment status, food security, health insurance status, income, Internet access, political participation, and social connectedness. Given the sampling design of the CPS, it is, however, not possible to have information on these eight dimensions for the very same individuals.[3] Two separate multidimensional poverty measures were thus developed using the data on eight dimensions of well-being—an economic measure and a socioecopolitical measure.

The *economic multidimensional poverty measure* contains a mix of individual-, family-, and household-level variables and is based on data from March 2011 and the prior December 2010. The following five dimensions and within-dimension deprivation cutoffs are used:

- *Educational attainment* (March 2011 supplement): a person is considered deprived if he/she has less than a high school diploma.
- *Employment status* (March 2011 supplement): a person is considered deprived if he/she was not employed in the past year.
- *Health insurance status* (March 2011 supplement): a person is considered deprived if he/she is part of a family where at least one person is uninsured.
- *Income* (March 2011 supplement): a person is considered deprived if he/she is part of a family that is poor as per the official poverty measure.
- *Food security* (December 2010 supplement): a person is considered to be deprived if he/she is part of a household that had low to very low food security status for the past 12 months.[4]

[2]We also assessed the sensitivity of the results to varying the cutoff number of dimensions. Results available from authors.

[3]The CPS retains a sample of individuals for four months, drops them for eight months, and retains them again for four months. For instance, individuals who answer the November supplements on voting, registration, and civic engagement do not answer the ASEC Supplement in March. Hence, their work limitation status is not known.

[4]We use the summary food security status measure developed and used by the U.S. Department of Agriculture to track food security in the United States (Coleman-Jensen et al., 2011). It is calculated based on a series of questions in the CPS and categorizes households into four food security statuses: high/marginal/low/very low. We consider a person to be deprived if he/she is part of a household that had low to very low food security status for the past 12 months.

The *socioecopolitical multidimensional poverty measure* contains mostly individual-level variables and is based on data from the 2010 October and November supplements and basic data files of the CPS. It uses the following five dimensions and deprivation cutoffs:

- *Educational attainment* (November 2010 basic CPS): a person is considered deprived if he/she has less than a high school diploma.
- *Employment status* (November 2010 basic CPS): a person is considered deprived if he/she was not employed in the past month.
- *Social connectedness* (November 2010 supplement): a person is considered deprived if he/she scores 5 or lower on a social connectedness scale.[5]
- *Computer/Internet access* (October 2010 supplement): a person is considered deprived if he/she is part of a household that does not own a computer or owns a computer but does not have Internet access.
- *Political participation* (November 2010 supplement): a person is considered deprived if he/she did not vote in the recent election.

Finally, for each of the above poverty measures, the relationship between poverty and disability is explored in two ways. First, people in poverty were considered as the denominator for calculations that explored the percent of people in poverty who had a disability. Second, the percentage of all persons in poverty, with and without disabilities, according to each measure, was calculated. For all the indicators used in this study, the analysis will be limited to descriptive statistics only for persons with disabilities and for those without. The differences in indicators for persons with and without disabilities will simply be tested for statistical significance using linear regression techniques. The limitations of our methodology require some discussion. First, no multivariate regression analysis was conducted given the simultaneity of disability and economic deprivation, possible measurement error for disability, and omitted variables. Analysis of longitudinal data and the use of instrumental variables are necessary to address endogeneity for each indicator under use and were beyond the scope of this study. Also, this article does not use a consumption-based poverty measure as has been done elsewhere (Meyer and Mok, 2006; Meyer and Sullivan, 2012) given that data on consumption (the Consumer Expenditure Survey) do not have a disability measure. Conceptually, however, given the possible extra expenditures that may result from having a disability, such a measure may be problematic to use for persons with disabilities.

Results

Three different samples of working-age adults were used in the analyses: one for the official and SPM measures ($n_1 = 101{,}052$), one for the economic measure ($n_2 = 22{,}195$), and one for the socioecopolitical measure ($n_3 = 47{,}126$).[6] The first sample included 7,467

[5]The social connectedness measure is calculated from the CPS Civic Engagement Supplement questions related to an individual's social network and is based on work by the Corporation for National and Community Service (CNCS) (2011). Respondents were asked about the following activities: eating dinner with other household members; talking with neighbors; exchanging favors with neighbors; and communicating with friends and family via the Internet. We ignore the first activity regarding eating dinner with others given that it only applies to people who do not live alone. For each of the three remaining questions, we have an answer scale of 1–5: (1) not at all; (2) once a month; (3) a few times a month; (4) a few times a week; and (5) basically every day. We calculate a social connectedness index by summing up answers to the three questions. For the unweighted sample ($n = 33{,}952$), the mean score was 8.599 with a standard deviation of 2.889. We consider persons to be deprived in terms of social connectedness if their social connectedness index is 5 or below. This cutoff captures people with limited or no connection to others.

[6]As the characteristics of individuals were similar in the three samples, detail is only provided for the first sample.

TABLE 1

Disability Prevalence (% Among the Poor, Aged 25 to 61) in 2010

	Official Poverty Measure	Supplemental Poverty Measure	Multidimensional Poverty—Economic Measure	Multidimensional Poverty—Socioecopolitical Measure
Sensory, functional, or activity limitation	18.63 (0.42)	16.50 (0.38)	16.64 (0.65)	16.70 (0.42)
Work limitation	22.34 (0.45)	19.62 (0.41)	19.84 (0.70)	N/A
Any disability	28.22 (0.49)	25.15 (0.45)	18.04 (0.67)	N/A

NOTE: Standard errors are in parentheses. N/A stands for not applicable.
SOURCE: Authors' calculations using CPS.

persons with disabilities and 93,585 persons without disabilities, which gives the disability prevalence among working-age persons of 7.4 percent. This is in line with other estimates of disability prevalence among the working-age population (e.g., 8.1 percent in Houtenville and Brucker (2013); 7.5 percent in Kaye (2010)). Compared to persons without disabilities, persons with disabilities tend to be older, are less likely to be married, and are more likely to be native born and to live outside metropolitan statistical areas (MSAs).[7]

Table 1 shows the percentage of working-age people in poverty who have a disability. The percentage of poor working-age people who have a sensory, functional, or activity limitation disability ranges from 17 to 19 percent, depending upon how poverty is measured. Disability prevalence among the poor rises with the use of a work limitation measure of disability. For instance, the share of those who are poor as per the official measure and have either a work limitation or a sensory, functional, or activity limitation stands at 28 percent.

Table 2 gives poverty rates by characteristic for each of the four poverty measures. These results are useful in testing our three hypotheses. First, looking across the top row, the poverty rate is two to three times higher among persons with disabilities compared to persons without disabilities, depending on the poverty measure under use, suggesting that disability is associated with poverty across all measures. For persons with disabilities, poverty rates were 29 percent using the official measure, 28 percent using the SPM, 49 percent using the economic multidimensional measure, and 63 percent using the socioecopolitical measure. In contrast, poverty rates for persons without disabilities ranged from 11 to 27 percent. In relation to our second hypothesis, the official measure provided a poverty rate that was significantly higher ($p < 0.01$) than the SPM for persons with disabilities and the gap in poverty rates between persons with and without disabilities was significantly smaller ($p < 0.01$) when using the SPM (16 percentage points) than when using the official measure (18 percentage points). Of importance for our third hypothesis, larger gaps were found with the multidimensional measures than with either the official measure or SPM. Differences in poverty between those with and without disabilities are magnified when poverty is measured as multiple deprivations. As also shown in Table 2, differences are apparent by certain demographic subgroups. Persons with lower educational attainment,

[7]Details on sample characteristics are available from authors.

TABLE 2

Poverty Rates (% of Working Age Persons with and Without Disability) for Four Poverty Measures

	Official Poverty Measure			Supplemental Poverty Measure			Multidimensional Poverty—Economic			Multidimensional Poverty—Socioecopolitical		
Category	No Disability	Disability	Difference	No Disability	Disability	Difference	No Disability	Disability	Difference	No Disability	Disability	Difference
All	10.92	29.04	18.11***	12.26	28.04	15.78***	16.90	48.79	31.89***	26.99	62.62	35.63***
	(0.12)	(0.62)		(0.13)	(0.61)		(0.30)	(1.50)		(0.29)	(1.04)	
Gender												
Male	9.55	25.70	16.15***	11.43	26.54	15.11***	15.43	42.64	27.21***	26.20	62.63	36.43***
	(0.17)	(0.87)		(0.18)	(0.87)		(0.42)	(2.10)		(0.42)	(1.51)	
Female	12.22	32.22	20.00***	13.04	29.45	16.41***	18.25	54.49	36.24***	27.75	62.62	34.87***
	(0.17)	(0.87)		(0.18)	(0.85)		(0.43)	(2.08)		(0.40)	(1.44)	
Education												
<H.S.	32.37	48.86	16.49***	33.97	42.44	8.47***	76.76	95.20	18.44***	88.68	97.13	8.45***
	(0.56)	(1.53)		(0.56)	(1.51)		(1.15)	(1.53)		(0.69)	(0.85)	
H.S.	13.77	29.13	15.37***	15.12	27.91	12.79***	19.49	42.76	23.27***	34.79	67.40	32.61***
	(0.25)	(1.03)		(0.26)	(1.01)		(0.62)	(2.48)		(0.59)	(1.65)	
>H.S.	6.21	20.25	14.04***	7.54	21.87	14.33***	8.36	36.36	28.00***	14.60	42.85	28.25***
	(0.12)	(0.82)		(0.13)	(0.85)		(0.29)	(2.15)		(0.29)	(1.63)	
Race												
White	9.67	26.04	16.37***	10.97	26.01	15.03***	15.00	45.55	30.55***	25.77	60.48	34.71***
	(0.13)	(0.68)		(0.14)	(0.69)		(0.32)	(1.74)		(0.31)	(1.17)	
White, not Hispanic	7.32	24.88	17.56***	8.17	24.94	16.77***	11.52	44.12	32.59***	21.18	58.87	37.70***
	(0.13)	(0.73)		(0.14)	(0.74)		(0.33)	(1.85)		(0.31)	(1.25)	
Black	19.30	43.63	24.32***	19.49	37.69	18.20***	30.31	63.78	33.47***	35.72	73.95	38.23***
	(0.45)	(1.63)		(0.44)	(1.58)		(1.06)	(3.22)		(1.01)	(2.65)	
Asian	8.76	25.57	16.81***	13.11	25.22	12.11***	18.01	44.22	26.21***	25.50	63.53	38.04
	(0.42)	(3.71)		(0.51)	(3.61)		(1.20)	(8.13)		(1.28)	(7.81)	
Hispanic (any race)	20.93	36.34	15.41***	24.53	35.36	10.83***	44.00	60.13	16.13***	47.56	70.52	22.95***
	(0.37)	(1.78)		(0.38)	(1.71)		(0.97)	(4.14)		(0.89)	(3.12)	

continued

TABLE 2—continued

Category	Official Poverty Measure			Supplemental Poverty Measure			Multidimensional Poverty—Economic			Multidimensional Poverty—Socioecopolitical		
	No Disability	Disability	Difference	No Disability	Disability	Difference	No Disability	Disability	Difference	No Disability	Disability	Difference
Age												
25–44	13.08	33.71	20.63***	13.15	30.09	16.93***	18.61	48.11	29.50***	28.76	62.48	33.72***
	(0.17)	(1.12)		(0.17)	(1.08)		(0.42)	(2.59)		(0.41)	(1.96)	
45–61	8.30	26.89	18.59***	11.19	27.10	15.92***	14.39	49.21	34.81***	24.85	62.68	37.83***
	(0.16)	(0.73)		(0.18)	(0.74)		(0.42)	(1.82)		(0.41)	(1.23)	
Type of Unit												
In married couple unit	6.29	13.44	7.15***	8.18	19.02	10.84***	12.28	37.54	25.26***	22.03	51.28	29.25***
	(0.11)	(0.66)		(0.13)	(0.78)		(0.31)	(2.07)		(0.34)	(1.60)	
In female householder unit	22.02	42.94	20.91***	22.06	36.18	14.12***	32.13	64.89	32.77***	36.75	70.67	33.92***
	(0.36)	(1.18)		(0.36)	(1.14)		(0.93)	(2.50)		(0.70)	(1.73)	
In male householder unit	15.26	40.51	25.25***	16.20	34.35	18.15***	27.34	56.49	29.16***	34.87	73.68	38.81***
	(0.36)	(1.47)		(0.37)	(1.42)		(1.08)	(3.42)		(0.79)	(1.98)	
Nativity												
Native born	9.28	28.93	19.64***	9.94	27.38	17.44***	13.98	48.30	34.32***	24.41	62.53	38.12***
	(0.13)	(0.64)		(0.13)	(0.63)		(0.32)	(1.56)		(0.31)	(1.08)	
Foreign born	18.35	30.38	12.03***	22.90	36.05	13.16***	32.76	55.09	22.33***	39.03	63.62	24.59***
	(0.33)	(2.11)		(0.36)	(2.19)		(0.86)	(5.40)		(0.79)	(3.72)	
Residence												
Inside MSAs	10.88	28.54	17.66***	12.81	28.72	15.91***	16.90	47.54	30.64***	26.10	60.70	34.60***
	(0.13)	(0.70)		(0.14)	(0.70)		(0.33)	(1.72)		(0.32)	(1.22)	

NOTES: Standard errors are in parentheses. All estimates are weighted.
***indicates that the difference in poverty rates between persons with and without disability is statistically significant at 1%
SOURCE: Authors' calculations using CPS.

persons who are black or Hispanic, and persons living in female-headed households appear especially vulnerable, by any measure of poverty.[8]

Variations in levels of employment between people with and without disabilities may have a large influence on our multidimensional measures. To explore this issue further, we recalculated both multidimensional measures, using only the four nonemployment-related dimensions in each. Results are included in Table 3 along with a summary of poverty rates by disability status and specific sensory, functional, and activity limitations. Rates of multidimensional poverty are more similar to either the official poverty measure or SPM when employment is not included in the economic multidimensional measures, but rates remain higher for the socioecopolitical measure when the employment dimension is excluded. Table 3 also gives poverty rate by disability. Poverty rates vary by disability type, with persons with hearing limitations consistently having lower rates of poverty than persons reporting other types of disabilities.

Table C1 shows a summary of poverty rates by different definitions of disability. For all disability definitions and poverty measures, persons with disabilities have significantly higher poverty rates. One could argue that the multidimensional poverty measure results may be specific to the threshold used to determine poverty across dimensions. Table D1 gives the multidimensional poverty headcount when different thresholds are used. For the different values of the threshold, multidimensional poverty is significantly higher among persons with disabilities.

Table 4 lists components of the SPM and shows poverty rates that would occur if certain factors included in the full SPM calculations were excluded. The overall SPM poverty rates, for persons with and without disabilities, are included in the top row. The poverty rates are those that are reached if a particular in-kind program or expenditure listed on the left-hand side would not be included as a resource or expenditure in the analysis. The exclusion of Supplemental Nutrition Assistance Program and of subsidized housing would each increase the gap in poverty rates between working-age people with and without disabilities from 16 to over 18 percent, with persons with disabilities having higher levels of poverty. In contrast, the exclusion of medical out-of-pocket expenditures reduces the disability poverty gap from 16 to 12 percent.[9]

Table 5 gives deprivation rates for each of the dimensions of well-being used in the two multidimensional poverty measures, providing dimension-specific differences in deprivations between people with and without disabilities. Recall that the economic measure included education, employment, food security, health insurance, and income, and that the socioecopolitical measure included computer/Internet access, education, employment, social connectedness, and voting participation. For the economic measure, for all dimensions except health insurance status, people with disabilities have significantly higher rates of deprivation. No significant difference was noted for levels of deprivation for health insurance status. For the socioecopolitical measure, people with disabilities have significantly higher rates of deprivation for each of the five dimensions. The difference in deprivation rates across disability status was highest for the employment dimension in both multidimensional measures, followed by the food security and voting dimensions. Deprivation rates by dimension for other measures of disability give similar results and are included in Table E1.

[8]We also assessed the sensitivity of our multidimensional poverty measures as the cutoff number of dimensions varies and calculated the average number of well-being deprivations that the poor experience. Results are available from authors.

[9]Results in Table 4 differ from those reported in Short (2011) by about two to three percentage points per category. This might be explained by Short's inclusion of children and elderly people, whereas for the purposes of this article only the working-age population was considered.

TABLE 3

Poverty Rates Across Disability Status and by Disability Type for Working Age Persons, 2010 (%)

	Official Poverty Measure	Supplemental Poverty Measure	Multidimensional Poverty—Economic Measure	Multidimensional Poverty—Socioecopolitical Measure	Multidimensional Poverty Economic Measure (w/o employment)	Multidimensional Poverty Sociopolitical Measure (w/o employment)
Disability Status						
No sensory, functional, or activity limitation	10.92	12.26	16.90	26.99	11.08	19.84
	(0.12)	(0.13)	(0.30)	(0.29)	(0.25)	(0.26)
Sensory, functional, or activity limitation	29.04	28.04	48.79	62.62	25.20	41.14
	(0.62)	(0.61)	(1.50)	(1.04)	(1.28)	(1.07)
Difference	18.11***	15.78***	31.89***	35.63***	14.13***	21.30***
Disability Type						
Hearing limitation	20.08	19.57	29.37	43.93	17.73	31.75
	(1.24)	(1.23)	(2.87)	(2.48)	(2.33)	(2.34)
Eye limitation	34.49	30.24	53.64	64.02	30.32	46.43
	(1.76)	(1.67)	(4.03)	(2.89)	(3.75)	(3.02)
Remembering limitation	36.45	32.84	56.51	71.70	30.35	50.20
	(1.10)	(1.07)	(2.54)	(1.65)	(2.30)	(1.84)
Walking limitation	31.67	30.32	56.10	67.58	28.58	43.46
	(0.83)	(0.82)	(1.98)	(1.33)	(1.80)	(1.43)
Dressing/bathing limitation	34.74	33.79	60.06	77.04	28.47	52.29
	(1.64)	(1.61)	(3.76)	(2.48)	(3.36)	(3.02)
Going out limitation	34.37	32.54	60.48	75.69	27.63	49.41
	(1.18)	(1.16)	(2.71)	(1.73)	(2.46)	(2.03)

NOTES: Standard errors are in parentheses. All estimates are weighted. The sample includes persons aged 25 to 61.
*** indicates that the difference in poverty rates between persons with and without disability is statistically significant at 1%
SOURCE: Authors' calculations using CPS.

TABLE 4

Poverty Rates for Working Age Persons When Excluding Individual Elements of SPM, 2010

	All	No Disability	Disability	Difference
Research SPM	13.51	12.26	28.04	15.78***
	(0.13)	(0.13)	(0.61)	
Earned income tax credit	15.02	13.82	28.93	15.12***
	(0.13)	(0.13)	(0.61)	
Supplemental nutrition assistance program (SNAP)	14.66	13.19	31.58	18.39***
	(0.13)	(0.13)	(0.63)	
Subsidized housing	14.14	12.65	31.29	18.64***
	(0.13)	(0.13)	(0.63)	
School lunch	13.74	12.49	28.29	15.81***
	(0.13)	(0.13)	(0.61)	
Special supplemental nutrition program for women, infants, and children (WIC)	13.55	12.29	28.07	15.78***
	(0.13)	(0.13)	(0.61)	
Low-income home energy assistance program (LIHEAP)	13.58	12.30	28.39	16.09***
	(0.13)	(0.13)	(0.61)	
Child support	13.32	12.07	27.83	15.76***
	(0.13)	(0.13)	(0.61)	
Payments under Federal Insurance Contributions Act (FICA)	12.13	10.84	26.98	16.14***
	(0.12)	(0.12)	(0.60)	
Work expenses	12.26	10.99	27.03	16.04***
	(0.12)	(0.12)	(0.60)	
Medical out of pocket expenditures	10.83	9.91	21.52	11.62***
	(0.12)	(0.12)	(0.56)	

The poverty rates are those that are reached if a particular in-kind program or expenditure listed on the left hand side would not be included as a resource or expenditure in the analysis.
NOTES: Standard errors are in parentheses. All estimates are weighted. The sample includes persons aged 25 to 61.
***indicates that the difference in poverty rates between persons with and without disability is statistically significant at 1%
SOURCE: Authors' calculations using CPS.

Table 6 shows the average demographic and well-being characteristics for those below the official, SPM, and economic measure poverty thresholds. The data characterize individuals in different groups, in particular those who are classified as poor using one measure but not poor under a different measure. This is of particular use in understanding which groups of individuals might be accounted for by one poverty measure, but not another one. For instance, of the 3,255 people who are considered poor under the official poverty measure but not under the SPM, 19 percent have a disability. In addition, there were 2,367 people considered poor using the economic multidimensional measure, but not living in poverty under the official measure. Of that 2,367, 15 percent were persons with disability. Given an overall prevalence of disability of 7.4 percent, persons with disabilities are overrepresented among the economic multidimensionally poor, whether or not they are also officially poor. Among persons with disabilities who are multidimensionally poor but not officially poor, more than half are food insecure (56 percent), close to half (42 percent) have less than a high school educational attainment, and few (11 percent) work. At the same time, 29 and 16 percent of this group are on Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI), respectively. Finally, persons with disabilities who are poor as per the economic multidimensional measure, but not under the official measure, account for more than one in five of persons with disabilities (364 out of 1,603 in our sample).

TABLE 5

Deprivation Rates by Dimension Across Disability Status, for Working Age Persons, 2010

	Multidimensional Poverty — Economic Measure				
Disability Status	% No High School Completion	% Non-Employed	% Income Poor	% Food Insecure	% Without Health Insurance
No sensory, functional, or activity limitation	7.97 (0.21)	22.16 (0.35)	9.28 (0.24)	11.19 (0.26)	16.76 (0.30)
Sensory, functional, or activity limitation	17.10 (1.07)	67.22 (1.43)	26.22 (1.32)	31.37 (1.41)	15.41 (1.06)
Difference	9.13 ***	45.05 ***	16.94 ***	20.17 ***	−1.35 NS

	Multidimensional Poverty — Socioecopolitical Measure				
Disability Status	% No High School Completion	% Non-Employed	% Non-Voters	% with Low Social Connectedness	% with No Computer or Internet Access
No sensory, functional, or activity limitation	9.36 (0.19)	21.73 (0.27)	39.22 (0.32)	15.25 (0.23)	16.95 (0.25)
Sensory, functional, or activity limitation	19.59 (0.87)	69.54 (0.99)	53.90 (1.08)	27.14 (0.96)	36.95 (1.05)
Difference	10.23 ***	47.81 ***	14.68 ***	11.89 ***	20.00 ***

NOTES: Standard errors are in parentheses. All estimates are weighted
***indicates that the difference in poverty rates between persons with and without disability is statistically significant at 1%
NS indicates "not significant"
SOURCE: Authors' calculations using CPS.

Discussion

Using CPS data, this study investigates the poverty status of persons with disabilities compared to persons without disabilities in the United States. Several main findings are summarized and discussed in detail below. First, disability is significantly associated with poverty as per the official poverty measure, new SPM measure, and two multidimensional poverty measures developed in this article. This finding supports the hypothesis that disability is associated with poverty in the United States, irrespective of the poverty measure under use, and shows that persons with disabilities in the United States are a disadvantaged group. Overall, poverty rates for persons with disabilities ranged from a low of 28 percent, using the SPM, to a high of 63 percent, using the socioecopolitical measure.[10]

Second, the disability gap in poverty rates is significantly lower as per the SPM (16 percentage points) than the gap found using the official poverty measure (18 percentage

[10]These results are consistent with findings of earlier studies where poverty was measured based on the SPM (Short, 2011), on income (Brault, 2012; Burkhauser, Rovba, and Weathers, 2009; Cooper, O'Hara, and Zovistoski, 2011; Huang, Guo, and Kim, 2010; She and Livermore, 2009), and on material hardship (She and Livermore, 2007).

TABLE 6

Demographic and Well-being Characteristics As Per Poverty Status, for Working Age Persons, 2010 (%)

	Poor as per Official and SPM			Poor as per Official, not SPM			Poor as per SPM, not Official			Not poor as per SPM, nor Official		
	All	No Disability	Disability	All	No Disability	Disability	All	No Disability	Disability	All	No Disability	Disability
N	8,860	7,294	1,566	3,255	2,639	616	4,213	3,735	478	84,724	79,917	4,807
Share of people		82.33	17.67		81.08	18.92		88.65	11.35		94.33	5.67
Male	42.93	42.84	43.36	36.21	35.70	38.47	48.37	48.19	49.79	48.95	48.84	50.78
White, not Hispanic	41.51	38.77	54.28	48.94	47.40	55.52	42.44	40.19	60.04	67.04	66.94	68.71
Black	20.11	19.44	23.24	19.05	18.42	21.75	14.62	14.54	15.27	10.22	10.07	12.65
Asian	5.01	5.61	2.24	2.73	2.99	1.62	7.74	8.41	2.51	6.09	6.28	2.93
Hispanic (any race)	30.58	33.67	16.16	24.82	27.13	14.94	32.35	34.27	17.36	14.37	14.55	11.44
25–44	59.13	63.78	37.48	70.81	77.95	40.26	51.29	54.06	29.71	54.38	55.71	32.22
45–61	40.87	36.22	62.52	29.19	22.05	59.74	48.71	45.94	70.29	45.62	44.29	67.78
In married couple unit	37.62	40.16	25.80	29.65	33.23	14.29	52.41	52.69	50.21	69.67	70.40	57.48
In female householder unit	40.55	39.33	46.23	45.71	43.58	54.87	23.39	28.97	32.64	16.63	16.12	25.07
In male householder unit	21.69	20.43	27.59	24.52	23.04	30.84	18.16	18.29	17.15	13.60	13.37	17.33
Native born	69.14	64.61	90.23	79.51	76.17	93.83	64.40	61.74	85.15	83.92	83.43	92.12
Foreign born	30.86	35.39	9.77	20.49	23.83	6.17	35.60	38.26	14.85	16.08	16.57	7.88
Inside MSAs	82.95	84.08	77.65	69.62	70.59	65.42	88.44	89.24	82.22	80.36	80.71	74.58
Employed in the past year	34.18	39.20	10.79	42.18	48.96	13.15	61.48	66.45	22.59	80.38	82.85	39.40
Less than high school	31.49	31.24	32.63	28.54	27.21	34.25	23.38	23.56	21.97	7.59	7.23	13.50
Has health insurance	53.21	48.55	74.90	59.32	53.20	85.55	64.25	62.54	77.62	84.60	84.52	85.94
DI	5.35	2.34	19.35	8.48	3.15	31.33	4.77	1.95	26.78	2.38	0.98	25.73
SSI	7.13	3.33	24.84	11.43	4.74	40.10	2.61	1.26	13.18	1.01	0.40	11.09
SSDI and SSI	0.78	0.25	3.26	2.27	0.72	8.93	0.43	0.21	2.09	0.19	0.07	2.27

continued

TABLE 6—continued

	Poor as per Official and EMD			Poor as per Official, not EMD			Poor as per EMD, not Official			Not poor as per EMD, nor Official		
	All	No Disability	Disability	All	No Disability	Disability	All	No Disability	Disability	All	No Disability	Disability
N	2,196	1,764	432	266	256	10	2,367	2,003	364	17,493	16,696	797
Share of people		80.33	19.67		96.24	3.76		84.62	15.38		95.44	4.56
Male	39.98	39.91	40.28	47.74	NA	NA	46.98	46.68	48.63	48.50	48.32	52.20
White	69.35	69.78	67.59	66.92	NA	NA	75.07	75.34	73.63	80.93	81.03	78.80
Black	21.49	21.03	23.38	19.55	NA	NA	15.76	15.23	18.68	9.61	9.50	11.92
Asian	4.51	5.16	1.85	6.02	NA	NA	6.13	6.64	3.30	6.55	6.68	3.64
Hispanic (any race)	28.37	32.20	12.73	18.05	NA	NA	34.64	38.34	14.29	10.20	10.33	7.65
25–44	59.70	65.48	36.11	71.43	NA	NA	57.08	61.16	34.62	52.59	53.51	33.38
45–61	40.30	34.52	63.89	28.57	NA	NA	42.92	38.84	65.38	47.41	46.49	66.62
In married couple unit	39.30	42.63	25.69	45.86	NA	NA	59.82	61.36	51.37	75.05	75.64	62.61
In female householder unit	39.80	38.04	46.99	35.71	NA	NA	25.39	23.86	33.79	14.22	13.84	22.08
In male householder unit	20.81	19.22	27.31	18.42	NA	NA	14.66	14.63	14.84	10.63	10.42	15.06
Native born	71.68	66.72	91.90	74.81	NA	NA	65.15	60.81	89.01	58.72	85.34	93.73
Foreign born	28.32	33.28	8.10	25.19	NA	NA	34.85	39.19	10.99	14.28	14.66	6.27
Inside MSAs	80.42	81.97	74.07	78.57	NA	NA	81.37	82.85	73.08	80.19	80.49	73.90
Employed in the past year	29.05	34.07	8.56	100.00	NA	NA	33.67	62.21	10.99	85.64	87.16	53.70
Less than high school	34.75	35.37	32.18	0.00	NA	NA	44.32	44.68	42.31	2.70	2.74	2.01
Food insecure	37.43	34.35	50.00	0.00	NA	NA	47.40	45.78	56.32	5.32	5.15	8.78
Has health insurance	51.82	45.07	79.40	100.00	NA	NA	33.92	27.96	66.76	91.87	91.72	94.98
SSDI	7.24	2.83	25.23	0.38	NA	NA	6.55	2.50	28.85	1.81	0.83	22.33
SSI	9.06	4.14	29.17	4.51	NA	NA	3.80	1.60	15.93	0.64	0.30	7.78
SSDI and SSI	0.77	0.34	2.55	0.00	NA	NA	0.85	0.20	4.40	0.14	0.10	1.13

NOTES: All estimates are weighted. SPM stands for Supplemental Poverty Measure. EMD stands for Economic Multi-Dimensional poverty measure.
NA stands for not applicable: these results are not presented due to small sample size for persons with disabilities.
SOURCE: Authors' calculations using CPS. The upper panel is based on March 2011 CPS data. The lower panel is based on December 2010 and March 2011 CPS data.

points) ($p < 0.01$). Even though statistical significance is found, the small size of the difference in the disability gap in poverty rates (2 percentage points) indicates that the different adjustments that the SPM makes seem to balance each other so that in the end, the relative diagnostic of poverty across disability status remains at almost the same level, at least in 2010. In addition, the persistence of a disability gap even when using the SPM may suggest that the accounted for in-kind safety net programs are not effective in substantially reducing the income differences that exist between people with and without disabilities. In the coming years, it will be important to follow poverty rates across disability status with the SPM compared to the official measure and assess if the finding of this study holds.

Third, the disability gap in poverty rates is higher with multidimensional poverty measures compared to the official measure and SPM. This result confirms our third hypothesis that the disability gap in poverty rates is higher when using multidimensional poverty measures and suggests that income-based poverty measures such as the official measure and SPM may well understate the extent of well-being deprivation among persons with disabilities. Overall, we can propose a lower bound disability gap using the more conservative SPM (16 percent) and a higher bound poverty gap using the socioecopolitical multidimensional measure (36 percent).

Fourth, disability is significantly associated with deprivations in a wide range of social, economic, and political dimensions of well-being. Persons with disabilities tend to have lower educational attainment, income, and levels of social connectedness and are less likely to be employed, vote, and have Internet access. These results are consistent with findings of many studies that have focused on one particular well-being dimension (e.g., for voting, Schur and Adya, 2013). The only dimension under study where persons with disabilities are better off than persons without disabilities is health insurance status, where no significant difference was found across disability status. This finding is likely explained by the high levels of public health insurance program participation found among working-age persons with disabilities (Houtenville and Ruiz, 2012).

Fifth, some groups of persons with disabilities were found to be highly likely to be poor, regardless of the poverty measure, and in particular persons with less than a high school education, blacks and Hispanics, and persons in female-headed household units. These findings highlight the importance of recognizing that there are many subpopulations at risk for poverty. People who belong to one or more of these at-risk populations, including the group of persons with disabilities, may face deprivations in multiple dimensions and may need a well-coordinated set of programs and services to reduce the risk of poverty.

Sixth, the role of employment in driving the high levels of poverty found with the multidimensional measures requires further consideration. Employment was most important in driving poverty within the economic measure we constructed and was less important in the socioecopolitical measure. In addition, large gaps were evident in the percentage of persons with and without disabilities in poverty who were not employed in both multidimensional measures. These findings are not surprising given how well-documented disparities in employment rates between persons with and without disabilities have been. Further investigation of the interaction between employment and the other dimensions, however, could lead to a better understanding of how employment may be intertwined with other areas. For instance, persons who have limited social connectedness and little access to computers may concurrently have limited options for employment.

Finally, multidimensional poverty is highly prevalent among persons with disabilities and is even more prevalent for the socioecopolitical multidimensional poverty measure compared to the economic measure. About half of persons with disabilities are found to be multidimensionally poor. One in five persons with disabilities was found to be

multidimensionally poor, while considered not poor as per the official measure. This result shows that the deprivations experienced by persons with disability go beyond what is captured using the typical official poverty measure and show how insightful using several poverty measures, including broader multidimensional ones, can be. Traditionally, much of the research on the well-being of persons with disabilities has been narrowly focused on monitoring employment participation and economic self-sufficiency. While clearly important, these traditional measures do not fully capture the domains that would allow one to comprehensively assess the well-being of working-age adults with disabilities. Information on areas other than employment and economic self-sufficiency is also needed. Measures that can incorporate information on social inclusion and political participation, for example, can also shed light on opportunities for improving the well-being of persons with disabilities in society. The ability of multidimensional measures to capture the well-being of persons with disabilities should continue to be explored within the disability policy, advocacy, and research communities.

This article points out several possible avenues for future research. In particular, the analysis above using several poverty measures could be extended to take into account the persistence of poverty and disability over time as in She and Livermore (2009). Attempts could also be made to prioritize dimensions that are more or less relevant to different groups of persons with disabilities. Given the robust association of disability and poverty found in this article, whatever the poverty measure under use, work is needed to identify the main root causes of poverty for persons with disabilities. Relatedly, work is also needed to assess how the many safety net programs that affect persons with disabilities are performing and how disability and poverty policies may be changed so as to improve the well-being of this group.

REFERENCES

Alkire, Sabina, and James Foster. 2011. "Counting and Multidimensional Poverty Measurement." *Journal of Public Economics* 95(7–8):476–87.

Alkire, Sabina, and Moizza B. Sarwar. 2009. *Multidimensional Measures of Poverty and Well-being*. Oxford: Department of International Development.

Bennett, Julia A. 2009. *Disability and Labor Market Outcomes in the United States: Exploring the Linkage Between Disability, Education, and Labor Market Earnings*. Washington, DC: Georgetown University.

Bjelland, Melissa J., Suzanne M. Bruyère, Sarah von Schrader, Andrew J. Houtenville, Anthony Ruiz-Quintanilla, and Douglas A. Webber. 2009. "Age and Disability Employment Discrimination: Occupational Rehabilitation Implications." *Journal of Occupational Rehabilitation* 20(4):456–71.

Blank, Lindsay, Jean Peters, Simon Pickvance, Jane Wilford, and Ewan MacDonald. 2008. "A Systematic Review of the Factors which Predict Return to Work for People Suffering Episodes of Poor Mental Health." *Journal of Occupational Rehabilitation* 18(1):27–34.

Brault, Matthew W. 2012. *Americans with Disabilities: 2010*. Washington, DC: U.S. Census Bureau.

Burkhauser, Richard, and Mary Daly. 2011. *The Declining Work and Welfare of People with Disabilities*. Washington, DC: American Enterprise Institute.

Burkhauser, Richard, Ludmilla Rovba, and Robert R. Weathers. 2009. "Household Income." Pp. 145–71 in A. Houtenville, D. Stapleton, R. Weathers, and R. Burkhauser, eds., *Counting Working-Age People with Disabilities: What Current Data Tell Us and Options for Improvement*. Kalamazoo, MI: Upjohn Institute.

Campbell, Margaret A., Debra Sheets, and Patricia S. Strong. 1999. "Secondary Health Conditions Among Middle-Aged Individuals with Chronic Physical Disabilities: Implications for Unmet Needs for Services." *Assistive Technology: The Official Journal of RESNA* 11(2):105–22.

Carter, Erik W., Diane Austin, and Audrey A. Trainor. 2012. "Predictors of Post School Employment Outcomes for Young Adults with Severe Disabilities." *Journal of Disability Policy Studies* 23(1):50–63.

Cellini, Stephanie R., Signe-Mary McKernan, and Caroline Ratcliffe, 2008. "The Dynamics of Poverty in the United States: A Review of Data, Methods and Findings." *Journal of Policy Analysis and Management* 27(3):577–605.

Chapman, Chris, Jennifer Laird, and Angelina Kewal Ramani. 2010. *Trends in High School Dropout and Completion Rates in the United States: 1972–2008* (NCES 2011–012). Washington, DC: U.S. Department of Education.

Chevarley, Frances M., Joann M. Thierry, Carol J. Gill, A. Blythe Ryerson, and Margaret A. Nosek. 2006. "Health, Preventive Health Care, and Health Care Access Among Women with Disabilities in the 1994–1995 National Health Interview Survey, Supplement on Disability." *Women's Health Issues* 16(6):297–312.

Clarke, Phillipa J., Jennifer A. Ailshire, Els R. Nieuwenhuijsen, Marijke W. de Kleijn-de Vrankrijker. 2011. "Participation Among Adults with Disability: The Role of the Urban Environment." *Social Science and Medicine* 72(10):1674–84.

Coleman-Jensen, Alicia, Mark Nord, Margaret Andrews, and Steven Carlson. 2011. *Household Food Security in the United States in 2010*. Washington, DC: U.S. Department of Agriculture, Economic Research Service.

Cooper, Emily, Ann O'Hara, and Andrew Zovistoski. 2011. *2010 Priced Out: The Housing Crisis for People with Disabilities*. Boston, MA: Technical Assistance Collaborative, Inc.

Corporation for National and Community Service (CNCS). 2011. *Civic Life in America: Key Findings on the Civic Health of the Nation. Corporation for National and Community Service and National Conference on Citizenship*. Washington, DC: CNCS.

Drum, Charles E., Willi Horner-Johnson, and Gloria L. Krahn. 2008. "Self-Rated Health and Healthy Days: Examining the 'Disability Paradox'." *Disability and Health Journal* 1(2):71–78.

Edin, Kathryn, and Rebecca J. Kissane. 2010. "Poverty and the American Family: A Decade in Review." *Journal of Marriage and Family* 72(3):460–79.

Featherstone, Larry W. 2009. *Wage Differences Among Closure 26 Status Competitively Employed Women and Men with Disabilities Who Received VR Services from RSA in 2006*. Fayetteville, AR: University of Arkansas.

Fremstad, Shawn. 2009. *Half in Ten: Why Taking Disability into Account is Essential to Reducing Income Poverty and Expanding Economic Inclusion*. Washington, DC: Center for Economic and Policy Research.

Hall, Sarah A. 2009. "The Social Inclusion of People with Disabilities: A Qualitative Meta-analysis." *Journal of Ethnographic and Qualitative Research* 3:162–73.

Harris Interactive. 2010. *The ADA: 20 Years Later, Kessler Foundation/NOD Survey of Americans with Disabilities*. New York: Harris Interactive.

Havercamp, Susan M., Donna Scandlin, and Marcia Roth. 2004. "Health Disparities Among Adults with Developmental Disabilities, Adults with Other Disabilities, and Adults Not Reporting Disability in North Carolina." *Public Health Reports* 119(4):418–26.

Heflin, Colleen M., Mary E. Corcoran, and Kristine Siefert. 2007. "Work Trajectories, Income Changes, and Food Insufficiency in a Michigan Welfare Population." *Social Service Review* 81(1):3–25.

Houtenville, Andrew J., and Debra L. Brucker. 2013. "Participation in Safety-Net Programs and the Utilization of Employment Services Among Working-Age Persons with Disabilities." *Journal of Disability Policy Studies*. doi: 10.1177/1044207312474308.

Houtenville, Andrew J., and Tony Ruiz. 2012. *Annual Disability Statistics Compendium: 2012*. Durham, NH: University of New Hampshire, Institute on Disability.

Huang, Jin, Baorong Guo, and Youngmi Kim. 2010. "Food Security and Disability: Do Economic Resources Matter?" *Social Science Research* 39:111–24.

Institute on Medicine. 2007. *The Future of Disability in America*. Washington, DC: National Academy of Sciences.

Kaye, H. Stephen. 2010. "The Impact of the 2007–09 Recession on Workers with Disabilities." *Monthly Labor Review* October: 19–30.

Lennox, Nicholas G., Justine Diggens, and Antoni Ugoni. 2000. "Health Care for People with an Intellectual Disability: General Practitioners' Attitudes, and Provision of Care." *Journal of Intellectual and Developmental Disability* 25(2):127–33.

Meade, Michelle A., Allen Lewis, M. Njeri Jackson, and David W. Hess. 2004. "Race, Employment, and Spinal Cord Injury." *Archives of Physical Medicine and Rehabilitation* 85(11):1782–92.

Meyer, Bruce D., and Wallace K. C. Mok. 2006. *Disability, Earnings, Income and Consumption*. Chicago, IL: University of Chicago.

Meyer, Bruce D., and James X. Sullivan. 2012. "Identifying the Disadvantaged: Official Poverty, Consumption Poverty, and the New Supplemental Poverty Measure." *Journal of Economic Perspectives* 26(3):111–36.

Mitra, Sophie, Aleksandra Posarac, and Brandon Vick. 2013. "Disability and Poverty in Developing Countries: A Multidimensional Study." *World Development* 41(C):1–18.

National Organization on Disability. 2004. *NOD-Harris Survey of Americans with Disabilities*. New York: National Organization on Disability.

National Research Council. 1995. *Measuring Poverty: A New Approach*. Washington, DC: National Academies Press.

Newman, Lynn, Mary Wagner, Renee Cameto, Anne-Marie Knokey, and Debra. Shaver. 2010. "Comparisons Across Time of the Outcomes of Youth with Disabilities Up to 4 Years After High School." *A Report of Findings from the National Longitudinal Transition Study (NLTS) and the National Longitudinal Transition Study-2 (NLTS2) (NGSER 2010–3008)*. Menlo Park, GA: SRI International.

OECD. 2011. *How is Life? Measuring Well-Being*. Paris: Organization of Economic Cooperation and Development.

O'Hara, Brett. 2004. "Twice Penalized: Employment Discrimination against Women with Disabilities." *Journal of Disability Policy Studies* 15(1):27–34.

Ownsworth, Tamara, and Kryss McKenna. 2004. "Investigation of Factors Related to Employment Outcome Following Traumatic Brain Injury: A Critical Review and Conceptual Model." *Disability and Rehabilitation* 26(13):765–84.

Ribar, David, and Karen S. Hamrick. 2003. *Dynamics of Poverty and Food Sufficiency. Food Assistance and Nutrition Research Report Number 36*. Washington, DC: U.S. Department of Agriculture.

Schur, Lisa, and Meera Adya. 2013. "Sidelined or Mainstreamed? Political Participation and Attitudes of People with Disabilities in the United States." *Social Science Quarterly* 94(3):811–39.

Schur, Lisa, Todd Shields, Doug Kruse, and Kay Schriner. 2002. "Enabling Democracy: Disability and Voter Turnout." *Political Research Quarterly* 55(1):167–90.

Sen, Amartya K. 1997. "Editorial: Human Capital and Human Capability." *World Development* 25(12):1959–61.

———. 1999. *Development as Freedom*. Oxford: Oxford University Press.

She, Peiyun, and Gina Livermore. 2007. "Material Hardship, Poverty, and Disability Among Working-Age Adults." *Social Science Quarterly* 88(4):970–89.

———. 2009. "Long-Term Poverty and Disability Among Working-Age Adults." *Journal of Disability Policy Studies* 19(4): 244–56.

Short, Kathleen. 2011. *The Research Supplemental Poverty Measure: 2010*. Washington, DC: U.S. Census Bureau.

Stapleton, David C., and William A. Erickson. 2004. *Characteristics or Incentives: Why Do Employment Outcomes for the SSA Beneficiary Clients of VR Agencies Differ, on Average, from Those of Other Clients*? Ithaca, NY: Rehabilitation Research and Training Center for Economic Research on Employment Policy for Persons with Disabilities, Cornell University.

Stiglitz, Joseph E., Amartya K. Sen, and Jean-Paul Fitoussi. 2009. *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Paris: Commission on the Measurement of Economic Performance.

Turk, Margaret A., Joanne Scandale, Paula F. Rosenbaum, and Robert J. Weber. 2001. "The Health of Women with Cerebral Palsy." *Physical Medicine and Rehabilitation Clinics of North America* 12(1):153–68.

Ward, Terry, Orsolya Lelkes, Holly Sutherland and Istvan Gyorgy. 2009. *European Inequalities: Social Inclusion and Income Distribution in the European Union*. Budapest: TARKI Social Research Institute.

Wilkinson, Joanne E., Emily Lauer, Karen M. Freund, and Amy K. Rosen. 2011. "Determinants of Mammography in Women with Intellectual Disabilities." *Journal of the American Board of Family Medicine* 24(6):693–703.

Wilson, K. B. 2002. "Exploration of VR Acceptance and Ethnicity: A National Investigation." *Rehabilitation Counseling Bulletin* 45(3):148–76.

Appendix A

Dimensions of Well-Being in the Multidimensional Poverty Measures

A review of the literature on disparities between people with and without disabilities, combined with a review of both domestic and international poverty measurement literature, suggests the following key areas as important dimensions of poverty.

Education. Despite the passage of federal legislation that promotes better inclusion of people with disabilities in the U.S. educational system (Education for All Handicapped Children Act (Public Law 94-142); reauthorization of the Individuals with Disabilities Education Act (IDEA) of 2004 (Public Law 108-446)), people with disabilities are less likely to complete high school (Chapman, Jennifer, and Angelina, 2010; Harris Interactive, 2010) and postsecondary education than people without disabilities (Newman et al., 2010).

Employment. Working-age people with disabilities have significantly lower rates of employment than working-age people without disabilities (Houtenville and Ruiz, 2012). The reasons behind these differences are numerous (Burkhauser and Daly, 2011; She and Livermore, 2007), ranging from the degree of disability, to discrimination based on disability or other personal characteristics (Bennett, 2009; Bjelland et al., 2009; Carter, Austin, and Trainor, 2012; Featherstone, 2009; Meade et al., 2004; O'Hara, 2004; Stapleton and Erickson, 2004; Wilson, 2002), to the lack of appropriate support infrastructures to make jobs accessible to people with disabilities (Blank et al., 2008; Ownsworth and McKenna, 2004). The relatively high nonemployment among persons with severe disabilities may lead to more limited economic resources.

Economic Resources and Expenditures. Persons with disabilities have been shown to have lower *income* and thus higher income poverty compared to persons without disabilities (Brault, 2012; Burkhauser, Rovba, and Weathers, 2009; Cooper, O'Hara, and Zovistoski, 2011; Huang, Guo and Kim, 2010; She and Livermore, 2007). Persons with disabilities have also been found to experience higher levels of material hardships, including challenges securing housing, medical care, and food (Heflin et al., 2007; Ribar and Hamrick, 2003; She and Livermore, 2007). This is despite higher participation rates in social protection programs that primarily take the form of income support, in particular Supplemental Security Income (SSI) or the Social Security Disability Insurance (SSDI), two federal income support programs (Houtenville and Brucker, 2013).

Health and Healthcare. Differences in health outcomes exist between people with and without disabilities. People with disabilities have lower self-rated general health (Drum, Horner-Johnson, and Krahn, 2008; Chevarley et al., 2006), higher rates of potentially preventable secondary conditions, chronic conditions, and early deaths (Campbell, Sheets, and Strong, 1999; Havercamp, Scandlin, and Roth, 2004; Lennox, Diggens, and Ugoni, 2000; Turk et al., 2001), and lower access to services (Chevarley et al., 2006; Harris

Interactive, 2010; Wilkinson et al., 2011). People with disabilities have been found to rely more on public health insurance programs (as opposed to private insurance), which restricts benefits and limits provider availability (Institute on Medicine, 2007). Finally, persons with disabilities have been shown to have higher out-of-pocket medical expenditures but to be less likely to be uninsured (Houtenville and Ruiz, 2012; Mitra, Findley, and Sambamoorthi, 2009).

Political Participation. Due to differences in education, income, physical accessibility of the local environment, and stigma, the political participation of people with disabilities is lower than that of people without disabilities (Clarke et al., 2011; National Organization on Disability, 2004; Schur and Adya, 2013; Schur et al., 2002; Ward et al., 2009).

Social Inclusion. Social inclusion for people with disabilities may be framed as being accepted, having relationships, being involved in activities, having supportive living accommodations, being employed, and having adequate support systems (Hall, 2009). Persons with disabilities have been found to be more likely to live alone and face transportation issues and are less likely to be involved in community and social activities (Harris Interactive, 2010).

Appendix B

Multidimensional Poverty Measurement

Dimensions are weighted: w_j is the weight of dimension j. Each individual i has a weighted count of dimensions where that person is deprived (c_i) across all measured dimensions:

$$c_i = \sum_{j=1}^{d} w_j c_{ij}$$

where c_{ij} is a binary variable equal to 1 if individual i is deprived in dimension j, and 0 otherwise ($0 \leq c_i \leq d$). Let q_i be a binary variable equal to 1 if the person is identified as poor, and to 0 otherwise. A person is *identified as poor* if the person's count of deprivations is greater than some specified cutoff (k):

$$\text{if } c_i \geq k, \text{ then } q_i = 1,$$

$$\text{if } c_i < k, \text{ then } q_i = 0.$$

The *weighted headcount ratio* for a given population is the number of poor persons ($q = \Sigma q_i$) divided by the total population (n):

$$H = q/n.$$

To capture the breadth of deprivation experienced by the poor, we compute the average number of deprivations that a poor person faces. We start by calculating the total number of deprivations experienced by poor people $c(k)$:

$$c(k) = \sum (q_i c_i) \quad \text{for } i = 1, \ldots, n.$$

The *average deprivation share* is the total number of deprivations of the poor ($c(k)$) divided by the maximum number of deprivations that the poor could face (qd):

$$A = c(k)/(qd).$$

Alkire and Foster's (2011) multidimensional poverty measure M_0 combines information on the prevalence of poverty and the breadth of poverty, combining the headcount ratio and average deprivation share:

$$M_0 = HA = c(k)/(nd).$$

Any poverty calculation using this framework will be sensitive to assumptions used in setting weights. In this study, we assume that dimensions are equally valuable and thus $wj = 1$ for $j = 1, \ldots, d$. Second, this method also requires that a cutoff is set for each dimension. Deciding on a specific cutoff point is an arbitrary choice, although it can be an informed one. We selected cutoffs based on a literature review for each dimension that aims to identify if there is a commonly accepted state of deprivation for each dimension.

Appendix C

TABLE C1

Poverty Rates Across Disability Status for Working Age Persons Across Different Disability Measures (%)

Disability Status	Official Poverty Measure	Supplemental Poverty Measure	Multidimensional Poverty—Economic Measure	Multidimensional Poverty—Socioecopolitical Measure	Multidimensional Poverty—Economic Measure (Without Employment Dim)
Sensory, functional, or basic activity limitations					
No sensory, functional, or activity limitation	10.92	12.26	16.90	26.99	11.08
	(0.12)	(0.13)	(0.30)	(0.29)	(0.25)
Sensory, functional, or activity limitation	29.04	28.04	48.79	62.62	25.20
	(0.62)	(0.61)	(1.50)	(1.04)	(1.28)
Difference	18.11***	15.78***	31.89***	35.63***	14.13***
Work Limitation					
No work limitation	10.46	11.85	16.28	N/A	10.76
	(0.12)	(0.12)	(0.30)		(0.24)
Work limitation	33.34	31.96	56.71		29.22
	(0.63)	(0.62)	(1.45)		(1.35)
Difference	22.87***	20.12***	40.43***		18.46***
Any Disability					
No disability	10.04	11.45	15.72		10.50
	(0.12)	(0.12)	(0.30)		(0.25)
Disability	29.97	29.15	49.34		25.90
	(0.51)	(0.51)	(1.23)		(1.08)
Difference	19.93***	17.70***	33.62***		15.39***

NOTES: Standard errors are in parentheses. All estimates are weighted. The sample includes persons aged 25 to 61. N/A stands for 'not applicable'. *indicates that the difference in poverty rates between persons with and without disability is statistically significant at 10%, ** at 5%, *** at 1%

SOURCE: Authors' calculations using CPS.

Appendix D

TABLE D1

Multidimensional Poverty Analysis for Working Age Persons with and Without Disability

		Headcount as Percentage H		
	All	Disability	No Disability	Difference
Multidimensional Poverty — Economic Measure				
Threshold *k*				
1	44.04	80.47	41.52	38.95***
	(0.40)	(1.22)	(0.41)	
2	18.96	48.79	16.90	31.89***
	(0.30)	(1.50)	(0.30)	
3	7.77	22.07	6.79	15.28***
	(0.20)	(1.22)	(0.20)	
4	2.13	5.93	1.87	4.06***
	(0.11)	(0.68)	(0.10)	
5	0.30	0.35	0.29	0.06
	(0.04)	(0.16)	(0.04)	
Multidimensional Poverty — Socioecopolitical Measure				
Threshold *k*				
1	64.69	89.37	62.55	26.81***
	(0.29)	(0.65)	(0.31)	
2	29.83	62.62	26.99	35.63***
	(0.29)	(1.04)	(0.29)	
3	12.00	36.01	9.93	26.08***
	(0.20)	(1.04)	(0.20)	
4	3.70	15.94	2.64	13.30***
	(0.12)	(0.80)	(0.10)	
5	0.62	3.17	0.40	2.78***
	(0.05)	(0.39)	(0.04)	

Appendix E

TABLE E1

Deprivation Rates by Dimension for Other Disability Measures, Working Age Persons

Disability Status	Economic measure				
	% No High School Completion	% Non-Employed	% Income Poor	% Food Deprived	% Without Health Insurance
Work limitation					
No work limitation	7.69	20.91	8.68	11.29	16.78
	(0.20)	(0.34)	(0.23)	(0.26)	(0.30)
Work limitation	20.76	83.76	34.42	29.47	15.11
	(1.17)	(1.10)	(1.41)	(1.37)	(1.04)
Difference	13.06 ***	62.85 ***	25.74 ***	18.18 ***	−1.68 NS
Any Disability					
No disability	7.56	20.23	8.45	10.81	16.72
	(0.20)	(0.34)	(0.23)	(0.26)	(0.30)
Disability	17.98	70.48	28.54	28.29	16.23
	(0.91)	(1.14)	(1.12)	(1.13)	(0.89)
Difference	10.42 ***	50.24 ***	20.08 ***	17.47 ***	−0.49 NS

NOTES: Standard errors are in parentheses. All estimates are weighted. The sample includes persons aged 25 to 61.
***indicates that the difference in poverty rates between persons with and without disability is statistically significant at 1%
NS indicates "not significant"

SOURCE: Authors' calculations using CPS.