STATEMENT OF

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Michigan Municipal League

On behalf of the National League of Cities

BEFORE THE SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

Rebuilding Infrastructure in America: State and Local Transportation Needs

MARCH 13, 2018
WASHINGTON, DC

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The Michigan Municipal League is dedicated to making Michigan's communities better by thoughtfully innovating programs, energetically connecting ideas and people, actively serving members with resources and services, and passionately inspiring positive change for Michigan's greatest centers of potential: its communities.

Good afternoon, Chairman Fischer, Ranking Member Peters and Members of the Subcommittee.

I am Dan Gilmartin, Executive Director and CEO of the Michigan Municipal League, representing more than 500 Michigan cities and villages, from Ironwood in the upper peninsula to Detroit. I want to thank you for the opportunity to share the perspective of local leaders across my state and the country.

I'd also like to thank the Committee — and Senator Peters in particular — for his work to engage with cities on the A.V. START Act and cybersecurity legislation. Cities across the country have been ground zero for the safe testing of autonomous and connected vehicles, and we will continue to lead the way in the strategic, safe and effective deployment of this exciting technology. As noted in comments filed to USDOT this month, cities stand ready to be a partner to maximize the benefits of advanced transportation for all citizens across all regions – both urban and rural.

I am here today on behalf of the cities of Michigan as well as the National League of Cities (NLC), the oldest and largest organization representing cities and towns across America. NLC represents 19,000 cities and towns of all sizes across the country. I appreciate the opportunity to be with you today as the congressional conversation around infrastructure begins to ask the tough questions city leaders have been asking for years – how can we improve the conditions in every community across the country, how do we use every dollar strategically and how can we work together to solve our nation's infrastructure challenges.

Local-Federal Partnership on Infrastructure

I'd like to begin by saying something simple but often misunderstood - cities are your partner in infrastructure. We are not here for a hand-out from Congress, but rather we need a better partner in the federal government. Local governments own, operate and maintain 78 percent of the nation's road miles, 43 percent of the nation's federal-aid highway miles, 50 percent of the nation's bridge inventory and support our local transit systems. Additionally, local governments fund 95 percent of the nation's water and wastewater investments, and more than 750 communities run municipal broadband. Cities and states over the past decade have invested more than $3.8 trillion in municipal bonds, yet as a nation, we are still more than $2 trillion behind in known needs. Historically, the federal government has invested significantly to build national infrastructure – highways, rail, electricity, water and water resources – while states and cities have built out connections and maintained these assets in partnership with the federal government.

Cities use substantial portions of their budgets on infrastructure costs. As you have likely heard, cities have been stepping up with our municipal bonds, our fees, our sales taxes and other resources, but while some communities have every tool available to "self-help," they are the exception and not the rule. In fact, cities in 47 states face one or more state limitations on how they raise funds for infrastructure.

In spite of these limitations, city leaders remain committed to continuing to do our part, but cities' success does not come from being islands of our own. Cities want to rebuild America's infrastructure collaboratively with our federal and state partners because it is what connects us together as a country and is the base of our economic success. We benefit from its connectivity, its flow and the workforce and economic development that rides on it.

Today, I'd like to briefly share not only our prescription for a successful infrastructure bill that would work collaboratively with cities, but also shed some light on the urban-rural divide and how commerce can and should take a central role in improving our infrastructure, accelerating our regional success and encouraging the economic vitality of our rural and urban cities, both large and small.

Local Principles for National Infrastructure Investment

Cities believe a national, comprehensive infrastructure bill that support cities is essential, and it should align with five guiding principles:

1. **Sustainable Investment.** Together, cities and our federal partners must address the existing core infrastructure backlog, reestablish long-term funding and use new technologies that will serve America's cities for the next 100 years. Congress must step up to join cities in the fight to repair our nation's crumbling infrastructure and build for 2050, instead of simply fixing 1950. We should take immediate action to fill shortfalls, but most importantly, we also must advance pilots and proposals for a long-term user-fee funding model today in an infrastructure package, so we can get out of this broken funding cycle.

2. **Locally-Driven Projects.** Local leaders, from cities large and small, are best positioned to identify where infrastructure needs are greatest in their communities and should be given a stronger voice in how limited federal dollars are invested. As Congress has seen from the popularity of Transportation Investment Generating Economic Recovery (TIGER), Infrastructure For Rebuilding America (INFRA) Grant Program, Transportation Alternatives Program and Surface Transportation Block Grants, the silos of the past are not a good match for the needs of today's national networks or to build the places people want to live and work. Flexibility of localities to establish integrated programs and use multiple funding sources will be imperative.

3. **Federal-Local Partnership.** Cities are already paying their fair share and need a steady federal partner to fund existing national programs and make significant capital investments for the long-term benefit of the economy. Infrastructure projects are

planned years in advance. Eliminating programs in budgets or not knowing if the Highway Trust Fund dollars are going to be exhausted is a significant challenge that impacts the ability of local governments to plan and strategically invest. Cities need a reliable and significant partner in the federal government for infrastructure.

4. **Expand Revenue Tools.** Cities should be given more flexibility to raise revenues and use innovative financing techniques to drive regional investments that tie into the national network. This must be done while protecting existing financing tools, such as the tax exemption for municipal bonds and qualified private activity bonds (PABs). Many state laws preempt or limit the ability of city governments to raise local taxes, creating an oftentimes insurmountable barrier to local governments pursuing investments in their infrastructure. In Michigan for example, of the five most common tools for raising capital for infrastructure investment, cities are only authorized to use one, a statewide infrastructure bank. Congress should consider all federal incentives that discourage states from limiting local decision making. To understand your state's preemptive measures that limit city abilities to raise funds for infrastructure, refer to NLC's report, *Paying for Local Infrastructure in a New Era of Federalism*.

5. **Rebuild and Reimagine.** Cities are leading the way in building intermodal, sustainable and interconnected infrastructure networks that support a modern economy. We are investing in making the places that people want to live and work while working within our regions to build connectivity. Congress should invest in cities' vision to rebuild and reimagine America's infrastructure, ultimately bolstering economies across the country.

We believe these principles create a baseline for a bipartisan bill that could collectively bring all partners to the table. Every day Congress waits, America's infrastructure gap grows, and it simply costs everyone more to fix it. In many cases, cities are forced to patch together rather than rebuild for the future. Letting our infrastructure get to an emergency status is not an ideal scenario – emergency fixes cost more than regular maintenance and improvements. The best time is now for Congress to join us in rebuilding national networks and core infrastructure that delivers what Americans want – great infrastructure that works for them and the economy.

<u>Creating Rural and Urban Success Though Connections</u>

Throughout the infrastructure discussion, a theme about rural America versus urban America's infrastructure has emerged, often pitting them against each other. However, a new report, *Bridging the Urban-Rural Economic Divide*, just completed by the National League of Cities, shows that sustainable growth is not necessarily defined as much by being "urban" or "rural" but rather by its economic connections, such as infrastructure connectivity and market access. This finding is incredibly significant to the consideration of the Commerce Committee. If sustainable growth of rural areas hinges on the connectedness of places, strengthening core

regional and national transportation networks can be a chief driver in the success of rural America as well as urban America.

Congress Must Move Forward and Rebuild With Cities

In closing, cities know that fixing America's infrastructure will take significant additional commitment from every level of government – federal, state and local – without letting up on progress that can be made through existing infrastructure programs. We each have our role to play, and we thank Congress for hearing our stories today of what we are experiencing on the ground across America.

Too many bridges are in a state of disrepair, our internet lags behind, families drink from bottled water in the absence of safe tap water, and all the while, federal investments have fallen behind an ever-increasing demand. We are watching our major infrastructure systems break down in slow motion – from age, from wear and tear, from increased usage and from a lack of maintenance. Due to the lack of consistent funding, we also see that across all workforce sectors that build and maintain this infrastructure we are experiencing significant workforce pipeline gaps. America's infrastructure is a system being pushed to its limits, and with federal, state and local areas needing to find an additional $2 trillion just to keep what we have working, it is time to rebuild and reimagine how our infrastructure network works for us and our economy.

On behalf of the National League of Cities and the Michigan Municipal League, I thank you for the opportunity to submit this testimony on an issue of essential importance to our nation's cities.

Attached to this testimony is additional information regarding local priorities for an infrastructure plan and recent research by NLC on urban and rural economies, and state preemption of local financing options.

I look forward to your questions.

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CITIES STRONG TOGETHER

REBUILD AND REIMAGINE AMERICA'S INFRASTRUCTURE

WWW.NLC.ORG/INFRASTRUCTURE

GUIDING PRINCIPLES

SUSTAINABLE INVESTMENT

Together, cities and our federal partners must address the existing core infrastructure backlog, reestablish long-term funding and use new technologies that will serve America's cities for the next 100 years.

LOCALLY-DRIVEN PROJECTS

Local leaders, from cities large and small, are best positioned to identify where infrastructure needs are greatest and should be given a stronger voice in how limited federal dollars are invested.

FEDERAL-LOCAL PARTNERSHIP

Cities are already paying their fair share and need a steady federal partner to fund existing national programs and make significant capital investments for the long-term benefit of the economy.

EXPAND REVENUE TOOLS

Cities should be given more flexibility to raise revenues and use innovative financing techniques while protecting existing tools, such as tax-exempt bonds, to drive regional investments that tie into the national network.

REBUILD AND REIMAGINE

Cities are leading the way in building intermodal, sustainable and interconnected infrastructure networks that support a modern economy. Congress must invest in cities' vision to rebuild and reimagine America's infrastructure.

WATER

NLC calls on Congress to improve our nation's water infrastructure by passing legislation that will:

- Reauthorize and provide federal funding for water infrastructure improvements through the **Clean Water and Drinking Water State Revolving Loan Fund (SRF)** programs;
- Provide full appropriation to the **Water Infrastructure Finance and Innovation Act (WIFIA)** for loans and loan guarantees for water infrastructure projects, to jump-start the U.S. Army Corps of Engineers WIFIA program, and to permanently establish the program beyond a pilot program;
- Remove the **federal volume cap** on tax-exempt bonds for water and wastewater infrastructure projects, which will make additional private capital available for water projects;
- Establish a comprehensive and flexible **integrated planning and permitting process** for local water, wastewater and stormwater management that will allow communities to meet their requirements under the Clean Water Act and Safe Drinking Water Act in an efficient and cost-effective manner through the sequencing and scheduling of projects;
- Incentivize **green infrastructure techniques** that can reduce flooding and help manage stormwater runoff in a more cost-effective way; and
- Clarify that **rebates provided by local water utilities to homeowners** for water conservation and water efficiency are not subject to a federal income tax.

BROADBAND

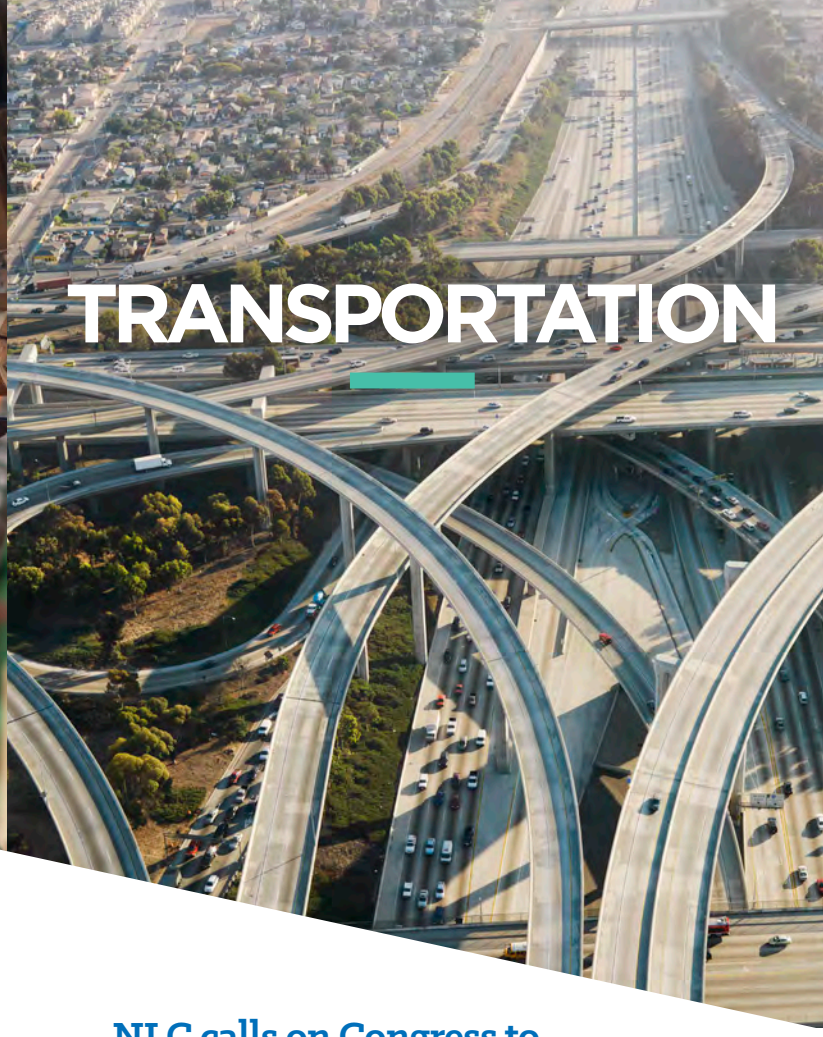
NLC calls on Congress to update our nation's broadband infrastructure by passing legislation that will:

- Expand **broadband access** to underserved neighborhoods by eliminating state barriers to municipal broadband networks;
- Target federal money to community institutions, underserved communities, and low-income families by fixing funding shortfalls in the **Federal Communications Commission's Universal Service Fund** and modernizing contribution methods;
- Establish a **broadband grant program** to accompany the U.S. Department of Agriculture's Rural Utility Service Broadband Loan program and increase the population threshold for eligible areas to at least 20,000;
- Increase funding for **Community Development Block grants and Choice Neighborhoods grants**, so that local governments can allocate funding for broadband planning and deployment alongside affordable housing and neighborhood improvement projects;
- Expand the **HUD ConnectHome** program to ensure a growing number of HUD-assisted households with children have Internet access; and
- Increase the financial viability of middle- and last-mile broadband infrastructure investment with **dig once policies** for inclusion of conduit or fiber placement in federally-funded infrastructure projects.

WORKFORCE

NLC calls on Congress to invest in our nation's workforce by passing legislation that will:

- Build on the Workforce Innovation and Opportunity Act (WIOA) by creating additional **workforce funding and training programs through joint partnerships** between the U.S. Department of Labor (DOL), U.S. Department of Transportation (DOT) and U.S. Environmental Protection Agency (EPA);
- Expand dedicated funding for **sector-based partnerships** that would jump-start local infrastructure projects and maintain necessary skilled labor;
- Expand funding and opportunities to bridge the skills gap for those interested in an **apprenticeship program**;
- Connect investments to existing local **Career and Technical Education (CTE) programs** and workforce development board initiatives focused on infrastructure skill development;
- Maintain our current workforce by ensuring **protections for immigrants**, including those with Deferred Action for Childhood Arrival (DACA) status; and
- Improve **housing affordability** by incentivizing mortgage lending for workforce housing.



TRANSPORTATION

NLC calls on Congress to modernize our nation's transportation infrastructure by passing legislation that will:

- Identify a long-term, sustainable revenue source that keeps the **Highway Trust Fund fully funded** to be used for both rebuilding and maintaining new investments;
- Fund transportation infrastructure projects by putting money directly into the hands of local governments, who are best equipped to identify **high priority projects** and invest in a coordinated, intermodal network;
- Increase federal funding for **existing programs** that support all modes of transportation, including the Transportation Investment Generating Economic Recovery (TIGER) program, Transportation Alternatives, the Surface Transportation Block Grant Program, New Starts, and the Smart City Challenge; and
- Create greater **flexibility for private investment** in infrastructure, while also recognizing that public-private partnerships may only be viable for a limited number of infrastructure projects.

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ABOUT THE NATIONAL LEAGUE OF CITIES

The National League of Cities (NLC) is dedicated to helping city leaders build better communities. NLC is a resource and advocate for 19,000 cities, towns and villages, representing more than 218 million Americans.

#REBUILDWITHUS

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MISSING INFRASTRUCTURE TOOLS FOR CITIES

Through no fault of their own, cities could lose out on critical infrastructure funding simply because they do not have access to "self-help" tools.

Some localities can tap into "self-help" local revenue-raising and financing mechanisms, such as local sales tax, local income tax and public-private partnerships, yet many cannot due to structural and state limitations.

With our nation's road, transit, water and other infrastructure in critical need of repair, new federal infrastructure investment is welcome news. While cities raise significant funding for infrastructure already, there is a gap left by rapid deterioration of existing infrastructure assets and an increasing need for new and expanded systems. This, matched with a receding federal partnership and limitations on the types of tools available to cities to fund and finance infrastructure, requires that Congress' new infrastructure investment proposal:

1. **Recognize that cities have uneven access to funding and financing tools.**
The ability of cities to meaningfully address infrastructure challenges is bound by levers authorized to them by states. For example, local option sales taxes are authorized to cities in 29 states, whereas a local option fuel tax is authorized in only 16. States and the federal government must make sure all tools to finance infrastructure are available to cities.

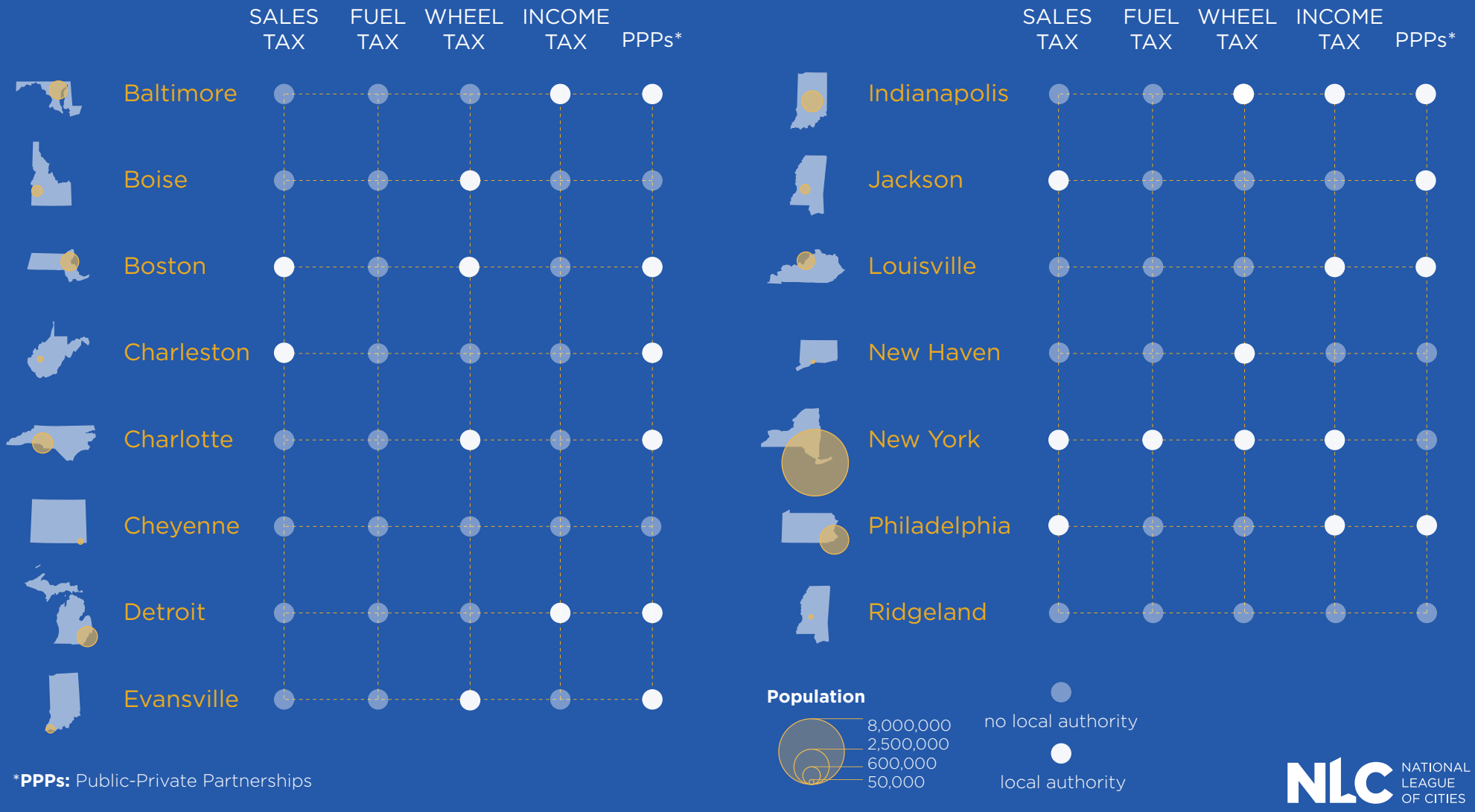
2. **Maintain and enhance the local-federal partnership.**
Cities are financing two out of every three infrastructure projects, but a strong federal partnership is essential to create a seamless, integrated and efficient network of infrastructure that meets our national economy's needs.

3. **Drive smart and locally-driven infrastructure upgrades.**
City leaders are best positioned to identify where infrastructure needs are greatest and should be given a stronger voice in how limited federal dollars are spent. They are often leading the way with smart city investments that can unlock congested corridors, fill the holes in our broadband map and make replacements to our pipes before they burst.

UNEVEN ACCESS TO SELF-HELP TOOLS

A complex array of state laws prevent cities of all sizes from using local funding and financing measures without state authorization. To illustrate these missing tools, we've collected details on 15 sample cities' authority to use four common taxes and public-private partnerships. Some cities are missing all of these tools. However, even if a city technically has access to a funding source it may not work for infrastructure or be adjustable to accommodate more investment. This exercise shows a very different ability to "self-help" from city to city raising fair questions about how to compete for funding in an infrastructure package that prioritizes it.

MISSING INFRASTRUCTURE FUNDING TOOLS IN FIFTEEN SAMPLE CITIES



*PPPs: Public-Private Partnerships

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NATIONAL LEAGUE of CITIES | CENTER FOR CITY SOLUTIONS AND APPLIED RESEARCH

Paying for local infrastructure in a new era of federalism

A STATE-BY-STATE ANALYSIS

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About the National League of Cities

The National League of Cities (NLC) is the nation's leading advocacy organization devoted to strengthening and promoting cities as centers of opportunity, leadership and governance. Through its membership and partnerships with state municipal leagues, NLC serves as a resource and advocate for more than 19,000 cities and towns and more than 218 million Americans. NLC's Center for City Solutions and Applied Research provides research and analysis on key topics and trends important to cities and creative solutions to improve the quality of life in communities.

About the Authors

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Acknowledgments

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A very special thanks as well to our panel of reviewers who lent their time and expertise: Joshua Franzel, Joseph Kane, Michael Pagano and Martin Wachs.

Methodology

This study of local infrastructure funding tools began with a survey to the 49 state municipal leagues about options available to cities in their state. Thirty eight leagues responded to our survey. We then examined existing sources of data on local infrastructure funding from the American Association of State Highway Officials, the U.S. Census, state departments of transportation (DOTs) and revenue and other federal and state government resources. Determinations to the accuracy of data were based on the date of publication and further clarification and verification from the state municipal leagues.

Photo credits: All photos Getty Images, 2016.

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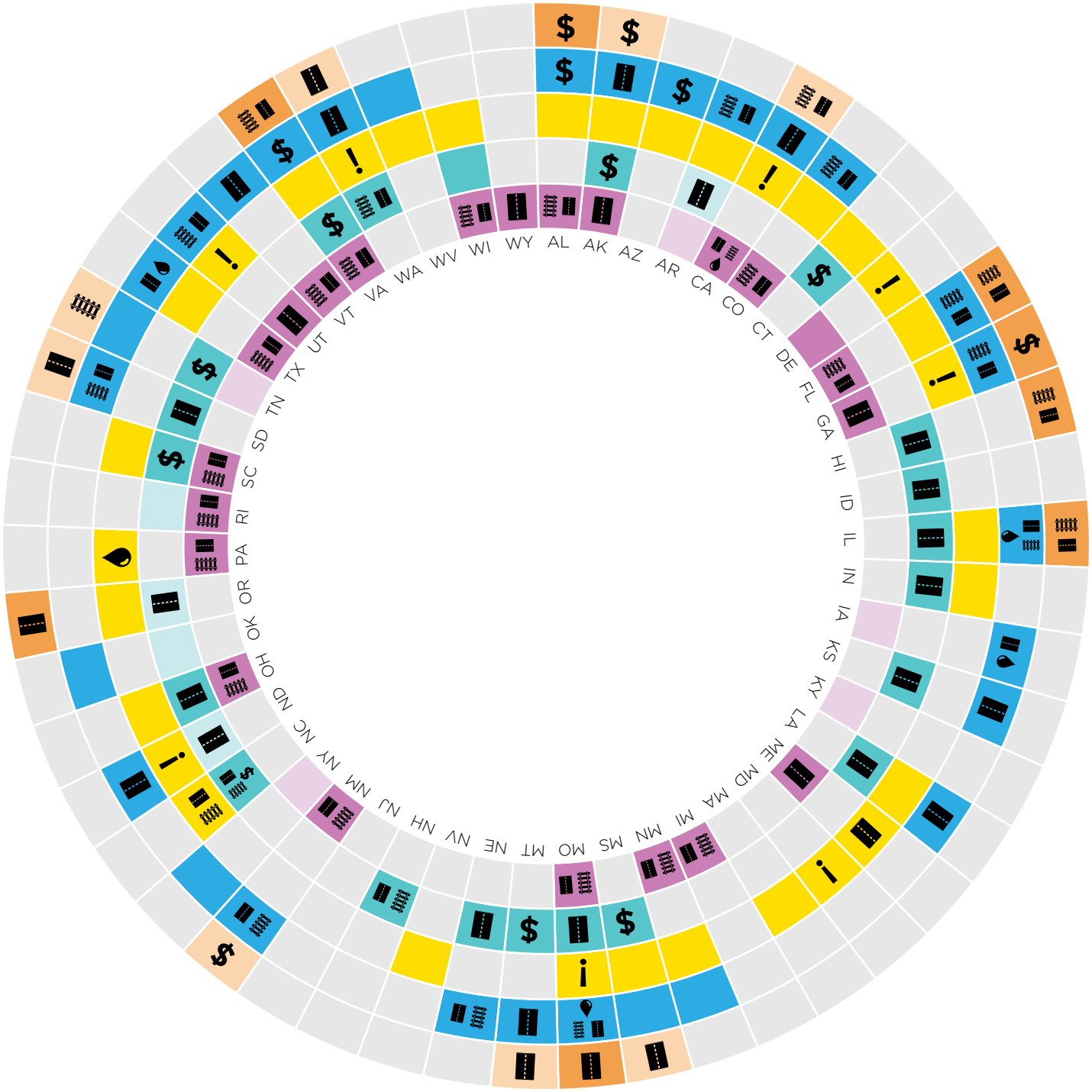
- Authorized
- Authorized-not used
- Not authorized

State Infrastructure Banks*
- Authorized
- Authorized-not used
- Not authorized

*Note: All states have a revolving fund for water.

$ General revenue ! Limited Roads Transit Water/wastewater



Executive Summary

Our nation's infrastructure is in deplorable condition, with a growing backlog of projects made worse by a slow economic recovery.

Declining funding, increasing mandates and misaligned priorities at the federal and state levels have placed responsibility squarely on local governments to maintain roads, upgrade water and wastewater systems and accommodate growing transit ridership. This represents a new federalism in which cities are taking the lead on issues historically driven by federal and state governments. Undermining this new dynamic, however, is insufficient funding authority at the local level. The ability of cities to meaningfully address growing infrastructure challenges is bound by levers authorized to them by states.

This report presents a state-by-state analysis and comparison of the local tools to fund infrastructure, including local option taxes and fees, such as sales taxes, fuel taxes and motor vehicle fees, as well as emerging mechanisms like state infrastructure banks and public-private partnerships.

Most cities are limited in terms of the number and scope of infrastructure funding tools. Cities also face additional implementation hurdles like county administration overlays and voter approval requirements. Of course, cities are marrying the tools explored here with others, but a patchwork of tactics will only take them so far. Cities need a more deliberate approach that recognizes the central role of infrastructure in the success of our nation's economic engines.

The report is based on state, federal and local government data as well as a survey and interviews with our state municipal league partners. We find that:

29 **states** authorize local option sales taxes.

16 **states** authorize local option fuel taxes.

26 **states** authorize local option motor vehicle registration fees.

32 **states** authorize public private partnerships.

27 **states** have state infrastructure banks.

Introduction

A new federalism – one in which cities lead the nation's most critical challenges – is emerging and can be seen prominently in the funding and managing of our infrastructure systems.

States and local governments own the vast majority of the nation's roads, highways, transit systems, drinking water and wastewater systems.[1] With significant decline in federal investment, and less predictable funding from states, local governments have assumed an even greater proportion of fiscal responsibility.[2] Unfortunately, this devolution has not been sufficiently matched with funding or decision making authority at the local level. As a result, spending on infrastructure maintenance and new investments are the most widespread fiscal stressors for city governments.[3]

At the federal level, the primary funding source for infrastructure is imperiled. The federal fuel tax, which supports the Highway Trust Fund, has not been raised since 1993. Meanwhile, reductions in per capita vehicle miles traveled, coupled with increased fuel efficiency standards, have resulted in net revenue losses for the Fund. If current spending and revenue projections are accurate, the Fund will amass a deficit of $180 billion over the next decade.[4] The outlook is not much brighter for water infrastructure, where federal grants and loans to cities are dwindling in the face of growing need.

At the state level, declining gas tax revenues have made state programs and funding to cities increasingly unreliable. In Michigan, the state has moved away from user fees as the sole dedicated source of revenue for infrastructure, placing a $600 million dollar burden on the General Fund to fund infrastructure. This will very likely lead to cuts in other areas of the budget that could negatively affect cities. Other states are diverting dedicated gas tax revenue to balancing the state budget instead of addressing critical infrastructure needs. And where the gas tax is not sufficient, some states are raiding local revenues to help fill the maintenance funding gap. In rare instances where states have budget surpluses, like Minnesota, lawmakers are favoring one-time spending increases on transportation over permanent tax increases.

Additionally, state spending priorities, both for capital projects and infrastructure grants, are often not aligned with city needs or priorities. For

example, state departments of transportation tend to favor highway and road projects over other types of infrastructures investments. The state of New Hampshire currently has a moratorium on state aid grants for water and sewer projects. Cities had already completed some of the projects with the intention of using these state grants to help pay down bond payments. In Georgia, cities have some input into state level transportation priorities. Yet, they are increasingly required to pay for the maintenance of state routes, thus limiting revenues for other local priorities.

Matching requirements also pose significant barriers, particularly for smaller cities. For instance, localities in Wyoming are finding it extremely difficult to identify matching funds. Many smaller cities also face design and build specification hurdles, which are often tied to state funding. In West Virginia, state water and sewer funding requires new projects to meet specifications that are often "one size fits all" and very complex. Complex and inflexible funding requirements discourage cities from applying for more funding. It can also result in cities being left with huge operation and maintenance costs as well as with the difficult job of finding certified staff to operate the systems.

Of course, the relationship that cities have with their states extends well beyond intergovernmental transfers and grants. Local governments are nested within state structures, and states decide whether cities can raise revenues for infrastructure. Due to funding challenges at the state and federal levels, the authority of local governments to raise revenue – and the ability to freely spend those funds – is vital to maintaining roads, upgrading water and wastewater systems, accommodating increasing transit ridership, and strengthening the overall competitive position of cities.

This report examines the tools available to cities to fund infrastructure, including water and wastewater, transit and roads. This state-by-state analysis explores local option taxes and fees, such as motor vehicle fees, sales and fuel taxes, as well as emerging mechanisms like state infrastructure banks and public-private partnerships. [5]

To further understand how these tools contribute to the capacity of cities to meet their increasing fiscal responsibilities, we assess:

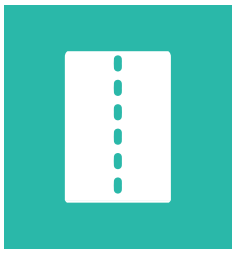
1. Whether the state grants access to cities to utilize the tool;
2. Whether voter approval is required; and
3. Whether the county administers the tool with a distribution of revenue back to cities.

We also discuss the extent to which cities are authorized to use the tools to address local infrastructure priorities, or whether they are restricted to particular uses such as roads. We argue that broader permissible uses (e.g. usage stipulated for roads, transit and water/wastewater as opposed to roads alone) provides greater flexibility to cities to meet their complex needs.

This analysis is not intended to be inclusive of all mechanisms but instead inventories and assesses a number of key ways cities pay for local infrastructure.[6] This common understanding of whether and how these tools are authorized is particularly relevant given an antagonistic political landscape in which many state legislatures and governors are seeking to limit taxes, like local option taxes. Within this context, and through the lens of infrastructure funding, this report sheds light on the challenges cities face as they embrace their roles within the new federalism.

The Infrastructure Deficit

The decline in infrastructure investment, rapid deterioration of existing infrastructure assets and the need for significant upgrades is commonly referred to as the infrastructure deficit. Below are the shortfalls specific to each type of infrastructure included in this analysis:

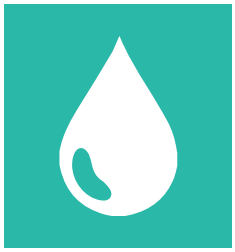


ROADS

The current level of infrastructure investment is insufficient to maintain America's roads over the long term. Presently, the combined annual capital investments, of all levels of government, amounts to $91 billion.[7] The Federal Highway Administration estimates that $170 billion in capital investment is needed annually to significantly improve road conditions and performance.[8]

TRANSIT

45 percent of American households lack any access to transit, and with the exception of residents in a handful of large U.S. cities, most with access cannot rely on it as their sole means of mobility. Even so, increasing interest in dense, urban living has resulted in a U.S. transit ridership increase of 9.1 percent over the last decade.[9] Many cities and transit agencies are grappling with maintenance funding reductions while simultaneously managing debt burdens and accommodating surges in ridership.



WATER/WASTEWATER

America's water systems are in dire need of repair: the majority of the nation's water systems are between 50 and 150 years old.[10] The American Society for Civil Engineers (ASCE) estimates that $1.3 trillion in capital investment is required to get waste and storm water systems up to par over the next 20-25 years. Moreover, the U.S. Environmental Protection Agency (EPA) has estimated that $384.2 billion is needed to fund drinking water infrastructure improvements and maintenance.[11, 12] Water infrastructure maintenance needs are straining city budgets and at current capacity, cities cannot make up this deficit.[13]

Georgia in Focus

Cities invest far more local revenue in infrastructure projects and improvements than they receive from the state.

Each year, the state of Georgia dedicates 10 - 20 percent for local road and bridge improvements. This amount is distributed based on a formula that includes population and centerline road miles. There is also a relatively small infrastructure bank for transportation-related grants and loans, but it is very competitive and few city projects get funded. Cities invest far more local revenue in infrastructure projects and improvements than they receive from the state. The state has frequently threatened to raid local revenues to meet state budget shortfalls. Last year, state legislators attempted to take $500 million in local revenues to help meet a $1 billion gap to maintain existing state roads. Political pressure from local officials and city advocates deterred legislators from raiding local revenues. Instead they increased the state gas tax. If the state had been successful, cities would have been forced to implement a sizeable property tax increase. As part of the gas tax increase legislation, the state also gave cities the option to call for a regional tax or an incremental sales tax (.05 - 1 percent), to be voted on by local residents.

Source: Georgia Municipal Association, 2016

Definitions

Local Option Sales Tax (LOST) is a special-purpose tax implemented and levied at the city or county level. LOSTs are always appended onto the base sales tax rate. States vary in how they delegate spending authority for local sales taxes.[14]

Local Option Fuel Tax is a special-purpose tax implemented and levied at the city or county level on motor fuel. These taxes are generally earmarked for transportation-related spending.[15]

Local Motor Vehicle Fee is a tax implemented and levied at the city or county level as either a vehicle registration fee or annual taxes on vehicle value, weight, age, body type or number of wheels.[16]

State Infrastructure Banks (SIB) are revolving infrastructure investment funds that are established and administered by states. A SIB, much like a private bank, can offer a range of grants, loans and credit assistance enhancement products to public and private sponsors of infrastructure projects. SIBs are capitalized with federal aid funds and matching state funds.[17]

Public-Private Partnerships (PPP or P3) are long-term contracts between a private party and a government entity to provide a public asset or service. In this partnership, the private party bears significant risk and management responsibility. Remuneration is typically linked to performance.[18]

Local Option Taxes

A local option tax, including local option sales tax, fuel tax, and motor vehicle registration fee, is one that varies within a state, with revenues controlled at the local or regional level, and is earmarked for infrastructure-related purposes.[19]

Local option taxes have helped cities throughout the country fund projects and weather economic and fiscal challenges. The tax burden, particularly for local option sales and fuel taxes, not only falls on residents but also tourists and visitors. These taxes and fees diversify fiscal burdens and city revenue streams for critical infrastructure, but they are not without challenges.

Local option taxes can exacerbate fiscal disparities between cities because those with low revenue capacity often lack the tax base needed to generate sufficient revenue.[20] In some cases, the authorization of local option taxes can be accompanied by cuts in general state aid-cuts that are often not compensated by revenues generated from the taxes.[21] These taxes can be inherently regressive toward lower income individuals who pay a greater share of their income toward the tax but receive the same level of service.[22] Local option taxes can also promote cross-border shopping and competition among cities.

In some states, counties administer local options taxes, particularly sales and fuel taxes, and then redistribute revenues back to cities. Redistribution typically occurs through a negotiated inter-local agreement, state formula or a combination of both. County-administered taxes can limit local control, but even more problematic is that this type of local option system often requires county-wide approval. Within this system, local option tax measures will often overwhelmingly pass in incorporated cities, but fail to pass in unincorporated areas, leading to no passage.

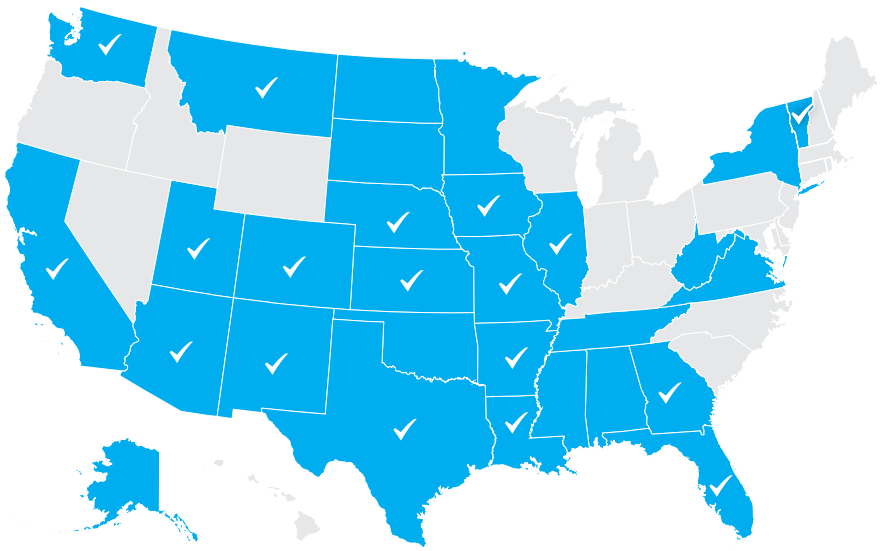
For example, voters in Pulaski County, Arkansas, recently rejected a quarter-percentage-point sales tax increase dedicated to transit. The proposed tax drew widespread support within the city of Little Rock but failed to gain support in other parts of the county. This would have been the area's first tax dedicated to transit and was projected to raise $18 million annually for bus service expansion and the creation of bus lanes. [23]

Despite these drawbacks, local option taxes are some of the few tools bestowed to cities to raise revenue for infrastructure. As such, we examine the authorization and permissible uses of local option sales taxes, fuel taxes and motor vehicle registration fees in cities across the 50 states.

Local Option Sales Taxes

Local option sales taxes are taxes on a broad base of goods and services purchased in an area. The tax rate tends to be relatively low but produces comparatively high revenues. Cities in 29 states are authorized to levy a local option sales tax.

Cities in at least 20 states have dedicated portions of the local option sales tax for infrastructure-related purposes. Other states permit revenues to be directed for general uses, which the city may or may not choose to spend on infrastructure. Although authorizing revenues for general purposes permits the greatest level of flexibility to a local government, it can potentially limit or threaten available funding specifically for infrastructure. This is common in



Local Option Sales Taxes

- Authorized in 29 states
- The option is used by cities in all 29 states
- Voter approval required in 18 states

Authorized
Not authorized
Voter approval required

economic downturns, when local revenues decrease and capital spending is often reduced to help fill operating budget gaps.[24]

In Texas, cities are able to impose a sales tax of up to two percent. Within that rate, cities have the authority to impose an optional street maintenance sales tax. Approximately 250 cities have levied this tax, with funds limited to maintaining and repairing municipal streets and sidewalks.

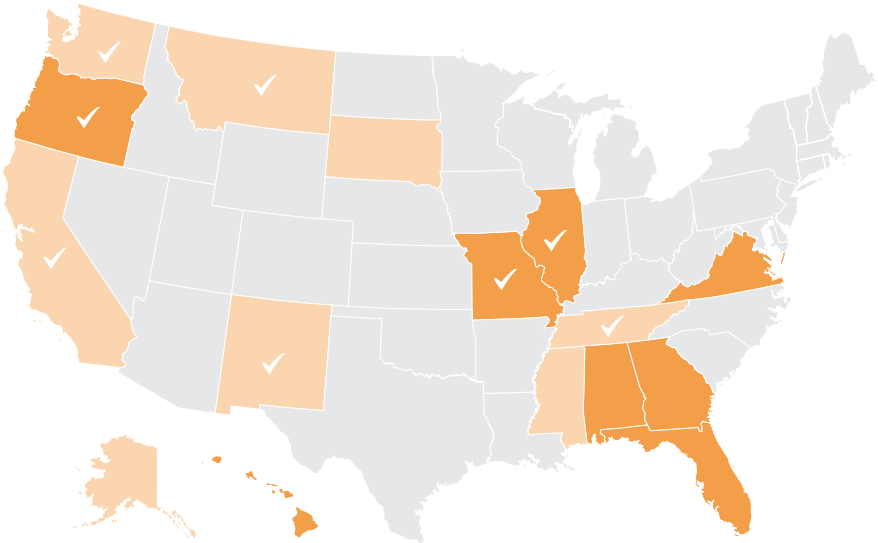
Similarly in Georgia, the state places a two percent cap on local sales taxes. Most cities collect revenues from a local option sales tax and special purpose local option sales tax (SPLOST), which are levied at the county level and distributed to jurisdictions based on a locally agreed-upon distribution arrangements. The SPLOST portion is time limited (five or six years, typically) and used exclusively for capital projects in cities and counties. Voters approve a defined list of projects. As a result of a 2012 law, some regions of the state (three out of 12 regions) also approved a regional tax of one percent for 10 years to complete a list of transportation projects. The project list for the regional tax is largely defined by the state.

Local Option Fuel Taxes

The local option fuel tax is an excise tax that is typically levied as pennies per volume of fuel sold, rather than a percentage of the fuel price.[25] The fuel tax tends to be a favorable option with cities and voters because it is paid for by drivers who are the direct beneficiaries of improvements. However, fuel taxes can encourage people to buy gasoline in neighboring jurisdictions that do not have a tax. Additionally, given changing driving habits and fuel efficiencies, revenues from the tax are less reliable (as is often the case with state and federal fuel taxes). As such, the revenue base provided by the fuel tax is often considered supplemental.

Sixteen states permit cities to levy a local option fuel tax. Cities in only eight states actually levy the tax or receive funding from a county administering the fuel tax.

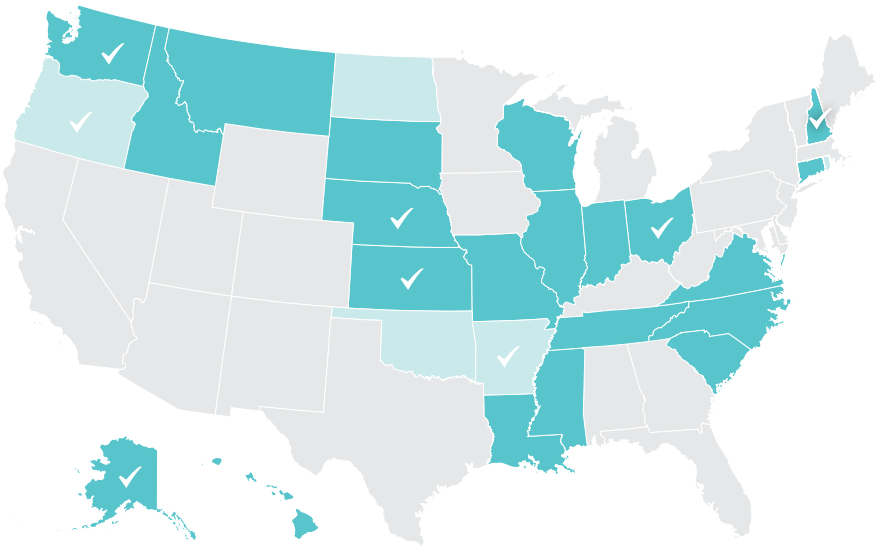
In the states where fuel taxes have been adopted most widely, they are primarily used to maintain and improve roads. Florida, Illinois, Michigan and Virginia are among the few states permitting cities to levy local option fuel excise taxes for transit. In Florida, county governments are authorized to



Local Option Fuel Taxes

- Authorized in 16 states
- The option is used by cities in eight states
- Voter approval required in eight states

Authorized
Authorized-not used
Not authorized
Voter approval required



Local Option Motor Vehicle Registration Free

- Authorized in 26 states
- The option is used by cities in 21 states
- Voter approval required in eight states

Authorized
Authorized-not used
Not authorized
Voter approval required

levy up to 12 cents of local option fuel taxes in three separate levies on fuel sold within the county. The funds are used for transportation expenditures, with proceeds distributed to municipalities through an inter-local agreement or a default formula.

While most states require cities to earmark local fuel taxes for transportation projects, a few also permit the revenues to be used for general purposes. Oftentimes, no voter approval is needed. Again, while this structure grants cities the greatest level of flexibility, it can limit funds to critical infrastructure.

Local Option Motor Vehicle Registration Fee

A local motor vehicle registration fee is typically a registration fee (such as a wheel tax or personal property tax) applied annually either at a flat rate or rate based on vehicle value, weight, age, body type, or number of wheels. Unlike the fuel tax which has a revenue base that is likely to decline over time, revenue produced from a local option registration fee varies according to the number of the vehicles on the road and, in some cases, the size and age of those vehicles.[26]

Cities in 26 states are authorized to levy a local option motor vehicle fee. These fees are utilized by cities in 21 states, with eight states requiring voter approval. Revenues can be dedicated to roads in at least 17 states, to transit in three states (New Hampshire, North Carolina, Washington); and to general revenue in eight states (some with infrastructure earmarks).

In Indiana, a local wheel and excise surtax can be adopted by counties; but, if counties do not act, it can be levied by the county income tax council which is made up of members from all cities and towns in the county and county council. The number of votes each member has is based on population. If adopted, the local wheel and excise surtax revenue is distributed to counties, cities and towns.

In North Carolina, the state General Assembly recently authorized a local motor vehicle fee for cities. The fee can be up to $30, with $5 for general purposes, $5 for public transit and the remainder to be used for streets.

Water and Wastewater

The state of water and wastewater infrastructure in the U.S. poses some of the greatest challenges for cities, both financially and for service provision.

City governments are faced with the parallel challenges of struggling to afford to replace aging infrastructure while also feeling squeezed to meet federal mandates. The majority of U.S. water infrastructure is around 50+ years old, and some legacy systems are more than 100 years old. Additionally, most large metropolitan areas are served by multiple water systems, which require coordination between state and local governments to run smoothly.[27] These governance and finance challenges, in combination with the increasing age of water infrastructure and the water shortages experienced in some regions of the country, foretell what could be significant water crises in the decades to come. City leaders should prepare for this challenge, as well as plan for the technological and green infrastructure improvements that will be necessary to keep their water systems federally compliant and capable of meeting the needs of their communities. In 2007, the U.S. EPA has estimated that the funding need totals approximately $384.2 billion for drinking water infrastructure and $298 billion for wastewater infrastructure.[28]

Currently, all states have some sort of separate state revolving fund (SRFs) for water and wastewater infrastructure. They all operate slightly differently and are subject to local needs and preferences. [29] Each year, Congress appropriates approximately $2 billion in formula funds to these SRFs. States must match the share that they receive. SRFs, then, make loans to cities, and in some cases, smaller cities and projects are favored for financing assistance. Some states manage to address their water infrastructure needs by using a combination of state and local programs and taxes, while other states are limited in their ability to leverage different tools.

For instance, in Virginia, water/wastewater infrastructure needs can be addressed by local taxes as well as via the Virginia Resources Authority. The Virginia Resources Authority is a state-created revolving loan fund that can issue bonds and bundle different projects from different cities to drive down issuance, insurance and other costs. The state can also provide appropriations for nutrient removal in wastewater treatment plants. Additionally, the state created a Stormwater Local Assistance Fund, but policymakers reported that the resources appropriated for these needs pale in comparison to the expected costs.

Many states also authorize special financing districts for water infrastructure needs. In the state of Missouri, cities can utilize tax increment financing (TIF) as well as special assessments and programs such as Neighborhood Improvement Districts or Community Improvement Districts that impose special property tax levies or sales taxes to fund water infrastructure projects specific to that district.

Local leaders are stretching the value of every dollar available from local, regional, and state authorities. They are also relying on the federal government and private partners to simply maintain existing infrastructure. Yet, the current level of investment is not enough to create, or maintain, a modern water infrastructure network for the 21st century.

Emerging Tools

Local option taxes and fees have provided cities with additional revenues to maintain and expand critical infrastructure.

Despite the proliferation of these local sources of revenue, the lack of flexibility in the administration and utilization of these tools as well as an anti-tax state political environment have encouraged cities to continue to pursue new ways to pay for infrastructure. Some emerging tools, including public-private partnerships (PPPs or P3s) and state infrastructure banks, help cities leverage existing revenues through innovative financing and, in some cases, provide new revenues.

Public Private Partnerships

Public-private partnerships, also known as PPPs or P3s, are contractual arrangements between public agencies (state or local governments) and the private sector to provide infrastructure for the public. Both public and private partners contribute financially and share in the risk and reward. The government partner administers and regulates the infrastructure, while the private sector infuses capital and focuses on the operational and executive aspects. This division of roles helps drive innovation because cities can present a problem to businesses for development in a competitive environment rather than specifying the "best" solution.[30]

These arrangements have been most successful overseas, with some emerging success in the U.S.[31] Currently, 32 states have some variation of public-private partnership-enabling legislation. Two states, Kentucky and Tennessee, currently have bills under consideration in their state legislatures that would enable use of public-private partnerships. State enabling legislation provides the legal and financial

Public Private Partnerships

- Authorized in 32 states
- Thirteen states are authorized for P3s for all types of infrastructure

Authorized
Not authorized

frameworks necessary to pursue these partnerships, which otherwise might not exist for cities.

In Massachusetts, cities have access to P3s, but only with the approval of the State Inspector General and for projects with construction costs of at least $5 million. The project cost threshold is a barrier to using P3s for water and wastewater projects in many municipalities. Alternatively, Massachusetts' cities can seek, and are often granted, legislative approval for a greater role for private partners and long-term contract operations like the following: design-build, design-build-operate and design-build-operate-finance delivery structures. This special act process, the only viable solution for most cities, requires the submission of a Home Rule petition and a vote by the Legislature, which introduces uncertainty and possible delays into the public procurement process.[32]

Design

There are many different ways that P3s can be arranged, and various levels at which the private sector engages in these partnerships. For instance, in design-build P3s, the private sector is responsible for the project design and construction, while the public sector maintains its traditional role of identifying the infrastructure need, arranging the financing terms as well as owning, operating and maintaining the final asset after construction is completed. In the case of design-build-finance P3s, the private sector is also responsible for setting the financing terms for the project.[33]

Uses

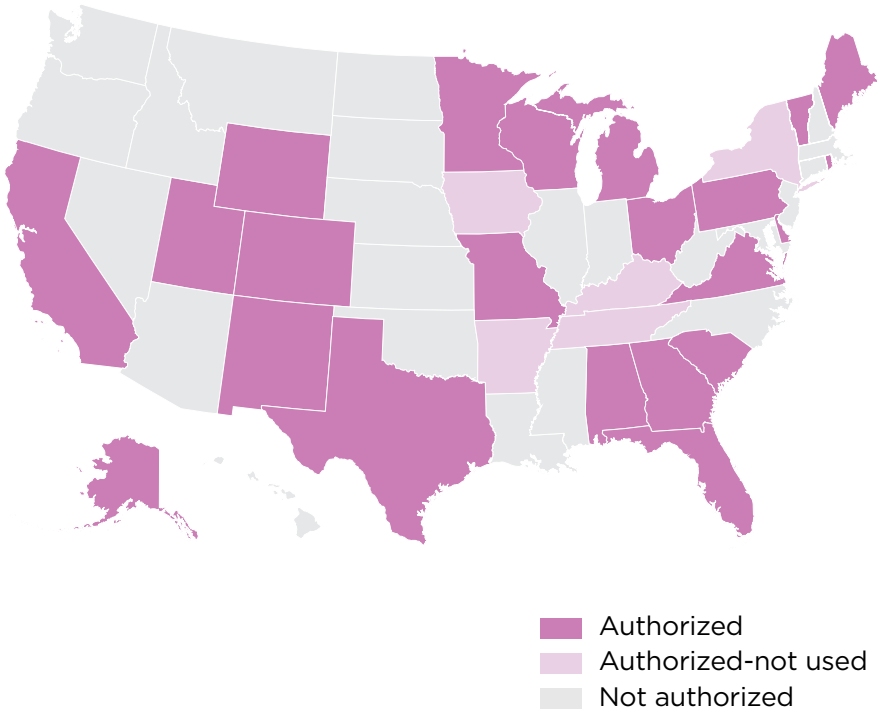
P3s have been used for a wide variety of public infrastructure needs from roads and water/wastewater infrastructure to public buildings. The relative novelty of this mechanism in the U.S. means that there are few examples of American P3 projects that have endured a total financing or project lifecycle.

While P3s are often fiscal solutions that enable cities to pursue infrastructure projects that might have otherwise been delayed or impossible, the engagement of private sector partners brings about new considerations for local governments. Private sector partners often require cities to surrender some of the project management control, leading to questions of transparency and accountability.

Paid-use Models (VMT Fees)

Given the ever-increasing infrastructure deficit, and the nearing insolvency of the Highway Trust Fund, policy makers and researchers are considering alternate methods of paying for transportation infrastructure. The Vehicle Miles Traveled (VMT) fee, also called the mileage-based-user fee, is gaining political traction as a plausible mechanism to pay for our crumbling roads. This model charges motorists for their use of a roadway based on the number of miles they travel. It has been proposed as both a supplement to and a replacement for the gas tax.

Beginning in July 2015, the state of Oregon began a pilot VMT fee program for 5,000 volunteers. Known as OreGO, this pilot program tests different methods of revenue collection. California has also adopted its own pilot program, which will go live on July 1, 2016. Several other states (Washington, Nevada, and Minnesota), and university transportation centers (UTCs), have subsequently initiated research and the development of policy and operational frameworks for these programs.



State Infrastructure Banks

- Authorized in 27 states, 22 of which have active infrastructure banks
- One state (California) deems roads, transit and water projects as eligible, while 15 states deem road and transit projects eligible. Four states deem only road projects as eligible, one state (Wyoming) funds water and roads and one state (Delaware) funds only water projects.

Furthermore, there is always the risk of a project failing, under any funding structure, and in the case of P3 funded projects, there is the added complexity of private sector profiting at the financial expense of taxpaying citizens. Private sector firms typically stand to gain some sort of revenue in exchange for their capital, expertise or flexibility. Elected city officials should carefully consider both the public and private sector interests inherent in these projects, whether this sort of funding mechanism could work in their communities and whether the project they have in mind is appropriate.

State Infrastructure Banks

Many states have created state infrastructure banks, referred to as "SIBs" or "I-banks" for short.[34] These typically consist of revolving investment funds that can provide loans and grants to infrastructure projects within the state.[35] The grant funds and low interest loans offered through these banks can do a great deal to help cities meet their infrastructure needs. While each state operates its fund a bit differently, many make a concerted effort to foster relationships with local governments and to base their selection of projects on regional and local economic impact analyses.

Uses

While state I-banks set aside dedicated funds for infrastructure needs, and each is operated and managed slightly differently, they tend to favor transportation projects over other types of infrastructure.[36] This can be attributed to the fact that, traditionally, revolving funds for water and wastewater projects have been administered separately from those dedicated to road, bridge and transit projects.

Currently, all states have some sort of separate revolving funds for water and wastewater infrastructure, with the exception of California, which has one centralized I-bank. California's I-bank supports a wide range of infrastructure projects including roads, water, wastewater,

educational facilities, environmental mitigation measures, parks and recreational facilities, port facilities, transit, defense conversion, public safety facilities and power and communications facilities (see case study on page 15).[37] The state of California is the only state in our analysis in which the infrastructure bank funds can be used for such a wide range of infrastructure investments. Twenty-two states in our analysis have active revolving funds dedicated to road and or transit projects. Four states have limited eligible projects to roads.

In some states, I-banks are deemed inactive including Arkansas, Iowa, Kentucky, New York, and Tennessee. This means that they were, at one time, enacted or established via a federal program or state legislative act. However, they were never capitalized, and thus do not currently serve as a funding or financing mechanism for the cities in that state.[38]

Design

State I-banks afford localities some level of fiscal security for infrastructure projects and the opportunity to adhere to long-range plans and to meet ongoing needs. I-banks handle project selection in a multitude of different ways, but almost always do so via some sort of formal selection process. In most cases, there is a committee assigned to review and prioritize the projects. Some committees select projects on a first-come, first-served basis, while others identify and prioritize projects that fit within the scope of the state's transportation plans.[39]

In Oregon, the Oregon Transportation Infrastructure Bank (OTIB) appoints an advisory committee comprised of local officials, Oregon DOT staff and other community representatives to review applicants. As a result, selected projects meet both state and local transportation needs and acknowledge local and regional transportation planning efforts. Other considerations that often play into project selection include the economic benefit rendered by the project, the credit and financial stability of the project sponsor and factors such as innovation and environmental sustainability.

California in Focus

The California Infrastructure and Economic Development Bank (known as IBank) was created in 1994 by Assembly Bill 1495 (Bergeson–Peace) to finance public infrastructure and private development that promotes a healthy climate for jobs, contributes to a strong economy, and improves the quality of life in California communities.

IBank operates pursuant to the Bergeson-Peace Infrastructure and Economic Development Bank Act contained in the California Government Code Sections 63000 et seq. IBank is located within the Governor's Office of Business and Economic Development and is governed by a five-member board of directors.

IBank has broad authority to issue tax-exempt and taxable revenue bonds, provide financing to public agencies, provide credit enhancements, acquire or lease facilities, and leverage state and federal funds.

IBank's current programs and financial tools include the Infrastructure State Revolving Fund (ISRF) Loan Program, Statewide Energy Efficiency Program (SWEEP), 501(c)(3) Revenue Bond Program, Industrial Development Revenue Bond Program, Exempt Facility Revenue Bond Program, Governmental Bond Program and the Small Business Loan Guarantee Program.

These tools provide funds for cities and small businesses to improve critical infrastructure and encourage entrepreneurship. For example, through the Infrastructure State Revolving Fund (ISRF) Loan Program, the City of San Gabriel secured $3.8 million for street repairs, and Sacramento's B Street Theatre received an $8.4 million long-term loan to expand its theatre and arts building. The ISRF has also been used to stimulate upgrades to local flood control, public transit, parks, ports and waste collection infrastructure, amongst others.

IBank is also encouraging public and private investments in clean energy and environmental protection. Cities are able to access a combination of direct loans from IBank or public market tax-exempt bonds for energy efficiency projects. For example, the City of Huntington Beach, the first to receive funds under this initiative, will use a $7.7 million low-interest loan to purchase and retrofit more than 11,000 streetlights with new LED technology resulting in significant annual energy savings.

Since its inception, IBank has provided crucial public financing tools to local governments and can serve as a model for other states that seek to actively leverage public dollars to improve local infrastructure. At its full potential, IBank can be a powerful partner on local infrastructure projects and in meeting statewide goals such as environmental protection, job growth and strengthening public infrastructure.

Source: League of California Cities, 2016

Discussion

Missouri and Virginia are the only states that authorize cities to access all five tools (sales taxes, fuel taxes, motor vehicle fees, I-banks and P3s). However, in Missouri, voter approval requirements limit the ability of some cities to utilize particular local options.

For example, Missouri cities have the local option of imposing a fuel tax, provided that a two-thirds majority vote passes. Although many cities have tried, only one Missouri municipality has successfully imposed this tax, with funding limited to road construction and maintenance, or paying down debt related to roads and streets.

In Virginia, access to a special local option sales tax is limited by jurisdiction eligibility, including population thresholds. Although the state authorizes the additional sales tax, Northern Virginia and Hampton Roads are the only two regions that qualify, with funds allocated primarily for roads and transit.

Kentucky and New Jersey are the only states that do not authorize their cities to access any of the tools examined in this report. Although Kentucky has a state infrastructure bank, it is currently not funded.

Conclusion

Despite the fact that infrastructure is a critical part of daily life for all Americans, the infrastructure deficit in the United States grows with each passing day.

Traditional means of paying for infrastructure no longer cover the costs of building, operating and maintaining elements such as roads and wastewater management facilities. The partnerships between levels of government are eroding, and cities are increasingly on their own to fund necessary infrastructure. The changing nature of funding responsibility demands that we take stock of the tools available to cities and assess whether these are sufficient to meet growing needs.

Our research finds that most cities have limited authority regarding the number and scope of infrastructure funding tools, and that they face additional hurdles like county administration overlays and voter approval requirements.

Of course, cities are marrying the tools explored here with others, including a portion of state gas taxes, dedicated income and property taxes, utility fees, value capture, special districts, paid use models and tax-exempt municipal bonds. However, this patchwork of tactics will only take them so far.

Cities need

1

Strategic and predictable investment from federal and state governments.

2

Better communication between cities and states on funding priorities.

3

Greater local authority to raise revenue and implement creative solutions with multisector partners.

Cities need **a more deliberate approach** that recognizes the central role of infrastructure in the success of our nation's economic engines.

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The National League of Cities (NLC) is the nation's leading advocacy organization devoted to strengthening and promoting cities as centers of opportunity, leadership and governance. Through its membership and partnerships with state municipal leagues, NLC serves as a resource and advocate for more than 19,000 cities and towns and more than 218 million Americans. NLC's Center for City Solutions provides research and analysis on key topics and trends important to cities, creative solutions to improve the quality of life in communities, inspiration and ideas for local officials to use in tackling tough issues, and opportunities for city leaders to connect with peers, share experiences and learn about innovative approaches in cities. Learn more at www.nlc.org.

About the Author

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Introduction

The facts are stark. Economic change and recovery in our nation have resulted in vastly different opportunities and outcomes for individuals and families based on where they live. An urban-rural divide narrative is solidifying around these trends. It's one that touts (or bemoans) the all-consuming growth of our nation's largest cities and laments rural communities as devoid of economic potential. It juxtaposes urban and rural areas, pitting them against each other and, ultimately, isolating them from each other.

The narrative, whether political, economic or cultural, ignores nuances within broader urban-rural trends, all while largely avoiding solutions for more sustainable growth. Rural poverty, drug abuse, infant mortality and feelings of hopelessness are very real, but so too is rural entrepreneurship.[1] Even, as many major cities prosper, their success has been questioned as "uniquely vulnerable to future shocks," due to gentrification, lack of affordability and industrial hyper-specialization.[2]

It's time for the narrative to shift from urban vs. rural to a shared economic future. Bridging the economic divide between urban and rural areas will require states, regions and localities to understand and bolster *the relationship between urban and rural areas* in economically meaningful and strategic ways.

A 2011 study examining the interdependence between Minnesota's urban and rural areas found that urban regions receive substantial economic benefits from improved prosperity in rural areas. Every $1 billion increase in rural manufacturing output produces a 16% increase in urban jobs, significant additional business-to-business transactions and statewide consumer spending and investment.[3] Similarly, a study of the Sacramento, California, region found that the majority of jobs and economic activity resulting from the region's rural food and agriculture cluster occurred in urban parts of the region.[4] Integrated urban and rural areas can boost each other's economies, with ripple effects of that success felt throughout the region and state.

A viable path toward long term growth, then, is to strengthen these urban-rural economic interdependencies. This approach, however, has been largely unexplored or not taken to scale with the exception of a few cases. *Bridging the Urban-Rural Economic Divide* provides a first step. This report provides an analysis of urban and rural divides in economic inputs, business environments and economic outcomes as well as the ways in which they are intertwined. These characteristics not only shape the economic landscape but offer glimpses into opportunities for more impactful policies and programs to bridge the divide.

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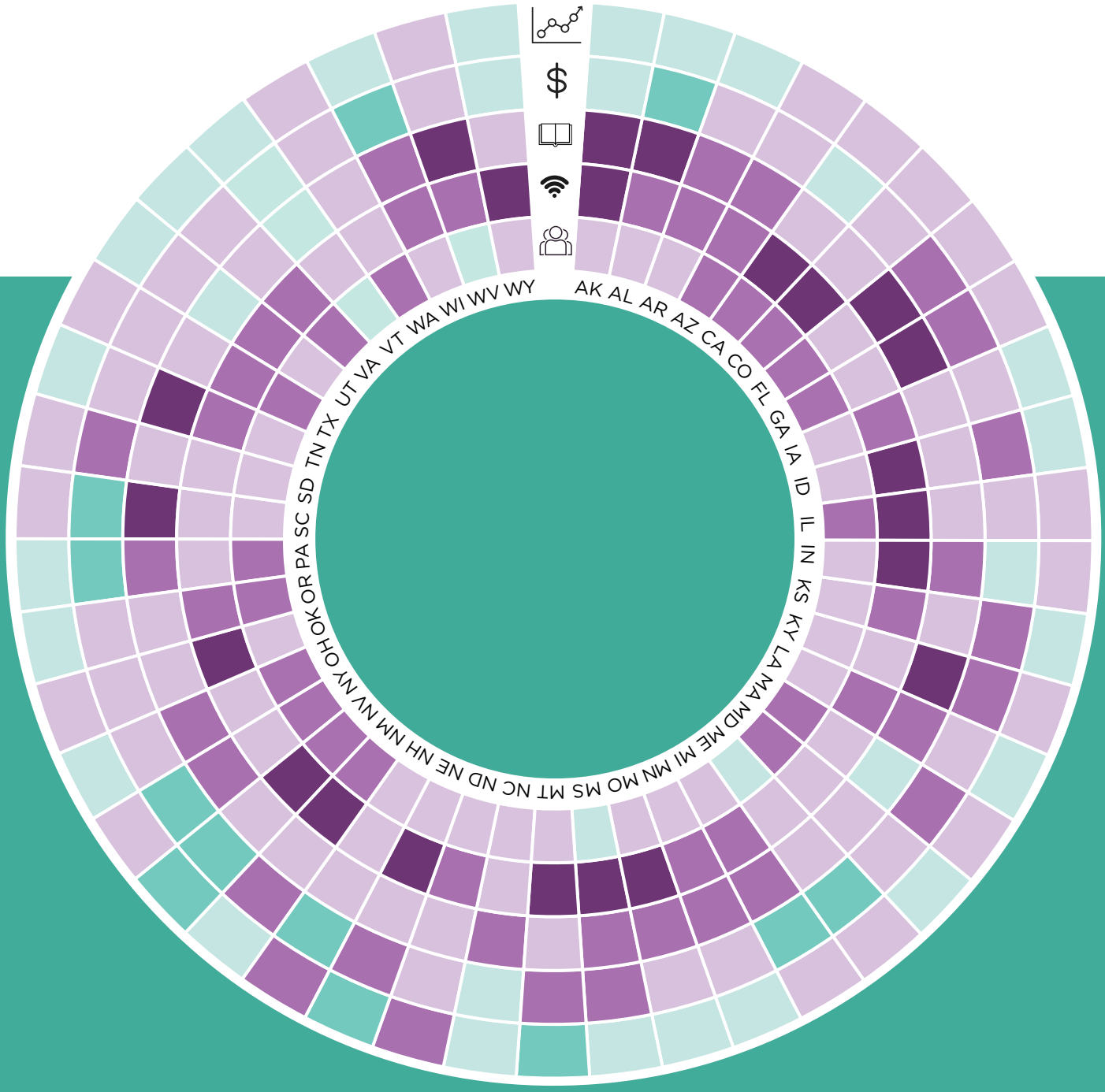


More rural **More urban**

Narrow divide

Urban-rural divide is the percentage difference between urban and rural areas for each measure by state.

Population

Access to broadband

Education

High-value business growth

Prosperity growth

See appendix for individual state data.

This analysis finds that:

- In all states, urban areas outpace their rural counterparts in **broadband access**. States with overall higher levels of broadband access also have more significant urban-rural digital divides, underscoring the importance of extending affordable broadband to rural areas.
- States with strong levels of **educational attainment** have less conspicuous educational divides between urban and rural areas. Often, rural areas are home to universities, which connect rural residents to educational opportunities and narrow the gap.
- Although urban areas have somewhat stronger rates of **high-value business growth** (growth of establishments in exporting industry sectors), rural areas don't appear disadvantaged in this characteristic. In fact, many rural areas outpace their urban counterparts in creating high-value businesses.
- Most states do not have significant urban-rural divides in **prosperity growth**, defined as their per capita contributions to state GDP (gross domestic product). Both urban and rural areas contribute to states' economies.

These nuanced findings show the complexities of the urban-rural divide. One consistent theme, however, is the importance of infrastructure connectivity and market access, indicating that sustainable growth hinges on the *connectedness of places*, not necessarily their designation as urban or rural. In what follows, the report defines urban and rural, presents a detailed analysis of economic divides with comparative maps, and offers strategies, policy considerations and state, regional and local examples of those working to bridge the divide by strengthening urban-rural economic interdependencies.

Defining Urban and Rural

"The use of 'urban vs. rural' as shorthand for economic prosperity falls apart on some level. There are rural areas that enjoy prosperity, whether it's built on tourism or an anchor institution such as a university. And there are urban areas that are struggling to provide jobs and services to residents, such as cities built on legacy manufacturing industries that have long since shuttered."

// NORTH CAROLINA LEAGUE OF MUNICIPALITIES

Despite extensive national discussions about the urban-rural divide, the words "urban" and "rural" are not often defined in a parallel manner. Some researchers default to "metropolitan" and "non-metropolitan" as defined by the Office of Management and Budget. While data is more readily available using these categories, the terms are not entirely comparable with "urban" and "rural." For example, in the U.S., 20% of completely rural counties and 31% of mostly rural counties are part of metropolitan areas. Likewise, 6% of mostly urban counties are designated as non-metropolitan.[5]

Alternatively, this analysis defines urban and rural using the U.S. Census Bureau definition, which bases rurality on population size, density, land use and distance to an urban area.

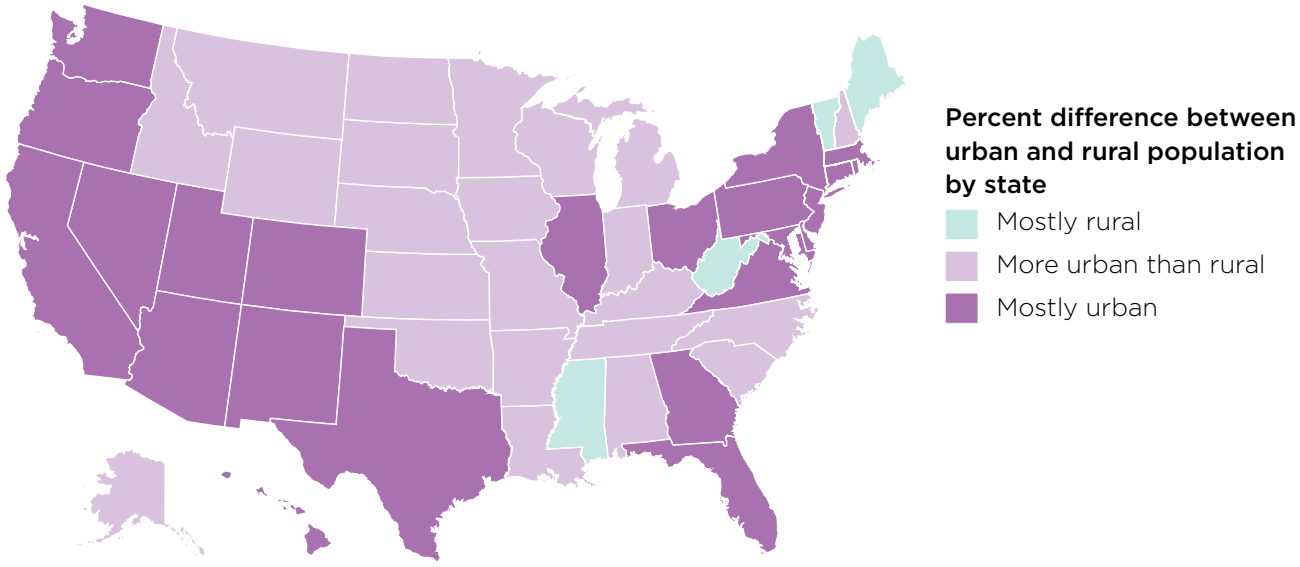
Within these parameters, the bureau defines three levels of rurality: completely rural (704 counties), mostly rural (1,185) and mostly urban (1,253). In this report, we combine completely rural and mostly rural categories to allow us to examine and present state-by-state urban-rural divides. This analysis applies the bureau's definition to all 3,042 counties in the country. It also designates each county (instead of city) as either urban or rural because of limitations in economic data.

In the U.S., about four out of five (81%) people live in an urban area. Pennsylvania (79%), Oregon (81%), California (95%), New Jersey (95%), Nevada (94%) and Massachusetts (92%) are the most urban states in the country by percent of population (see Map 1 and appendix data table 1). California, Texas, Florida and New York contain the largest urban populations. Maine (39%), Vermont (39%), West Virginia (49%) and Mississippi (49%) have the highest percentages of rural residents. Texas, North Carolina, Pennsylvania and Ohio have the largest number of rural residents of any state.

This analysis finds, however, that even this definition of urban and rural does not adequately capture the nuances of the urban-rural relationship. The following sections on broadband access, education, growth of high-value businesses and prosperity growth help to refine and broaden our understanding of urban and rural, and the economic relationships between them. All references to urban-rural divide are the percentage differences between urban and rural by state.

Map 1: **Urban-Rural Population Divide**

Only four states have greater rural than urban populations.



Source: U.S. Census Bureau, 2015

Connecticut, Delaware, New Jersey and Rhode Island lack rural counties, and Hawaii only has one. For this reason, these states are excluded from the rest of the analysis.

Broadband Access

"Many parts of the state are in virtual dead zones and that limits their ability to attract businesses and residents."

// LEAGUE OF ARIZONA CITIES AND TOWNS

Using 2016 data provided by the Federal Communications Commission, "broadband access" is defined as the difference in the percentage of people living in urban and rural areas without access to high speed Internet.[6] Nationwide, 10% of Americans do not have access to broadband, with rural areas experiencing significantly greater access challenges. In a world dominated by online communications, this digital divide severely limits rural residents' access to online job application and employment opportunities, online higher educational and training opportunities, public school learning, research opportunities, healthcare and government services. The digital divide also limits rural areas' capacity to grow and attract businesses and retain and attract residents.

Urban-rural divides in broadband access are inversely related to the percent of state population without access to broadband. This means that as overall state access increases, so too does the *divide* in access between urban and rural areas. Broadband access tends to cluster in urban areas because it is a guaranteed market for private providers, unlike less densely populated rural areas.[7] Even in rural areas where broadband

is available, it is often much more expensive, leading to gaps not only in access, but also in adoption.[8]

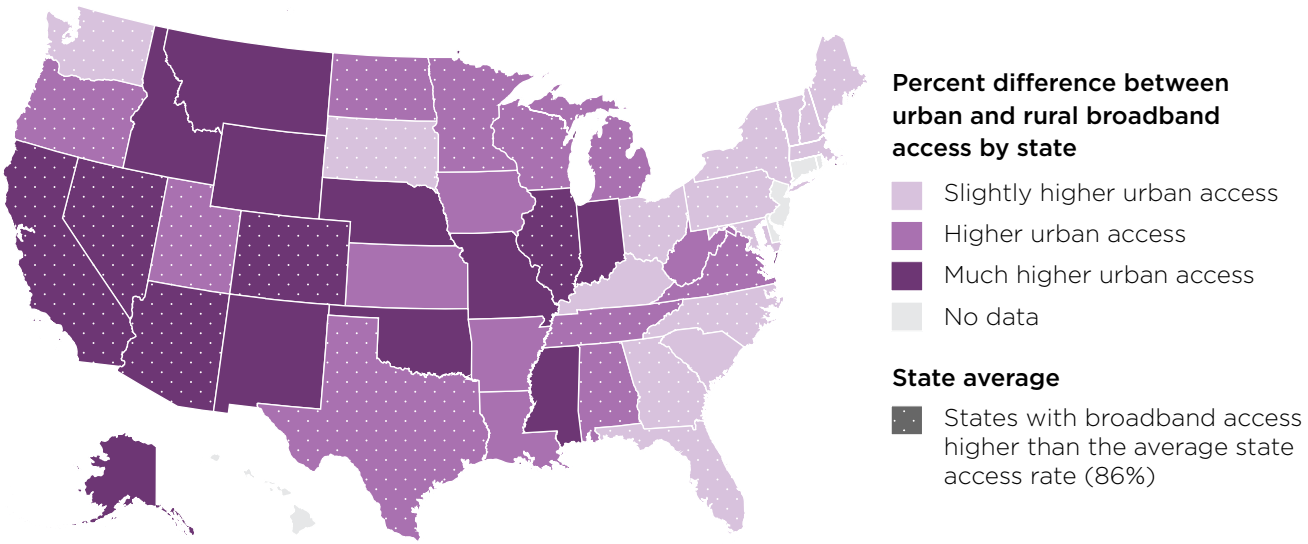
There are no states in which rural areas have more people with access to broadband than urban areas. Overall, rural communities have 37% more residents without broadband access, as compared to their urban counterparts. Alaska has the most significant digital divide, with a gap of 62%, meaning that rural areas in Alaska have 62% percent more people without access to broadband than the state's urban areas. Massachusetts has the narrowest digital divide, with rural areas having only 8% more people without broadband access than urban areas (see Map 2).

States with the narrowest urban-rural digital divide that have the highest proportion of population with broadband access include New York, Pennsylvania, Washington, Maryland and Massachusetts (see appendix data table 2). States with the most significant urban-rural digital divides and most significant lack of high-speed Internet access include Wyoming, Alaska and Oklahoma.

Although Massachusetts performs well regarding broadband access, the state was actively seeking private sector companies to provide high-speed service to underserved areas. The extensive capital expenditures needed to build broadband networks and a requirement that they connect 96% of homes and businesses in the town, however, hindered the interest of those companies. The state agreed that for underserved communities, instead of

Map 2: Urban-Rural Broadband Access Divide

In all states, broadband access is higher in urban areas than rural.



Source: Federal Communications Commission, 2016

"There is a role for government to play in this policy area, which up until now has been left entirely to the private sector."

// NORTH CAROLINA LEAGUE OF MUNICIPALITIES

requiring providers to service 96% of the town immediately, it would consider projects that would plan reach this goal over time.[9] This small adjustment was enough to gain interest of several businesses that are now competing for projects in rural communities.

Some communities are also exploring municipal broadband, which means that local government pays for all or part of the access. A 2018 Harvard University study found that community-owned broadband networks provide consumers with much lower rates than their private-sector counterparts.[10] Not all local governments, however, are able to provide municipal broadband services. In 2017, the National League of Cities identified 17 states that preempt, or don't allow, their cities or towns to create public broadband services.[11] These include some states with lower than average broadband access and more significant rural disadvantages, including Arkansas, Alabama and Nebraska.

Education

"In Kentucky, the biggest challenge is in the eastern part of the state, due to the mountainous terrain, generational poverty, too much reliance on one industry (coal) and the prevalence of drug abuse. These all contribute to lower economic development and educational attainment, as well as lack of urban cores around which rural areas can cluster."

//KENTUCKY LEAGUE OF CITIES

Level of education is measured as the percent of the population 25 and older with at least some college education (U.S. Census Bureau 2015). Post-secondary education and training remains the single best identifier of those moving to the middle and upper class. The number of jobs available to individuals with at least some college or better has nearly quadrupled since 1973, growing from 25 million to 91 million in 2015.[12]

Urban-rural divides in educational attainment tend to be narrower in states with greater proportions of their population with at least some college education. The education divide also tracks back to the

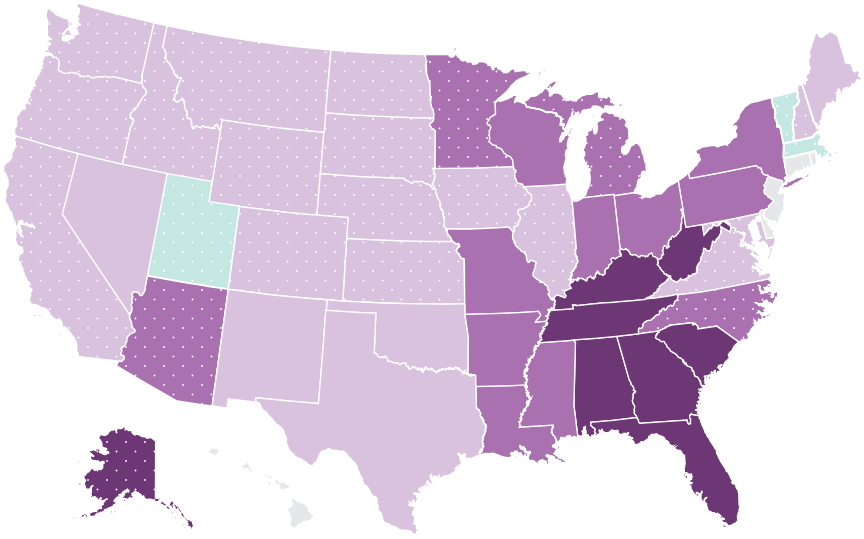
digital divide. State education attainment levels tend to be higher in states that do a good job managing their levels of digital divide. In other words, the more access to broadband, the greater proportion of people able to attain education.

On average, 59% of those 25 and older in the U.S. have at least some college education. Urban areas have 7% more people with at least some college education, when compared to rural areas. Kentucky has the most significant divide, with urban areas having 17% more people with at least some college than rural areas (see Map 3). California has the narrowest education divide, with urban and rural areas having about the same proportion of people with at least some college education. Vermont has the widest divide that favors rural communities. Approximately 9% more people in rural areas than urban areas of Vermont have at least some college education, reflective of the high density of rural universities in the state.

States with both the narrowest urban-rural educational divides and the greatest proportion of the population with at least some college include Utah, Washington and Colorado (see appendix data table 3). Of the 24 states outperforming the national average for educational attainment, only one state, Alaska, has an urban-rural educational divide that significantly disadvantages rural areas.

Map 3: **Urban-Rural Education Divide**

States with less than average educational attainment also have greater urban-rural divides.



Source: U.S. Census Bureau, 2015

Of the 21 states that are underperforming, 76% have divides that significantly disadvantage rural areas. Those states with the most significant urban-rural divides and lowest statewide attainment levels of educational attainment include Alabama, West Virginia, Tennessee and Kentucky.

A key issue for states with more significant urban-rural education divides is rural talent attraction and retention. Even Utah, which performs well on both overall state education attainment and a low urban-rural divide, strives to create good work opportunities for young people in rural areas to discourage them from leaving for employment and training opportunities elsewhere. The state legislature is considering economic development legislation that would not only grow rural online job opportunities like freelance work and provide "post-employment incentives" to companies for jobs created in targeted areas, but also direct the Utah State University extension offices to work with rural parts of the state for online job training at the high school and college level to prepare students. To qualify, communities must demonstrate that they struggle with high unemployment. They must also have access to high-speed Internet.[13]

High-Value Business Growth

High-value business growth measures the formation of new businesses in traded-sectors (U.S. Cluster Mapping Project calculations based on U.S. Census Bureau, 2010-2015). New businesses play a major role in job creation and innovation in the American economy. Even more so, new businesses in traded-sectors are particularly "high-value" because they produce goods and services used by consumers outside the region. This brings new money into the area and connects communities to state, national and global supply chains. Traded-sectors also provide significant economic benefits to local areas because they tend to pay higher wages.

States with stronger growth of new high-value businesses tend to experience stronger growth in wages, and it's not limited to urban areas. Although urban areas have somewhat stronger growth rates, a clear rural disadvantage does not exist. In many states, rural areas actually outpace the high-value business growth of their urban counterparts.

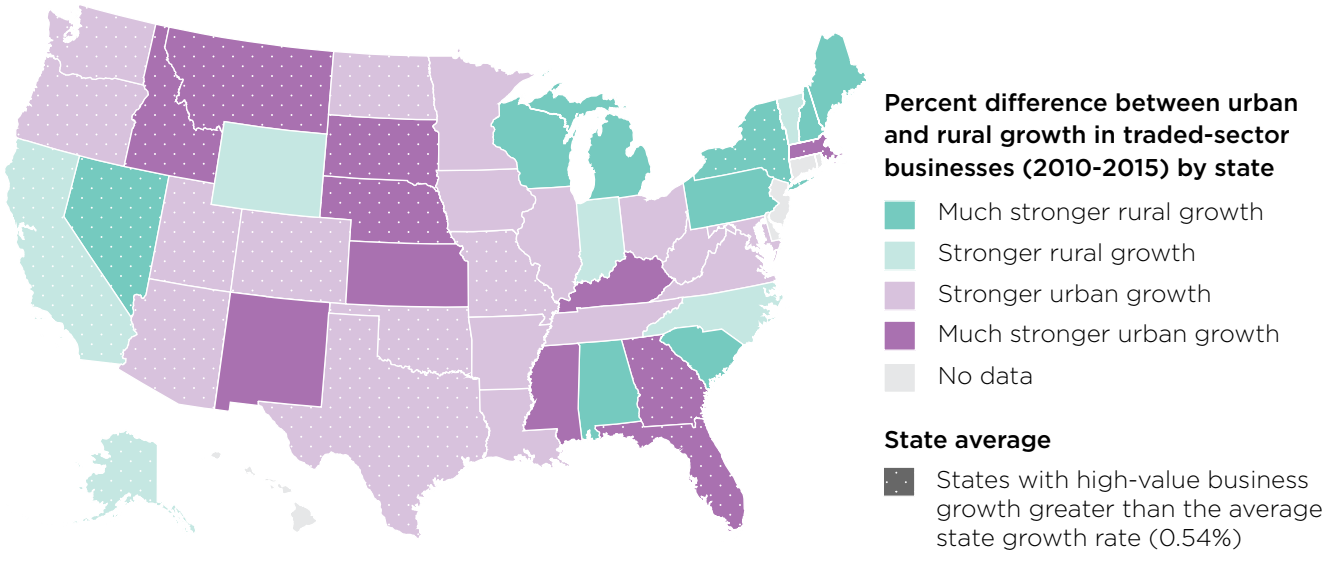
On average, across states urban areas only had 3% greater growth in traded sector establishments than rural areas. Maine has the most significant divide, with rural areas outpacing their urban counterparts by 25% (see Map 4). Ohio has the narrowest divide, with urban and rural areas having approximately the same rates of growth. Kansas has the most significant divide favoring urban areas with 20% more growth of business establishments in urban parts of the state.

The states with both a narrow urban-rural divide in the growth of traded-sector establishments and high overall growth include California, Alaska and Wyoming (see appendix data table 4). Of the 21 states outperforming the average growth of traded-sector establishments, 76% either favor rural areas or have no significant divide between urban and rural parts of the state.

Only five states that are performing above average have urban-rural business growth divides that significantly favor more urban parts of the state, including Massachusetts, Idaho, South Dakota, Nebraska and Montana. Interestingly, the majority of these states are largely rural, with extensive economic activity originating in rural areas. The success of urban areas in these states is connected to and largely dependent on rural industries. A study of Oregon urban-rural economic relationships found that, "many jobs in urban areas were historically tied to the natural-resources industries. The legal, financial, trade and transportation sectors serviced natural resources, and a number of urban-based food and wood-processing manufacturers also depended on raw materials from the rural areas."[14] Similarly, although a leading industry in Idaho is agriculture, so too is food and beverage processing, which extends the rural-based value chain throughout the state.

Map 4: Urban-Rural High-Value Business Growth Divide

States with stronger high-value business growth have narrower urban-rural divides.



Source: U.S. Census Bureau, 2010-2015

Prosperity Growth

The concept of "prosperity" implies the general productivity and standard of living in a particular place. Prosperity growth is measured as the per capita change in contribution to gross domestic product, or GDP (U.S. Cluster Mapping Project calculations based on Moody's economy.com data, 2010-2015). Although GDP is not a full measure of economic welfare, it does approximate the productivity (output per hour worked), strength and overall standard of living of a place.[15] On average, state-level prosperity grew 2.7% during the post-recession period throughout the U.S.

States with greater growth in their contributions to national GDP have stronger employment growth and wage growth. Prosperity growth also links back to the digital divide. Those states with greater digital divides between urban and rural areas experience greater divides in prosperity growth that disadvantage rural communities. This finding corroborates a McKinsey global study on the economic impact of the Internet that found that increases in Internet access strongly correlate with increases in real per capita GDP.[16]

At near zero, Pennsylvania has the narrowest divide between urban and rural prosperity growth (see Map 5). Nevada has the widest gap favoring rural areas, with rural areas experiencing 5% greater prosperity growth than their urban counterparts. North Dakota has the widest gap favoring urban areas, at 6% greater prosperity growth in these parts of the state. The state's oil boom (due to

hydraulic fracturing, or fracking) accounts for much of this growth. Although fracking occurs primarily in rural parts of North Dakota, the rural energy industry has an extensive multiplier effect throughout the state, particularly in urban areas, which provide the industry with legal, financial, trade and transportation services as well as technological innovations.

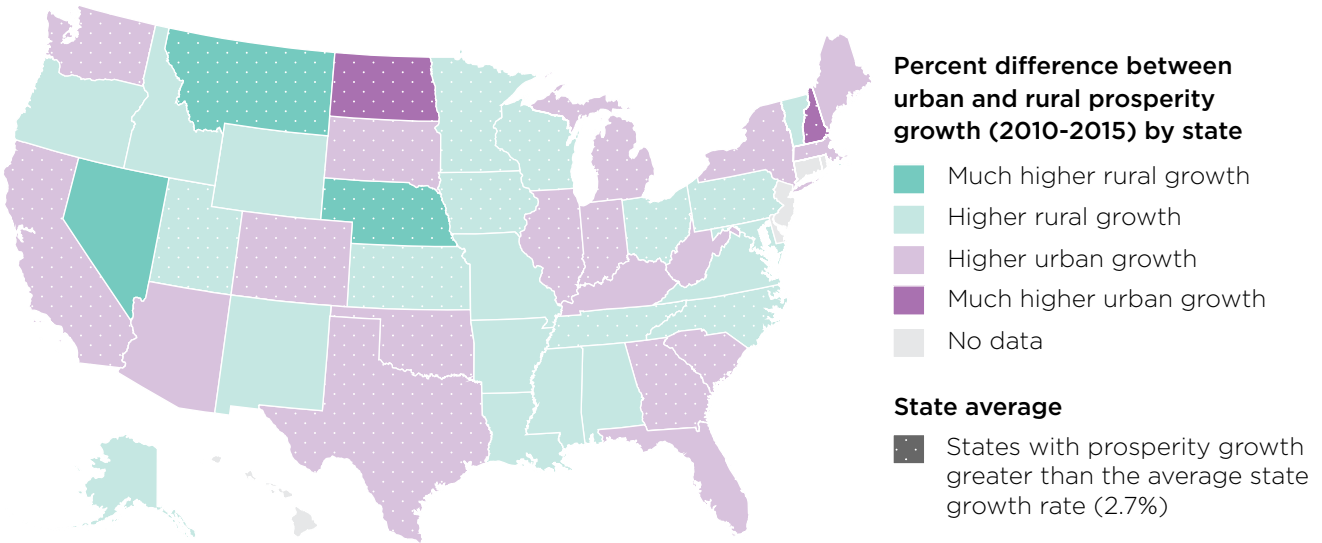
The vast majority of states with strong growth overall do not have significant urban-rural divides when it comes to prosperity growth (see appendix data table 5). Rural areas in many states contribute the same, if not more, than urban areas to the growth of the state economy. Although energy production accelerated growth in the rural parts of many states from 2010-2015, not all states with strong rural prosperity growth resulted from fracking.

Michigan has both a narrow urban-rural prosperity divide and higher state prosperity growth. Michigan's GDP growth is attributed primarily to the rebound of the manufacturing industry, particularly advanced manufacturing, as well as agriculture and freshwater technology.[17] Of the 26 states outperforming the average in prosperity growth, 92% either favor rural areas or have no significant divide between urban and rural parts of the state.

Several states, including New Hampshire and North Dakota, have significant prosperity growth and urban-rural prosperity growth divides that favor urban areas. Again, these are highly rural states, with strong economic bases in rural communities that extend into urban areas and throughout the state.

Map 5: Urban-Rural Prosperity Growth Divide

States with stronger prosperity growth have narrower urban-rural divides.



Source: U.S. Cluster Mapping Project calculations based on Moody's economy.com data, 2010-2015

Bridging the Divide

"Rural areas struggle to find 'drivers' to their economic engines."

//FLORIDA LEAGUE OF CITIES

This analysis of key economic inputs, business environments and economic outcomes gives context to and tests traditional narratives about the urban-rural divide. Challenges exist for rural communities, but not uniformly. Strengths and opportunities are also widespread, as indicated by significant role of rural economies to the growth of urban areas in many states throughout the country. These findings signal that other critical drivers, beyond a strict urban-rural divide, are at play.

Indeed, sustainable growth hinges less on a place's designation as urban or rural, and more on its economic connections. A 2015 study examined the importance of highly-connected local economies. It classified western U.S. counties in three ways: metropolitan, rural but connected to a larger hub, and rural and isolated.[18] Rural but connected economies were found to have higher median incomes, lower income volatility, more high-wage service jobs, lower median ages, higher population growth and greater educational attainment than their isolated peers. This underscores the value of connectedness in approaching rural economic development, and in bridging the urban-rural divide via state and local policies that expand rural connectivity and bolster urban-rural economic relationships.

So, how can states, regions and localities build sustainable growth? To date, strategies have been either hands-off, relying on the strength of urban areas' "rising tides to lift all boats," or focused on foundational rural development in isolation from broader economic contexts. Although core assets, like rural talent, infrastructure and housing, are imperative to a comprehensive economic development strategy, those things in and of themselves are not industry drivers. Growth drivers can be found, however, in the linkages among urban and rural places.

One approach that holds great promise for bolstering these linkages is industry cluster strategy. Industry clusters are geographically concentrated firms in a particular field linked to each other via strong networks of specialized suppliers and knowledge spillovers from employees in complimentary and similar industries working in close proximity to each other.[19] The cluster approach has been less explored for rural settings, primarily because of the reliance of clusters on high density of people and firms. Indeed, "there is evidence that cluster-based economic development might be more difficult in rural areas."[20]

A key economic development study adapted the cluster approach for rural communities and proposed rural regional innovation ecosystems. This approach can be realized in three ways:

- Rural linkages to urban clusters
- Urban linkages to rural clusters
- Rural entrepreneurship and urban markets[21]

Rural Linkages to Urban Clusters

Rural businesses located within or close to metropolitan centers may be able to plug directly into clusters and value chains as suppliers and subcontractors.[22] When a rural business builds connections with nearby urban areas, it gains the strengths of its larger neighbors as a competitive advantage. Once these regional strengths solidify, these clusters gain even more strength by bolstering complementary industries, supply chain manufacturers and service providers.[23]

This approach is gaining traction in Virginia. As part of GO Virginia (a state initiative to strengthen the economy by supporting regional programs), a highly rural region in the southern part of the state is leveraging the strength of urban clusters to create three critical opportunities. These include: workforce talent development and recruitment; sectoral development in four target sectors; and, cyber infrastructure, including novel approaches to regional collaboration in infrastructure development and opportunities to provide incentives for "middle mile" and "last mile" network completion.[24]

Specifically, the plan approaches economic drivers for the rural Virginia region by using a cluster analysis that includes the metropolitan areas surrounding the rural area. In addition to growing smaller clusters unique to the region, the analysis suggests that the region expand upon seven "clusters on the cusp," which have solid workforce potential and are well-aligned with nearby urban clusters. These represent opportunities for the rural region to position itself as a prime location for supply chain companies to locate close to the urban clusters, but at lower cost.[25]

Similarly, in Kansas, the Regional Economic Area Partnership has led regional economic development efforts, seeing the attraction or retention of a business anywhere in the area as a positive for everyone. In the case of aviation, larger companies often locate in Wichita, but spur the creation of suppliers that typically settle further out in the region, creating economic benefits throughout the region.[26]

Urban Linkages to Rural Clusters

For sectors that require space rather than proximity to operate - like natural resource industries and large land users such as power plants, chemical facilities and defense establishments - cluster strategies can focus on supporting the linkages of these sectors into regional, national and global supply chains.[27]

A 2011 study examining the interdependence between Minnesota's urban and rural areas found that increases in the strength of rural industry clusters substantially impacted nearby urban areas.[28] For example, every $1 billion increase in rural manufacturing output produced three benefits: a 16% increase in urban jobs, significant additional business-to-business transactions and statewide consumer spending and investment. Similarly, a study of the Sacramento region found that the majority of jobs and economic activity resulting from the region's rural food and agriculture cluster occurred in urban parts of the region (see case study: Sacramento's Specialty Crops Industry Cluster). These studies show some of the ways that integrated urban and rural areas boost each other's economies, with ripple effects of that success felt throughout the region and state.

Case Study:
Sacramento's Specialty Crops Industry Cluster

The Sacramento, California, region is solidifying urban-rural economic connections via specialty crops industry clusters. Growing specialty food and fiber in rural parts of the region creates jobs and income in urban areas. The way that food reaches the table is complicated, yet remarkable, as fresh and processed food travels in and out of the region daily. Although some products arrive "raw," most are transformed into processed or packaged goods along the way. Indeed, the specialty crop food system encompasses multiple business sectors providing a range of services that refine, enhance and move food products from farms to consumers. Together, these industries represent the specialty crop cluster—a group of interdependent firms and related institutions linked through strong relationships and transactions.

The various components of the cluster add nearly $4 billion in direct output a year to the Sacramento regional economy. Only 30% of the cluster's direct output stems from the value of specialty crops as they leave the farm—the majority of the cluster's gross output value is generated as specialty crops move through the larger regional food system. While specialty crop production includes the majority of employment within the cluster, over 6,400 jobs (37%) fall into the distribution, processing and support subsectors off the farm.

Taken together, employment in the specialty crop cluster increased by 6% from 2008 to 2014—a stark contrast to both the overall economy and to non-specialty crop agriculture, each of which declined in employment over the same period. Specialty crop growers engage with suppliers, processors and distributors to form a larger cluster, while each dollar generated by a specialty crop business then also leads to a multiplier effect in other industries. By expanding the food system beyond the farm, the contribution of the specialty crop base economy is greater than 31,000 jobs, $2.4 billion in value added, and $5.8 billion in total output value in the Sacramento region. And perhaps to an extent not achieved by any other segment of the economy, this specialty crop food system helps also connect the region's many rural and urban communities.

A full study of not only specialty crops, but all agriculture in the Sacramento region, found there are more food system jobs "off-the-farm" in processing, distribution and support activities, than on the farm. For instance, one of the largest concentrations of food system jobs in the region is in downtown Sacramento. Additionally, food systems are building out local-serving capacity like farmers markets and CSAs, which enhance the rural-urban connection. This keeps local money circulating in the local economy, instead of leaking to other markets.

***Sources**: Food System Multipliers for Specialty Crops (July 2016) and Food and Agriculture Cluster Assessment (March 2016). Projects of the Rural-Urban Connections Strategy of the Sacramento Area Council of Governments.*

Rural Entrepreneurship and Urban Markets

Rural areas located further from urban concentrations can build upon the assets of their communities and regions, creating entrepreneurial opportunities that use virtual networks to link to customers.[29] A 2016 study of European rural entrepreneurship found that "rural entrepreneurs with rural-urban linkages are able to structure and use these linkages in order to profit from urban economies and draw advantages of a location in rural areas simultaneously."[30]

In the U.S., fueled by slow job growth, rural entrepreneurship and business survival rates relative to population have actually outpaced urban areas in recent years.[31] More limited opportunities and resources have encouraged bootstrapping (using limited or local resources) for rural start-ups, increasing their innovation and resilience. Targeted policies and programs that support their growth, particularly capital access, business development and export promotion, have also emerged as critical factors. A 2017 study of small business lending found that lending in rural areas had a stronger, more positive impact on the rate of new business formation than lending in urban areas.[32] For example, Colorado's Office of Economic Development and International Trade has given aspiring entrepreneurs in its rural areas a boost by providing access to early stage funding.[33] The state office has set aside millions of dollars for startups in rural Colorado in industries from agriculture and advanced manufacturing to technology and tourism.

Given the role of new companies as job and innovation creators, entrepreneurship offers rural communities an exciting opportunity to grow from within.[34] However, the linkage

with urban and global markets is critical if these businesses are to transform their local economies. In addition to value chain relationships, "connections to metropolitan areas can facilitate the development of niche markets that can be tested and refined in adjacent urban areas before taking them to the global market."[35] Rural hops growers in Oregon rely on the sophisticated tastes of urban consumers to help them innovate and stay ahead of national and global trends, making the state one of the top hop producers in the U.S. The power of export promotion for rural entrepreneurs, as well as broadband access (see case study of Minnesota's Border-to-Border Broadband Development Grant Program) in this context cannot be understated.

Case Study:
Minnesota's Border-to-Border Broadband Development Program

More than 252,000 households in Minnesota, or 12%, lack access to high-speed Internet. Without access, these households have limited or no access to telemedicine, online curriculums for school or training, or online job search tools and job applications. Businesses without access to broadband lack a crucial connection necessary to compete in today's global economy. In recognition of these challenges, in 2016, the Minnesota state legislature stated its goal explicitly, that by 2022, all Minnesota businesses and homes will have access to high-speed broadband, with faster speeds by 2026.

The Border-to-Border Broadband Development Grant Program is the state's primary mechanism to help connect unserved or underserved areas. The areas tend to be more rural (and less densely populated) than other areas, while also having terrain that is more difficult to navigate. This, in turn, drives up the cost for broadband providers to connect households in these areas. The program helps mitigate the cost and risk for providers and the communities they partner with. To address private competition concerns, the program allows an existing broadband provider to challenge an application if the proposed broadband deployment overlaps the existing provider's territory or if the proposed area is one that an existing provider plans to build on within 18 months of the award announcement.

Initially funded at $20 million, the program provides matching funds to eligible service providers that agree to extend broadband service to unserved or underserved areas. The grants provide up to a dollar-for-dollar match on funds, not to exceed $5 million for any one project. The program has been funded for four consecutive years, with grants distributed during 2015 (two rounds), 2016 and 2017. In November 2017, the grants office announced $26.47 million in funding for 39 projects across the state, which will bring broadband service to 9,973 households, 2,169 businesses and 60 community institutions—all of them previously unserved or underserved—across Minnesota.

For example, Westbrook (population 740) is the smallest city in Minnesota that has a full hospital. To help their hospital get the faster speeds and better reliability it needed to stay competitive, the city partnered with Woodstock Communications to build a fiber-to-the-home network that will serve the entire community. In Itasca County, Harris Township partnered with cable provider Mediacom to bring broadband infrastructure to unserved households, businesses and anchor institutions. Now, students in the area will be able to do their online homework with iPads issued by their schools. Without Internet access at home, students in the unserved households had fallen behind.

***Source**: 2017 Annual Report of the Governor's Task Force on Broadband. Recommendations for policy makers and stakeholders to consider in the 2018 legislative session, developed by Minnesota Governor Mark Dayton's taskforce. January 3, 2018.*

Conclusion

The results of this study show that urban and rural labels do not need to be limiting or defining factors in determining the economic success of cities and towns. Broadening the definition of the "urban-rural divide" from population and density measures, to one that accounts for economic interconnectedness, further refines our understanding of how to develop effective economic development strategy. The consequences of failing to think beyond conventional notions of "urban" and "rural" will limit the ability of state and local leaders to encourage sustainable growth.

This study also reveals that an evidence-based pathway to narrowing urban and rural economic divides where they exist is by bolstering the economic relationships *between* urban and rural areas. Traditional economic development approaches to narrow the divide tend to focus solely on supporting critical infrastructure and other foundations for rural areas. Although this type of asset building is vitally important, it in and of itself does not generate new drivers of economic growth. A cluster approach can be adapted for a rural context to build and strengthen value chains, market access and other urban-rural economic relationships. With intention, states, regions and cities can make progress to improve not only local outcomes, but regional and state ones as well.

A cluster approach can be adapted for a rural context to build and strengthen value chains, market access and other urban-rural economic relationships.

Appendix

Table 1: Population

State	Percent urban population	Divide (Percent difference between urban and rural population)	State	Percent urban population	Divide (Percent difference between urban and rural population)
Alabama	59%	18%	**Montana**	56%	12%
Alaska	66%	32%	**Nebraska**	73%	46%
Arizona	90%	80%	**Nevada**	94%	88%
Arkansas	56%	12%	**New Hampshire**	60%	21%
California	95%	90%	**New Jersey**	95%	89%
Colorado	86%	72%	**New Mexico**	77%	55%
Connecticut	88%	76%	**New York**	88%	76%
Delaware	83%	67%	**North Carolina**	66%	32%
Florida	91%	82%	**North Dakota**	60%	20%
Georgia	75%	50%	**Ohio**	78%	56%
Hawaii	92%	84%	**Oklahoma**	66%	32%
Idaho	71%	41%	**Oregon**	81%	62%
Illinois	88%	77%	**Pennsylvania**	79%	57%
Indiana	72%	45%	**Rhode Island**	91%	81%
Iowa	64%	28%	**South Carolina**	66%	33%
Kansas	74%	48%	**South Dakota**	57%	13%
Kentucky	58%	17%	**Tennessee**	66%	33%
Louisiana	73%	46%	**Texas**	85%	69%
Maine	39%	-23%	**Utah**	91%	81%
Maryland	87%	74%	**Vermont**	39%	-22%
Massachusetts	92%	84%	**Virginia**	75%	51%
Michigan	75%	49%	**Washington**	84%	68%
Minnesota	73%	47%	**West Virginia**	49%	-3%
Mississippi	49%	-1%	**Wisconsin**	70%	40%
Missouri	70%	41%	**Wyoming**	65%	30%
			Mean	*74%*	*47%*

Source: U.S. Census Bureau, 2015; negative "divide" percentages indicate greater rural than urban population i.e. Vermont has 22% more people living in rural than urban areas.

Table 2: Broadband Access

State	Percent without access to broadband	Divide (Percent difference between urban and rural broadband access)	State	Percent without access to broadband	Divide (Percent difference between urban and rural broadband access)
Alabama	20%	-35%	**Montana**	31%	-52%
Alaska	26%	-62%	**Nebraska**	16%	-45%
Arizona	13%	-55%	**Nevada**	8%	-60%
Arkansas	25%	-41%	**New Hampshire**	7%	-12%
California	5%	-59%	**New Jersey**	N/A	N/A
Colorado	10%	-49%	**New Mexico**	20%	-52%
Connecticut	N/A	N/A	**New York**	2%	-17%
Delaware	N/A	N/A	**North Carolina**	7%	-19%
Florida	7%	-25%	**North Dakota**	14%	-35%
Georgia	9%	-21%	**Ohio**	8%	-29%
Hawaii	N/A	N/A	**Oklahoma**	27%	-57%
Idaho	18%	-51%	**Oregon**	10%	-32%
Illinois	9%	-52%	**Pennsylvania**	6%	-17%
Indiana	17%	-47%	**Rhode Island**	N/A	N/A
Iowa	15%	-33%	**South Carolina**	18%	-30%
Kansas	15%	-44%	**South Dakota**	11%	-24%
Kentucky	16%	-31%	**Tennessee**	13%	-32%
Louisiana	19%	-42%	**Texas**	11%	-41%
Maine	12%	-13%	**Utah**	6%	-36%
Maryland	4%	-10%	**Vermont**	17%	-25%
Massachusetts	3%	-8%	**Virginia**	11%	-35%
Michigan	12%	-34%	**Washington**	3%	-13%
Minnesota	12%	-42%	**West Virginia**	30%	-38%
Mississippi	34%	-51%	**Wisconsin**	13%	-42%
Missouri	20%	-56%	**Wyoming**	23%	-60%
			Mean	*14%*	*-37%*

Source: Federal Communications Commission, 2016; negative "divide" percentages indicate greater rural than urban percentage without access to broadband, i.e. Rural Wisconsin has 42% more people than urban areas without broadband access.

Table 3: Education

State	Percent 25 and older with at least some college	Divide (Percent difference between urban and rural population with at least some college)	State	Percent 25 and older with at least some college	Divide (Percent difference between urban and rural population with at least some college)
Alabama	53%	14%	**Montana**	63%	4%
Alaska	64%	14%	**Nebraska**	63%	2%
Arizona	62%	11%	**Nevada**	57%	3%
Arkansas	50%	8%	**New Hampshire**	64%	7%
California	61%	0%	**New Jersey**	N/A	N/A
Colorado	69%	1%	**New Mexico**	58%	3%
Connecticut	N/A	N/A	**New York**	59%	9%
Delaware	N/A	N/A	**North Carolina**	59%	9%
Florida	57%	14%	**North Dakota**	64%	6%
Georgia	57%	14%	**Ohio**	55%	11%
Hawaii	N/A	N/A	**Oklahoma**	55%	7%
Idaho	62%	6%	**Oregon**	66%	5%
Illinois	61%	7%	**Pennsylvania**	53%	10%
Indiana	53%	10%	**Rhode Island**	N/A	N/A
Iowa	59%	6%	**South Carolina**	56%	15%
Kansas	63%	3%	**South Dakota**	60%	7%
Kentucky	51%	17%	**Tennessee**	52%	16%
Louisiana	49%	9%	**Texas**	57%	1%
Maine	58%	6%	**Utah**	68%	-1%
Maryland	64%	7%	**Vermont**	62%	-9%
Massachusetts	64%	-1%	**Virginia**	64%	6%
Michigan	60%	10%	**Washington**	67%	1%
Minnesota	66%	8%	**West Virginia**	44%	15%
Mississippi	52%	11%	**Wisconsin**	59%	8%
Missouri	57%	11%	**Wyoming**	63%	4%
			Mean	*59%*	*7%*

Source: U.S. Census Bureau, 2015; negative "divide" percentages indicate greater rural than urban percentage with at least some college education, i.e. Rural areas of Utah have 1% greater proportion of their population with at least some education than urban areas.

Table 4: High-Value Business Growth, 2010-2015

State	Percent growth in traded-sector establishments	Divide (Percent difference between urban and rural growth in traded-sector establishments)	State	Percent growth in traded-sector establishments	Divide (Percent difference between urban and rural growth in traded-sector establishments)
Alabama	-0.14%	-8.37%	**Montana**	0.69%	17.51%
Alaska	0.91%	-2.38%	**Nebraska**	0.70%	14.46%
Arizona	0.67%	7.25%	**Nevada**	1.37%	-8.59%
Arkansas	0.01%	2.38%	**New Hampshire**	0.12%	-17.53%
California	1.33%	-3.44%	**New Jersey**	N/A	N/A
Colorado	1.25%	4.63%	**New Mexico**	-0.19%	12.91%
Connecticut	N/A	N/A	**New York**	0.79%	-7.33%
Delaware	N/A	N/A	**North Carolina**	0.46%	-3.59%
Florida	1.64%	10.15%	**North Dakota**	2.62%	8.53%
Georgia	0.68%	11.77%	**Ohio**	-0.14%	0.14%
Hawaii	N/A	N/A	**Oklahoma**	0.67%	4.00%
Idaho	0.59%	13.20%	**Oregon**	0.91%	9.24%
Illinois	0.26%	4.88%	**Pennsylvania**	0.18%	-12.93%
Indiana	0.01%	-1.11%	**Rhode Island**	N/A	N/A
Iowa	0.04%	6.47%	**South Carolina**	0.38%	-8.11%
Kansas	0.06%	20.29%	**South Dakota**	0.68%	13.26%
Kentucky	0.24%	15.44%	**Tennessee**	0.27%	1.62%
Louisiana	0.42%	2.59%	**Texas**	1.74%	6.79%
Maine	0.11%	-25.14%	**Utah**	1.86%	7.58%
Maryland	0.39%	8.39%	**Vermont**	-0.31%	-5.67%
Massachusetts	0.63%	12.77%	**Virginia**	0.45%	5.54%
Michigan	0.05%	-9.27%	**Washington**	0.78%	8.87%
Minnesota	0.44%	0.41%	**West Virginia**	-0.89%	0.57%
Mississippi	-0.22%	10.28%	**Wisconsin**	-0.01%	-9.30%
Missouri	1.08%	9.51%	**Wyoming**	0.79%	-0.97%
			Mean	*0.54%*	*2.84%*

Source: U.S. Census Bureau, 2010-2015; negative "divide" percentages indicate greater rural than urban growth of traded-sector establishments, i.e. Rural areas of South Carolina have 8.11% greater growth of high-value businesses than urban areas.

Table 5: Prosperity Growth, 2010-2015

State	Growth in state contributions to GDP, 2010-2015	Divide (Percent difference between urban and rural growth in contribution to state GDP)	State	Growth in state contributions to GDP, 2010-2015	Divide (Percent difference between urban and rural growth in contribution to state GDP)
Alabama	2.45%	-0.02%	**Montana**	2.78%	-3.55%
Alaska	-0.93%	-0.29%	**Nebraska**	3.52%	-3.44%
Arizona	2.20%	0.47%	**Nevada**	1.67%	-4.72%
Arkansas	2.49%	-0.24%	**New Hampshire**	2.76%	1.58%
California	3.94%	1.11%	**New Jersey**	N/A	N/A
Colorado	2.76%	0.22%	**New Mexico**	1.46%	-1.31%
Connecticut	N/A	N/A	**New York**	3.35%	0.46%
Delaware	N/A	N/A	**North Carolina**	2.73%	-0.06%
Florida	2.28%	0.75%	**North Dakota**	6.61%	5.60%
Georgia	2.98%	0.36%	**Ohio**	3.89%	-0.43%
Hawaii	N/A	N/A	**Oklahoma**	3.83%	0.04%
Idaho	2.40%	-0.37%	**Oregon**	1.56%	-1.47%
Illinois	3.40%	0.71%	**Pennsylvania**	3.36%	-0.01%
Indiana	3.00%	0.43%	**Rhode Island**	N/A	N/A
Iowa	3.93%	-1.34%	**South Carolina**	3.10%	0.04%
Kansas	3.05%	-0.79%	**South Dakota**	3.25%	1.02%
Kentucky	2.59%	0.81%	**Tennessee**	3.87%	-0.41%
Louisiana	-0.07%	-0.24%	**Texas**	3.58%	0.40%
Maine	2.16%	0.16%	**Utah**	3.29%	-1.06%
Maryland	2.41%	-0.32%	**Vermont**	2.61%	-1.42%
Massachusetts	3.25%	0.86%	**Virginia**	1.88%	-0.06%
Michigan	4.01%	0.32%	**Washington**	3.17%	0.15%
Minnesota	3.24%	-0.27%	**West Virginia**	1.91%	0.92%
Mississippi	1.89%	-0.55%	**Wisconsin**	3.31%	-0.02%
Missouri	2.46%	-0.49%	**Wyoming**	-0.61%	-0.50%
			Mean	*2.70%*	*-0.15%*

Source: U.S. Cluster Mapping Project calculations based on Moody's economy.com data, 2010-2015; negative "divide" percentages indicate greater rural than urban growth of contribution to state GDP, i.e. Rural areas of Idaho have 0.37% greater prosperity growth than urban areas.

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