

Data Replication Update on “The Effect of Rising Income Inequality on Taxation and Public Expenditures: Evidence from U.S. Municipalities and School Districts, 1970–2000” (REStat, 2013).

Overview

This memo concerns a correction to our generation of local Gini coefficients in this paper. We generate an (approximate) income distribution at a local level using published Census reports. Using this approximation, we then assign each household an income level equal to the median income in its bin by decade as calculated from Census microdata. At this stage, the original paper generates inaccurate income centiles due to a mistyped inequality, dragging down the estimate for median income within each centile. This update corrects the inequality and outlines the impact on our results.

Replication Package

The replication package is available here:

<https://dataverse.harvard.edu/dataset.xhtml?persistentId=doi:10.7910/DVN/22819>

The compressed file provided contains files at all steps of the data replication process.

Note About Original Results

The raw data tables provided in text and XML form in the replication download do not align with the published tables in the paper in all cases. These adjustments are marginal, not impacting the sign or significance of our results, but are worth noting.

Do File Edits

There are two files that need to be edited in order to address this error. They are mirror images, one being the "`\cities\instrument\make_instrument.do`" file and one being the "`\school_districts\instrument\make_instrument_schools.do`" file.

The source of the error comes from the command “`sum ftotinc if ftotinc >= `inc%%_%_`j" & ftotinc <= `inc%%_%_`i",d`”, for different years. The second inequality should be strict: “`sum ftotinc if ftotinc >= `inc%%_%_`j" & ftotinc < `inc%%_%_`i",d`” (change outlined in red).

In the cities file, the lines that must be changed in the .do file are 71, 91, 122, 150, 172, 202, and 224. In the school districts file, the lines that must be changed in the .do file are 67, 95, 118, 146, 168, 198, and 220.

Additional Files Required

In implementing the replication, the “gini.do file” is necessary but missing in the replication package. It is provided here.

Implementation

The original replication package contains a Readme file outlining the steps one needs to take to replicate our results. As the error in the original code occurs at step 1.4 (“Gini Coefficients”), it is sufficient to use the intermediate files created before that point in the replication, rather than beginning from step 1.1.

After updating the .do file as outlined in the Do File Edits section, one can proceed with step 1.4 and step 1.5 to generate accurate city-level results.

The same approach can be taken for school district-level results. Begin at step 2.4 (“Gini Coefficients”), update the appropriate .do file, and follow the remaining steps to generate accurate school-district level results.

Update file paths as necessary.

Updated Results

Here, we show some of the key results (Table 2, Table 3, and Table 4) from the paper after correcting the estimates for Gini coefficients.

TABLE 2.---OLS ESTIMATES, RELATIONSHIP BETWEEN MUNICIPALITY CHARACTERISTICS AND REVENUE/EXPENDITURES PER CAPITA, 1970–2000

	General Revenue		General Expenditure	
	Full Sample	Drop Outliers	Full Sample	Drop Outliers
Gini coefficient	561.9*** (212.6)	484.6*** (109.8)	588.5*** (216.0)	417.4*** (124.5)
ln(median income)	225.7*** (36.68)	184.6*** (26.16)	249.6*** (41.18)	199.7*** (26.60)
ln(population)	-212.2*** (33.64)	-123.5*** (15.04)	-217.2*** (34.92)	-131.2*** (15.86)
Share black	-158.4* (85.76)	-93.39* (50.54)	-149.4 (91.75)	-86.34 (57.54)
Share Hispanic	-155.2* (88.95)	-155.9*** (56.54)	-55.76 (135.9)	-174.0*** (65.57)
Share 65 years or more	-352.8* (206.1)	-79.95 (122.6)	-203.2 (230.3)	-65.58 (127.3)
Constant	70.36 (114.3)	0.294 (55.43)	36.21 (104.6)	73.31 (76.10)
<i>N</i>	10,133	9,734	10,133	9,736

Sample includes all municipalities in the Census years 1970 through 2000 with 2,500 residents that were not responsible for education services in 1970. Cells report the estimated coefficients from equation (2). Standard errors in parentheses and are clustered by municipality. Columns 2 and 4 drop municipalities with the largest and smallest 1% of changes in either the Gini coefficient or the municipal revenues by decade. Coefficient statistically significant at ***1%, **5%, and *10%.

TABLE 3.—OLS ESTIMATES, RELATIONSHIP BETWEEN INCOME INEQUALITY AND COMPONENTS OF MUNICIPAL REVENUE AND EXPENDITURES PER CAPITA, 1970–2000

Revenue						
	General Revenue	Property Tax	Intergovernmental Transfers	Direct Charges	Sales Tax	Other Revenue
	484.6***	152.8***	29.70	113.5**	38.11*	52.16
	[109.8]	[26.23]	[55.77]	[47.23]	[20.44]	[52.65]
Expenditures						
General Expenditure	Police	Fire	Highways	Public Welfare	Health & Hospitals	Other Expenditures
417.4***	101.0***	50.79***	63.19***	-0.406	3.253	161.8
[124.5]	[20.06]	[9.964]	[17.82]	[1.062]	[11.99]	[114.1]

Sample includes all municipalities in Census years 1970 to 2000 with 2,500 residents that were not responsible for education services in 1970. We also drop municipalities with the largest and smallest 1% of changes in either the Gini coefficient or the municipal revenues by decade (N = 9,735). Cells report the estimated coefficient on the change in the Gini coefficient from equation (2). Standard errors in parentheses and are clustered by municipality. Coefficient statistically significant at ***1%, **5%, and *10%.

TABLE 4.—IV ESTIMATES, RELATIONSHIP BETWEEN INCOME INEQUALITY AND MUNICIPAL REVENUE AND EXPENDITURE PER CAPITA, 1970–2000

IV Estimates: Revenue						
First Stage Estimate	General Revenue	Property Tax	Intergovernmental Transfers	Direct Charges	Sales Tax	Other Revenue
0.466***	3,137***	1,105***	634.7***	363.2	156.7*	590.3**
[0.0301]	[533.1]	[172.5]	[220.8]	[222.6]	[94.56]	[249.5]
IV Estimates: Expenditures						
General Expenditure	Police	Fire	Highways	Public Welfare	Health & Hospitals	Other Expenditures
2,729***	509.5***	276.9***	13.08	3.875	44.40	1,979***
[590.9]	[124.8]	[64.99]	[87.70]	[4.233]	[63.45]	[514.4]

Sample includes all municipalities in Census years 1970 to 2000 with 2,500 residents that were not responsible for education services in 1970. We also drop municipalities with the largest and smallest 1% of changes in either the Gini coefficient or the municipal revenues by decade. (N = 9,735). Cells report the estimated coefficient on the change in the Gini coefficient from equation (2). The instrument for the actual Gini coefficient is the Gini coefficient for the predicted local income distribution; see section IIIB for details. Standard errors in brackets are clustered by municipality. Coefficient statistically significant at ***1%, **5%, and *10%.