On the Fiscal Health of U.S. Cities

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Introduction

I. On the Finances of Big Cities
II. Measurement and Fiscally Standardized Cities
III. Stresses through the Housing Market
IV. Patterns of spending and revenue
V. Measuring Fiscal Health
VI. Some Policy Recommendations
It is Hard to Compare Fiscal Conditions Across Cities

- Governance structures vary across cities, making fiscal comparisons difficult

- For example:
  - The municipal government in Boston finances almost all public services,
  - but in Las Vegas, $\frac{3}{4}$ of revenue raised by local governments serving Las Vegas residents is raised by *overlying* independent school districts, counties, and special districts
Per Capita General Expenditures in the Baltimore and Tampa FiSCs by Type of Government, FY 2014

Baltimore, MD
- Special District: $5,471
- City: $6,077

Tampa, FL
- Special District: $1,379
- School: $1,229
- County: $1,903
Fiscally Standardized Cities (FiSCs)

• Constructed by summing city government revenues and spending and the share of revenue and spending of overlying governments collected from or spent on behalf of central city residents

• FiSC database – 91 large central cities with annual data from 2000 to 2014
The Housing Market in 91 FiSCs
CoreLogic Housing Price Index
Foreclosure Rates
Average, Minimum, and Maximum Housing Foreclosure Rates
91 Fiscally Standardized Cities, 2000-2014

Maximum Foreclosure Rate

Average Foreclosure Rate

Minimum Foreclosure Rate

Housing Market Experience in Selected Cities, 2002-2011

Four Types of Housing Markets

<table>
<thead>
<tr>
<th>Percentage Change in Housing Prices</th>
<th>2002 to Peak Year</th>
<th>Peak to 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Boom No Bust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>78.7</td>
<td>(2007)</td>
</tr>
<tr>
<td>San Francisco</td>
<td>49.7</td>
<td>(2007)</td>
</tr>
<tr>
<td><strong>Boom and Bust</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baltimore</td>
<td>103.8</td>
<td>(2007)</td>
</tr>
<tr>
<td>Stockton</td>
<td>82.5</td>
<td>(2006)</td>
</tr>
<tr>
<td><strong>Status Quo</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Buffalo</td>
<td>29.2</td>
<td>(2011)</td>
</tr>
<tr>
<td>Houston</td>
<td>25.3</td>
<td>(2007)</td>
</tr>
<tr>
<td><strong>Secular Decline</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cleveland</td>
<td>7.5</td>
<td>(2005)</td>
</tr>
<tr>
<td>Detroit</td>
<td>6.6</td>
<td>(2005)</td>
</tr>
</tbody>
</table>
Real Per Capita Revenues and Spending Average in 90 Fiscally Standardized Cities

Trends Since the Beginning of the “Great Recession”
Real Per Capita Revenue by Source, Percentage Change Relative to 2007
90 Fiscally Standardized Cities

Miscellaneous revenues declined sharply. In 2014 they were 34% below their 2007 level.
Real Per Capita Revenue by Source, Percentage Change Relative to 2007
New York City (FiSC)

- Property Taxes
- User Charges
- Federal Aid
- State Aid
- Other Taxes
- Miscellaneous Revenue
Cleveland FiSC: Revenue Sources by year, 2000-2014

2014 Inflation Adjusted Dollars

Year

Property Tax (FiSC: Real PC)  
tax_non_property  
Current Charges (FiSC: Real PC)  
IGR State Aid (FiSC: Real PC)
Percentage Change in Real Per Capita Revenue Relative to 2007
Cleveland, OH Fiscally Standardized City

In 2013, real per capita general revenues were 10.7% lower than they were in 2007.
Average Price of Homes Sold, 2000-2014

Source: Corelogic

- Columbus
- Cincinnati
- Baltimore
- Cleveland
- Dayton
Cleveland FiSC: Spending and the Great Recession

- Education
- Social Services
- Health
- Public Safety
- Environment and Housing
- Capital Outlay


FiSC: Real PC

- Education
- Social Services
- Health
- Public Safety
- Environment and Housing
- Capital Outlay Total
Fig. 1 Median spending and revenue, 2000-2013

150 Fiscally Standardized Cities
Fig 2. Median Spending and Revenue, 2000-2013
10 Fisc's with Greatest Pct Decline in spending, 2000-2013

Louisville, Knoxville, Mesa, Gary, St Paul, Richmond, Columbia, Wilmington, Detroit, Las Cruces
Property Tax Results

- Housing prices rise—3 years later, property tax revenues rise
- Housing prices fall—3 years later, property tax revenue fall

Average 26% decline in Housing Prices Associated with a 4% Decline in Property Tax Revenue
The Impact of Foreclosure Rates on Property Tax Revenue

• Strong independent effect of foreclosure rates

• Rise in foreclosure rates significantly contributes to the reduction in per capita property tax revenue
Property Tax Revenue (dashes) and Foreclosure Rates (solid line)
Average in Florida and California Fiscally Standardized Cities

Florida

California
Annual Foreclosure Rates, Cleveland, Cincinnati, and Chicago

Source: Corelogic
General Revenue Results

• Approximately 1/3 of post-2009 decline in the per capita general revenue of FiSCs was attributable to housing market stress, i.e. the fall in housing values and the rise in foreclosures
  – High foreclosure rates serve as a proxy for general economic decline, further reducing general revenues

• State aid has a large impact on general revenues
  – ⅓ to ½ of the drop in general revenue from 2007 to 2013 was due to reduced state aid
  – a $1 cut in state aid reduces general revenues by from 60 to 88 cents
City Spending

• Per Capita Spending Rises in Cities with Declining Population
  • Labor as Quasi Fixed Cost
  • Pension Share Rises

Spending Higher in Denser Cities
Pension Share vs. Population Change, 2014
Excludes Cities with State Run Pension Plans

Pension Share = Benefit Payments Plus Employee Withdrawals, as share of general spending.
Fig. 5. Predicted Surplus/Deficit, Share of General Revenue
90 Fiscally Standardized Cities, 2000-2013

Surplus = Revenue - Predicted Spending. See text for spending model.
Predicted Surplus = (Predicted Spending - Actual Revenue)/Actual Revenue

Fig. 6. Predicted Surplus or Deficit: Chicago and Las Vegas
Predicted Deficit (Surplus) NYC

(General Revenue - Predicted Spending)/Gen Rev

Year

surplus_hat/rev_general


[Graph showing the predicted deficit/surplus from 2000 to 2015, with data points indicating fluctuations in surplus.]
Representative Tax System

\[ t_{property,t} = \text{mean}_t \left( \frac{\text{p.c. tax}_{property,i,t}}{\text{Average Sale Price}_{i,t}} \right) \]
Measuring Fiscal Capacity

\[ FC \text{ Local}_{i,t} = (tbar \text{ property}_t \times \text{Avg Home Value}_{i,t}) + (tbar \text{ other tax}_t \times \text{Income}_{i,t}) + \text{Charges}_{i,t} \]

\[ FC \text{ Local} + State_{i,t} = FC \text{ Local}_{i,t} + \text{State Aid}_{i,t} \]

\[ FC \text{ IGR}_{i,t} = FC \text{ Local} + State_{i,t} + \text{Federal Aid}_{i,t} \]
Table 10. Disparities* in Fiscal Capacity, Various Years, 91 Fiscally Standardized Cities

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2005</th>
<th>2010</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local**</td>
<td>0.39</td>
<td>0.45</td>
<td>0.48</td>
<td>0.48</td>
</tr>
<tr>
<td>Local** + State Aid</td>
<td>0.3</td>
<td>0.36</td>
<td>0.36</td>
<td>0.37</td>
</tr>
<tr>
<td>Local** + State Aid + Federal Aid</td>
<td>0.3</td>
<td>0.35</td>
<td>0.36</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Notes
* Disparities Measured by the coefficient of variation
**Local Fiscal Capacity = Local tax capacity + charges. See text for details.
Table 11. High and Low Relative Fiscal Capacity 2013

<table>
<thead>
<tr>
<th></th>
<th>2013 rel. fiscal capacity*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Five Highest</strong></td>
<td></td>
</tr>
<tr>
<td>CA: Fremont</td>
<td>2.11</td>
</tr>
<tr>
<td>NY: Yonkers</td>
<td>2.13</td>
</tr>
<tr>
<td>CA: Oakland</td>
<td>2.32</td>
</tr>
<tr>
<td>NYC</td>
<td>2.5</td>
</tr>
<tr>
<td>San Francisco</td>
<td>3.2</td>
</tr>
<tr>
<td><strong>Five Lowest</strong></td>
<td></td>
</tr>
<tr>
<td>KY: Louisville</td>
<td>.74</td>
</tr>
<tr>
<td>AL: Birmingham</td>
<td>.75</td>
</tr>
<tr>
<td>MI: Warren</td>
<td>.77</td>
</tr>
<tr>
<td>OK: Oklahoma Cty</td>
<td>.77</td>
</tr>
<tr>
<td>MO: St. Louis</td>
<td>.79</td>
</tr>
</tbody>
</table>

* Fiscal Capacity / Median Fiscal Capacity
Median FC = Hypothetical FC, given median values for all components
Some Policy Recommendations

- State and local governments should prepare for the next downturn by increasing the level of fund balances (rainy day funds)
  - Cities with rising housing prices should build up reserves, or pre-pay future obligations.
  - Don’t wait until it is obvious that there is a housing bubble
  - Easy to say, hard to do
  - States/cities/non-profits develop coordinated policies to reduce/prevent foreclosures

- Federal aid is important, but timing should be spread out over a larger number of years
Thank You
Pensions and Population Change

- Pension share = \(-1.5 + 0.000005(\text{density}) - 0.08(\text{pct change in population}) + 0.0008(\text{year})\).
Explaining the Property Tax Results

• Why weren’t property tax reductions even larger?
  – In some states, assessment limits constrained downward adjustments of the property tax base
    • e.g. California’s Proposition 13: NYC’s assessment phase-in rules
  – Non-residential property values much more stable than residential values
Fig. 3 Median spending and revenue 2000-2013
10 highest spending growth FiSC's

Cities: Balt, Prov, Syr, Burl, Cedar Rapids, Montgomery, New Orl., Baton Rouge, Cheyenne, Wash DC
Fig. 4. FiSC General Spending, 2000-2013
Median for all cities, and 10 highest and 10 lowest spending growth cities
How the Housing Market Crisis Influenced Property Tax Revenue

Housing prices fall

Assessed values lowered

Local government decision to raise property tax rate

Factors influencing government decisions:
- Changes in income and expenditure needs
- Changes in state aid and federal aid
- Changes in other local revenue sources
- State-imposed tax limits

Foreclosure rates rise

Fewer property taxes collected

Property tax revenue falls

Property tax revenue falls
Explaining the Property Tax Results

• Why didn’t local government raise rates enough to limit revenue declines?
  – Falling incomes and rising unemployment made raising rates politically infeasible
    • New York City is a counter-example
  – In CA and FL, even a 25% increase in property tax rates would have led to revenue declines of 10% to 15%
  – State-imposed rate limits and property tax levy limits placed constraints on local governments
<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>igr_state</td>
<td>ln_igr_state</td>
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<tr>
<td>L.to-g_price</td>
<td>-0.00109***</td>
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<tr>
<td></td>
<td>(-5.93)</td>
<td></td>
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<tr>
<td>L.hh_med-eal</td>
<td>-0.0100***</td>
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<td></td>
<td>(-5.13)</td>
<td></td>
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<tr>
<td>L.igrFed-al</td>
<td>0.164*</td>
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<td></td>
<td>(2.22)</td>
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<td>ln_city_pop</td>
<td>-25.52</td>
<td>0.00417</td>
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<td></td>
<td>(-1.16)</td>
<td>(0.31)</td>
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<tr>
<td>density</td>
<td>0.0347***</td>
<td></td>
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<td></td>
<td>(6.99)</td>
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<td>pct_chg_ci-r</td>
<td>683.9***</td>
<td>-0.467***</td>
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<td></td>
<td>(6.57)</td>
<td>(-4.18)</td>
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<tr>
<td>L3.pct-n_2yr</td>
<td>-688.1***</td>
<td>-0.435***</td>
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<td>(-3.77)</td>
<td>(-3.87)</td>
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<td>state_dum_CA</td>
<td>1254.2***</td>
<td>0.599***</td>
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<td></td>
<td>(25.53)</td>
<td>(20.47)</td>
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<td>state_dum_FL</td>
<td>-464.8***</td>
<td>-0.243***</td>
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<tr>
<td></td>
<td>(-8.46)</td>
<td>(-7.04)</td>
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<tr>
<td>state_dum_TX</td>
<td>458.4***</td>
<td>-0.406***</td>
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<tr>
<td></td>
<td>(-8.45)</td>
<td>(-12.17)</td>
</tr>
<tr>
<td>state_dum_NY</td>
<td>1611.9***</td>
<td>0.640***</td>
</tr>
<tr>
<td></td>
<td>(22.53)</td>
<td>(14.90)</td>
</tr>
</tbody>
</table>
City Income, spending, and state aid

\[ \frac{\Delta \text{Spending}}{\Delta \text{Income}} = .01 = a_0 \left( \frac{\Delta \text{Demand}}{\Delta \text{Income}} \right) - a_1 \left( \frac{\Delta \text{Cost}}{\Delta \text{Poverty Rate}} \right) \frac{\Delta \text{Pov Rate}}{\Delta \text{Income}} + (\Delta \text{Spending}/(\Delta \text{StAid}) = \sim .8) \frac{\Delta \text{StAid}}{\Delta \text{Income}} = \sim - .01 \]

Conclude that \( a_0 \sim .02 \).

Half of additional spending from higher income is offset by decline in state aid. (high implicit tax rate?)
Calculating Fiscal Capacity

- Representative tax system
- Add charges
- Add intergovernmental aid
Table 1. Per capita general spending and state aid, 2000–2013.

<table>
<thead>
<tr>
<th></th>
<th>(1) spending</th>
<th>(2) spending</th>
<th>(3) spending</th>
<th>(4) spending</th>
<th>(5) spending</th>
<th>(6) spending</th>
<th>(7) state aid</th>
</tr>
</thead>
<tbody>
<tr>
<td>City Population</td>
<td>-0.0000289**</td>
<td>0.000117**</td>
<td>0.000154**</td>
<td>0.0000231</td>
<td>0.0000627</td>
<td>-0.00000756</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(-0.56)</td>
<td>(3.60)</td>
<td>(4.78)</td>
<td>(0.72)</td>
<td>(1.92)</td>
<td>(-0.38)</td>
<td></td>
</tr>
<tr>
<td>L2.pop change ~)</td>
<td>-2060.8**</td>
<td>-414.1</td>
<td>-670.7*</td>
<td>-770.5*</td>
<td>-783.0*</td>
<td>-874.2**</td>
<td>-379.2*</td>
</tr>
<tr>
<td></td>
<td>(-3.48)</td>
<td>(-1.11)</td>
<td>(-2.04)</td>
<td>(-2.42)</td>
<td>(-2.47)</td>
<td>(-2.59)</td>
<td>(-1.98)</td>
</tr>
<tr>
<td>L3.pop change ~)</td>
<td>-2339.7**</td>
<td>-447.6</td>
<td>-620.8</td>
<td>-787.3*</td>
<td>-800.1*</td>
<td>-795.4*</td>
<td>-507.9**</td>
</tr>
<tr>
<td></td>
<td>(-3.91)</td>
<td>(-1.19)</td>
<td>(-1.90)</td>
<td>(-2.47)</td>
<td>(-2.52)</td>
<td>(-2.35)</td>
<td>(-2.66)</td>
</tr>
<tr>
<td>pop change (pct)</td>
<td>0.186**</td>
<td>0.0438**</td>
<td>0.0444**</td>
<td>0.0538**</td>
<td>0.0624**</td>
<td>0.0479**</td>
<td>0.0116*</td>
</tr>
<tr>
<td></td>
<td>(15.30)</td>
<td>(5.42)</td>
<td>(5.46)</td>
<td>(6.80)</td>
<td>(8.74)</td>
<td>(5.62)</td>
<td>(2.17)</td>
</tr>
<tr>
<td>state aid</td>
<td>0.843**</td>
<td>0.673**</td>
<td>0.662**</td>
<td>0.642**</td>
<td>0.781**</td>
<td>0.642**</td>
<td>0.781**</td>
</tr>
<tr>
<td>federal aid</td>
<td>2.558**</td>
<td>2.595**</td>
<td>2.427**</td>
<td>2.425**</td>
<td>2.534**</td>
<td>2.534**</td>
<td>-0.269**</td>
</tr>
<tr>
<td></td>
<td>(54.23)</td>
<td>(54.61)</td>
<td>(50.79)</td>
<td>(50.86)</td>
<td>(51.18)</td>
<td>(51.18)</td>
<td>(21.79)</td>
</tr>
<tr>
<td>median income</td>
<td>0.0101**</td>
<td>0.0103**</td>
<td>0.0109**</td>
<td>0.0109**</td>
<td>0.0109**</td>
<td>0.0109**</td>
<td>0.0109**</td>
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<tr>
<td></td>
<td>(4.04)</td>
<td>(4.13)</td>
<td>(5.14)</td>
<td>(5.14)</td>
<td>(5.14)</td>
<td>(5.14)</td>
<td>(5.14)</td>
</tr>
<tr>
<td>L.median income</td>
<td>-0.0107**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(-7.06)</td>
</tr>
</tbody>
</table>

Constant: 3659.9** (24.03)  1834.1** (16.41)  2450.3** (47.25)  2029.6** (11.47)  2026.8** (11.46)  2320.5** (18.48)  1670.6** (20.50)

Observations: 2094
Adjusted R-squared: 0.320  0.732  0.712  0.782  0.782  0.746  0.610

* t statistics in parentheses
Models (1), (2), and (3) estimated for 149 Fiscally Standardize Cities. Model (4)–(7) estimated for 90 Fiscally Standardized Cities. Washington, DC excluded from all models. Models (1)–(6) include census division and year indicator variables. Model 7 includes only division indicators.
* p<.05, ** p<.01