

# U.S. Metro Economies

June 2013

## Job Impact of Proposals to Limit the Municipal Bond Market

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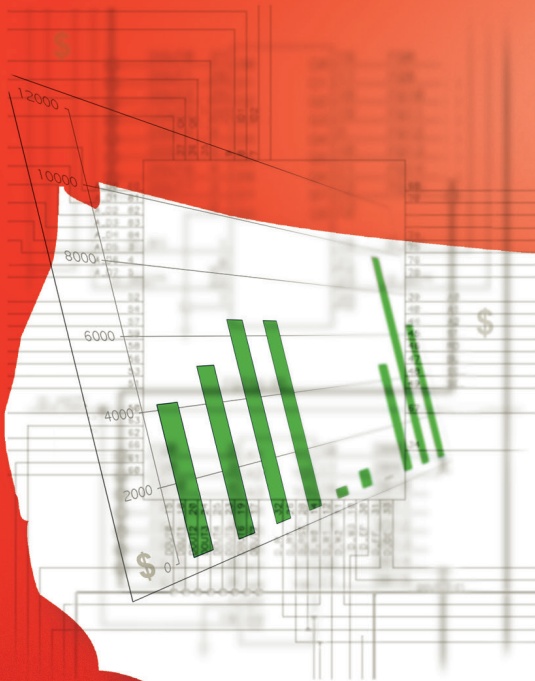
**The National League of Cities**

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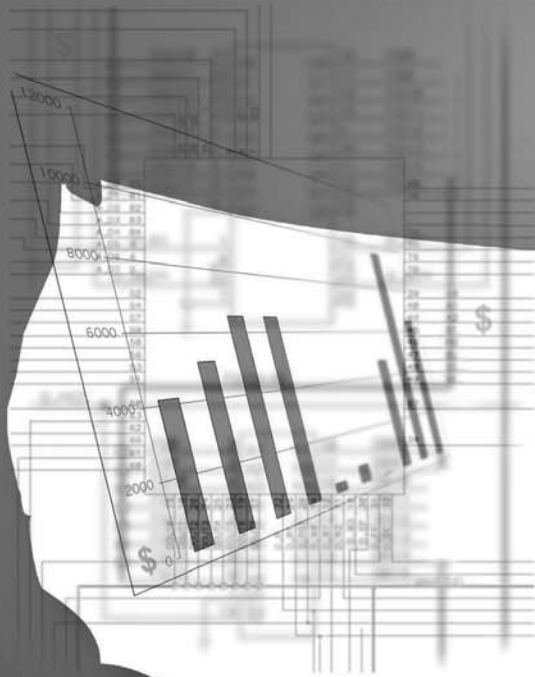
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State and local infrastructure investment is a crucial fuel for US economic growth. Primary and secondary education, mass transit, public power, water and sewer facilities, roads, streets, highways, and hospitals – these things are not only at the heart of day to day life for most of our nation’s citizens, they are also an integral part of the engine that powers our national economy.

The greatest concentration of infrastructure can of course be found in our metropolitan areas. The nation's 363 metros are home to 86% of US employment and 84% of its population. Budget deliberations in Washington include several proposals to curtail or eliminate the tax exemption for municipal bond interest; however, these tax-exempt bonds are the main source of funding for infrastructure investment. Our analysis indicates that this would have a deleterious effect on the economies of our nation and our nation’s metro areas. Moreover, our national infrastructure is in great need of maintenance, repairs, and re-building – the American Society of Civil Engineers recently gave a D+ grade to US infrastructure.

This report describes the role of the major types of state and local infrastructure spending using tax exempt financing. Then, we develop economic impact estimates of the costs to the national economy of spending cuts precipitated by municipal bond tax exemption limitations. We determine that 892,000 jobs and \$71 billion of annual Gross Domestic Product is at risk from some of the exemption proposals. Under another proposed restriction, which caps the exemption at 28%, the projected loss is 311,000 jobs and \$24 billion in GDP.

## **SCHOOLS**

Between 2003 and 2012, primary and secondary schools accounted for nearly one-third of state and local infrastructure investment using tax-exempt financing. Investment in construction of new schools is critical in communities that have seen rapid growth in the school-age population due to in-migration and the “echo boom” in childbirths. Renovation and maintenance of existing facilities and new-school construction is also necessary in all communities, especially in larger cities with hundreds of decades-old buildings. Construction and renovation of schools can provide an enhanced learning experience, but more importantly protects children from

potential environmental and safety hazards that can be common in older buildings. Updated facilities also tend to have lower annual operating costs.

In Hall County, GA, part of the booming Atlanta metro, the Gainesville city school population has grown so quickly that nearly every elementary school is overcrowded, some by as many as 300 students. More than half of Hall County's high schools are above capacity. The same is true in Texas, which is seeing rapid population growth in Houston, Dallas, San Antonio, and other metros both large and small. In 2010, the non-profit Magnet Schools of America found that Houston's Lamar high school magnet program was so overcrowded; it recommended the program be disbanded. When San Antonio's new Judson high school opened its doors for the first time last year, it was already 400 students over capacity, and that number is expected to swell to 1,000 by next fall. With all six of the district's high schools already over capacity there is nowhere else for the Judson students to go.

## **HOSPITALS**

Public hospitals have filled a critical role for decades in providing access to health care for all citizens. Pervasive high rates of poverty in some areas, in addition to the overall aging of the country's population, make public health care providers as critical as ever. The availability of timely basic care and preventive medicine helps to reduce the nation's health care costs in the long-run as minor maladies are addressed before they balloon into major, potentially chronic illnesses. Public hospitals play a leading role in medical research, and also are ranked among the top employers in many communities.

## **WATER AND SEWER**

Metropolitan area water and sewer facilities are struggling with antiquated infrastructure that routinely fails to keep up with the demands of population growth and to withstand unexpected meteorological events. When Hurricane Sandy hit the East Coast last year, the region's outdated and overtaxed sewer systems dumped 11 billion gallons of raw and partially treated sewage into rivers, bays, canals, and in some cases, city streets, according to a report by Climate Central. Climate change is also making sewage treatment plants more vulnerable to major failures and overflows, and lack of

investment to prepare them will repeatedly result in massive amounts of partially or untreated sewage flowing into waters surrounding many of our largest coastal cities – water that millions of people rely on for food, health and recreation. In recent years, the EPA has mandated that dozens of cities overhaul their waste water systems, often at significant cost. In Omaha, the price tag is \$1.7 billion; in Kansas City, it's \$2.5 billion, and in St. Louis, it's \$4.7 billion. Without tax-exempt bonds and other means to raise capital, most if not all of those costs are passed onto citizens and businesses in the form of higher utility rates.

## **ROADS, STREETS, AND HIGHWAYS**

Investment in transportation infrastructure – such as roads, streets, and highways – makes our urban areas more efficient and more economically competitive. Metro areas are not surprisingly the most congested places in the US. Automotive traffic has grown tremendously over the past few decades, and that vehicle volume is increasingly centered in urbanized areas. In 1980, 56% of vehicle travel in the US was done in urban and suburban areas; that share increased to 67% in 2010. The Texas Transportation Institute's 2012 Urban Mobility Report found that the 5.5 billion hours of travel delay Americans experienced in 2011 cost our metros \$121 billion dollars in 2011, or \$818 per commuter. The most populous urban areas naturally incur the greatest economic losses due to congestion; these costs exceed \$1,000 annually per commuter in Washington, Baltimore, New York, Chicago, Houston, Los Angeles and San Francisco.

## **MASS TRANSIT**

In addition to better roads and highways, investment in mass transit will limit these productivity losses due to congestion. A study published in the *Journal of Urban Economics* in 2012 concluded that the recently funded high speed rail line from San Francisco to Los Angeles will capture about 30% of the business travel market and 40% of leisure travelers, a great relief for California's congested roads and highways. A 2013 report by MassINC also found that midsize US metro areas with strong public transit systems have higher population and employment growth and lower growth in public assistance and unemployment. In Salt Lake City, which has seen higher-than-average population and economic growth in recent years, the Utah Transit Authority has invested heavily in light rail in recent years, including

the newly-opened airport line. In addition to reducing traffic congestion and commuter costs, displacing car traffic with mass transit will help the city to address acute seasonal air-quality problems being caused by rapid growth and the city's unique topography.

## **PUBLIC POWER PROJECTS**

Publicly-owned and -operated power projects are prevalent throughout the country, in an attempt to provide reliable service and competitive rates to homes and businesses. Public power projects also may be used to provide broader public benefits, such as trash incineration (waste-to-energy) to reduce the use of landfills. These providers are also playing a role in building renewable electric generation capacity, in the form of wind and solar energy.

## **ECONOMIC IMPACTS OF INFRASTRUCTURE SPENDING**

According to the Protecting Bonds to Save Infrastructure and Jobs 2013 report, state and local governments financed more than \$1.65 trillion of infrastructure investment over the last decade (2003-2012) through the tax exempt bond market. The tax savings awarded to investors allows governments to sell bonds at lower interest rates. If proposals to limit or end tax exempt financing come to fruition it would cost states and localities billions more in borrowing costs to fund infrastructure projects through the bond market. If a 28-percent benefit cap on tax exempt interest was in place for projects financed over the last decade, the report estimates that it would cost state and localities an additional \$173 billion in interest expenses. If tax exempt interest was eliminated completely it would have cost governments an additional \$495 billion.\*

\*These estimates of \$495 billion and \$173 billion represent the annual value of the tax exemption to municipalities based on the respective proposals to repeal or limit the tax exemption as calculated in the report, "Protecting Bonds to Save Infrastructure and Jobs 2013," released March 1, 2013 by the National League of Cities, National Association of Counties and the U.S. Conference of Mayors, with assistance from the Government Finance Officers Association and using SIFMA estimates based on Thomson Reuters data. The two proposals would force local governments to increase taxes and/or reduce spending by the above referenced amounts. This report estimates the economic impact of a direct reduction in infrastructure spending. In that way, we also illustrate the economic benefits which accrue to that infrastructure spending.



Policies that partially or fully eliminate tax exempt status for municipal bonds will have wide ranging economic effects. Broadly, the local governments can react to increased municipal bond borrowing costs by reducing infrastructure spending, raising taxes, cutting other budgetary programs, or a combination of the three. Each option has its own consequences but for the scope of this study the impact from a reduction in infrastructure spending is analyzed since it is directly at risk.

The potential impacts from a reduction in infrastructure spending are modeled using IMPLAN's economic impact software. IMPLAN uses national inter-industry purchasing relationships to derive the full effects on regional economic activity which result from direct project expenditures on goods and services. When a direct change in regional spending occurs, there are two types of economic impacts generated through the supply chain linkages that result from fulfillment and completion of the project:

- *Indirect effects* are generated when a business directly involved in the change in spending being analyzed purchases inputs from its suppliers located in the region. This goes down the line, accounting for the first line of the suppliers as well as the business supporting those and so on.
- *Induced effects* are produced by the change in local spending of disposable income by all the workers involved in the event being studied, including both the direct workers supported by the initial changes in final demand (e.g., the construction workers) and by workers in the supplying industries (e.g., firms that sell concrete to the contractor).

Infrastructure spending has a relatively large economic multiplier effect because of the extensive supply chain required by the high-value inputs required for construction and skilled labor needed for planning and engineering. The economic impacts can be considered understated in many cases because they only account for the activity generated from construction itself and not the long-term economic value added by the new schools, hospitals, roads, bridges, mass transit and all other projects done through tax exempt financing.

The study is framed as a look back at the would-be impact in 2012 if policies that reduced infrastructure spending through municipal bond finance were in place. Two scenarios were analyzed: first, a 28-percent benefit cap on tax exempt interest assuming a decrease in infrastructure spending of \$17.3 billion, or the annual average of the \$173 billion of estimated extra borrowing costs that would have been incurred over the last decade under this policy. The second scenario is a reduction of infrastructure spending of

\$49.5 billion under the assumption that the tax exemption was eliminated entirely.

The mix of infrastructure spending at risk is patterned following the broad spending category distribution of the \$1.65 trillion in projects financed over 2003-2012 through the tax exempt bond market.

Chart I  
**Infrastructure Spending Impacts in 2012**  
(Jobs, Million \$)

	<b>28% Cap</b>		<b>Full Repeal</b>	
	<b>Direct</b>	<b>Total</b>	<b>Direct</b>	<b>Total</b>
<b>Employment</b>	120,493	311,736	344,764	891,962
<b>Output</b>	17,300	48,084	49,500	137,582
<b>Gross Domestic Product</b>	7,754	24,711	22,187	70,706
<b>Labor Income</b>	6,309	16,382	18,051	46,873
<b>State/Local Taxes</b>		1,799		5,147
<b>Federal Taxes</b>		3,422		9,793

Investments in new and existing structures flow through the entire economy, creating jobs and increasing overall economic value. Under the 28% cap scenario the reduced investment would have annually supported 311,736 jobs, \$16.4 billion in labor income, and \$24.7 billion in gross domestic product. Under a full repeal a total of 891,962 jobs, \$46.9 billion in labor income and \$70.7 billion in gross domestic product would have been lost. These employment numbers include many high-skill job categories, such as architects and engineers. Indeed the average wage of jobs connected to infrastructure spending is \$52,550.

Every dollar spent on infrastructure projects results in \$2.78 of total gross economic output. Under our two scenarios of a 28% cap and a full repeal of tax-exempt financing which could cause reductions in infrastructure investment, these adverse effects are realized. All else being equal, in 2012, a \$17.3 billion reduction of infrastructure spending (28% cap), year-over-year job growth would have been 20 basis points lower and the unemployment rate would be 8.3% as opposed to 8.1%. And real GDP would have been \$24.7 billion (or 0.2%) lower. Likewise, with a \$49.5 billion reduction of infrastructure spending (full repeal), year-over-year job growth would have been 70 basis points lower, and the unemployment rate would be 8.6% as opposed to 8.1%, and real GDP \$70.7 billion (0.5%) lower.

## IMPACTS BY SECTOR

In addition to the broad economic impacts described above, we can analyze the distribution of those impacts across the various sectors of the economy.

Chart 2  
**Employment Impacts By Industry**  
**(Jobs)**

<b>Industry</b>	<b>28% Cap</b>	<b>Full Repeal</b>
Total	311,736	891,962
Construction	122,370	350,134
Professional & Business Services	38,441	109,989
Trade, Transportation, & Utilities	36,119	103,347
Education & Health Services	24,338	69,638
Financial Services	23,799	68,095
Manufacturing	22,806	65,254
Leisure & Hospitality Services	19,155	54,808
Other Services	13,549	38,767
Information Services	3,656	10,462
Agriculture, Forestry, Fishing	3,460	9,900
Government	2,202	6,301
Natural Resources & Mining	1,841	5,267

The construction sector is the top beneficiary of infrastructure dollars and thus jobs, but many other sectors benefit as the spending flows through the economy as a whole. Through the multiplier effect, most sectors of the economy are affected as the spending put towards infrastructure ripples out to other industries. The construction sector is the top sector directly impacted, while the professional and business services and manufacturing sectors benefit the most indirectly. Jobs that are induced as a result of higher incomes stemming from direct/indirect employment gains are far-reaching, however the greatest number are in the trade, transportation and utilities and education and health services sector

Charts 3 and 4 summarize the indirect and induced job losses for both the 28% and full repeal scenarios per sector. The \$17.3 billion loss in infrastructure spending would have resulted in over 25,000 fewer indirect jobs in the professional and business services sector (Chart 3). Further, the \$49.5 billion in spending would have resulted in over 72,000 jobs lost in this sector (Chart 4). These services, such as architectural and engineering, accounting and tax preparation, and legal services, are used for the planning

and implementation of construction projects and are all indirectly tied to infrastructure spending. The manufacturing sector impacts are similar. Over 17,000 indirect jobs in a \$17.3 billion reduction would be affected with close to 50,000 jobs in the full repeal scenario. Manufacturing subsectors that produce many of the materials required for these projects, for example the fabricated structural, architectural metal and concrete producers would all experience employment losses due to a decrease in infrastructure investment.

The direct and indirect jobs supported by infrastructure spending provides further stimulus through the increase in wages flowing through the economy. These induced impacts affected the trade, transportation and utilities, and education and health services sectors the most. A \$17.3 billion shock in infrastructure spending is associated with over 24,000 jobs in the education and health services sector, while \$49.5 billion contributes to nearly 70,000 jobs. Many of these induced jobs are in private hospitals and the offices of physicians, dentists and health practitioners as employees seek out general healthcare services. Private colleges, universities, and trade schools also are affected as with new economic growth comes a demand for educational services. The trade, transportation, and utilities sector meanwhile could see over 26,000 induced jobs lost due to a \$17.3 billion reduction and over 75,000 jobs with a \$49.5 billion cut. Retail stores and wholesale trade businesses are greatly impacted by the changes in disposable income that result from fluctuations in employment due to spending cuts in other areas of the economy.

**Chart 3**  
**28% Exemption Cap**

<b>Industry</b>	<b>Total</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>
Construction	122,370	120,493	847	1,030
Professional & Business Services	38,441	-	25,188	13,252
Trade, Transportation, & Utilities	36,119	-	9,819	26,300
Education & Health Services	24,338	-	36	24,301
Financial Services	23,799	-	6,696	17,103
Manufacturing	22,806	-	17,284	5,522
Leisure & Hospitality Services	19,155	-	3,450	15,705
Other Services	13,549	-	3,665	9,883
Information Services	3,656	-	1,431	2,226
Agriculture, Forestry, Fishing	3,460	-	933	2,527
Government	2,202	-	605	1,597
Natural Resources & Mining	1,841	-	1,261	580

**Chart 4**  
**Full Repeal**

<b>Industry</b>	<b>Total</b>	<b>Direct</b>	<b>Indirect</b>	<b>Induced</b>
Construction	350,134	344,764	2,422	2,948
Professional & Business Services	109,989	-	72,070	37,919
Trade, Transportation, & Utilities	103,347	-	28,096	75,251
Education & Health Services	69,638	-	104	69,533
Financial Services	68,095	-	19,159	48,937
Manufacturing	65,254	-	49,455	15,799
Leisure & Hospitality Services	54,808	-	9,871	44,937
Other Services	38,767	-	10,488	28,279
Information Services	10,462	-	4,094	6,368
Agriculture, Forestry, Fishing	9,900	-	2,669	7,232
Government	6,301	-	1,732	4,568
Natural Resources & Mining	5,267	-	3,607	1,660

## **CONCLUSION**

Continued growth in US metropolitan areas in the coming decades will test our infrastructure at all levels. Total metro area population will grow by 32% from 2012-2042 and will be especially fast in some of the nation's largest metros: Dallas, Houston, Atlanta, Tampa, Denver, San Antonio, Phoenix, Riverside, and Orlando. If there is not significant investment in infrastructure, the costs will not just be astronomical; they will stifle long-term economic potential.

Cuts to infrastructure investment hit metro areas the hardest – and yet these are exactly the places that warrant the most support. After all, metro areas contribute 90% of the production of goods and services that make up the nation's total gross domestic product (GDP). We expect that over the next 30 years 94% of US economic growth will occur in metro areas. Investment in metro areas lowers the costs of doing business, stimulating further business activity and economic growth.

A loss of the tax exemption for municipal bonds threatens to curtail this critical investment in America's future. We find in this study that from 311,000 to 892,000 jobs and from \$25 to \$71 billion annually in Gross Domestic Product is at risk. Moreover, the benefits of productivity-boosting additions to our public capital stock may be lost to future generations.







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