



# Methodology and Supporting Data: Does Refugee Resettlement Impact State and Local Finances? The Fiscal Effects of the Refugee Resettlement Program

September 27, 2021

Reva Dhingra, Mitchell Kilborn, and Olivia Woldemikael  
Department of Government  
PhD Candidates  
Harvard University



UC San Diego

## Contents

Data	3
Descriptives	4
Findings	8
Fixed Effects Models	9
Replication	12

## I. Data

Our policy brief, *Does Refugee Resettlement Impact State and Local Finances? The Fiscal Effects of the Refugee Resettlement Program*, we estimate the effects of refugee resettlement on state and local government finances using a variety of data sources, including refugee numbers, budgetary and revenue data, and demographic characteristics at the state and local levels. Using state and city-level data from the U.S State Department Bureau of Population, Refugees, and Migration (PRM),<sup>1</sup> the American Community Survey, the Annual Survey of State and Local Government Finances, and the recently compiled U.S. Refugee Resettlement Datasets from Dreher et. al (2020).<sup>2</sup> Because states within the United States have different forms of local government with different spending responsibilities, we use the term “localities” to refer to the level of elected local government bearing the main responsibilities for public service spending such as health, education, and infrastructure. This includes cities, metro areas, and counties in different states, but the units do not overlap within our dataset.

### A. *Refugee resettlement*

For local level estimates of refugees, we use data from the Worldwide Refugee Admissions Processing System (WRAPS) of the Bureau of Population, Refugees, and Migration of the U.S. Department of State, which includes the number of refugees resettled in localities in the United States from 2002 to 2018 by year and country of origin. We obtained this data from New American Economy since the WRAPS interactive reporting tool is no longer online. Because the data is in places reported at the neighborhood level (for example, Allston instead of the Boston metro area), we aggregated where applicable to ensure that the resettlement data matched the local finance data and American Community Survey (ACS) data. For refugee presence by state, we use data from the Correlates of State Policy Project, which has refugee data by state from 2000-2012.<sup>3</sup>

### B. *Public expenditures*

For locality and state finances, we use data from the Government Finance Database, which contains data on state and local government revenue and expenditures taken from the Annual Survey of State and Local Government Finances for years from 1967-Present.<sup>4</sup>

### C. *Covariates*

To obtain relevant covariates for the localities under study, we use the American Community Survey (ACS), which includes population, racial makeup, and other variables.<sup>5</sup>

---

<sup>1</sup> The city-level data was kindly provided by New American Economy from the Worldwide Refugee Admissions Processing System (WRAPS) interactive reporting tool, which is no longer online.

<sup>2</sup> A. Dreher et. al, “Immigration, Political Ideologies and the Polarization of American Politics,” *CEPR Discussion Paper 15587* (2020), <https://www.refugeeresettlementdata.com/data.html>.

<sup>3</sup> Institute for Public Policy and Social Research, “Correlates of State Policy,” September 15, 2021, <http://ippsr.msu.edu/public-policy/correlates-state-policy>.

<sup>4</sup> Kawika Pierson, et. al., “The Government Finance Database,” Data Set, Harvard Dataverse, V1, 2016, <https://doi.org/10.7910/DVN/LMS8NT>.

<sup>5</sup> United States Census Bureau, “American Community Survey Data,” September 15, 2021, <https://www.census.gov/programs-surveys/acs/data.html>.

## II. Descriptives

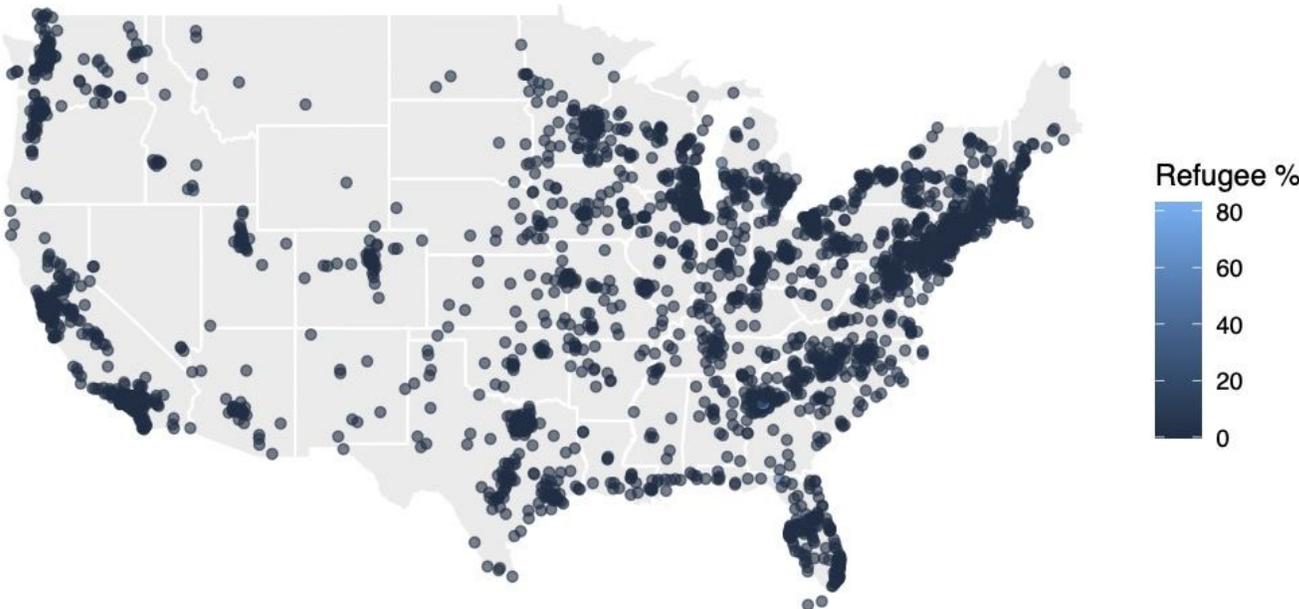


Figure 1: Refugee Percentages in US Localities in 2017

Figure 1 shows the refugees per capita in each refugee-hosting locality in 2017. This map visually illustrates that in the majority of refugee-hosting localities across the US, refugees make up less than 1% of city populations, with only 10% of all 2,679 cities with more a refugee population that exceeds 1% of their total population, and 1% of cities with refugees making up more than 10% of their population.

## II. Descriptives cont.

<b>Characteristic</b>	<b>High Refugee Per Capita, N = 801<sup>1</sup></b>	<b>Low Refugee Per Capita, N = 801<sup>1</sup></b>	<b>p-value<sup>2</sup></b>
Total Refugees	1,077 (2,854)	5 (9)	<0.001
% Refugee	0.016 (0.046)	0.000 (0.000)	<0.001
Unemployment Rate	0.053 (0.030)	0.053 (0.025)	0.3
Population	83,627 (255,355)	49,006 (92,483)	<0.001
% Poverty	0.14 (0.08)	0.12 (0.08)	<0.001
% White	0.75 (0.19)	0.77 (0.17)	0.3
HH Income	63,611 (24,893)	75,623 (34,124)	<0.001
% Bachelor Degree	0.31 (0.16)	0.35 (0.17)	<0.001
Age	37.8 (6.0)	38.4 (6.3)	0.001
Total Revenue (\$)	2,488 (4,825)	2,284 (1,613)	0.13
Total Expenditure (\$)	2,150 (4,446)	2,033 (1,489)	0.11

<sup>1</sup> Statistics presented: Mean (SD)

<sup>2</sup> Statistical tests performed: Wilcoxon rank sum test

*Characteristics of Localities in the Bottom 25% of Refugees Per Capita and the Highest 25% of Refugees Per Capita in 2017*

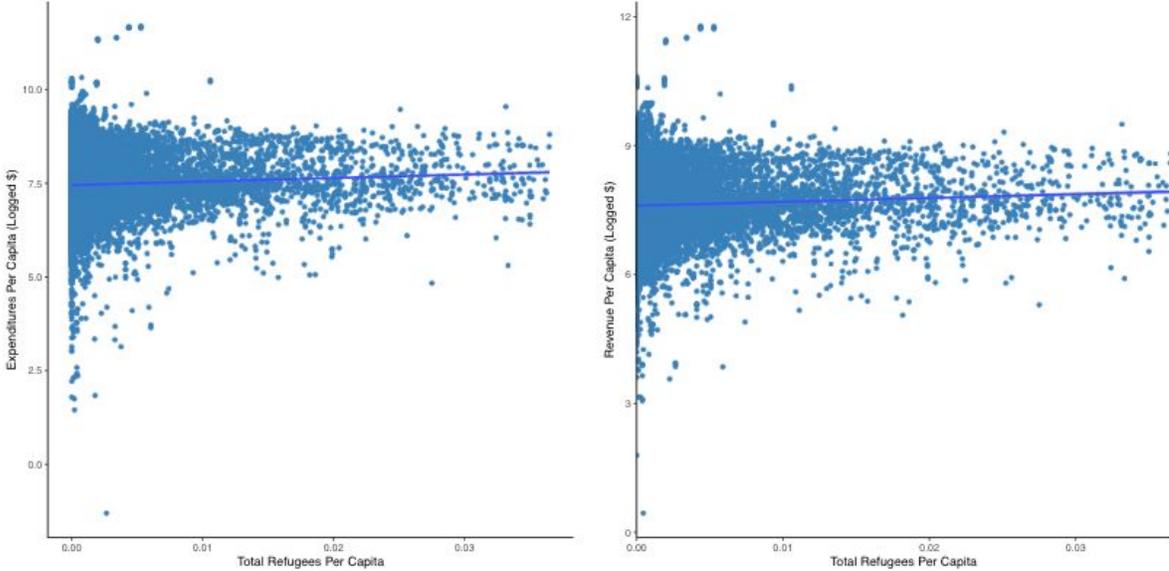
Figure 2: Comparison of High vs. Low Refugee Proportion Localities

Figure 2 shows a comparison of the top 25 percent of municipalities with the highest numbers of refugees per capita—with the highest number at 83 percent of the population in Stone Mountain, Georgia—and the lowest numbers of refugees per capita (non-refugee hosting). Across these localities, cities with high refugee percentages are larger on average—nearly double the size of cities without refugees or with low refugee populations. There are also statistically significant differences in wealth, with cities in the top quartile of refugees per capita having a lower median household income by over \$10,000 and a two percent difference in the the population below the poverty line, likely related to the greater degree of inequality in big cities.

However, there is no statistical difference in the mean unemployment rate, racial demographic composition, or in state revenues or expenditures between cities with a higher percentage of refugees and those with a lower percentage of refugees. In localities in both the top and bottom quarter of refugees per capita, the population is two-thirds white and has an unemployment rate of 5.3 percent, and their total revenue and expenditure per capita are similar at a little above \$2,000.

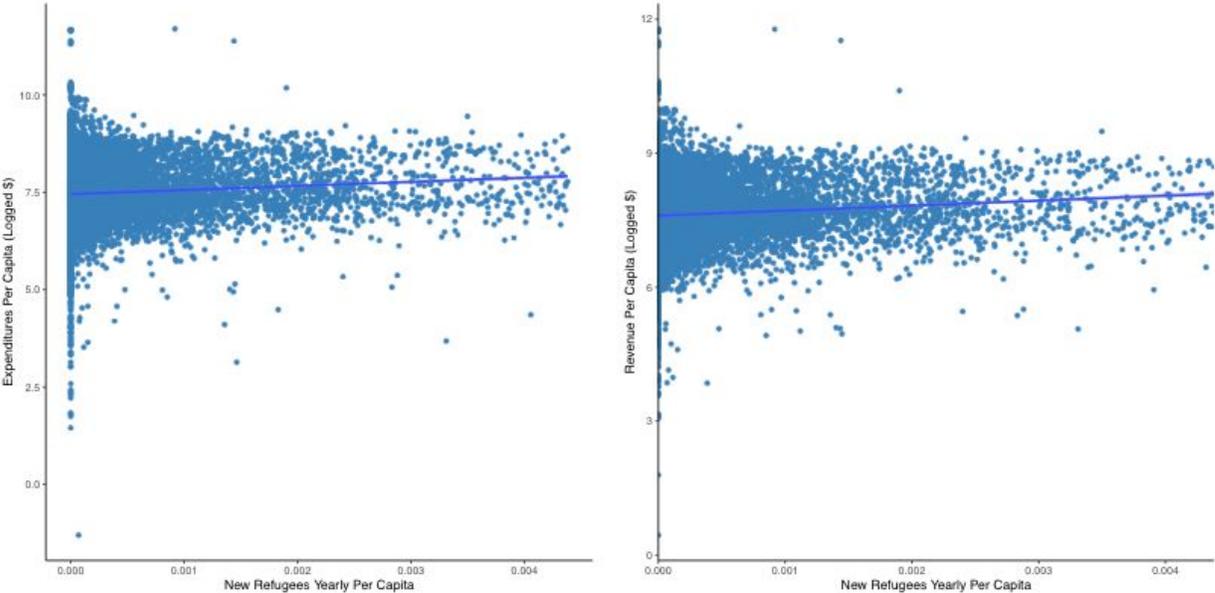
In the following plots, Figures 3 and 6 show that refugees have little relation to city or state finances, neither revenue nor expenditures. Additionally, the per-capita level of refugees in municipalities also has little correlation with revenues or expenditures and the ratio of expenditures to revenues (Figures 4 and 5).

II. Descriptives cont.



(a) Municipal Expenditures in Dollars (per capita, logged) v. Total Refugees (per capita) (b) Municipal Revenues in Dollars (per capita, logged) v. Total Refugees (per capita)

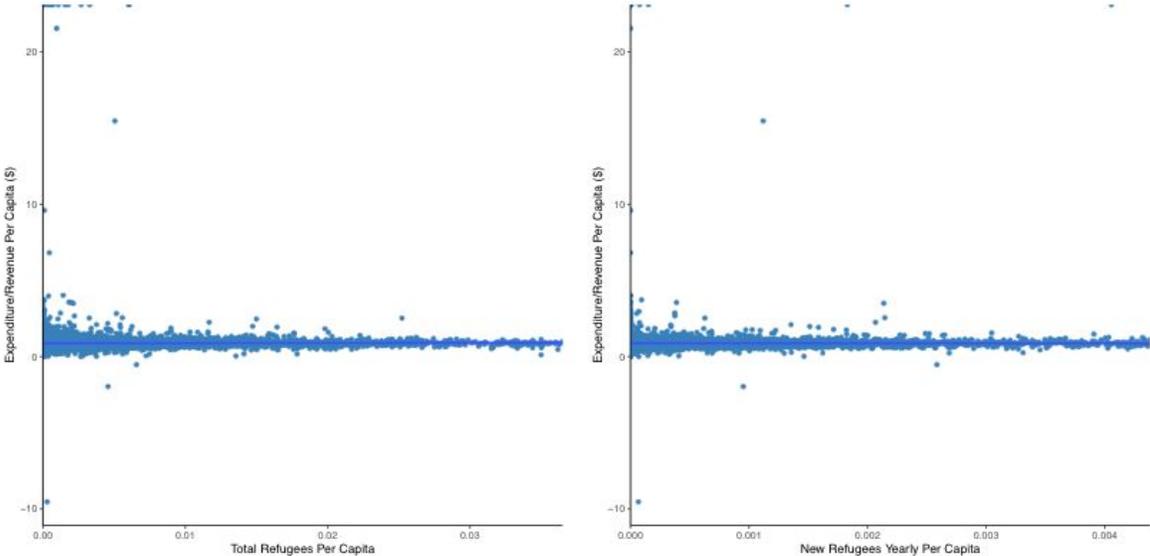
Figure 3: Total Refugees and Municipal Finances



(a) Municipal Expenditures in Dollars (per capita, logged) v. Annual New Refugees (per capita) (b) Municipal Revenues in Dollars (per capita, logged) v. Annual New Refugees (per capita)

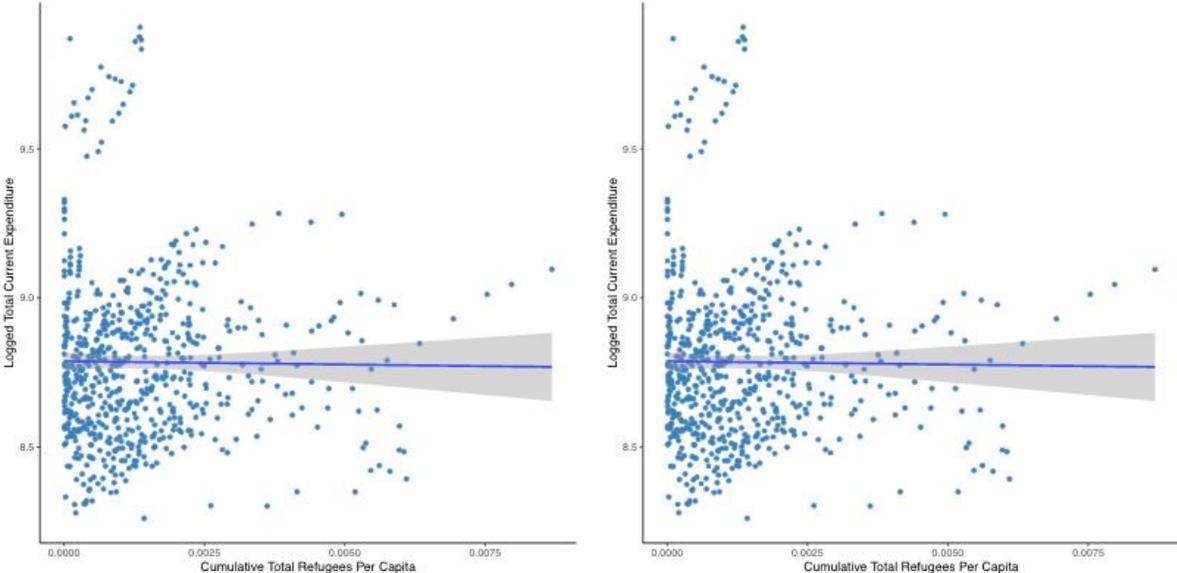
Figure 4: Yearly Increase in Refugees and Municipal Finances

## II. Descriptives cont.



(a) Municipal Expenditures/Revenues in Dollars (per capita, logged) v. Total Refugees (per capita)      (b) Expenditures/Revenues in Dollars (per capita, logged) v. Annual New Refugees (per capita)

Figure 5: Refugees and Municipal Expenditure-Revenue Ratio



(a) State Expenditure in Dollars (per capita, logged) v. Total Refugees (per capita)      (b) State Revenue in Dollars (per capita, logged) v. Total Refugees (per capita)

Figure 6: Total Refugees and State Finances

### III. Findings: Refugees have no impact on local finances

We use a two-way fixed effects model to estimate the impact of refugee resettlement on state and local finances, with time fixed effects and locality fixed effects. Our first unit of analysis is locality-year expenditures and revenues<sup>6</sup> and our second unit of analysis is state-year expenditures and revenues.

We choose a two-way fixed effects model to adjust for unobserved locality-level time-invariant confounders and for unobserved time trends.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \alpha_i + \lambda_t + \epsilon_{it}$$

In our model,  $Y_{it}$  is our outcome of interest (expenditures, total revenue, education health) and  $\beta_1$  represents our main independent variable, refugees per capita in year  $t$  in locality  $i$ .  $\beta_0$  is the constant and  $\alpha_i$  and  $\lambda_t$  are the locality and time fixed effects, and  $\epsilon_{it}$  is the error term.

---

<sup>6</sup> As noted above, we use locality to refer to a city, county, or broader metro-area with the main responsibility for spending on services and infrastructure because of the discrepancies in units between the refugee resettlement data and city finances.

## IV. Fixed Effects Models

We then ran the fixed effects model on the merged dataset of refugee resettlement figures and finance data at the locality and state levels. Our results in model 1, which examines the impact of refugees on locality finances, indicate no significant relationship between refugees per capita and a locality’s finances. We report null results on localities’ yearly expenditures and total revenues. In addition, we examine the impact on expenditures for public services likely to be used by refugees—health and education—and find no statistically significant association between refugee presence and expenditures in these categories.

Table 1: Two-Way FE Analysis of Refugee Resettlement’s Effect on Local Government Finance, 2002-2018

	<b>Current Expend.</b>	<b>Total Revenue</b>	<b>Educ. Expend.</b>	<b>Health Expend.</b>
Refugees Per Capita	18.483 (934.676)	211.409 (879.105)	-4538.536 (4634.045)	-100.019 (191.441)
State x Year Fixed Effects	Yes	Yes	Yes	Yes
Locality Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
N	33385	33374	5007	19675
R-squared	0.958	0.953	0.933	0.902

\*\*\*p < .001; \*\*p < .01; \*p < .05

SEs clustered on locality in parentheses

From model 2, in which we estimate state-level effects of refugees, we find similar results to our first model. Our findings are null across all categories of state finances—total expenditures and total revenue as well as education and health expenditures. These results suggest that an increase in refugees per capita has no statistically significant impacts on state finances.

## IV. Fixed Effects Models cont.

Table 2: Two-Way FE Analysis of Refugee Resettlement's Effect on State Government Finance, 2000-2012

	<b>Current Expend.</b>	<b>Total Revenue</b>	<b>Educ. Expend.</b>	<b>Health Expend.</b>
Refugees Per Capita	−94357.353 (96624.729)	−10579.478 (149313.226)	−9036.363 (17632.983)	5966.895 (8471.121)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
N	662	662	662	662
R-squared	0.963	0.916	0.967	0.900

\*\*\*p < .001; \*\*p < .01; \*p < .05

SEs clustered by state in parentheses

The above results apply to a limited period of U.S. history where refugee resettlement levels plummeted following the September 11th attacks. Perhaps refugee resettlement might be unrelated to locality finance in the contemporary low resettlement era but had larger effects when the U.S. admitted more refugees fleeing conflict in Southeast Asia and elsewhere in the late 20th century. To test this possibility, we take advantage of a longer time series data made available by the American Community Survey (ACS).

Specifically, we impute the number of refugees in a given city in a given year based on the 2010 ACS 1% microdata sample, which records respondent citizenship status, country of birth, and year of entry into the United States, if applicable. This methodology is an extension of the methodology developed by New American Economy in 2017. We mark an individual respondent as a likely refugee if more than 50% of entrants into the United States in their year of entry were granted asylum according to the U.S. Department of State Bureau of Population, Refugees, and Migrations WRAPS database totals for that year. Having identified likely refugees in the ACS microdata, we then use ACS weights to make the sample nationally representative of refugee populations. While this approach allows us to identify refugee populations going back to 1967, which is the first year WRAPS data is available, it does limit the number of local governments we are able to study, as roughly 82% of the identified refugees in our sample did not live in a Census-designated city, the smallest level of geographic aggregation available from the ACS. Combined with the state and local government finance dataset, these refugee counts create a panel dataset tracking refugee population growth in 170 cities over nearly 40 years.

## IV. Fixed Effects Models cont.

Table 3: Two-Way FE Analysis of Refugee Resettlement’s Effect on Local Government Finance, 1967-2010

	<b>Current Expend.</b>	<b>Total Revenue</b>	<b>Educ. Expend.</b>	<b>Health Expend.</b>
Refugees Per Capita	1430.334 (2817.130)	1710.070 (3438.491)	-5871.665 (4696.796)	-86879.070 (60054.230)
State Fixed Effects	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes
Demographic Covariates	Yes	Yes	Yes	Yes
N	5769	5769	1379	671
R-squared	0.903	0.892	0.906	0.618

\*\*\*p < .001; \*\*p < .01; \*p < .05

SEs clustered by Census Place in parentheses Totals in 2020 USD

Table 3 displays the results of regressing various indicators of local per-capita government spending on per-capita refugee populations with city and year fixed effects. Consistent with the above results, we find that localities with more resettled refugees exhibit no difference in financial stability compared to localities with fewer resettled refugees. While pointing in the same direction as the above results, these findings should be interpreted with caution given their applicability to a significantly smaller subset of localities and use of weighting to establish refugee counts rather than the ground truth per year entrants as reported by WRAPS used in the analyses above. Nonetheless, the results provide further support for the idea that refugee resettlement is not a significant driver of local government financial health.

## IV. Replication

The analysis and findings are replicated with the individual resettlement dataset included in Dreher et al.<sup>7</sup> Due to the nature of the data being relatively different in regards to larger numbers of refugees in areas not previously seen, the tables are affected. The current expenditure column of Table 1 actually positively increases, whereas education and health expenditures negatively decrease without statistical significance. However, the total revenue column from Table 1 is statistically significant with a positive increase; meaning, refugees actually increased total revenue for local government finance from 2002-2018. Although significant, it does not subsequently hold in the secondary and tertiary tables.

As mentioned, Table 2 demonstrates a positive increase in total revenue although not statistically significant. Additionally, current expenditures and education expenses negatively decrease, and health expenditures positively increase—none of which are statistically significant.

Table 3 is a similar pattern with all columns having a positive increase in expenditures, still none are statistically significant. Consistent with the previous findings of the data, we can demonstrate that replication using the data from Dreher et al. does not significantly affect the aforementioned results, if anything it demonstrates briefly a benefit to local governments in the increase of total revenue in 2020 USD.<sup>8</sup>

---

<sup>7</sup>Dreher et al. (2020).

<sup>8</sup>Ibid.



September 27, 2021