Are We Providing Enough to Those Who Have Too Little? Measuring Poverty Relief

Supporting Materials

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Appendix A. Data Processing Notes

- All income amounts are reported in thousands of 2016 US dollars.
- In an effort to generate the most inclusive measure of poverty relief, we follow the example of Smeeding, Jolliffe & Tiehen (2013), and treat Supplemental Nutrition Assistance Program benefits (i.e., food stamps), and other near-cash benefits (energy assistance), as income support.
- We restrict the analysis to households in which the head of the household is over the age of 25, and under the age of 60, to avoid the inclusion of households whose low levels of market income may not reflect their true levels of resources (i.e., students, seniors). We also exclude social security income, SSI, disability insurance, and education assistance.
- We use reported, simulated estimates of EITC and CTC payments.
- The parameters α, β_1, and β_2 are estimated using Stata SE 12.1's `nl`program with starting values of $\alpha = 1$, $\beta_1 = 2$, and $\beta_2 = -.1$. The parameter τ is estimated using a line-search strategy. Standard errors for τ and $\mathscr{R}$ are calculated from simulated draws, based on the parameters and variances of α, β_1, and β_2.

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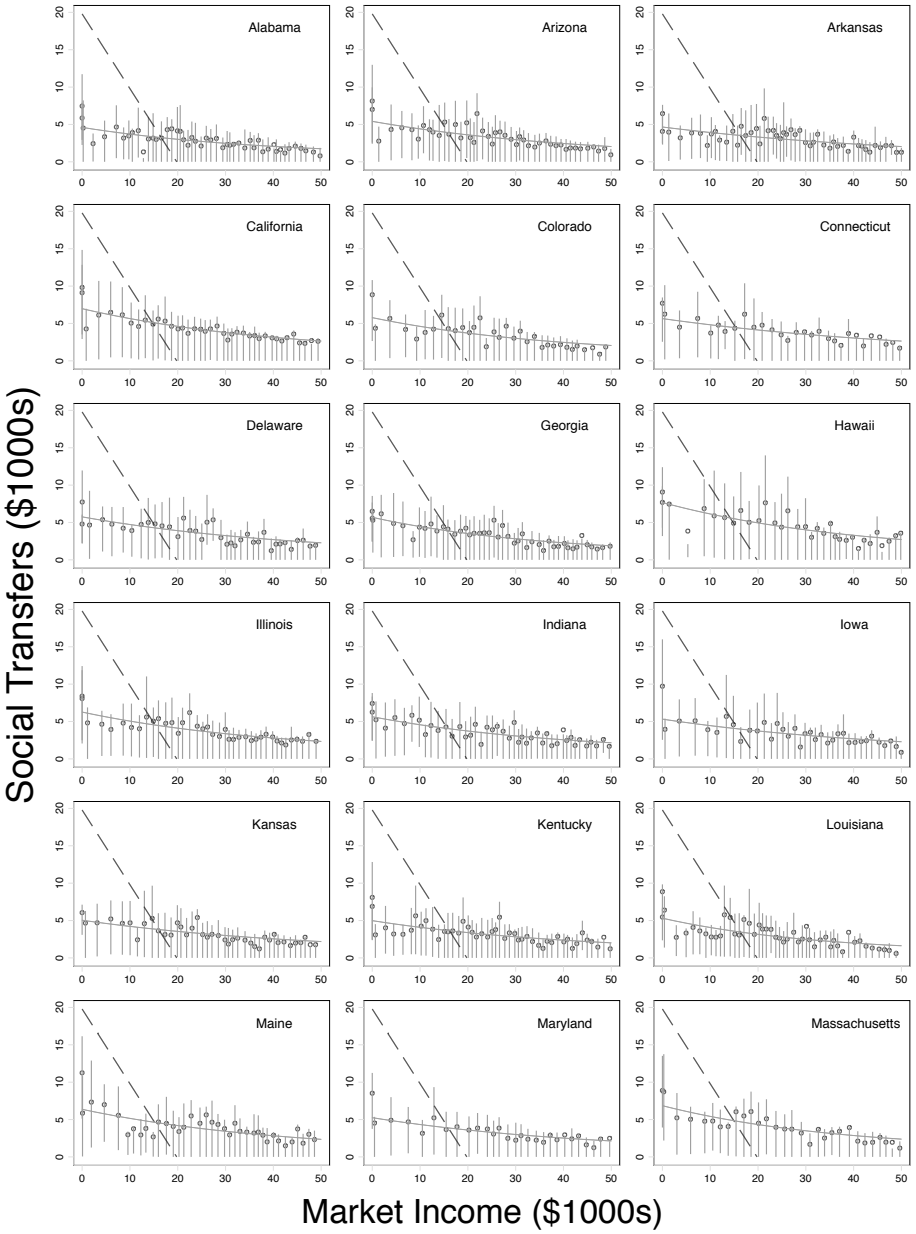
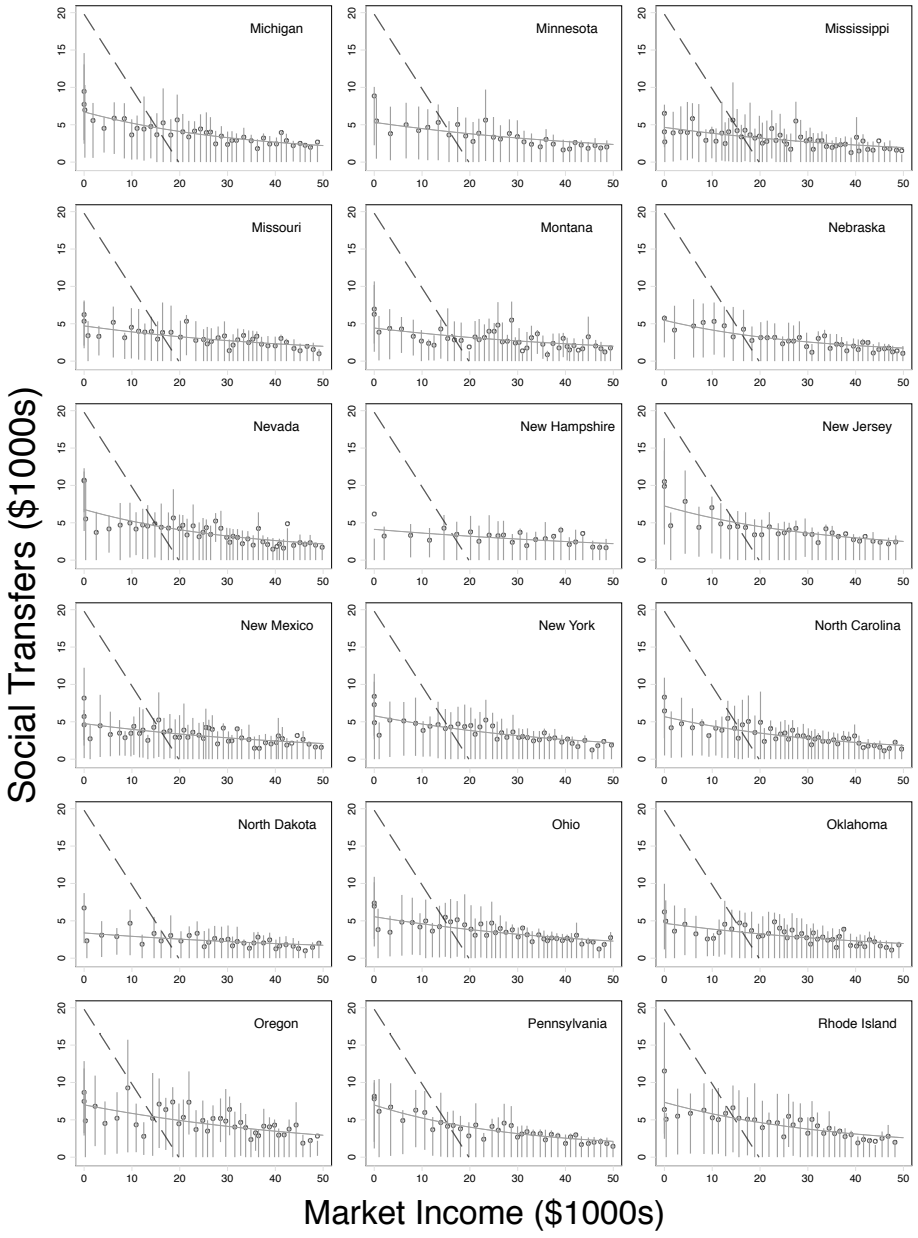
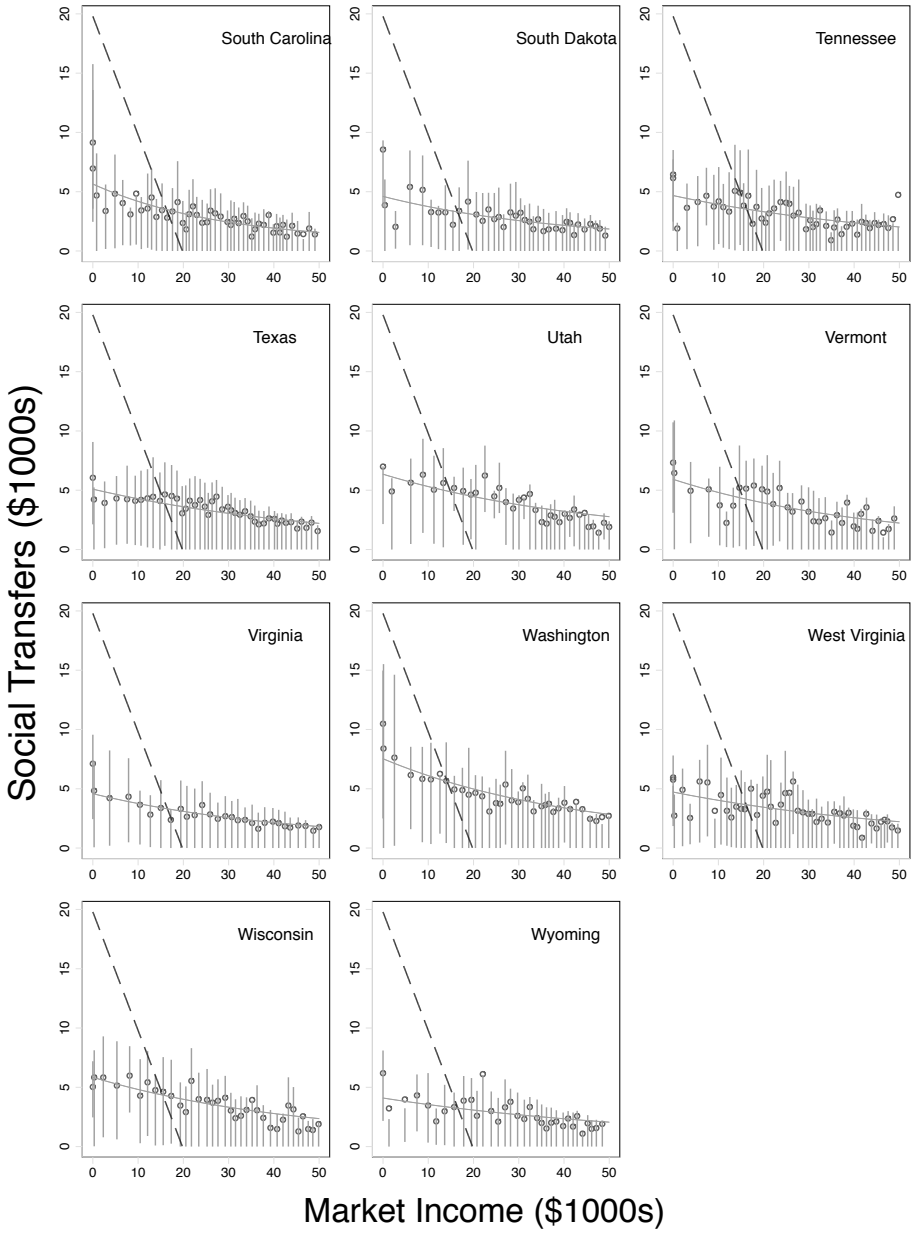
Appendix B. The General Relationship between Market Income and Social Transfers

NOTE. In the following panels, each data point represents one percent of the pooled 2010-2014 state sample. Error bars report the interquartile distribution at each income level. All currency amounts are reported in thousands of 2016 US dollars. The solid line reports predicted values for Eq. (2). The dashed line reports predicted values for Eq. (3).




Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma
Oregon
Pennsylvania
Rhode Island
Social Transfers ($1000s)
Market Income ($1000s)


South Carolina
South Dakota
Tennessee
Texas
Utah
Vermont
Virginia
Washington
West Virginia
Wisconsin
Wyoming
Social Transfers ($1000s)
Market Income ($1000s)
0
5
10
15
20
0
10
20
30
40
50

Appendix C. State-Level Parameters

Table 1: Estimates of α, β_1, β_2, τ, and $\mathscr{R}$

	N	α	β_1	β_2	τ	$\mathscr{R}$
Alabama	2,881	0.675	3.932	-0.026	16.500	0.354
		(0.150)	(0.220)	(0.003)	(0.104)	(0.000)
Alaska	3,041	0.604	4.497	-0.018	15.767	0.404
		(0.196)	(0.261)	(0.003)	(0.149)	(0.000)
Arizona	3,199	0.415	4.999	-0.022	15.817	0.414
		(0.158)	(0.214)	(0.002)	(0.109)	(0.000)
Arkansas	2,581	0.357	4.302	-0.019	16.202	0.369
		(0.220)	(0.233)	(0.003)	(0.108)	(0.000)
California	22,557	0.786	6.194	-0.024	14.590	0.517
		(0.066)	(0.116)	(0.001)	(0.068)	(0.000)
Colorado	5,402	0.636	5.144	-0.026	15.665	0.433
		(0.101)	(0.210)	(0.002)	(0.110)	(0.000)
Connecticut	5,132	0.496	5.157	-0.018	15.297	0.444
		(0.143)	(0.226)	(0.002)	(0.139)	(0.000)
Delaware	3,554	0.503	5.251	-0.022	15.479	0.440
		(0.152)	(0.223)	(0.002)	(0.122)	(0.000)
Florida	9,904	0.426	4.418	-0.025	16.375	0.369
		(0.080)	(0.126)	(0.002)	(0.066)	(0.000)
Georgia	5,653	0.625	5.068	-0.028	15.859	0.422
		(0.099)	(0.168)	(0.002)	(0.086)	(0.000)
Hawaii	3,463	0.723	6.953	-0.025	14.132	0.557
		(0.177)	(0.349)	(0.003)	(0.195)	(0.000)
Idaho	2,766	0.538	5.719	-0.020	14.942	0.479
		(0.246)	(0.297)	(0.003)	(0.160)	(0.000)
Illinois	7,642	0.723	5.542	-0.025	15.203	0.469
		(0.105)	(0.182)	(0.002)	(0.097)	(0.000)
Indiana	3,675	0.710	4.928	-0.025	15.672	0.428
		(0.152)	(0.223)	(0.003)	(0.113)	(0.000)
Iowa	4,256	0.557	4.761	-0.020	15.714	0.415
		(0.156)	(0.210)	(0.002)	(0.117)	(0.000)
Kansas	3,358	0.547	4.492	-0.020	15.935	0.395
		(0.185)	(0.244)	(0.003)	(0.129)	(0.000)
Kentucky	3,298	0.633	4.352	-0.023	16.093	0.386
		(0.174)	(0.217)	(0.003)	(0.106)	(0.000)
Louisiana	2,870	0.605	4.705	-0.031	16.275	0.390
		(0.124)	(0.223)	(0.003)	(0.103)	(0.000)

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Table 1: Estimates of α, β_1, β_2, τ, and $\mathscr{R}$ (continued)

	N	α	β_1	β_2	τ	$\mathscr{R}$
Maine	3,545	0.536	5.834	-0.023	15.098	0.477
		(0.165)	(0.254)	(0.002)	(0.139)	(0.000)
Maryland	5,617	0.513	4.737	-0.021	15.855	0.406
		(0.105)	(0.206)	(0.002)	(0.118)	(0.000)
Massachusetts	3,552	0.832	6.026	-0.027	14.886	0.501
		(0.128)	(0.313)	(0.003)	(0.169)	(0.000)
Michigan	5,268	0.921	5.797	-0.030	15.139	0.487
		(0.109)	(0.208)	(0.002)	(0.111)	(0.000)
Minnesota	5,560	0.544	4.781	-0.019	15.661	0.417
		(0.127)	(0.189)	(0.002)	(0.113)	(0.000)
Mississippi	2,417	0.497	4.151	-0.021	16.289	0.365
		(0.227)	(0.249)	(0.003)	(0.112)	(0.000)
Missouri	3,741	0.564	4.149	-0.021	16.246	0.370
		(0.133)	(0.186)	(0.002)	(0.099)	(0.000)
Montana	2,390	0.525	3.902	-0.019	16.371	0.353
		(0.221)	(0.254)	(0.003)	(0.122)	(0.000)
Nebraska	3,629	0.889	4.578	-0.034	16.187	0.399
		(0.088)	(0.250)	(0.003)	(0.111)	(0.000)
Nevada	3,772	0.961	5.823	-0.031	15.159	0.488
		(0.144)	(0.277)	(0.003)	(0.137)	(0.000)
New Hampshire	4,475	0.207	3.913	-0.013	16.390	0.341
		(0.191)	(0.219)	(0.002)	(0.137)	(0.000)
New Jersey	4,788	1.178	6.068	-0.030	14.674	0.522
		(0.124)	(0.325)	(0.003)	(0.171)	(0.000)
New Mexico	2,555	0.577	4.185	-0.020	16.143	0.376
		(0.216)	(0.255)	(0.003)	(0.121)	(0.000)
New York	10,212	0.662	5.145	-0.024	15.542	0.439
		(0.091)	(0.150)	(0.002)	(0.083)	(0.000)
North Carolina	4,890	0.598	5.089	-0.028	15.891	0.420
		(0.109)	(0.193)	(0.002)	(0.093)	(0.000)
North Dakota	3,195	0.531	2.848	-0.017	17.085	0.280
		(0.152)	(0.188)	(0.003)	(0.102)	(0.000)
Ohio	6,100	0.524	5.028	-0.021	15.586	0.428
		(0.142)	(0.184)	(0.002)	(0.098)	(0.000)
Oklahoma	3,058	0.403	4.272	-0.020	16.257	0.368
		(0.176)	(0.215)	(0.003)	(0.108)	(0.000)
Oregon	3,326	0.337	6.672	-0.019	14.300	0.529
		(0.241)	(0.293)	(0.002)	(0.167)	(0.000)
Pennsylvania	6,830	1.091	5.896	-0.035	15.175	0.494
		(0.089)	(0.223)	(0.003)	(0.115)	(0.000)
Rhode Island	3,554	1.073	6.275	-0.028	14.495	0.532
		(0.154)	(0.316)	(0.003)	(0.170)	(0.000)
South Carolina	3,189	0.725	4.923	-0.035	16.235	0.403
		(0.119)	(0.236)	(0.003)	(0.109)	(0.000)

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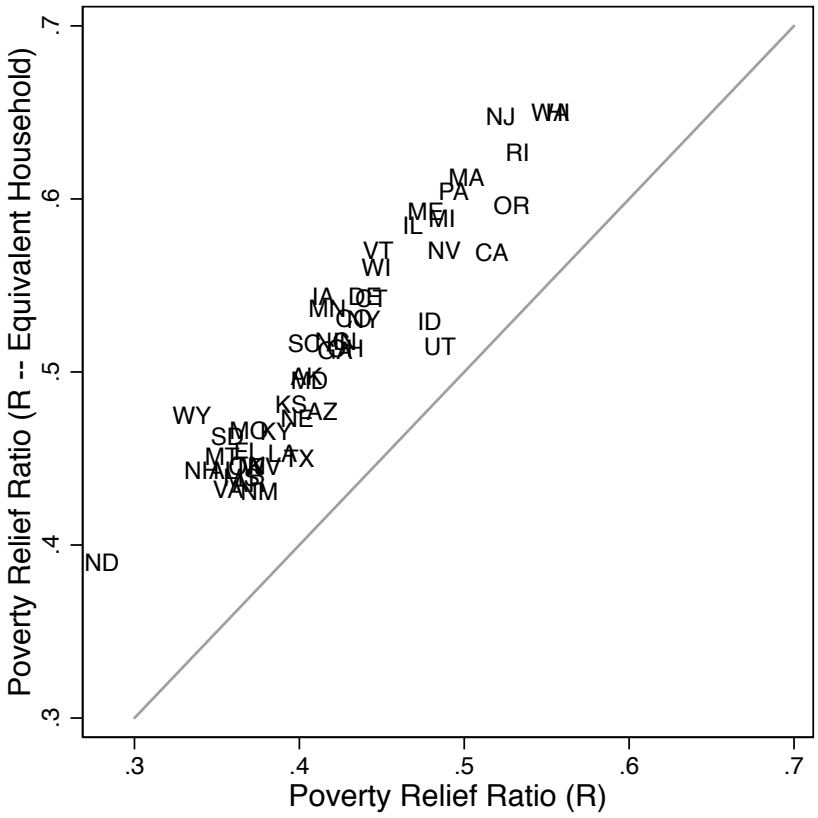
Table 1: Estimates of α, β_1, β_2, τ, and $\mathscr{R}$ (continued)

	N	α	β_1	β_2	τ	$\mathscr{R}$
South Dakota	3,428	0.791	3.813	-0.026	16.444	0.356
		(0.117)	(0.201)	(0.003)	(0.101)	(0.000)
Tennessee	3,335	0.332	4.341	-0.019	16.204	0.370
		(0.223)	(0.244)	(0.003)	(0.116)	(0.000)
Texas	14,736	0.366	4.725	-0.019	15.869	0.400
		(0.087)	(0.106)	(0.001)	(0.061)	(0.000)
Utah	2,982	0.827	5.525	-0.021	14.861	0.485
		(0.173)	(0.274)	(0.002)	(0.162)	(0.000)
Vermont	3,131	0.519	5.401	-0.023	15.429	0.448
		(0.167)	(0.271)	(0.003)	(0.150)	(0.000)
Virginia	5,257	0.504	4.080	-0.023	16.426	0.357
		(0.080)	(0.163)	(0.002)	(0.091)	(0.000)
Washington	4,261	0.765	6.769	-0.024	14.131	0.552
		(0.163)	(0.299)	(0.002)	(0.167)	(0.000)
West Virginia	2,530	0.543	4.180	-0.018	16.074	0.377
		(0.267)	(0.282)	(0.003)	(0.131)	(0.000)
Wisconsin	4,467	0.587	5.259	-0.022	15.387	0.447
		(0.141)	(0.213)	(0.002)	(0.119)	(0.000)
Wyoming	3,251	0.443	3.652	-0.016	16.500	0.335
		(0.208)	(0.229)	(0.003)	(0.124)	(0.000)

NOTE. This Table reports estimated parameters for pooled 2010-2014 state samples, for Eq. (2). See Appendix A for more information.

Appendix D. Replication with Equivalent Households

Figure 1: Poverty Relief in Equivalent Households



NOTE. This Figure offers a comparison of estimates of the poverty relief ratio, estimated "as reported" to estimates of poverty relief for equivalent households. To generate equivalent household estimates, market income and social transfer amounts are divided by the squareroot of the number of people in each household.

References

Smeeding, T., D. Jolliffe & L. Tiehen. 2013. "The Effect of SNAP on Poverty." University of Kentucky Center for Poverty Research Discussion Paper Series, DP2013-06. Retrieved January 3, 2014 from http://www.ukcpr.org/Publications/DP2013-06.pdf.