# City Governments in New York State: New York State Fiscal Stress Scores and Environmental Scores



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## ARPA New York State Local Government Improvement Program Series

This study is part of a four part series about the efforts of the State of New York to improve local government efficiency. The series includes reports on:

1. The New York State Fiscal Stress Monitoring System for Local Governments.
2. The Financial Restructuring Board for Local Governments *A New York State Entity*.
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4. The New York State Department of State Local Government Efficiency Program.

## Quantitative Fiscal Brief Series

The *Quantitative Fiscal Brief* studies use inferential statistics such as regression analysis to study public management tools in the area of government finance.

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**Abstract**

This paper examines the data used by the Office of the New York State Comptroller (OSC) in the Fiscal Stress Monitoring System. The OSC computes fiscal stress scores and environmental variable scores for numerous local governments in New York State. The fiscal stress scores measure specific ratios for the local governments to determine if they have fiscal stress. The environmental scores examine issues such as poverty or unemployment rates in the local government area to determine if the underlying economic conditions are weak or strong. A regression analysis was used to study the statistical relationships between the fiscal stress score and the environmental variable score for city governments in New York State. The regression analysis examined the theory that those local governments with weak financial environmental conditions should have greater fiscal stress than other governments. The regression analysis found little support for this idea which means that the environmental variable scores are not a good predictor of fiscal stress for the city governments in New York State.

**Introduction**

The State of New York New York currently has a Fiscal Stress Monitoring System maintained by the Office of the New York State Comptroller (OSC). The system uses a number of metrics to designate whether a local government is experiencing fiscal stress. The system calculates a fiscal stress score and an environmental indicator score for local governments. There is an assumption in the system that localities with higher environmental scores have more risk. That should translate into a higher fiscal stress score. This study examines the fiscal stress scores and environmental indicator scores to determine if there is a sound statistical relationship between the two sets of variables. It is expected that the fiscal stress score would be influenced by

the environmental indicator score. Regression analysis is used to study the statistical relationships that exist between the two scoring systems. This report is part of the Albany Research in Public Administration *Quantitative Fiscal Brief Series*.

**Background**

The OSC developed a new Fiscal Stress Monitoring System for Local Governments during 2012.[1] The system uses data for nine variables to develop a fiscal stress score. Examples of the variables include fund balance ratios, operating deficit metrics, and cash and debt related variables (Martinez 2016). The system develops a fiscal stress score for the governments and those with scores greater than 45 percent are considered to have varying levels of fiscal stress. The more important variables in the system for city governments are related to fund balance, operating deficits, and cash levels.[2]

The OSC also computes an environmental indicator score for each local government. A total of 14 variables are used in the analysis relating to changes in population, age of the population, poverty rates, property value changes, the employment base, intergovernmental revenues, issues associated with the New York State constitutional tax limit, and the amount of sales tax receipts. (Office of the New York State Comptroller 2016). The OSC computes the environmental scores and sorts the localities into four basic groups. The group with the least desirable environmental are designated as "worst." The next group is designated as the next worse category. Localities below that grouping are considered as the last group with negative environmental conditions. Localities with lesser amount of environmental condition issues are considered as having no designation related to environmental conditions.[3]

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[1] See Albany Research in Public Administration Report Number 2016-1, entitled *The New York State Fiscal Stress Monitoring System for Local Governments.* August 1, 2016. (www.albany.rpa.com)

[2] Ibid.

[3] The system developed for town governments is different than the system used for counties, cities, and villages. Also, separate environmental scores are computed for school districts.

During 2016 the OSC made a presentation in Albany, New York concerning the Fiscal Stress Monitoring System.  The presentation indicated that the OSC environmental indicators 'capture trends that influence revenue-raising capability and demands for service but that are largely outside local officials' control.'[4]

**Regression Analysis for City Governments**

Appendix 1 contains the fiscal stress scores and the environmental indicator scores for city governments as computed  by the OSC.  A regression analysis can be used to determine if there is a statistical relationship between the OSC's fiscal stress scores and the environmental indicator score variable. [5]  The basic assumption in the regression analysis is that cities with higher  environmental  scores  should also have higher fiscal stress scores.  For instance, cities with higher poverty and unemployment rates should have more fiscal stress than cities without such problems.

The  regression analysis uses the OSC's fiscal stress score as the dependent variable and the environmental indicator score as an independent variable.  The analysis was used for the 53 cities listed in Appendix 1.  The data was taken from the Office of the New York State Comptroller Fiscal Stress Monitoring System Tool for Cities. The analysis shows that there is not a strong relationship between the environmental indicator scores and the fiscal stress scores as computed by the OSC.  The environmental indicator score is not statistically significant at the 90 percent confidence level.  The environmental indicator score only accounts for about 2 percent of the fiscal stress score computations.  More detail on the regression analysis statistics is shown in Appendix 2.

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[4] Martinez 2016, p. 9.

[5] A standard regression analysis using the formula $Y = M(X) + b$ is used.  Y=the dependent variable represented by the fiscal stress score.  The term M(X) represents the independent variable  such as the environmental indicator score.  The term b is a standard error term. (Berry and Feldman (1985), Lewis-Beck and Lewis-Beck (2016), Schroeder, Sjoquist, and Stephan (2017).

The data in Appendix 1 shows that there are 11 cities which the OSC would classify as having the two worst levels of environmental indicator scores. These include Binghamton, Buffalo, Dunkirk, Jamestown, Lackawanna, Niagara Falls, Ogdensburg, Rochester, Schenectady, Syracuse, and Utica. Only two of the cities (Niagara Falls and Ogdensburg) are placed on the OSC's fiscal stress list. There are a number of other cities that are placed on the fiscal stress list (Albany, Fulton, Glen Cove, Little Falls, Norwich, Poughkeepsie, and Yonkers) due to having fiscal stress scores greater that the level of 45. None of these cities, however, have environmental indicator scores in the worst two levels as designated by the OSC.

The regression analysis and the other statistics provided above illustrate that there is not a good fit between the fiscal stress scores and the environmental indicator scores as computed by the OSC for city governments.

**Summary and Conclusions**

This paper analyzed the fiscal stress scores and environmental indicator scores as developed by the OSC for city governments in New York State. A regression analysis illustrated that the environmental indicator scores are not a good predictor of fiscal stress for the cities. Also, an analysis of selected cities with high environmental indicator scores and high fiscal stress scores found that the two types of scoring mechanisms did not agree in most cases. The OSC should be careful when computing environmental indicator scores since they do not line up well with the fiscal stress scores computed by the OSC in the Fiscal Stress Monitoring System.

# REFERENCES

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# Appendix 1

## City Data for the Regression Analysis

| City | OSC Fiscal Stress Score | OSC Environmental Indicator Score |
|---|---|---|
| Albany | 77.5 | 21.3 |
| Auburn | 11.3 | 29.6 |
| Batavia | 0 | 28.8 |
| Beacon | 1.70 | 23.3 |
| Binghamton | 17.5 | 46.7 |
| Buffalo | 9.60 | 52.5 |
| Canandaigua | 8.3 | 20.0 |
| Cohoes | 20.8 | 7.5 |
| Corning | 17.5 | 15.8 |
| Cortland | 25.4 | 15.0 |
| Dunkirk | 20.8 | 45.0 |
| Fulton | 64.2 | 30.8 |
| Geneva | 16.3 | 33.3 |
| Glen Cove | 53.8 | 10.0 |
| Glens Falls | 14.2 | 3.3 |
| Hornell | 5.0 | 29.6 |
| Hudson | 12.5 | 29.6 |
| Jamestown | 44.2 | 50.4 |
| Kingston | 15.8 | 22.5 |
| Lackawanna | 8.3 | 45.0 |
| Little Falls | 57.9 | 38.8 |
| Lockport | 43.3 | 36.3 |
| Long Beach | 33.8 | 12.5 |
| Mechanicville | 15.8 | 20.8 |
| Middletown | 5.0 | 22.1 |
| Mount Vernon | 20.8 | 27.9 |
| New Rochelle | 6.3 | 12.5 |
| Newburgh | 12.5 | 32.5 |
| Niagara Falls | 47.9 | 48.8 |
| North Tonawanda | 5.0 | 24.6 |
| Norwich | 45.8 | 32.9 |
| Ogdensburg | 46.7 | 43.8 |

## Appendix 1   (Continued)
## City Data for the Regression Analysis

| City | OSC Fiscal Stress Score | OSC Environmental Indicator Score |
|---|---|---|
| Olean | 6.7 | 36.3 |
| Oneida | 5.0 | 14.6 |
| Oneonta | 15.8 | 8.3 |
| Oswego | 0 | 10.4 |
| Peekskill | 21.3 | 17.5 |
| Plattsburg | 41.3 | 10.8 |
| Poughkeepsie | 62.5 | 32.9 |
| Rochester | 17.5 | 45.0 |
| Rome | 19.2 | 28.3 |
| Salamanca | 12.9 | 40.4 |
| Saratoga | 0 | 0 |
| Schenectady | 15.8 | 43.8 |
| Sherrill | 3.3 | 8.3 |
| Syracuse | 32.5 | 42.5 |
| Tonawanda | 26.3 | 27.9 |
| Troy | 40.0 | 30.8 |
| Utica | 40.0 | 40.8 |
| Watertown | 11.3 | 10.4 |
| Watervliet | 61.3 | 0 |
| White Plains | 7.9 | 12.5 |
| Yonkers | 51.7 | 31.3 |

# Appendix 2 Regression Analysis Detail

**Regression:** Fiscal Stress Score = Environmental Indicator Score  (N=53)

R-squared =     .022

Environmental Indicator Score Coefficient =  0.286

t-ratio =         1.469

Probability =    Not significant at 90% level,  p-value = .148

Constant =     17.898

Standard Error = .195