Unit Nonresponse Bias in the Current Population Survey*

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Abstract

Korinek, Mistiaen, and Ravallion 2007 (Journal of Econometrics 136: 213-235) proposes a method to correct the bias generated by unit nonresponse that depends on household characteristics such as income. They make use of Current Population Survey (CPS) data from 1997 to 2004. In this paper we replicate and extend their empirical results, confirming that response probability is strictly dependent on income levels. With one exception, we replicate in a 'narrow sense' the set of year-by-year point estimates. In addition, we use data from 1977 to 2018 to extend the previous results along three dimensions. First, we show that the estimated parameters vary in an important way over time, especially during the last decade. Second, we find that the best specification changes over time but it often appears to be one that includes a quadratic term on income, which fits with recent evidence of non-monotonicity in response rates of the CPS. Finally, the adjustment of household survey weights for differential nonresponse results in substantial upward adjustments for the Gini index (8.5% on average across years), top income shares (40% on average across years), total income (8.1% on average across years), and a downward correction in poverty rates (-8.1% on average across years).

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1. Introduction

Korinek, Mistiaen, and Ravallion (2007) proposed a novel estimator to compute a survey compliance function using regional nonresponse rates usually available from the survey data. The estimator is based on the following moment condition for region j (with $j \in J$, where J is the total number of regions):[1]

$$E[\sum_i \frac{m_{ij}^1}{P_i}] = \sum_i m_{ij} \tag{1}$$

where m_{ij}^1 is the total number of households with income i in region j that comply with the survey, m_{ij} is the total (unobserved) number of households with income i in region j,[2] and P_i is the probability of response for household with income i.[3]

Using the Current Population Survey between years 1998 and 2004, they find a highly significant negative effect of income on compliance, which may bias income inequality downward. In addition, they show that the best specification in terms of goodness of fit is one including the log of household gross income per capita as the only determinant. They also show that the compliance function appears to be stable during this period.

This paper attempts to replicate the main empirical results and extend them in several ways. First, we consider a longer period of analysis that goes between the years 1977 and 2018, which has an important increase in the aggregate nonresponse rate since 2010 as Figure 1 shows. Second, we analyze the stability of the parameter estimates, and the model chosen when using yearly estimates, different sub-periods, as well as pooling all the years of the extended sample. Third, we study the impact of the survey weights correction on the Gini coefficient,[4] top income shares, total income, and poverty rates.

[1] See Korinek, Mistiaen, and Ravallion (2006); Korinek et al. (2007) for a detailed explanation.

[2] Note that we do observe the total number of household in the region ($\sum_i m_{ij}$)

[3] They assume a functional form for this probability, such that $P_i = \frac{e^{X_i'\theta}}{1+e^{X_i'\theta}}$, where θ is a K-vector of parameters and X a matrix with K vectors of determinants.

[4] In a work simultaneous to ours, Hlasny and Verme (2018) apply this correction to compute the Gini index over time with data until 2014. Although closely related, they focus on the Gini index using total household income (without adjustment by size or household composition) and comparing the correction to a semiparametric method that replace values using a fitted distribution. In contrast, we follow the original measure considered in Korinek et al. (2007) by using household gross income per capita and extend the analysis in different dimensions.

2. Empirical Results

2.1 Summary of the Narrow Replication

We replicate the empirical results of the paper in a narrow sense using data downloaded from IPUMS CPS (Flood, King, Rodgers, Ruggles, and Warren (2018)) together with state-level nonresponse rates obtained from the NBER CPS supplements.[5] The empirical analysis is performed using Stata 14.2 instead of Matlab 6.5, which it is the software used by the authors in the original paper. We do so by making use of the user-written Stata command kmr (Munoz and Morelli (2019)).

We are able to replicate the main findings using data from years 1998 to 2004 with just a few exceptions. We display here only a selection of the main results while the remaining ones are displayed online in a Supporting Information Appendix.

First, when we replicate the results of what the authors call a "naive regression" of the reported CPS weights on income, both with and without State-level fixed effects, we confirm the finding that there is a significant positive relationship between household gross income per capita and the CPS weights. However, we found no large difference between the OLS and State fixed effects regression coefficient on income. This was discussed by Korinek et al. (2007) as evidence that the bulk of the current CPS correction is between States rather than within them. The value of one of the coefficients appears to be multiplied by 10. This suggests that the correlation is not driven by differences in average income across states.

Table 1: Final weight regressions for 2004 data (household gross income per capita)

	(a) Original		(b) Replication	
	Intercept	Log(Income per capita)	Intercept	Log(Income per capita)
OLS	11.034	0.5969	11.0328	0.0597
	(0.031)	(0.0031)	(0.0311)	(0.0032)
State fixed effects	10.920	0.0712	11.2194	0.0712
	(0.014)	(0.0014)	(0.0180)	(0.0016)

Notes: Dependent variable is log of CPS weights. Robust standard errors in parentheses. The regression uses data in current dollars. For the replication, N=76,327 and the R-squared is 0.0047 and 0.8093 in the OLS and State fixed effects case, respectively.

Second, Table 2 reports the results of estimating, year by year and pooling all the years, a specification that includes log of household gross income per capita as the single determinant of

[5] Available at http://www.nber.org/data/current-population-survey-data.html.

survey response. Panel 2a reports the original while Panel 2b has the replication. We succesfully replicate the main finding of a strong income effect on response probabilities. However, the point estimates for year 2001–and consequently when pooling all the years–are slightly different.[6]

Table 2: Specification 3 estimates for 1998-2004

(a) Original

	1998	1999	2000	2001	2002	2003	2004	All
$\theta 1$	19.904	18.100	22.207	20.111	17.807	17.388	19.113	18.838
	(2.071)	(2.420)	(2.545)	(1.728)	(1.920)	(2.100)	(1.708)	(0.793)
$\theta 2$	-1.696	-1.528	-1.890	-1.702	-1.490	-1.454	-1.613	-1.599
	(0.188)	(0.223)	(0.230)	(0.156)	(0.176)	(0.193)	(0.155)	(0.073)

Notes: Standard errors in parenthesis. Column All makes use of income chained to 1998 prices using the regional CPI from the Bureau of Labor Statistics.

(b) Replication

	1998	1999	2000	2001	2002	2003	2004	All 1	All 2
$\theta 1$	19.904	18.100	22.207	22.587	17.807	17.388	19.113	19.299	19.511
	(2.071)	(2.420)	(2.546)	(2.889)	(1.920)	(2.100)	(1.708)	(0.950)	(0.943)
$\theta 2$	-1.696	-1.528	-1.890	-1.889	-1.489	-1.454	-1.613	-1.637	-1.650
	(0.188)	(0.223)	(0.230)	(0.258)	(0.176)	(0.193)	(0.155)	(0.087)	(0.086)

Notes: Standard errors in parenthesis. Individual years are estimated using current dollars. Column All 1 uses annual average regional CPI from the Bureau of Labor Statistics (https://www.bls.gov/cpi/regional-resources.htm) to deflate income to 1998 prices. Column All 2 uses the deflator provided with the survey, which translates income to 1999 dollars.

Third, we replicate the exercise of estimating different specifications on pooled data to find out which one provides the best fit according to the AIC information criteria (see Table 3). We are unable to replicate the exact values of the information criteria and we find that the best model corresponds to specification 6 instead of specification 3 as the original paper suggests.[7]

Fourth, we replicate the exercise that analyzes the sensitivity of the correction to different specifications using 2004 year only (see Table 4). We succesfully replicate the point estimates and standard errors of the different specifications. However, we obtain larger corrected Gini indexes and variability of the inequality measure across specifications. We are unable to explain this discrepancy given that our weighted Gini index using the official CPS weights (as explained in the note of Table 4) and the estimated compliance functions match precisely with Korinek et al. (2007).

[6] This may be due to updates in the data sources for year 2001 but we do not know this with certainty.

[7] The discrepancy is driven by both the difference in the data for year 2001 and potential differences (or revisions) in the price deflators.

Table 3: AIC for various specifications. 1998-2004 data

	(a) Original	(b) Replication	
	(1)	(2)	(3)
$1: z_i = \theta_1$	-69.27	-15.33	-15.33
$2: z_i = \theta_1 ln(y_i)$	-42.20	2.19	2.85
$3: z_i = \theta_1 + \theta ln(y_i)$	**-276.14**	-156.45	-160.04
$4: z_i = \theta_1 ln(y_i)^2$	-16.04	19.50	20.85
$5: z_i = \theta_1 + \theta_2 ln(y_i)^2$	-275.37	-158.43	-162.35
$6: z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$	-273.45	**-160.34**	**-164.59**
$7: z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 ln(y_i)^2$	-270.04	-158.90	-163.19
$8: z_i = \theta_1 y_i$	88.78	92.16	96.68
$9: z_i = \theta_1 + \theta_2 y_i$	-193.05	-117.64	-122.58
$10: z_i = \theta_1 ln(y_i) + \theta_2 y_i$	-159.03	-95.10	-99.71
$11: z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 y_i$	-273.04	-157.50	-162.08
$12: z_i = \theta_1 ln(y_i)^2 + \theta_2 y_i$	-119.01	-66.28	-70.55
$13: z_i = \theta_1 + \theta_2 ln(y_i)^2 + \theta_3 y_i$	-273.31	-157.82	-162.39
$14: z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$	-273.77	-158.57	-163.08

Notes: Column (2) uses annual average regional CPI from the Bureau of Labor Statistics (https://www.bls.gov/cpi/regional-resources.htm) to deflate income to 1998 prices. Columns (3) use the deflator provided with the survey, which translates income to 1999 dollars.

Table 4: Various specifications for 2004 CPS

	(a) Original				(b) Replication			
	θ_1	θ_2	θ_3	Gini	θ_1	θ_2	θ_3	Gini
$3: z_i = \theta_1 + \theta_2 ln(y_i)$	19.112	-1.613		49.23	19.113	-1.613		50.38
	(1.708)	(0.155)		(0.92)	(1.708)	(0.155)		(0.42)
$5: z_i = \theta_1 + \theta_2 ln(y_i)^2$	10.108	-0.07165		49.41	10.108	-0.072		50.79
	(0.747)	(0.00611)		(0.90)	(0.747)	(0.006)		(0.47)
$6: z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$	1.8091	-0.1519		49.60	1.809	-0.152		51.25
	(0.1165)	(0.0105)		(0.87)	(0.116)	(0.011)		(0.53)
$7: z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 ln(y_i)^2$	-1.1568	2.017	-0.1611	49.63	-1.157	2.017	-0.161	51.31
	(9.7906)	(1.766)	(0.0791)	(0.93)	(9.789)	(1.766)	(0.079)	(0.54)
$9: z_i = \theta_1 + \theta_2 y_i$	2.900	-1.232×10^{-5}		49.56	2.900	-0.000		52.79
	(0.055)	(4.368×10^{-7})		(0.62)	(0.055)	(0.000)		(1.24)
$11: z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 y_i$	7.968	-0.5113	-8.704×10^{-6}	49.62	7.968	-0.511	-0.000	52.39
	(3.878)	(0.3865)	(2.755×10^{-6})	0.69	(3.878)	(0.386)	(0.000)	(0.97)
$13: z_i = \theta_1 + \theta_2 ln(y_i)^2 + \theta_3 y_i$	5.396	-0.02541	-8.221×10^{-6}	49.66	5.396	-0.025	-0.000	52.43
	(1.896)	(0.01885)	(3.072×10^{-6})	(0.69)	(1.896)	(0.019)	(0.000)	(0.96)
$14: z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$	1.0752	-0.07891	-7.199×10^{-6}	49.76	1.075	-0.079	-0.000	52.51
	(0.3615)	(0.03610)	(3.328×10^{-6})	(0.70)	(0.361)	(0.036)	(0.000)	(0.93)

Notes: Standard errors in parenthesis. The replication uses Jackknife standard errors for the Gini index and data in current dollars. The original paper reports a Gini index for 2004 data of 45.20% using the official CPS weights and 44.80% with uncorrected data (with households equally weighted within states). In our data set, we have the same Gini coefficient using official CPS weights but equal to 45.16% with uncorrected data (with households equally weighted within states, where the weights are equal to the sum by state of official CPS household weights divided by the sum of interviews).

2.2 Extensions

This section presents four extensions of the empirical results presented in Korinek et al. (2007) considering data from years between 1977 and 2018.[8]

[8] Table B1 in the Online Appendix provides the sample sizes and nonresponse rates for the CPS.

First, Korinek et al. (2007) investigate how much the estimated parameters of the compliance function vary over time. They find that the parameter estimates of the individual years are all close to each other, located within a 95% confidence-interval around the estimate obtained from bundling all years into one data set. We estimate the same specification ($\theta_1 + \theta_2 log(y)$) each year of our extended sample to see how the estimates have changed over time. Figure 2 shows the estimated coefficients over the years 1977 and 2018. We find that they are somewhat stable until approximately 2007 and then there is an upward trend in the intercept and a downward trend in the slope.

Second, we analyze how the preferred specification in terms of fit changes over time. Table 5 reports the AIC information criteria of all the 14 different specifications explored in the original paper pooling the data in six seven-year windows, where 1998-2004 corresponds to the years originally considered in Korinek et al. (2007). We find that the preferred specification across different sub-periods differs.[9] Specification 3 ($z_i = \theta_1 + \theta ln(y_i)$) is preferred in the first sub-period while specification 14 ($z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$) is chosen in all the other sub-periods except for 1998-2004 where specification 6 ($z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$) has a better fit. The inclusion of a quadratic term on income fits with recent evidence of non-monotonicity in response rates of the Current Population Survey (see Bollinger, Hirsch, Hokayem, and Ziliak (2019)).

Finally, we explore how unit nonresponse bias affects the Gini index, top income shares, total income, and poverty rates[10] in the Current Population Survey (see Table 6). We do so by comparing the estimates using the Census Bureau weights, grossed-up weights,[11] and corrected weights using the method proposed by Korinek et al. (2007) estimated with seven-year windows of pooled data using the specification with best fit according to Table 5 .[12] We find important upward corrections in both measures of inequality and total income. On average, and throughout the period under analysis, we correct the Gini index upward by 8.5%, the top 1% income share by 40%, and the total income by 8.1%. In contrast, the poverty rate is corrected downward on average by 8.1%.

[9] Table B2 and B3 in the Appendix reports the results when we estimate the specifications year by year and when we pool all the data set.

[10] We use the official poverty rate universe variable at individual level (OFFPOVUNIV), which it is matched to household level corrected weights and grossed-up weights to make the comparison.

[11] Weights are constructed as the sum by state of the official CPS weights over the sum of households interviewed.

[12] Table B4, B5, and B6 in the Appendix reports the results using specification 3 estimated pooling all the data, specification 7 estimated pooling all the data, and specification 7 estimated year by year.

Table 5: Information criteria for various specifications. Pooled data in different sub-periods

	1977-1983		1984-1990		1991-1997		1998-2004		2005-2011		2012-2018	
	AIC	BIC	AIC	BIC	AIC	BIC	AIC	BIC	AIC	BIC	AIC	BIC
1	-450.75	-452.75	-303.37	-305.37	-184.29	-186.29	-15.33	-17.33	71.70	69.70	360.86	358.86
2	-403.31	-405.31	-263.84	-265.84	-171.19	-173.19	2.85	0.85	94.44	92.44	845.56	843.56
3	**-640.81**	**-643.42**	-444.60	-447.22	-312.31	-314.93	-160.04	-162.66	-63.32	-65.94	249.27	246.66
4	-354.75	-356.75	-222.40	-224.40	-156.21	-158.21	20.85	18.85	117.32	115.32	409.56	407.56
5	-640.36	-642.98	-444.42	-447.03	-312.02	-314.63	-162.35	-164.97	-60.82	-63.43	253.29	250.68
6	-637.27	-639.89	-443.36	-445.98	-311.44	-314.06	**-164.59**	**-167.20**	-55.32	-57.93	258.50	255.89
7	-638.82	-641.52	-441.36	-444.06	-313.64	-316.34	-163.19	-165.90	-62.36	-65.06	250.00	247.29
8	-173.40	-175.40	-81.19	-83.19	-80.69	-82.69	96.68	94.68	209.56	207.56	514.69	512.69
9	-510.47	-513.08	-354.75	-357.36	-232.27	-234.88	-122.58	-125.20	55.94	53.33	329.47	326.86
10	-456.66	-459.28	-312.92	-315.54	-210.19	-212.80	-99.71	-102.33	81.98	79.36	353.36	350.75
11	-638.81	-641.51	-442.87	-445.58	-312.17	-314.87	-162.08	-164.79	-63.22	-65.93	237.65	234.94
12	-399.15	-401.76	-264.63	-267.25	-184.56	-187.17	-70.55	-73.16	107.97	105.35	380.86	378.25
13	-639.01	-641.71	-443.59	-446.30	-314.38	-317.08	-162.39	-165.09	-63.74	-66.44	237.62	234.92
14	-639.15	-641.85	**-444.86**	**-447.57**	**-317.82**	**-320.52**	-163.08	-165.78	**-64.50**	**-67.21**	**236.98**	**234.28**

Notes:

$1 : z_i = \theta_1$
$2 : z_i = \theta_1 ln(y_i)$
$3 : z_i = \theta_1 + \theta ln(y_i)$
$4 : z_i = \theta_1 ln(y_i)^2$
$5 : z_i = \theta_1 + \theta_2 ln(y_i)^2$
$6 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$
$7 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 ln(y_i)^2$
$8 : z_i = \theta_1 y_i$
$9 : z_i = \theta_1 + \theta_2 y_i$
$10 : z_i = \theta_1 ln(y_i) + \theta_2 y_i$
$11 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 y_i$
$12 : z_i = \theta_1 ln(y_i)^2 + \theta_2 y_i$
$13 : z_i = \theta_1 + \theta_2 ln(y_i)^2 + \theta_3 y_i$
$14 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$

It is worth noting that the year-by-year corrections estimated with specification 7–which has the best fit when the information criteria is estimated pooling all the data set–are close in magnitude (Table B6 in the Appendix) while the corrections carried out with a model estimated with pooled data are significantly larger and perhaps unrealistic as the corrected income appear bigger than the total personal income as estimated in the National Accounts (Table B4 and B5 in the Appendix).

3. Conclusion

In this paper we replicate and extend the empirical results reported in Korinek et al. (2007).

In a 'narrow' replication, we succesfully reproduce the main finding of a strong income effect on response probabilities and the point estimates using different specifications. In contrast, we find that the best specification in terms of fit includes the log of income per capita and its square, and that the size of the correction differs more importantly across specifications.

We use data from 1977 to 2018 to extend the previous results along three dimensions. First, we show that the estimated parameters vary over time, suggesting an increase in the impact of income on survey compliance during the last decade. Second, we find that the best specification changes

Table 6: Nonresponse biases on different measures according to best specification estimated using non-overlapping 7-year windows

	Gini			Top 1 income share			Total income (billions)			Poverty rate		
	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected
1977	39.23	39.04	40.83	5.35	5.33	6.16	1094.67	1096.37	1126.99	12.90	12.25	11.77
1978	39.40	39.29	41.35	5.52	5.53	6.79	1212.48	1211.20	1253.38	12.43	11.94	11.31
1979	39.43	39.27	41.38	5.41	5.40	6.59	1348.52	1352.15	1394.71	12.14	11.63	11.15
1980	39.16	39.00	40.54	5.08	5.09	5.75	1525.01	1525.82	1560.68	12.52	12.03	11.58
1981	39.34	39.13	40.67	5.08	5.07	5.72	1709.01	1706.06	1744.92	13.91	13.44	12.90
1982	40.45	40.38	42.24	5.51	5.55	6.63	1894.50	1893.36	1954.33	15.36	14.69	14.10
1983	41.20	41.02	42.72	5.61	5.61	6.37	2022.84	2027.13	2084.45	16.54	15.80	15.18
1984	41.30	41.13	42.69	5.47	5.44	6.32	2153.52	2154.37	2204.68	16.57	15.98	15.46
1985	41.72	41.65	43.73	5.96	5.94	7.38	2379.80	2384.60	2476.56	15.56	15.18	14.34
1986	41.72	41.57	43.03	5.57	5.53	6.34	2552.11	2549.32	2639.13	15.14	14.79	13.92
1987	41.80	41.62	43.65	5.75	5.70	7.15	2721.34	2719.82	2815.43	14.90	14.35	13.72
1988	41.72	41.56	43.75	5.80	5.77	7.40	2914.89	2912.20	3027.60	13.79	13.37	12.62
1989	42.02	42.01	43.95	5.94	5.92	7.52	3089.48	3106.84	3202.96	13.37	13.04	12.22
1990	42.23	42.08	44.24	5.95	5.95	7.23	3323.10	3332.57	3472.81	13.39	12.82	12.23
1991	42.20	41.96	43.81	5.80	5.75	6.91	3434.61	3455.59	3573.52	14.19	13.51	13.10
1992	42.18	41.94	43.76	5.78	5.75	6.86	3544.28	3566.51	3683.43	14.97	14.22	13.68
1993	42.32	42.07	43.75	5.73	5.69	6.68	3648.13	3678.92	3792.64	15.34	14.52	14.02
1994	42.58	42.40	44.28	5.79	5.72	6.99	3809.92	3822.62	3969.14	15.63	15.14	14.22
1995	42.67	42.38	44.25	5.86	5.78	6.76	4042.65	4048.32	4220.52	15.20	14.55	13.57
1996	44.75	44.40	50.60	7.75	7.70	12.32	4461.04	4477.84	4924.21	14.51	13.81	13.38
1997	45.48	45.12	52.71	8.67	8.56	13.17	4761.07	4762.08	5358.57	14.33	13.72	13.17
1998	45.63	45.32	52.91	8.40	8.32	13.14	5121.72	5097.16	5775.21	13.78	13.25	12.59
1999	45.17	44.87	51.10	7.76	7.73	11.78	5420.43	5388.84	6024.10	13.15	12.72	11.96
2000	44.57	44.31	47.56	6.86	6.80	8.34	5636.45	5637.77	5973.62	12.24	11.79	11.17
2001	45.07	45.17	50.49	7.82	7.93	11.57	6405.83	6185.38	7058.68	11.70	11.32	10.18
2002	45.49	45.51	51.54	8.22	8.33	12.16	6609.28	6364.25	7304.82	12.02	11.69	10.43
2003	45.35	45.26	52.82	8.32	8.27	13.98	6684.65	6440.97	7535.07	12.59	12.12	10.99
2004	45.17	45.20	50.98	7.71	7.81	12.53	6870.85	6620.82	7630.49	12.89	12.46	11.04
2005	45.20	45.23	49.60	8.13	8.19	11.94	7109.55	6858.24	7781.59	13.15	12.75	11.19
2006	45.64	45.63	49.91	8.18	8.29	11.52	7485.36	7249.47	8229.46	13.00	12.60	11.13
2007	45.54	45.48	49.59	7.97	7.96	11.00	7977.52	7726.82	8799.78	12.69	12.30	10.78
2008	45.01	44.98	48.55	7.44	7.42	10.23	8131.25	7903.77	8898.54	12.87	12.48	10.84
2009	45.05	45.10	48.40	7.65	7.75	10.16	8273.76	8022.09	9017.97	13.62	13.23	11.54
2010	45.59	45.53	49.00	7.75	7.82	10.35	8281.21	8044.22	9050.39	14.86	14.38	12.68
2011	45.75	45.72	53.41	8.25	8.28	17.80	8325.59	8084.03	9588.27	15.59	15.14	13.17
2012	46.19	46.19	51.89	8.77	8.88	14.90	8710.60	8441.06	10027.51	15.36	14.99	12.85
2013	46.30	46.15	52.95	8.91	8.93	16.05	8994.61	8726.20	10568.47	15.52	14.97	12.90
2014	46.01	45.84	50.52	8.30	8.36	12.75	9175.86	8937.82	10397.19	15.05	14.63	12.75
2015	46.47	46.25	51.62	8.16	7.98	13.52	9796.38	9437.88	11070.28	15.09	14.77	12.78
2016	46.46	46.13	53.48	8.46	8.23	15.75	10328.56	9974.75	11852.10	13.96	13.54	11.97
2017	46.51	46.33	52.97	8.58	8.41	14.70	10870.37	10496.02	12468.27	12.97	12.70	11.19
2018	46.46	46.53	53.19	8.54	8.66	15.10	11370.11	11007.85	12988.79	12.42	12.31	10.75

Notes: The average correction for the Gini index, top 1% income share, total income, and poverty across all years is 3.78 (8.47%), 3.06 (40.00%), 554.72 (8.07%), and -1.54 (8.07%) respectively. The 7-year non-overlapping windows correspond to the ones used in Table 5.

over time but it often appears to be one that includes a quadratic term on income, which fits with recent evidence of non-monotonicity in response rates of the Current Population Survey (see Bollinger et al. (2019)). Finally, we find important upward corrections with respect to uncorrected weights in the Gini index (8.5% on average across years), top income shares (40% on average across years), total income (8.1% on average across years), and a downward correction in poverty rates (-8.1% on average across years).

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Figures

Figure 1: Nonresponse rates

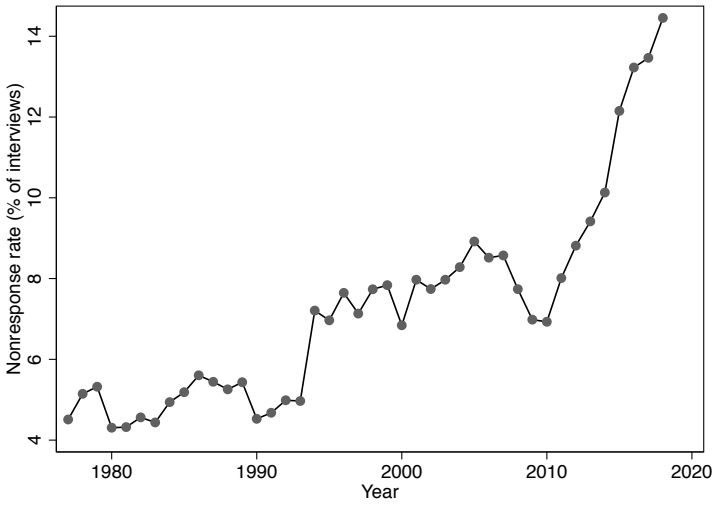
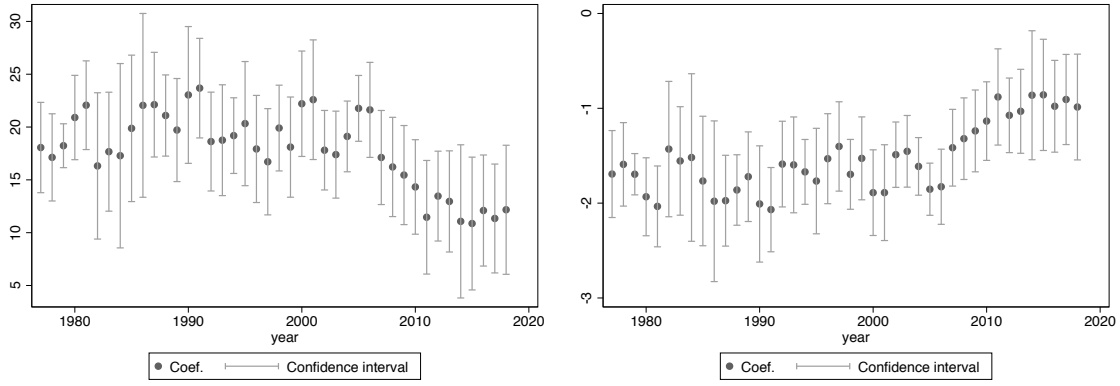


Figure 2: Coefficients over time, $\theta_1 + \theta_2 log(y)$

(a) θ_1 **(b)** θ_2



Online Appendix

Narrow Replication

We reproduce as faithfully as possible every plot and table of the paper except for Table 7 that estimates a specification using data adjusted by cost-of-living. In what follows, we report the original figures and tables together with our replication.

- Table 1 of the paper (Table A1) is replicated in Table A2. It reports sample sizes and nonresponse rates for the data set.
- Table 2 and its replication are reported in the main text of this paper (Table 1). It corresponds to a regression between the log of weights and log of household gross income per capita.
- Table 3 (Table A3) is replicated in Table A4. It reports summary statistics by state for 2004.
- Table 4 and its replication are reported in the main text of the this paper (Table 3). It reports the AIC information criteria for various specifications.
- Table 5 and its replication are reported in the main text of the paper (Table 4). It reports the estimates for various specifications and the associated Gini index.
- Table 6 and its replication are reported in the main text of the paper (Table 2). It reports the estimates of specification 3 for different years.
- Table 7 is not replicated. It uses cos-of-living data to estimate the compliance function in 2004.
- Table 8 (Table A5) is replicated in Table A6. It reports the estimates of augmented specifications for 2004.
- Table 9 (Table A7) is replicated in Table A8. It reports the estimates of augmented specifications with pooled data.
- Figure 1 is replicated in Figure A1. It reports the probability of response for three specifications using data from 1998 to 2004.

- Figure 2 is replicated in Figure A2. It reports the corrected income distribution for 2004 data.
- Figure 3 is replicated in Figure A3. It shows the lower part of the corrected income distribution for 2004 data.
- Figure 4 is replicated in Figure A4. It shows the Lorenz curves for 2004 data.
- Figure 5 is replicated in Figure A5. It reports implied income correction for 2004.
- Figure 6 is replicated in Figure A6. It reports weight correction for 2004.

Table A1: Sample sizes and nonresponse rates for the CPS (Original)

Sample sizes and nonresponse rates for the CPS (1998–2004)

Year	Total number of households	Type A households	Rate of nonresponse (%)
1998	54,574	4221	7.73
1999	55,103	4318	7.84
2000	54,763	3747	6.84
2001	53,932	4299	7.97
2002	84,831	6566	7.74
2003	85,092	6782	7.97
2004	84,116	6967	8.28
All years	472,411	36,900	7.81

Table A2: Sample sizes and nonresponse rates for the CPS (Replication)

	Total number of households	Type A households	Rate of nonresponse
1998	54,574	4,221	7.73
1999	55,103	4,318	7.84
2000	54,763	3,747	6.84
2001	53,932	4,299	7.97
2002	84,831	6,566	7.74
2003	85,092	6,782	7.97
2004	84,116	6,967	8.28
All years	472,411	36,900	7.81

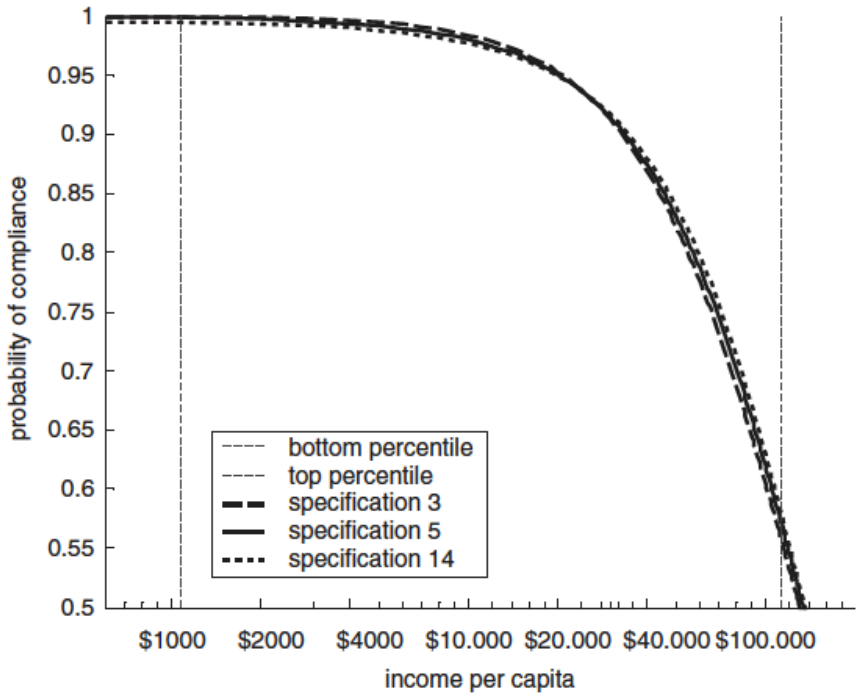
Table A3: Summary statistics by state (2004 CPS, sorted by response rate) (Original)

State	Response rate (%)	Sample size (households)	Income per capita ($)	State	Response rate (%)	Sample size (households)	Income per capita ($)
Alabama	96.47	1,189	15,183	Missouri	92.04	1,269	16,251
North Dakota	96.03	1,082	15,415	Virginia	92.04	1,470	19,322
Indiana	95.73	1,500	16,667	Tennessee	91.62	1,014	14,167
South Dakota	95.53	1,164	14,763	Texas	91.51	3,864	12,547
Utah	95.35	1,010	14,205	Colorado	91.50	1,788	17,816
Wisconsin	95.29	1,528	17,294	Massachusetts	91.49	1,540	19,856
Arkansas	95.29	976	12,704	Michigan	91.46	2,319	16,700
Montana	94.60	871	13,013	Rhode Island	91.44	1,518	17,018
Georgia	94.55	1,175	16,049	Maine	91.44	1,366	15,098
Iowa	93.69	1,379	16,904	Connecticut	91.36	1,574	20,779
Louisiana	93.67	979	12,550	Ohio	91.34	2,517	17,102
Florida	93.51	3,680	15,400	North Carolina	90.78	1,811	14,251
Kansas	93.41	1,441	16,085	South Carolina	90.53	1,162	14,904
Wyoming	93.35	1,128	15,561	Hawaii	90.53	1,193	17,377
Illinois	93.28	2,945	16,898	New Mexico	90.46	1,090	12,000
Arizona	93.23	1,167	13,750	Washington	90.19	1,509	17,751
Nevada	93.23	1,594	15,999	California	90.06	5,984	14,908
Delaware	93.16	1,082	18,039	Oregon	89.99	1,289	15,442
Oklahoma	93.12	1,047	13,667	Vermont	89.04	1,277	17,710
West Virginia	92.91	1,170	13,150	Alaska	88.64	1,206	16,523
Mississippi	92.81	904	13,440	New Hampshire	88.50	1,400	20,367
Idaho	92.81	973	12,494	New Jersey	88.50	2,200	20,208
Minnesota	92.51	1,535	19,194	Maryland	88.00	1,408	20,255
Nebraska	92.47	1,302	16,086	New York	87.56	4,245	16,141
Kentucky	92.18	1,138	14,700	District of Columbia	84.66	1,180	17,210
Pennsylvania	92.14	2,964	17,385				

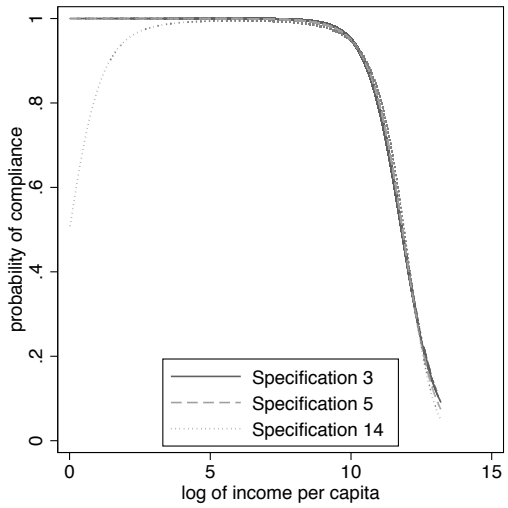
Table A4: Summary statistics by state (2004 CPS, sorted by response rate) (Replication)

State	Response rate (%)	Sample size (households)	Income per capita ($)	State	Response rate (%)	Sample size (households)	Income per capita ($)
Alabama	96.47	1189	22734	Missouri	92.04	1269	25215
North Dakota	96.03	1082	22155	Virginia	92.04	1470	30026
Indiana	95.73	1500	24729	Tennessee	91.62	1014	22632
South Dakota	95.53	1164	22407	Texas	91.51	3864	24621
Utah	95.35	1010	23195	Colorado	91.50	1788	29461
Wisconsin	95.29	1528	26081	Massachusetts	91.49	1540	30906
Arkansas	95.29	976	21619	Michigan	91.46	2319	26472
Montana	94.60	871	21898	Rhode Island	91.44	1518	26545
Georgia	94.55	1175	25200	Maine	91.43	1366	22503
Iowa	93.69	1379	24314	Connecticut	91.36	1574	32428
Louisiana	93.67	979	20100	Ohio	91.34	2517	26424
Florida	93.51	3680	25686	North Carolina	90.78	1811	23568
Kansas	93.41	1441	24257	South Carolina	90.53	1162	23492
Wyoming	93.35	1128	24630	Hawaii	90.53	1193	27184
Illinois	93.28	2945	26895	New Mexico	90.46	1090	23019
Arizona	93.23	1167	27028	Washington	90.19	1509	27640
Nevada	93.22	1594	27034	California	90.06	5984	29801
Delaware	93.16	1082	29480	Oregon	89.99	1289	26166
Oklahoma	93.12	1047	22750	Vermont	89.04	1277	26070
West Virginia	92.91	1170	20496	Alaska	88.64	1206	27939
Mississippi	92.81	904	20107	New Hampshire	88.50	1400	30913
Idaho	92.81	973	24625	New Jersey	88.50	2200	31748
Minnesota	92.51	1535	29363	Maryland	88.00	1408	33955
Nebraska	92.47	1302	24901	New York	87.56	4245	28041
Kentucky	92.18	1138	22504	District of Columbia	84.66	1180	42712
Pennsylvania	92.14	2964	25805				

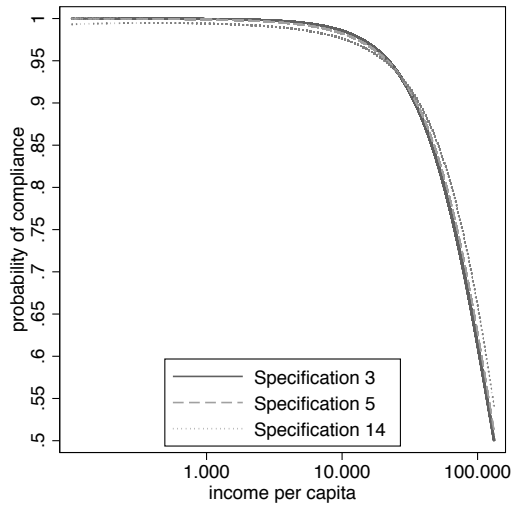
Figure A1: Probability of response function, top three specifications, 1998-2004 data



(a) Original

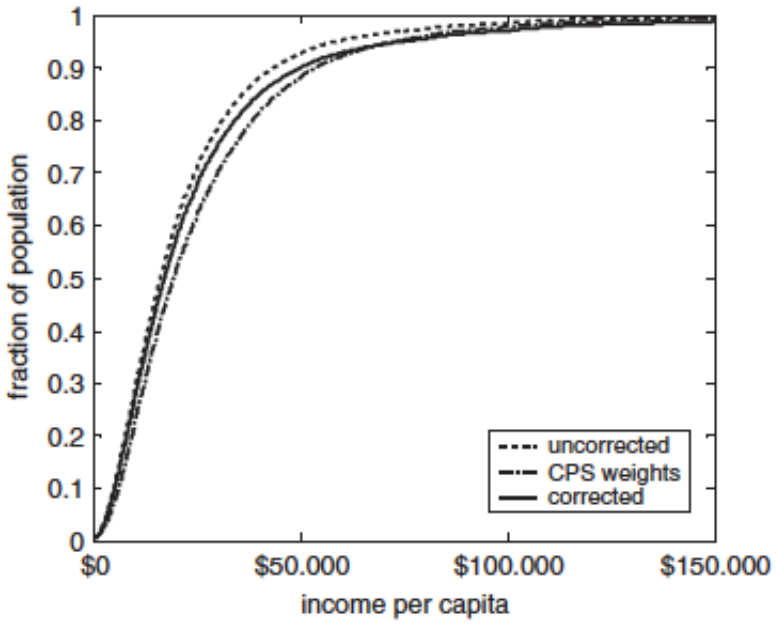


(b) Replication

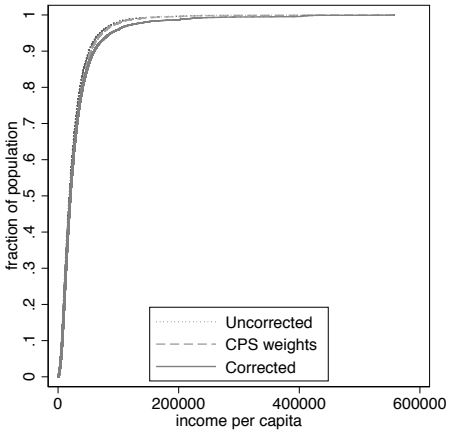


(c) Replication with restricted X axis

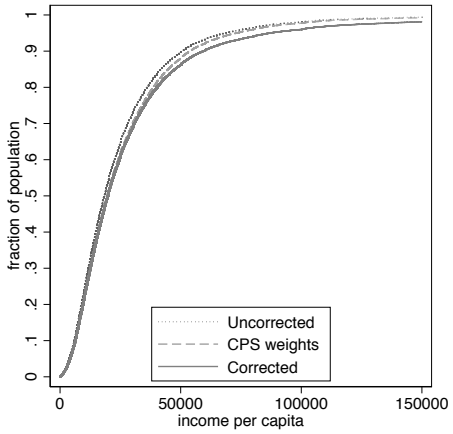
Figure A2: Corrected income distribution for 2004 data.



(a) Original

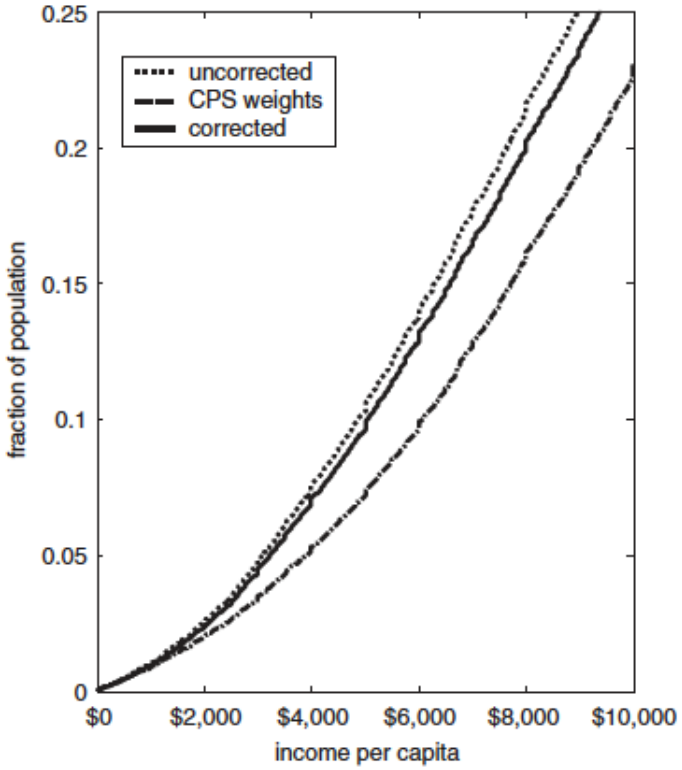


(b) Replication

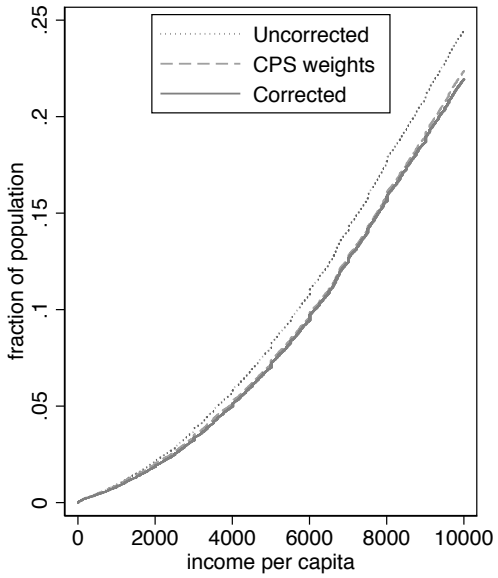


(c) Replication with restricted X axis

Figure A3: Corrected income distribution for 2004 data.



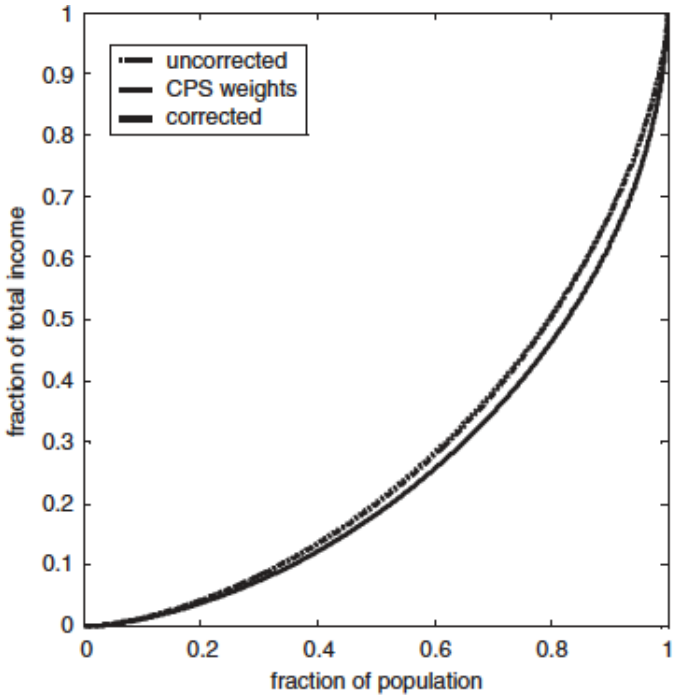
(a) Original



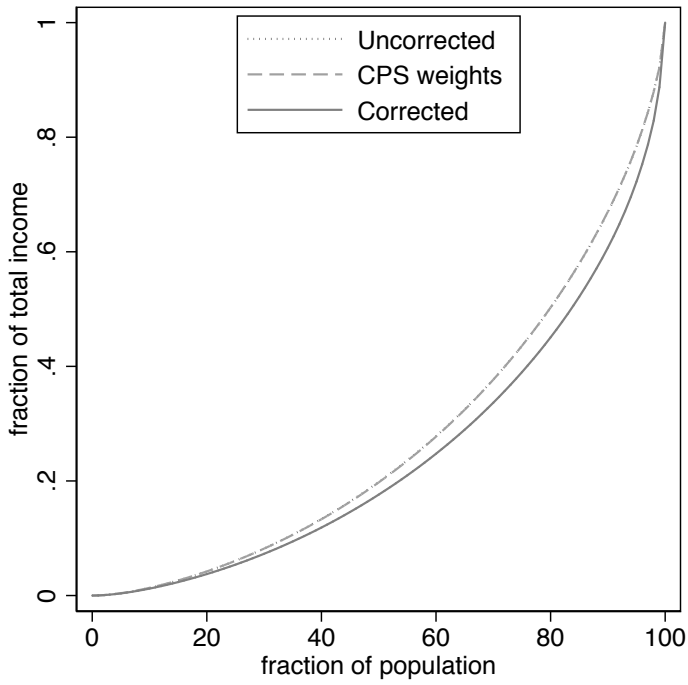
(b) Replication

The figure magnifies the lower part of the cumulative income distribution. Different from the original figure, the replication figure reveals that the correction method assigns less weight to lower income households than the Census Bureau's correction method.

Figure A4: Lorenz curves for 2004 data.

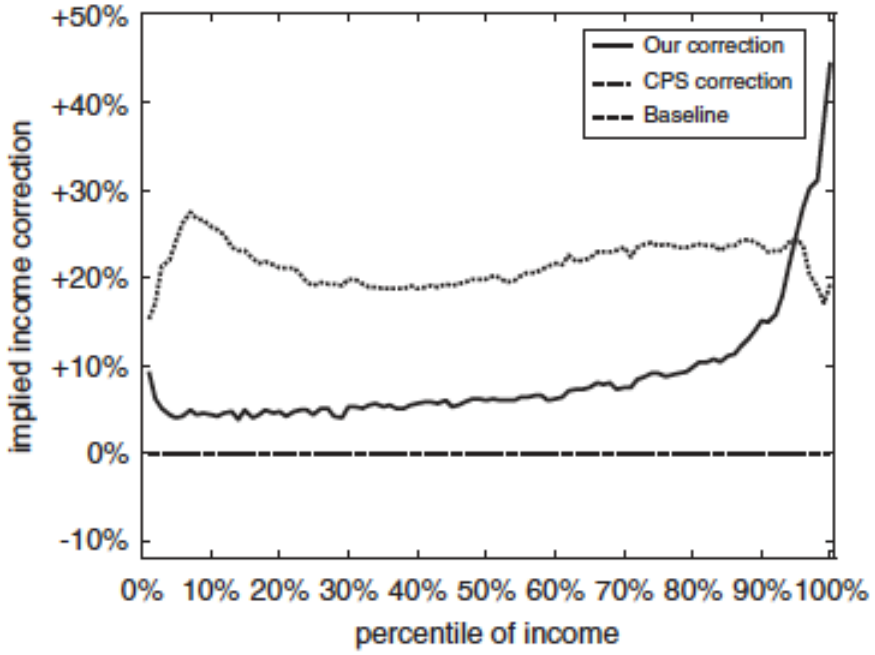


(a) Original

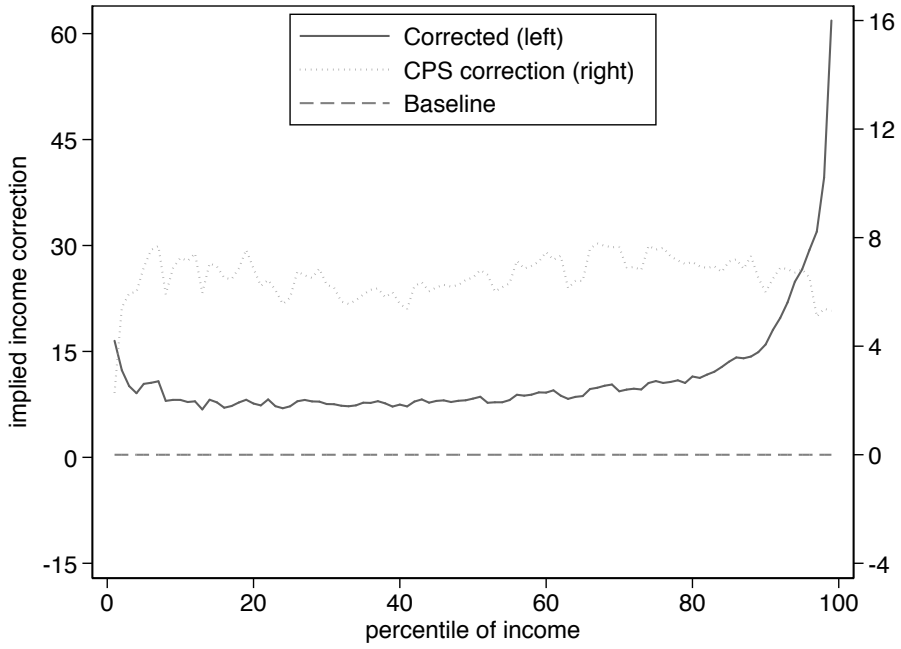


(b) Replication

Figure A5: Implied income correction for 2004.



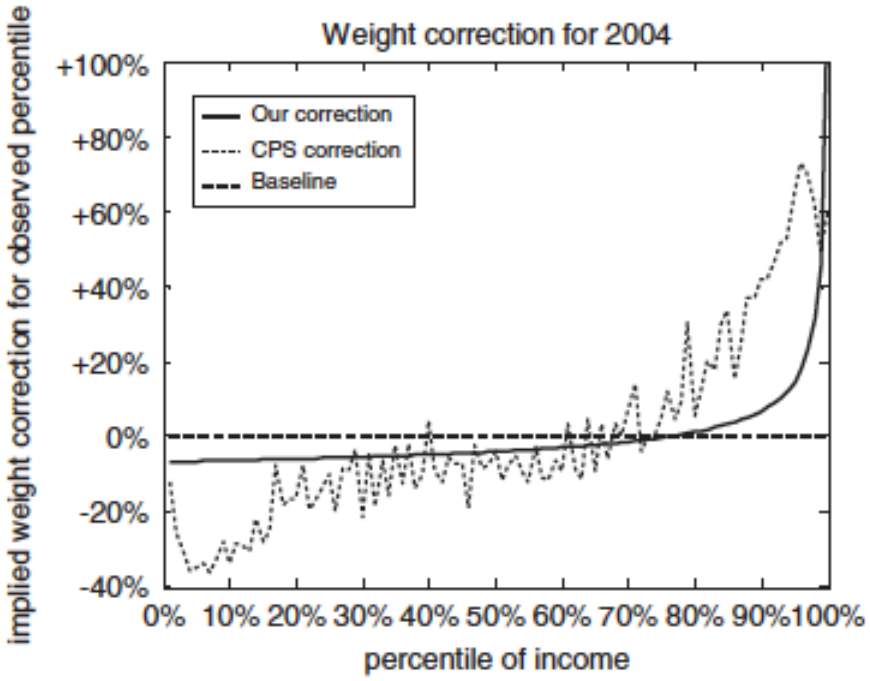
(a) Original



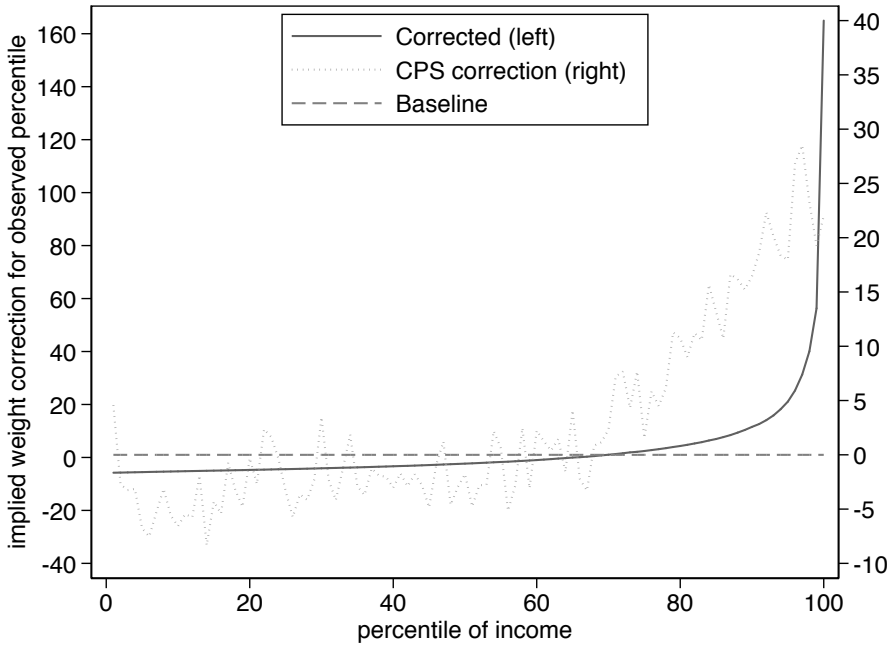
(b) Replication

The figure shows by how much the income of a given income percentile in the corrected distribution is revised with respect to the income of the same percentile in the equally weighted income distribution. The Census Bureau's method implies a relatively upward uniform shift of incomes by roughly 6%. The correction method shifts the income of the top percentile by almost 60%.

Figure A6: Weight correction for 2004.



(a) Original



(b) Replication

The graph shows the implied weight correction by percentile of the unweighted income distribution. The implied weight correction represents the difference between the sum weights of all households contained in a given percentile between the corrected and uncorrected weights. The Census Bureau's method mildly reduces the weights of the lower income percentiles in the un-weighted distribution and increases the weights of the upper third of the observed income distribution. The correction method decreases the weights of all households below the 70rd percentile and increases the weights of the households in the top observed percentiles.

Table A5: Augmented specifications for 2004 data (original)

Specification	θ_1	θ_2	θ_3	θ_4	θ_5	AIC
$z_i = \theta_1 + \theta_2 \ln(y_i)$ [baseline]	19.113	−1.613				−23.881
	(1.708)	(0.155)				
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ hhsize$	18.092	−1.545	0.1315			−22.205
	(2.545)	(0.197)	(0.2623)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{MSA}}$	20.010	−1.705	0.1462			−22.568
	(1.896)	(0.178)	(0.1790)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{homeowner}}$	18.436	−1.648	1.107			−23.271
	(1.571)	(0.151)	(0.678)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{female}}$	18.804	−1.569	−0.3703			−22.204
	(1.808)	(0.18)	(0.7412)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{caucasian}}$	17.669	−1.499	0.2607			−22.689
	(2.290)	(0.199)	(0.2799)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{working}}$	19.143	−1.612	−0.0455			−21.883
	(1.715)	(0.172)	(1.2631)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{unemployed}}$	18.709	−1.57	−1.4699			−22.241
	(1.766)	(0.163)	(1.3966)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ edu$	17.304	−1.183	−0.2567			−23.231
	(2.38)	(0.437)	(0.2456)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{edu \geqslant master}$	11.347	−0.821	−1.9618			−26.625
	(4.51)	(0.479)	(1.1183)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ age$	19.866	−1.629	−0.0114			−22.345
	(2.327)	(0.162)	(0.0221)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ age + \theta_4\ age^2$	127.215	−1.784	−3.934	0.03596		−36.922
	(50.518)	(0.138)	(1.850)	(0.01671)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ age + \theta_4\ age^2 + \theta_5\ I_{edu \geqslant\ master}$	97.365	−1.572	−2.909	0.02653	−0.6948	−38.500
	(44.926)	(0.215)	(1.661)	(0.01500)	(0.3835)	
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{region 2}} + \theta_4\ I_{\text{region 3}} + \theta_5\ I_{\text{region 4}}$	16.991	−1.428	0.2762	0.1020	0.0744	−26.122
	(1.794)	(0.164)	(0.1012)	(0.0809)	(0.0816)	
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\ I_{\text{region 2}}$	17.319	−1.453	0.2126			−28.219
	(1.813)	(0.166)	(0.0935)			

Table A6: Augmented specifications for 2004 data (replication)

	θ_1	θ_2	θ_3	θ_4	θ_5	AIC
$z_i = \theta_1 + \theta_2 ln(y_i)[baseline]$	19.113	-1.613				-23.881
	(1.708)	(0.155)				
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 hhsize$	18.092	-1.545	0.131			-22.205
	(2.545)	(0.197)	(0.262)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{MSA}$	20.051	-1.703	0.011			12.669
	(2.341)	(0.224)	(0.312)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{homeowner}$	12.829	-1.118	1.522			-32.628
	(2.251)	(0.202)	(0.426)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{female}$	18.804	-1.569	-0.370			-22.204
	(1.808)	(0.180)	(0.741)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{caucasian}$	18.288	-1.551	0.179			-22.182
	(2.197)	(0.187)	(0.320)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{working}$	19.143	-1.612	-0.045			-21.883
	(1.715)	(0.172)	(1.263)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{unemployed}$	18.728	-1.572	-1.433			-22.213
	(1.765)	(0.163)	(1.434)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 edu$	17.758	-1.241	-0.175			-23.319
	(2.310)	(0.412)	(0.167)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{edu \geq master}$	11.347	-0.821	-1.962			-26.625
	(4.510)	(0.479)	(1.118)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 age$	19.866	-1.629	-0.011			-22.345
	(2.327)	(0.162)	(0.022)			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 age + \theta_4 age^2$	127.613	-1.784	-3.949	0.036		-36.922
	(50.683)	(0.138)	(1.856)	(0.017)		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 age + \theta_4 age^2 + \theta_5 I_{edu \geq master}$	296.253	-1.177	-7.089	0.044	-1.132	7.138
	(205.029)	(0.234)	(5.157)	(0.032)	(0.500)	
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{region2} + \theta_4 I_{region3} + \theta_5 I_{region4}$	16.991	-1.428	0.276	0.102	0.074	-26.122
	(1.794)	(0.164)	(0.101)	(0.081)	(0.082)	
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{region2}$	17.319	-1.453	0.213			-28.219
	(1.813)	(0.166)	(0.093)			

Notes: I_{MSA} is coded as 1 if household is in metropolitan central city (variable metro in IPUMS); $I_{homeowner}$ is coded as 1 if ownershp in IPUMS equal 10; $I_{caucasian}$ coded as 1 if race is "white"; $I_{homeowner}$ is coded as 1 if empstat is unemployed and not in the labor force are coded with 0; edu is coded from the categorical variable educ.

Table A7: Augmented specifications for pooled data from 1998 to 2004 (original)

Specification	θ_1	θ_2	θ_3	θ_4	AIC
$z_i = \theta_1 + \theta_2 \ln(y_i)$ [baseline]	18.838	−1.599			−262.51
	(0.793)	(0.073)			
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, hhsize$	21.383	−1.759	−0.342		−275.65
	(1.022)	(0.085)	(0.068)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{\text{MSA}}$	18.892	−1.605	0.010		−260.52
	(0.925)	(0.089)	(0.092)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{\text{female}}$	18.383	−1.521	−0.812		−270.74
	(0.813)	(0.080)	(0.308)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{\text{caucasian}}$	19.004	−1.611	−0.116		−273.01
	(0.776)	(0.071)	(0.038)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{\text{working}}$	18.808	−1.617	0.281		−261.14
	(0.802)	(0.082)	(0.411)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{\text{unemployed}}$	18.472	−1.561	−1.336		−264.78
	(0.807)	(0.075)	(0.438)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3 edu$	16.587	−1.162	−0.223		−271.22
	(1.041)	(0.167)	(0.085)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, I_{edu \geqslant master}$	15.482	−1.231	−1.020		−269.95
	(1.434)	(0.158)	(0.445)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3 age$	19.274	−1.614	−0.006		−261.04
	(1.065)	(0.076)	(0.009)		
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, age + \Gamma_4\, age^2$	20.180	−1.607	−0.045	0.0004	−259.47
	(2.302)	(0.077)	(0.081)	(0.0007)	
$z_i = \theta_1 + \theta_2 \ln(y_i) + \theta_3\, year$	18.858	−1.595	−0.020		−269.98
	(0.785)	(0.072)	(0.008)		
$z_i = \theta_1 + year \times \theta_3 + [\theta_2 + year \times \theta_4] \ln(y_i)$	22.179	−1.898	−0.948	0.0849	−273.42
	(1.293)	(0.117)	(0.310)	(0.0283)	

Table A8: Augmented specifications for pooled data from 1998 to 2004 (replication)

	θ_1	θ_2	θ_3	θ_4	AIC
$z_i = \theta_1 + \theta_2 ln(y_i)[baseline]$	19.511	-1.650			-160.041
	0.943	0.086			
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 hhsize$	19.656	-1.659	-0.020		-158.067
	1.302	0.104	0.123		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{MSA}$	19.359	-1.612	-0.036		25.834
	1.229	0.120	0.195		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{female}$	19.033	-1.576	-0.709		-163.627
	0.968	0.094	0.353		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{caucasian}$	18.308	-1.569	0.388		-166.233
	1.102	0.097	0.143		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{working}$	19.331	-1.680	0.672		-161.346
	0.961	0.094	0.394		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{unemployed}$	18.860	-1.585	-1.370		-161.232
	0.971	0.090	0.492		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 edu$	18.919	-1.514	-0.059		-159.270
	1.088	0.156	0.059		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 I_{edu \geq master}$	18.224	-1.523	-0.344		-159.083
	1.454	0.140	0.321		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 age$	20.559	-1.678	-0.015		-161.607
	1.176	0.087	0.010		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 age + \theta_4 age^2$	24.069	-1.664	-0.150	0.001	-162.753
	3.219	0.088	0.112	0.001	
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 year$	76.721	-1.640	-0.029		-170.158
	18.475	0.085	0.009		
$z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 year + \theta_4 year * ln(y_i)$	915.723	-78.048	-.448	0.038	-172.004
	(1.733)	(0.000)	(.001)	(.)	

Notes: I_{MSA} is coded as 1 if household is in metropolitan central city (variable metro in IPUMS); $I_{homeowner}$ is coded as 1 if ownershp in IPUMS equal 10; $I_{caucasian}$ coded as 1 if race is "white"; $I_{homeowner}$ is coded as 1 if empstat is unemployed and not in the labor force are coded with 0; edu is coded from the categorical variable educ.

Table B1: Sample sizes and nonresponse rates for the CPS

	Total number of households	Type A households	Rate of nonresponse
1977	58163	2623	4.51
1978	57733	2971	5.15
1979	58029	3088	5.32
1980	68174	2936	4.31
1981	68700	2969	4.32
1982	62110	2834	4.56
1983	61960	2749	4.44
1984	62246	3075	4.94
1985	63070	3271	5.19
1986	62434	3499	5.60
1987	61634	3355	5.44
1988	62247	3272	5.26
1989	58514	3179	5.43
1990	62783	2842	4.53
1991	62869	2940	4.68
1992	62327	3108	4.99
1993	62053	3083	4.97
1994	61512	4433	7.21
1995	61204	4263	6.97
1996	53795	4113	7.65
1997	54175	3864	7.13
1998	54574	4221	7.73
1999	55103	4318	7.84
2000	54763	3747	6.84
2001	53932	4299	7.97
2002	84831	6566	7.74
2003	85092	6782	7.97
2004	84116	6967	8.28
2005	83932	7485	8.92
2006	83009	7070	8.52
2007	82554	7077	8.57
2008	82235	6363	7.74
2009	81904	5719	6.98
2010	81938	5678	6.93
2011	81737	6549	8.01
2012	81573	7190	8.81
2013	82598	7777	9.42
2014	57303	5805	10.13
2015	84528	10271	12.15
2016	80074	10590	13.23
2017	80842	10885	13.46
2018	79382	11473	14.45

Table B2: AIC for various specifications. all the years

	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
1	-77.67	-66.28	-61.82	-69.23	-64.59	-55.87	-70.27	-46.73	-51.49	-34.53	-38.79	-43.89	-38.79	-53.36	-57.14	-66.49	-62.35	-37.92	-36.73	-24.01	-35.72
2	-69.70	-59.70	-54.55	-61.45	-57.49	-50.54	-64.60	-43.18	-46.17	-30.08	-32.71	-35.33	-31.93	-47.11	-52.26	-60.96	-59.99	-35.47	-35.64	-22.98	-33.53
3	-105.31	**-88.28**	-98.03	**-113.01**	-106.97	**-68.51**	-87.57	-58.14	-72.03	-53.70	-65.94	-92.46	**-66.51**	**-89.73**	-93.00	-92.99	-78.63	-59.45	-47.59	-33.71	-49.04
4	-61.34	-52.84	-47.42	-53.98	-50.45	-45.14	-58.72	-39.06	-40.49	-25.35	-26.30	-27.23	-25.08	-41.12	-47.51	-55.52	-57.18	-32.80	-34.20	-21.45	-30.70
5	-105.58	-88.18	**-98.09**	-112.57	-106.01	-68.09	-87.91	-58.22	-73.25	-53.96	**-66.10**	-88.76	-65.83	-88.86	-93.20	-92.24	-79.25	-60.60	-48.40	-33.90	-48.40
6	**-105.83**	-87.89	-97.30	-111.68	-104.59	-67.32	**-88.38**	-58.46	-75.59	**-54.19**	-66.09	-83.70	-64.68	-87.30	**-93.47**	-90.90	-80.37	**-62.00**	**-49.51**	**-34.10**	-47.87
7	-103.84	-86.29	-96.13	-111.42	-107.63	-67.78	-86.40	**-60.69**	-78.83	-52.20	-64.13	-100.03	-66.07	-88.50	-91.95	-92.39	-79.78	-60.61	-48.51	-32.98	-50.02
8	-29.77	-23.56	-18.56	-27.13	-26.68	-26.76	-40.80	-23.58	-21.06	-7.66	-3.52	-2.70	-2.42	-22.72	-30.71	-37.36	-44.09	-18.94	-23.78	-10.00	-14.19
9	-95.74	-74.90	-75.17	-86.50	-78.34	-58.42	-86.61	-53.31	**-109.27**	-46.06	-51.72	-49.93	-46.21	-61.43	-78.74	-70.90	**-89.68**	-55.05	-47.32	-25.84	-38.77
10	-88.01	-68.08	-66.37	-77.44	-69.49	-53.18	-81.36	-50.25	-105.69	-42.01	-45.20	-40.36	-38.67	-53.78	-72.45	-64.82	-86.99	-51.52	-45.95	-24.13	-36.28
11	-103.36	-86.51	-96.18	-111.45	-107.67	-68.17	-87.57	-56.15	-107.47	-51.71	-64.08	-100.74	-66.15	-88.49	-91.18	-93.04	-88.14	-58.40	-47.00	-31.75	-52.06
12	-77.74	-60.08	-57.34	-67.82	-59.87	-47.30	-73.83	-45.58	-96.78	-36.53	-37.53	-31.02	-30.51	-46.00	-65.12	-58.52	-80.36	-46.65	-43.25	-21.89	-32.73
13	-103.58	-86.68	-96.10	-111.46	-107.67	-68.25	-87.65	-56.22	-107.49	-52.00	-64.12	-100.92	-66.18	-88.49	-91.28	-93.21	-88.24	-59.01	-47.39	-32.14	-52.34
14	-103.92	-86.93	-95.92	-111.48	**-107.68**	-68.35	-87.68	-56.48	-107.94	-52.42	-64.15	**-101.13**	-66.22	-88.50	-91.48	**-93.43**	-89.04	-60.06	-48.15	-32.75	**-52.78**
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
1	-25.66	-21.20	-32.55	-15.62	3.54	-0.94	4.44	22.71	30.89	22.61	-5.02	-15.51	-12.42	-13.01	5.03	18.17	12.05	36.73	38.34	40.95	67.72
2	-22.99	-18.47	-29.57	-13.49	8.53	4.37	7.63	26.11	33.36	25.94	-1.67	-10.99	-6.86	-9.56	9.02	22.97	15.72	41.36	42.33	44.89	70.46
3	-51.08	-40.20	**-67.48**	**-36.51**	**-26.69**	**-30.91**	-23.88	-25.80	**-1.07**	0.88	**-22.49**	**-33.17**	-30.11	**-20.20**	**-8.61**	2.87	3.84	25.92	**25.23**	**29.83**	59.44
4	-20.16	-15.62	-27.07	-11.71	13.33	9.52	10.67	29.45	35.58	29.22	1.58	-6.37	-1.53	-5.86	12.84	27.65	19.76	46.20	46.38	48.96	73.34
5	-51.44	-40.29	-67.37	-36.03	-26.46	-30.25	-24.72	-24.47	-0.64	1.60	-22.14	-33.01	-29.62	-19.87	-8.28	3.56	4.55	26.53	25.60	30.30	59.20
6	**-51.84**	**-40.34**	-67.11	-35.41	-25.99	-29.24	-25.70	-22.59	-0.02	2.56	-21.45	-32.81	-28.88	-19.18	-7.64	4.74	5.41	27.48	26.36	31.10	**58.86**
7	-49.87	-38.34	-65.48	-36.22	-23.94	-30.22	-23.74	-25.29	-0.02	-2.54	-20.93	-30.98	-26.88	-18.65	-8.13	**1.82**	5.72	29.36	26.73	30.49	60.76
8	-6.78	-2.65	-19.43	-6.23	31.31	28.32	24.34	42.51	43.74	42.00	15.75	9.95	16.46	10.43	27.22	44.49	36.20	67.18	64.13	65.73	86.05
9	-47.25	-31.51	-46.18	-25.79	-16.23	-13.82	**-26.78**	11.95	16.59	16.08	-10.53	-26.83	-19.85	-12.01	1.52	15.25	12.13	36.55	35.19	37.89	59.57
10	-43.72	-27.82	-40.42	-22.92	-10.63	-8.12	-24.30	18.27	21.41	20.33	-6.72	-23.67	-14.08	125.86	5.67	19.73	15.40	40.92	38.89	40.77	61.64
11	-50.07	-38.20	-65.72	-36.01	-24.78	-30.23	-26.16	-25.69	0.68	-5.30	-21.37	-31.78	-35.33	-19.15	-8.46	2.13	-4.19	25.37	26.56	30.16	59.23
12	-38.74	-23.23	-34.71	-19.84	-3.67	-1.61	-20.49	24.50	26.59	24.95	-2.65	-19.47	-7.40	-4.98	9.89	24.21	19.22	45.66	42.89	43.66	64.27
13	-50.08	-38.33	-66.06	-35.98	-24.74	-30.22	-26.21	**-25.82**	0.85	**-7.18**	-21.54	-31.81	**-36.36**	-19.31	-8.52	2.18	**-4.99**	25.40	26.52	30.09	59.35
14	-50.14	-38.54	-66.62	-35.97	-24.72	-30.22	-26.22	-26.03	1.05	-5.87	-21.68	-31.88	-35.37	-19.53	-8.57	2.22	-3.33	**25.25**	26.53	30.00	62.07

Notes:

$1 : z_i = \theta_1$
$2 : z_i = \theta_1 ln(y_i)$
$3 : z_i = \theta_1 + \theta ln(y_i)$
$4 : z_i = \theta_1 ln(y_i)^2$
$5 : z_i = \theta_1 + \theta_2 ln(y_i)^2$
$6 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$
$7 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 ln(y_i)^2$
$8 : z_i = \theta_1 y_i$
$9 : z_i = \theta_1 + \theta_2 y_i$
$10 : z_i = \theta_1 ln(y_i) + \theta_2 y_i$
$11 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 y_i$
$12 : z_i = \theta_1 ln(y_i)^2 + \theta_2 y_i$
$13 : z_i = \theta_1 + \theta_2 ln(y_i)^2 + \theta_3 y_i$
$14 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$

Table B3: AIC for various specifications. Pooled data using years 1977-2018

Specification	AIC	BIC
$1 : z_i = \theta_1$	1386.86	1384.86
$2 : z_i = \theta_1 ln(y_i)$	1508.38	1506.38
$3 : z_i = \theta_1 + \theta ln(y_i)$	8.71	6.10
$4 : z_i = \theta_1 ln(y_i)^2$	1628.63	1626.63
$5 : z_i = \theta_1 + \theta_2 ln(y_i)^2$	16.61	14.00
$6 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2$	45.25	42.64
$7 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 ln(y_i)^2$	**-114.02**	**-116.72**
$8 : z_i = \theta_1 y_i$	2045.52	2043.52
$9 : z_i = \theta_1 + \theta_2 y_i$	1171.95	1169.33
$10 : z_i = \theta_1 ln(y_i) + \theta_2 y_i$	1355.96	1353.34
$11 : z_i = \theta_1 + \theta_2 ln(y_i) + \theta_3 y_i$	10.41	7.70
$12 : z_i = \theta_1 ln(y_i)^2 + \theta_2 y_i$	1529.28	1526.66
$13 : z_i = \theta_1 + \theta_2 ln(y_i)^2 + \theta_3 y_i$	13.00	10.30
$14 : z_i = \theta_1 ln(y_i) + \theta_2 ln(y_i)^2 + \theta_3 y_i$	11.67	8.97

Table B4: Nonresponse biases on different measures according to specification 3 estimated using pooled data

	Gini			Top 1 income share			Total income (billions)			Poverty rate		
	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected
1977	39.23	39.04	40.87	5.35	5.33	6.17	1087.35	1096.37	1128.27	12.30	11.63	11.76
1978	39.40	39.29	41.40	5.52	5.53	6.82	1204.86	1211.20	1254.94	11.86	11.38	11.30
1979	39.43	39.27	41.44	5.41	5.40	6.62	1340.61	1352.15	1396.46	11.63	11.12	11.13
1980	39.16	39.00	40.58	5.08	5.09	5.76	1516.57	1525.82	1562.43	12.02	11.53	11.57
1981	39.33	39.13	40.70	5.08	5.07	5.73	1697.51	1706.06	1746.77	13.36	12.87	12.88
1982	40.45	40.38	42.29	5.51	5.55	6.65	1880.05	1893.36	1956.81	14.70	14.04	14.08
1983	41.21	41.02	42.77	5.61	5.61	6.39	2006.77	2027.13	2087.21	15.89	15.13	15.16
1984	41.30	41.13	43.01	5.46	5.44	6.39	2138.40	2154.37	2226.72	16.02	15.44	15.36
1985	41.72	41.65	44.07	5.96	5.94	7.38	2364.75	2384.60	2506.20	15.04	14.64	14.23
1986	41.72	41.57	43.37	5.57	5.53	6.39	2535.30	2549.32	2671.02	14.63	14.26	13.81
1987	41.80	41.62	43.91	5.75	5.70	7.07	2703.22	2719.82	2849.63	14.43	13.88	13.60
1988	41.72	41.56	43.98	5.80	5.77	7.28	2898.95	2912.20	3063.43	13.38	12.96	12.50
1989	42.02	42.01	44.23	5.94	5.92	7.45	3074.57	3106.84	3243.30	12.99	12.65	12.10
1990	42.23	42.08	44.55	5.95	5.95	7.16	3307.24	3332.57	3520.57	13.01	12.43	12.11
1991	42.20	41.96	44.24	5.80	5.75	6.98	3418.94	3455.59	3618.96	13.84	13.16	13.01
1992	42.18	41.94	44.15	5.78	5.75	6.89	3523.37	3566.51	3728.59	14.51	13.75	13.60
1993	42.32	42.07	44.17	5.73	5.69	6.74	3630.28	3678.92	3839.23	14.96	14.14	13.94
1994	42.57	42.40	44.70	5.79	5.72	7.07	3780.99	3822.62	4019.60	15.19	14.67	14.14
1995	42.67	42.38	44.69	5.86	5.78	6.80	4011.74	4048.32	4276.42	14.65	14.00	13.49
1996	44.74	44.40	50.86	7.74	7.70	11.80	4431.82	4477.84	5018.88	14.07	13.37	13.27
1997	45.47	45.12	53.02	8.67	8.56	12.76	4726.05	4762.08	5474.38	13.87	13.24	13.05
1998	45.62	45.32	53.23	8.39	8.32	12.45	5078.38	5097.16	5951.35	13.20	12.66	12.42
1999	45.16	44.87	51.54	7.76	7.73	11.16	5369.66	5388.84	6220.80	12.50	12.06	11.79
2000	44.57	44.31	48.37	6.86	6.80	8.26	5591.37	5637.77	6161.06	11.69	11.24	11.01
2001	45.07	45.17	51.03	7.82	7.93	11.00	6350.75	6185.38	7291.08	11.10	10.71	10.03
2002	45.48	45.51	52.03	8.22	8.33	11.60	6539.14	6364.25	7539.00	11.30	10.93	10.28
2003	45.35	45.26	52.81	8.32	8.27	13.06	6609.66	6440.97	7731.31	11.88	11.40	10.84
2004	45.16	45.20	51.23	7.71	7.81	11.74	6786.80	6620.82	7847.59	12.10	11.63	10.89
2005	45.19	45.23	52.51	8.13	8.19	12.99	7016.28	6858.24	8289.75	12.28	11.82	11.05
2006	45.63	45.63	52.70	8.18	8.29	12.54	7389.59	7249.47	8761.31	12.15	11.70	11.00
2007	45.54	45.48	52.26	7.97	7.96	11.89	7875.93	7726.82	9382.53	11.89	11.44	10.63
2008	45.01	44.98	50.94	7.44	7.42	11.16	8027.73	7903.77	9401.12	12.05	11.62	10.70
2009	45.05	45.10	50.79	7.65	7.75	11.02	8166.71	8022.09	9503.63	12.75	12.34	11.41
2010	45.59	45.53	51.39	7.74	7.82	11.21	8166.92	8044.22	9564.25	13.93	13.42	12.53
2011	45.74	45.72	56.79	8.25	8.28	19.90	8195.75	8084.03	10343.88	14.60	14.10	13.02
2012	46.18	46.19	57.30	8.76	8.88	18.26	8575.98	8441.06	11132.26	14.37	13.92	12.89
2013	46.30	46.15	58.84	8.91	8.93	19.40	8857.40	8726.20	11931.48	14.49	13.90	12.93
2014	46.00	45.84	54.90	8.29	8.36	15.65	9043.41	8937.82	11315.81	14.11	13.47	12.80
2015	46.46	46.25	56.41	8.15	7.98	17.20	9642.52	9437.88	12162.97	14.07	13.71	12.79
2016	46.45	46.13	59.29	8.45	8.23	18.88	10176.40	9974.75	13355.61	13.00	12.55	11.97
2017	46.50	46.33	58.33	8.57	8.41	16.94	10711.01	10496.02	14045.65	12.01	11.69	11.17
2018	46.45	46.53	58.73	8.54	8.66	17.57	11200.16	11007.85	14606.29	11.45	11.27	10.72

Notes: The average correction for the Gini index, top 1% income share, total income, and poverty across all years is 5.31 (11.81%), 3.64 (46.80%), 978.04 (13.60%), and -0.96 (13.60%) respectively.

Table B5: Nonresponse biases on different measures according to specification 7 estimated using pooled data

	Gini			Top 1 income share			Total income (billions)			Poverty rate		
	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected
1977	39.23	39.04	40.40	5.35	5.33	5.98	1087.35	1096.37	1117.59	12.30	11.63	11.81
1978	39.40	39.29	40.88	5.52	5.53	6.58	1204.86	1211.20	1242.11	11.86	11.38	11.35
1979	39.43	39.27	40.96	5.41	5.40	6.46	1340.61	1352.15	1382.33	11.63	11.12	11.20
1980	39.16	39.00	40.18	5.08	5.09	5.62	1516.57	1525.82	1547.58	12.02	11.53	11.65
1981	39.33	39.13	40.31	5.08	5.07	5.60	1697.51	1706.06	1731.63	13.36	12.87	12.94
1982	40.45	40.38	41.82	5.51	5.55	6.45	1880.05	1893.36	1935.50	14.70	14.04	14.19
1983	41.21	41.02	42.30	5.61	5.61	6.22	2006.77	2027.13	2063.30	15.89	15.13	15.26
1984	41.30	41.13	42.59	5.46	5.44	6.21	2138.40	2154.37	2199.93	16.02	15.44	15.52
1985	41.72	41.65	43.48	5.96	5.94	7.17	2364.75	2384.60	2468.82	15.04	14.64	14.35
1986	41.72	41.57	42.89	5.57	5.53	6.23	2535.30	2549.32	2632.44	14.63	14.26	13.97
1987	41.80	41.62	43.40	5.75	5.70	6.94	2703.22	2719.82	2806.37	14.43	13.88	13.74
1988	41.72	41.56	43.47	5.80	5.77	7.14	2898.95	2912.20	3016.33	13.38	12.96	12.64
1989	42.02	42.01	43.65	5.94	5.92	7.28	3074.57	3106.84	3191.90	12.99	12.65	12.21
1990	42.23	42.08	43.96	5.95	5.95	7.05	3307.24	3332.57	3460.35	13.01	12.43	12.23
1991	42.20	41.96	43.69	5.80	5.75	6.83	3418.94	3455.59	3561.63	13.84	13.16	13.15
1992	42.18	41.94	43.63	5.78	5.75	6.79	3523.37	3566.51	3671.79	14.51	13.75	13.72
1993	42.32	42.07	43.69	5.73	5.69	6.62	3630.28	3678.92	3777.50	14.96	14.14	14.13
1994	42.57	42.40	44.20	5.79	5.72	6.92	3780.99	3822.62	3952.65	15.19	14.67	14.32
1995	42.67	42.38	44.15	5.86	5.78	6.71	4011.74	4048.32	4204.92	14.65	14.00	13.63
1996	44.74	44.40	50.24	7.74	7.70	12.15	4431.82	4477.84	4882.34	14.07	13.37	13.46
1997	45.47	45.12	52.31	8.67	8.56	13.11	4726.05	4762.08	5299.29	13.87	13.24	13.37
1998	45.62	45.32	52.56	8.39	8.32	12.85	5078.38	5097.16	5756.69	13.20	12.66	12.62
1999	45.16	44.87	50.87	7.76	7.73	11.46	5369.66	5388.84	6015.16	12.50	12.06	12.03
2000	44.57	44.31	47.61	6.86	6.80	8.27	5591.37	5637.77	5986.05	11.69	11.24	11.21
2001	45.07	45.17	50.30	7.82	7.93	11.25	6350.75	6185.38	7054.26	11.10	10.71	10.30
2002	45.48	45.51	51.29	8.22	8.33	12.01	6539.14	6364.25	7297.50	11.30	10.93	10.46
2003	45.35	45.26	52.30	8.32	8.27	13.56	6609.66	6440.97	7498.02	11.88	11.40	11.05
2004	45.16	45.20	50.71	7.71	7.81	12.07	6786.80	6620.82	7602.26	12.10	11.63	11.25
2005	45.19	45.23	52.14	8.13	8.19	13.48	7016.28	6858.24	8017.24	12.28	11.82	11.52
2006	45.63	45.63	52.19	8.18	8.29	13.00	7389.59	7249.47	8485.59	12.15	11.70	11.19
2007	45.54	45.48	51.83	7.97	7.96	12.36	7875.93	7726.82	9049.99	11.89	11.44	11.04
2008	45.01	44.98	50.50	7.44	7.42	11.58	8027.73	7903.77	9102.35	12.05	11.62	11.07
2009	45.05	45.10	50.11	7.65	7.75	11.19	8166.71	8022.09	9200.89	12.75	12.34	11.66
2010	45.59	45.53	50.83	7.74	7.82	11.43	8166.92	8044.22	9238.05	13.93	13.42	13.13
2011	45.74	45.72	59.70	8.25	8.28	24.04	8195.75	8084.03	10464.16	14.60	14.10	13.28
2012	46.18	46.19	58.84	8.76	8.88	20.33	8575.98	8441.06	11028.23	14.37	13.92	13.33
2013	46.30	46.15	61.01	8.91	8.93	22.01	8857.40	8726.20	12086.91	14.49	13.90	13.25
2014	46.00	45.84	55.75	8.29	8.36	17.34	9043.41	8937.82	11044.56	14.11	13.47	13.38
2015	46.46	46.25	58.47	8.15	7.98	19.71	9642.52	9437.88	11840.73	14.07	13.71	14.31
2016	46.45	46.13	61.89	8.45	8.23	21.23	10176.40	9974.75	13241.66	13.00	12.55	12.86
2017	46.50	46.33	60.33	8.57	8.41	19.18	10711.01	10496.02	13808.04	12.01	11.69	12.12
2018	46.45	46.53	61.02	8.54	8.66	19.40	11200.16	11007.85	14375.94	11.45	11.27	12.00

Notes: The average correction for the Gini index, top 1% income share, total income, and poverty rate across all years is 5.26 (11.64%), 4.15 (52.54%), 4849.75 (11.40%) and -0.65 (-4.88%) respectively.

Table B6: Nonresponse biases on different measures according to specification 7 estimated year by year

	Gini			Top 1 income share			Total income (billions)			Poverty rate		
	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected	Grossed-up	CPS	Corrected
1977	39.23	39.04	41.03	5.35	5.33	6.39	1094.67	1096.37	1126.85	12.30	11.63	11.80
1978	39.40	39.29	41.07	5.52	5.53	6.52	1212.48	1211.20	1252.90	11.86	11.38	11.26
1979	39.43	39.27	41.47	5.41	5.40	6.70	1348.52	1352.15	1397.28	11.63	11.12	11.12
1980	39.16	39.00	40.54	5.08	5.09	5.60	1525.01	1525.82	1561.64	12.02	11.53	11.62
1981	39.34	39.13	40.95	5.08	5.07	5.54	1709.01	1706.06	1756.18	13.36	12.87	12.92
1982	40.45	40.38	41.26	5.51	5.55	5.71	1894.50	1893.36	1942.06	14.70	14.04	14.08
1983	41.20	41.02	42.61	5.61	5.61	6.42	2022.84	2027.13	2071.89	15.89	15.13	15.25
1984	41.30	41.13	43.04	5.47	5.44	6.52	2153.52	2154.37	2206.66	16.02	15.44	15.60
1985	41.72	41.65	46.62	5.96	5.94	9.63	2379.80	2384.60	2559.40	15.04	14.64	14.43
1986	41.72	41.57	44.19	5.57	5.53	7.01	2552.11	2549.32	2690.07	14.63	14.26	13.86
1987	41.80	41.62	44.78	5.75	5.70	7.95	2721.34	2719.82	2863.56	14.43	13.88	13.68
1988	41.72	41.56	44.09	5.80	5.77	6.63	2914.89	2912.20	3076.61	13.38	12.96	12.61
1989	42.02	42.01	42.97	5.94	5.92	6.10	3089.48	3106.84	3209.67	12.99	12.65	12.18
1990	42.23	42.08	44.53	5.95	5.95	7.03	3323.10	3332.57	3492.20	13.01	12.43	12.31
1991	42.20	41.96	45.07	5.80	5.75	7.92	3434.61	3455.59	3607.96	13.84	13.16	13.23
1992	42.18	41.94	42.88	5.78	5.75	5.77	3544.28	3566.51	3675.44	14.51	13.75	13.69
1993	42.32	42.07	44.00	5.73	5.69	6.89	3648.13	3678.92	3786.47	14.96	14.14	14.15
1994	42.58	42.40	44.99	5.79	5.72	7.42	3809.92	3822.62	4029.25	15.19	14.67	14.12
1995	42.67	42.38	45.55	5.86	5.78	7.44	4042.65	4048.32	4307.35	14.65	14.00	13.52
1996	44.75	44.40	49.86	7.75	7.70	11.85	4461.04	4477.84	4848.61	14.07	13.37	13.58
1997	45.48	45.12	50.08	8.67	8.56	11.97	4761.07	4762.08	5101.22	13.87	13.24	13.49
1998	45.63	45.32	53.18	8.40	8.32	12.97	5121.72	5097.16	5832.93	13.20	12.66	12.56
1999	45.17	44.87	50.26	7.76	7.73	11.09	5420.43	5388.84	5980.30	12.50	12.06	11.92
2000	44.57	44.31	49.02	6.86	6.80	8.90	5636.45	5637.77	6103.00	11.69	11.24	11.23
2001	45.07	45.17	49.48	7.82	7.93	9.14	6405.83	6185.38	7121.78	11.10	10.71	10.29
2002	45.49	45.51	50.68	8.22	8.33	11.84	6609.28	6364.25	7228.90	11.30	10.93	10.46
2003	45.35	45.26	47.67	8.32	8.27	9.30	6684.65	6440.97	7279.60	11.88	11.40	10.83
2004	45.17	45.20	51.31	7.71	7.81	12.33	6870.85	6620.82	7750.77	12.10	11.63	10.95
2005	45.20	45.23	53.49	8.13	8.19	12.42	7109.55	6858.24	8628.79	12.28	11.82	10.99
2006	45.64	45.63	54.66	8.18	8.29	13.52	7485.36	7249.47	8846.03	12.15	11.70	11.14
2007	45.54	45.48	46.65	7.97	7.96	7.01	7977.52	7726.82	8845.00	11.89	11.44	10.64
2008	45.01	44.98	47.24	7.44	7.42	8.67	8131.25	7903.77	8884.90	12.05	11.62	10.75
2009	45.05	45.10	47.70	7.65	7.75	9.78	8273.76	8022.09	8850.53	12.75	12.34	11.69
2010	45.59	45.53	47.83	7.75	7.82	9.64	8281.21	8044.22	8813.55	13.93	13.42	12.85
2011	45.75	45.72	46.11	8.25	8.28	8.58	8325.59	8084.03	8800.00	14.60	14.10	13.02
2012	46.19	46.19	45.72	8.77	8.88	7.88	8710.60	8441.06	9308.43	14.37	13.92	12.80
2013	46.30	46.15	45.57	8.91	8.93	8.04	8994.61	8726.20	9587.69	14.49	13.90	12.78
2014	46.01	45.84	48.38	8.30	8.36	10.55	9175.86	8937.82	9759.21	14.11	13.47	13.38
2015	46.47	46.25	49.88	8.16	7.98	11.55	9796.38	9437.88	10585.63	14.07	13.71	13.21
2016	46.46	46.13	47.93	8.46	8.23	9.53	10328.56	9974.75	11217.03	13.00	12.55	11.55
2017	46.51	46.33	46.57	8.58	8.41	8.21	10870.37	10496.02	11611.99	12.01	11.69	10.78
2018	46.46	46.53	53.46	8.54	8.66	15.22	11370.11	11007.85	13075.25	11.45	11.27	10.80

Notes: The average correction for the Gini index, top 1% income share, total income, and poverty across all years is 2.92 (6.64%), 1.80 (25.13%), 463.13 (7.33%), and -0.86 (7.33%) respectively.