

THE HAMILTON PROJECT

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FEBRUARY 2011

Investing in the Future: An Economic Strategy for State and Local Governments in a Period of Tight Budgets

Michael Greenstone and Adam Looney



MISSION STATEMENT

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by fostering economic growth and broad participation in that growth, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. We believe that today's increasingly competitive global economy requires public policy ideas commensurate with the challenges of the 21st century. Our strategy calls for combining increased public investments in key growth-enhancing areas, a secure social safety net, and fiscal discipline. In that framework, the Project puts forward innovative proposals from leading economic thinkers — based on credible evidence and experience, not ideology or doctrine — to introduce new and effective policy options into the national debate.

The Project is named after Alexander Hamilton, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that “prudent aids and encouragements on the part of government” are necessary to enhance and guide market forces.





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BROOKINGS

Abstract

Confronting near-term budget challenges, state and local governments are under tremendous pressure to focus on immediate needs at the expense of long-term investments. While these difficult economic times have also caused significant budget pressures at the national level, the federal government is able to spread out the impact of these pressures by running a deficit—a burden for the future obvious to all in the level of public debt. State and local governments, on the other hand, are generally required to balance their budgets every year. The legacy left by their budget troubles is less evident, but no less significant, and can be measured by delayed capital projects, cuts in education, and other deferred spending in investments with long-run payoffs—forgone investment that places our children’s standard of living at risk.

In this paper, The Hamilton Project highlights four policy principles for state and local governments with an emphasis on the importance of infrastructure investments for economic growth and prosperity. First, budgets should prioritize and protect key investments lest today’s budget woes translate into weak economic conditions and weak tax revenues tomorrow. Second, state and local governments must act to use their existing infrastructure resources more efficiently by investing in maintenance and using road pricing and user fees to address problems like congestion. Third, to maximize the value of new spending, projects should be subject to rigorous cost-benefit analysis and evaluation to guarantee that the projects with the greatest returns are the ones that are chosen. Fourth, good governance requires transparent and accessible budgeting. Timely, accurate, and standardized financial reporting by governments would facilitate taxpayer oversight, help protect future budget resources, and even reduce borrowing costs.

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Introduction

As the economy navigates the uncertain road of recovery, the most arresting signs of the Great Recession are likely to continue to fade—new businesses will open their doors, existing businesses will expand, consumers will reopen their wallets, and employment and incomes will grow. For state and local governments, however, sales and income tax receipts remain depressed and property taxes are declining as home values are reappraised. Some observers predict that housing prices will fall farther; in addition, unemployment insurance and other social insurance spending remains elevated, health and retiree costs continue to rise, and stimulus money is soon to run out. As a result, 2011 could be the toughest year yet.

Increasingly, these budget pressures threaten the important balance between the imperative to provide services to residents in need of immediate help and the duty to make longer-term investments in infrastructure, education, health, and the environment. Today's decisions about investments will determine the productivity, wages, and quality of life for tomorrow's workers.

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Although these difficult economic times have caused significant budget pressures at the national level, the federal government is able to spread out the impact of these pressures by running a deficit—a burden for the future apparent in the level of public debt. State and local governments, on the other hand, are generally required to balance their budgets every year. The legacy left by their budget troubles is less evident, but no less significant, and can be measured by delayed capital projects, cuts in education, and other deferred spending in investments with long-run payoffs—forgone investment that imperils our children's future.

To give one telling example, California's fiscal year 2010 budget included the largest cuts to public services and education in the state's history. Education spending was slashed, teachers were laid off, and higher-education fees were hiked just as classes were cut from the University of California system (Hughes 2009, Steinhauer 2009). Infrastructure investments and maintenance on roads, bridges, and public transit were postponed, and public health programs such as the Children's Health Insurance Program were drastically scaled back (Legislative Analyst's Office 2009). Required pension fund contributions were deferred, leaving plans underfunded. State officials even went so far as to attempt to sell off public assets for short-term cash while promising to lease them back.

Given the economic crisis and California's balanced-budget requirement, their options were heavily constrained, but these cuts undoubtedly will impact California's future productivity and prosperity. Although California's experience was particularly severe, state and local governments across the nation are facing similar challenges and may feel compelled to balance the budget at the expense of investment spending.

Much of the robust, broadly shared economic growth in the United States over the last century can be attributed to investments in education, health, and physical capital, such as infrastructure—investments that were financed and directed in large part under government auspices. By building upon the investments made by

earlier generations, each new generation of Americans has enjoyed a higher standard of living and has had access to opportunities not available to their parents.

In recent decades, however, economic growth has waned and wage increases have stalled for many Americans. Despite gains during the tight labor markets of the 1990s, the median worker's real wage today is the same as it was three decades ago. This stagnation is indicative of the broader health of the labor market, partially reflecting a sharp slowdown in the rate of increase in educational attainment, reduced rates of public investment in infrastructure, and lower returns on

those investments. The crisis in state budgets threatens to compound this stagnation by forcing cuts in investments just when they appear to be needed the most. Shortchanging these investments is as shortsighted as a farmer eating his seed corn. Despite ongoing budget constraints, the case for investment is stronger than ever.

As state and local governments confront near-term budget challenges, there are tremendous pressures to focus on the very real short-run needs of residents at the expense of longer-term investments, such as education and infrastructure. This tension is understandable: many Americans remain unemployed and the demand for state and local resources is unusually high. Indeed, state and local governments are on the front lines of providing critical services to their residents—they are the final public safety net for people in need. At the same time, state and local governments play a central role in laying the foundation for future economic growth by educating the next generation of workers, building the necessary roads and bridges, and making sure that homes and businesses have access to broadband and a stable power supply.

Making these investments will be even more challenging in the coming years as states face rising pressures from entitlements, such as retirement benefits and health care, which are projected to consume a significant part of future budget resources. Therefore, state and local leaders must find new and innovative ways to continue to make long-term investments or they will place our children's living standards at risk.

AN INVESTMENT STRATEGY FOR STATE AND LOCAL GOVERNMENTS

In this paper, The Hamilton Project highlights key areas of concern in state and local budgets with an emphasis on the importance of infrastructure investments for economic growth and prosperity. Our focus is on policies that can remedy long-running infrastructure deficits in cities and states across the country while making other much-needed investments to produce future productivity gains. The principles are these:

- **Prioritize investments for the future.** Investment should be prioritized and protected in government budgets. Infrastructure, education, health care, and environmental quality are critical to rising labor productivity, economic growth, and improved living standards. Cutting back on these critical fronts may help states balance their annual budget in the near term, but they threaten long-term prosperity.
- **Use existing resources more efficiently.** In a tough budget climate, states and communities need to make sure that they are getting as much value as possible out of existing infrastructure investments. This means using existing infrastructure more efficiently; it also means that incentives to use and maintain infrastructure are appropriately aligned to the costs of wear and tear and congestion imposed by users. Resources such as the National Highway System (NHS) provide high economic returns; preserving these resources through appropriate maintenance is essential.
- **Invest efficiently.** Efficient investments are those that offer the “best bang for the buck.” Conducting cost-benefit analysis before a project is built and rigorously evaluating its returns afterwards will aid in selecting the projects with the highest returns today and tomorrow.
- **Increase transparency and accountability.** Transparency is an essential part of good governance. The timely and accurate dissemination of governmental financial information helps taxpayers understand what their elected leaders and public institutions are doing. Additionally, improved transparency through accurate and standardized accounting for public-private partnerships (PPPs) and other investments can help produce budgets that protect future resources (such as future taxes, tolls, or revenues) from being used to pay for consumption in the present. Finally, transparency can provide direct benefits through reduced borrowing costs and uncertainty in the municipal bond market.

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Chapter 1: The Budget Outlook for State and Local Governments

Most state and local governments are still reeling from the impact of the Great Recession. Revenues plunged, and demand for key state and local services soared. Although it is apparent that the recession did considerable damage to state and local budgets, it is surprisingly difficult to assess exactly how severe each state's budget situation is. Financial information on state and local governments is not centralized, standardized, or available in a timely manner. Furthermore, the accounting rules that apply to state and local governments are less transparent than the standards required of private businesses or those used by the federal government. As a result, it is difficult to differentiate budget maneuvers that cut spending from those that simply retime payments or defer costs.

THE CURRENT SITUATION

Credible estimates show large budget gaps across states. According to one source, the Center on Budget Policies and Priorities, the recession triggered a series of difficult budget years where states closed budget gaps of \$110 billion in 2009, \$200 billion in 2010, and \$160 billion in 2011 (McNichol et al. 2011). The decisions required this year could be the toughest yet. The easiest spending cuts and tax increases have already been pushed through. Budget stabilization funds ("rainy day funds") that offer a cushion for states looking to avoid the most painful choices lie depleted. Furthermore, federal stimulus aid, which helped offset more than a third of total state budget shortfalls in fiscal years 2010 and 2011, will taper off sharply this year, leaving states to fend for themselves, for the most part.

Local governments are also stressed. Decreases in revenue and spending in 2010 were the largest in the twenty-five-year history of the National League of Cities' (NLC) annual survey. Property tax collections, the most important revenue source for most local governments, are projected to fall for the first time in 2010—with further declines possible in 2011 and 2012. Sales tax and income tax collections have either stagnated or declined. The effects have been on display across the nation. For instance, Camden, New Jersey, laid off half its police force in January 2011, despite having one of the highest crime rates in the country (CNN Wire Staff 2011).

Despite these cutbacks, municipalities may have been somewhat sheltered from the worst budget ravages until now. In part this is the result of saving up in good times. Thanks to sustained growth over the past two decades, local governments went into the recession with significant rainy day balances built up. But, more worrisome, there is a lag—ranging anywhere from eighteen months to several years—between housing valuations and property tax assessments. Due to this lag, property tax collections have yet to fully reflect the 27 percent decline in housing prices that took place between June 2006 and June 2010 (Hoene and Pagano 2010). Since they rely on property taxes for a quarter of their total revenue, local governments are bracing themselves for significant revenue drops from these property value declines.

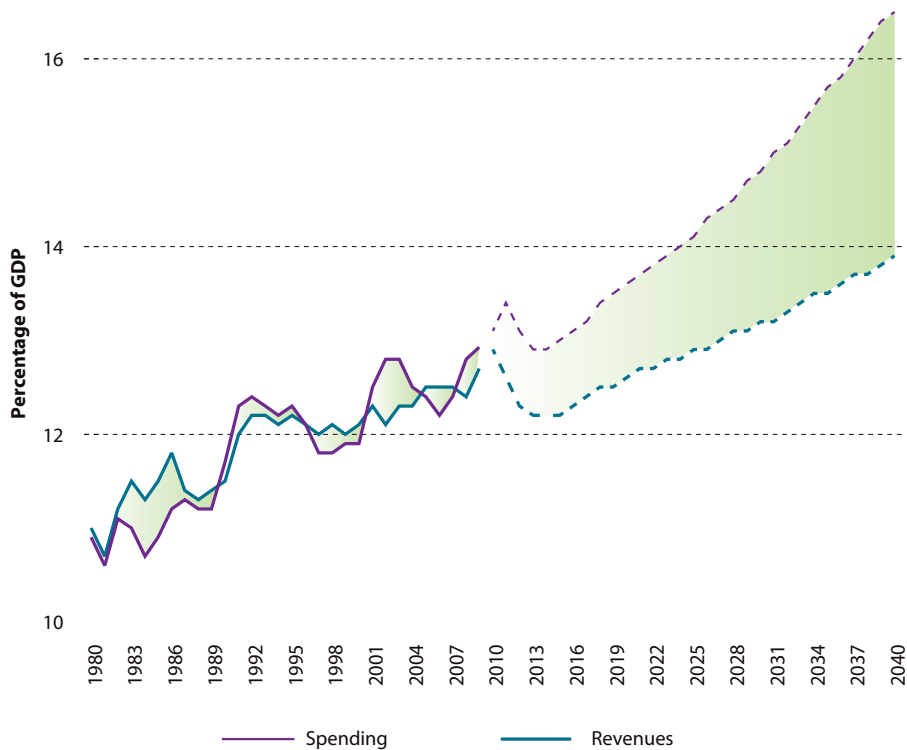
LONG-TERM SPENDING PRESSURES

This fiscal strain is especially disconcerting because state and local governments supply our most basic services—including public safety, utilities, and garbage disposal—that local businesses and the public rely on every day. States and communities finance and administer important federal programs designed to help the most vulnerable segments of the population—including nutrition, housing, and healthcare programs. They are also the chief providers of critical public goods, such as education and infrastructure, which are important to the nation's future growth and productivity. Thus, many of the most pressing policy challenges that directly affect millions of American workers and families lie close to home at the state and local levels.

Figure 1 shows projected state and local government spending and revenues. Because nearly all state and local governments have some version of a balanced budget requirement, this large discrepancy between spending and revenues illustrates the stark choices ahead (NLC 2010). State and local governments face either large tax increases or deep spending cuts to keep their budgets in balance.

FIGURE 1

State and Local Government Spending (Percentage of GDP)



Source: GAO

A number of policies contribute to the gloomy long-run fiscal outlook, but health care, pensions, and other postemployment benefits are the leading drivers of these long-term costs. While these spending categories contribute to current budget challenges, projections show that they will absorb a rapidly rising share of state budget resources down the road. They provide a fiscal incentive to set aside resources today so that future taxpayers have the resources available to meet tomorrow’s challenges.

1. Health care

The economywide problem of rising healthcare costs has also impacted state and local budgets. State spending on Medicaid has increased by a larger percentage than spending in any other category. In 2010, estimates suggest that states will spend more on Medicaid than on K–12 education (National Association of State Budget Officers [NASBO] 2010).

Rising healthcare costs are projected to drive the federal government’s long-term budget deficit, and it is no less of a problem at the state and local levels. State governments, on average, cover 43 percent of Medicaid spending. Over the next fifty years, Medicaid spending is projected to continue to increase faster than the rate of GDP growth, just as it has since at least 1975 (Government Accountability Office [GAO] 2008). In addition to Medicaid, rising healthcare costs for retirees are

absorbing a larger share of state spending, a trend that will accelerate with the retirement of the Baby Boom generation.

Some states have flagged the expansion of Medicaid under the recent Affordable Care Act as another factor that will contribute to an increase in healthcare expenditures. It is not clear, however, whether increased eligibility and enrollment in Medicaid will significantly affect states, since the federal government is expected to post substantial matches for the program’s expansion.

States already have started to cut back on health care. In what one observer called “a real sign of the times,” Arizona terminated Medicaid coverage last October for certain types of organ transplants after calculating that survival rates for these procedures did not justify their expense (Sack 2010).

2. Pensions and other postemployment benefits

States’ unfunded pension liabilities are estimated to exceed \$3 trillion, the equivalent of more than two years of state and local tax revenues, and roughly the same size as the total value of municipal bonds outstanding (Novy-Marx and Rauh 2009). On top of this, unfunded retiree health benefit liabilities are estimated to exceed \$530 billion, according to the GAO (2009).

This retiree obligation problem did not surface overnight. In general, it is the product of years or decades of underfunding plans and postponing required payments. And other postemployment benefits are generally financed on a pay-as-you-go basis, meaning that there are usually no funds set aside to pay those benefits. As of fiscal year 2010, under the accounting rules that states use to value their pension funds, states have set aside only 62 percent of the amount needed to cover promised benefits. However, many believe that these estimates are themselves overly optimistic because they rely on accounting rules that allow states to understate the value of future liabilities by failing to account for the riskiness of pension assets. Applying rules derived from financial theory, which are more similar to the rules corporations are required to use to value their pensions, produces an even bleaker picture; states have only 44 percent of the amount needed to cover promised benefits, and Illinois, the most underfinanced pension system in the nation, has set aside only 28 percent of needed funds (Novy-Marx and Rauh 2010). Pension reform issues are at the center of questions of retirement security, the functioning of labor markets for teachers and other public employees, and long-run budget sustainability. The Hamilton Project anticipates addressing these questions in future work.

INVESTMENTS FOR FUTURE ECONOMIC GROWTH AND PROSPERITY

Both short- and long-run budget pressures threaten some of state and local governments' most vital functions, the most significant of which are investing in education and infrastructure. State and local governments are responsible for 91 percent of all government spending on K–12 education and 71 percent of government spending on higher education (OECD 2011). Moreover, they make more than 70 percent of all public infrastructure investments (CBO 2008b). Forgone investments in these key categories will burden future generations with lower productivity, wages, and living standards. Indeed, the three-decade-long stagnation in incomes for most American workers may be the canary in the coalmine, signaling that public investments have been lagging for a long time.

1. Education

Over the last century, rising educational attainment has been a key driver of American productivity, living standards, and economic growth. It also has played a central role in making sure that America's prosperity was widely shared. In 1910, only 9 percent of American eighteen-year-olds had completed high school. By 1940, however, half of them had. Thirty years later, the proportion of twenty-five to thirty-four-year-olds

who had completed high school reached 73 percent (Goldin and Katz 2008, U.S. Census Bureau 2010). This rapid progress pushed the United States ahead and made its workforce one of the most educated in the world until the 1970s or 1980s (Goldin and Katz 2008).

The products of these educational investments were significant productivity gains, rising wages, and a host of other social benefits. In a 2001 study, Goldin and Katz estimated that almost a quarter of the increase in U.S. labor productivity between 1915 and 1999 could be attributed to a better-educated workforce (Goldin and Katz 2001). Education also has a large impact on wages. One survey found that the private return to a college degree is almost 14 percent (OECD 2006). Another study found that earning a college degree increases lifetime wages by roughly \$400,000, in present-value terms (Barrow and Rouse 2005). A growing body of research suggests that education has important social benefits as well, including increased property values, and reduction of crime and victim costs (Barrow and Rouse 2002, Moretti 2004, Moretti and Lochner 2004).

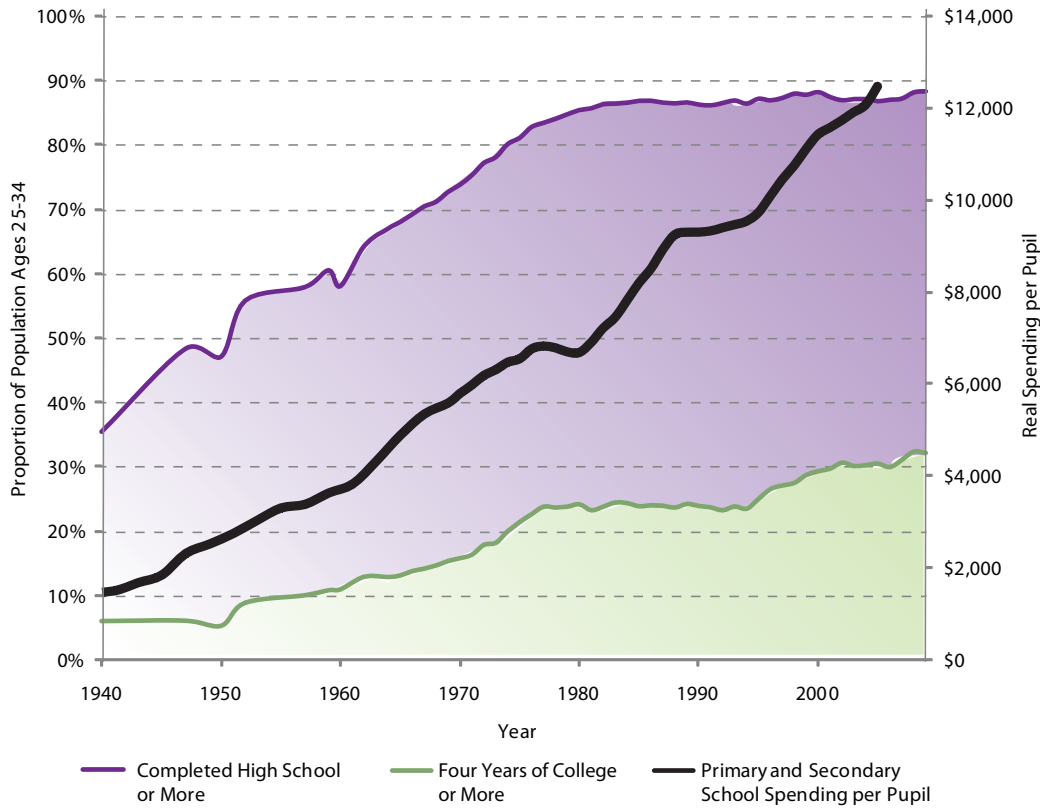
State and local governments played an essential role in promoting these educational gains. Goldin and Katz argue that America's decentralized and heterogeneous schooling system—which enabled thousands of school districts in cities and towns across America to decide what was best for their communities—was one factor behind the rise of education in the United States in the early part of the twentieth century (Goldin and Katz 2001, 2008). This flexibility led many localities to invest heavily in expanding secondary school attendance. As early as 1925, states and municipalities accounted for 84 percent of primary and secondary education funding in the United States, whereas the federal government accounted for only 16 percent – a pattern that still largely holds true today (Goldin and Katz 2008).

However, Figure 2 demonstrates that the growth in high school and college completion rates has slowed dramatically over the past thirty years. The percentage of Americans aged twenty-five to thirty-four who have completed high school has barely increased since the late 1970s.¹ Over the same period, the proportion of Americans between twenty-five and thirty-four who completed college increased by 8 percentage points. This increase pales in comparison to the nearly 19 percent increase that occurred between 1950 and 1980 (U.S. Census Bureau 2010). At the same time, the returns to college attendance have increased dramatically. So at the very same time that market forces were calling for more educated workers, our system of education was failing to meet this demand.

1. These data overstate the true level of high school attainment recently because GED recipients are classified as high school graduates, and the proportion of students receiving a GED has increased over time (Heckman and LaFontaine 2010). Excluding GEDs, high school attainment has declined by 4-5 percentage points over the past forty years.

FIGURE 2

High School and College Completion and Spending per Pupil



Source: U.S. Census Bureau 2010, Table A-1; U.S. Department of Education, Table 182.

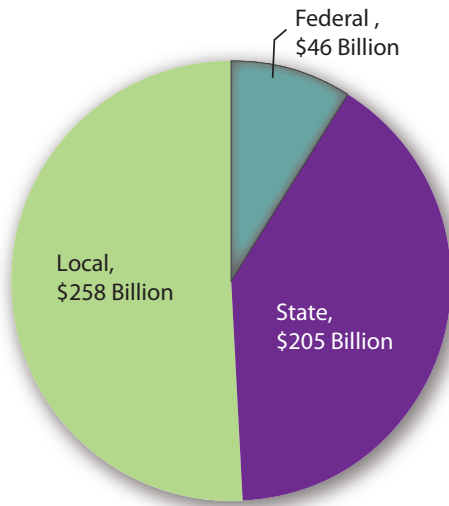
Other measures of educational achievement also indicate a lack of improvement. Twelfth-grade math and reading proficiency, as measured by the National Assessment of Educational Progress, have not improved in thirty years (U.S. Department of Education 2011a, 2011b).

Even as educational attainment and achievement have stagnated, spending on education has continued to climb. Over the past thirty years, real spending per pupil has increased by 90 percent (Snyder and Dillow 2010). Reinvigorating the American system of education demands finding new approaches to improving the returns America receives on its education spending. State and local governments will be at the forefront of this movement.

In 2007, state and local governments accounted for the vast majority of primary, secondary, and higher education spending (see Figure 3 and Figure 4). However, the severe budget situation states are facing threatens these investments. Although many states are prioritizing education spending, this has not spared important programs and systems. California's proposed 2012 budget, for example, would cut more than \$430 million from the crown jewel of American public higher education, the University of California system (California Department of Finance 2011).

FIGURE 3

K–12 Education Spending by Level of Government, 2007 (billions of dollars)



Source: OECD 2011.

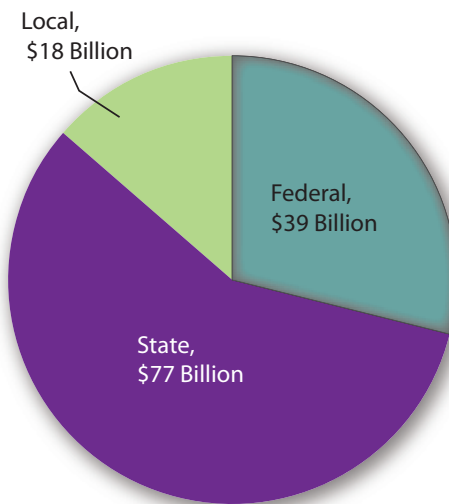
Note: Intergovernmental transfers are credited to source of transfer.

Previous Hamilton Project discussion papers have examined ways to increase the quality and effectiveness of American education. Isabel Sawhill and Jens Ludwig’s 2007 paper “Success by Ten” examined the high returns to early childhood education and proposed a major expansion and reform of Head Start and Early Head Start so that every child in the United States would have access to high-quality education before the age of five. Gordon, Kane, and Staiger’s 2006 paper reviewed evidence that traditional teacher credentials and certifications have relatively little impact on student achievement. The authors called for the federal government to support states in developing measurements of teacher effectiveness, providing financial incentives to teachers who rate highly on these new metrics, making it more difficult for poorly rated teachers to obtain tenure, and reducing barriers to entering the teaching profession.

In a forthcoming Hamilton Project discussion paper, Robert LaLonde and Daniel Sullivan recommend strengthening community colleges, which are the main providers of adult retraining in the United States. Their proposals include establishing a federal Recession Community College Fund to ensure that community colleges are able to respond to increased demand during downturns; reforming funding mechanisms to enable community colleges to expand retraining programs in science, math, and healthcare training; and developing educational best practices for retraining displaced workers.

FIGURE 4

Higher Education Spending by Level of Government, 2007 (billions of dollars)



Source: OECD 2011.

2. Infrastructure

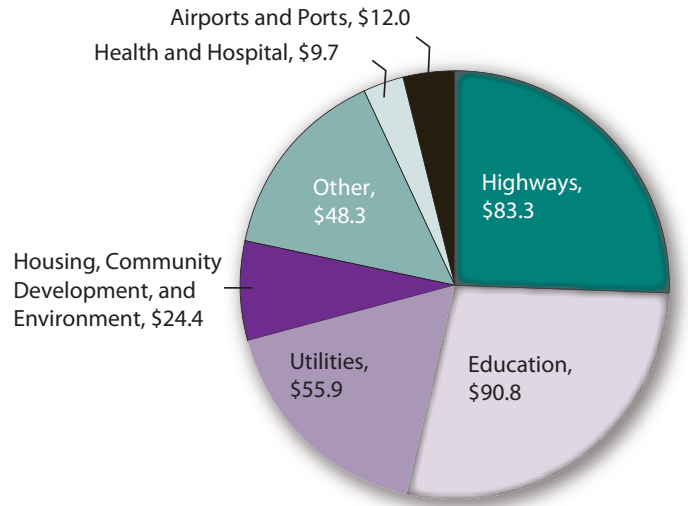
Infrastructure describes a broad range of public capital that facilitates economic activity. State and local infrastructure includes the schools that educate our children; the airports, highways, bridges, and public transit systems that allow people to travel to work and businesses to ship their wares; the water and sewerage systems that are key to public health and quality of life; the dams and power plants that produce electricity and the power lines that carry it; and even information technology infrastructure and access to it.

When things are running smoothly, infrastructure is an invisible enabler. We get to work on time and back home on time, use our cellular phones to order take-out and the internet to listen to music, and drive or fly across the country to visit family members. But when any of these systems comes under too much stress, breakdown can bring both the economy and everyday activity to a grinding halt. Only then does it become apparent how critical infrastructure is to economic growth and our quality of life.

In 2004, the United States spent approximately \$400 billion on infrastructure investments (excluding maintenance), with federal, state, and local governments contributing almost \$233 billion and private companies funding the rest. State and local governments contributed more than \$170 billion, representing almost three-quarters of total government infrastructure investment. This is by any measure a huge amount of money (CBO 2008b).

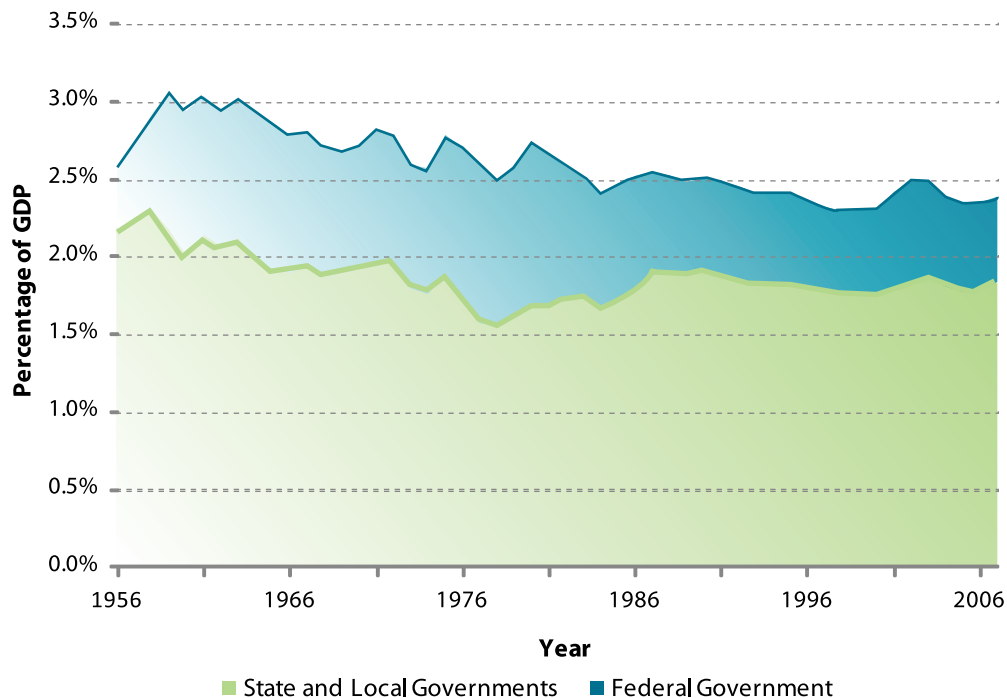
Figure 5 shows the types of capital investment that state and local governments made in 2007. These include a wide array of investments, including more than \$90 billion in education spending, \$80 billion in highway spending, and \$50 billion in utility investment (U.S. Census Bureau 2011). However, some state capital outlays are financed by federal grants. Figure 6 illustrates the breakdown of state and federal financing for water and transportation infrastructure spending, with federal grants to states counted in federal spending. The graph illustrates both the decline in infrastructure spending since the beginning of the NHS in 1956 and the central role that state and local governments play in infrastructure investment (CBO 2008b).

FIGURE 5
State and Local Infrastructure Spending, 2007 (billions of dollars)



Source: U.S. Census Bureau
Note: Excludes maintenance spending.

FIGURE 6
Public Water and Transportation Infrastructure Spending, 1956–2007



Source: CBO 2008b, Additional Information Tables W-2 and W-6, and U.S. Department of Commerce, Bureau of Economic Analysis, 2011, Table 1.1.5.

Due to years of underinvestment and investment decisions not based on rigorous criteria, however, we are not getting enough from our system of infrastructure, and big cracks are apparent. The 2007 collapse of the I-35 Bridge in Minnesota was a national tragedy that offers a striking, albeit extreme, example of the costs of an infrastructure system in decline. According to the Federal Highway Administration (FHWA), as of December 2010 more than 145,000 bridges in the United States are rated as either structurally deficient—indicating it requires significant maintenance and repair to remain in service and eventual rehabilitation or replacement—or structurally obsolete—which means the design of a bridge is not suitable for its current use (FHWA 2011). The American Society of Civil Engineers (ASCE) has estimated that the United States faces a total infrastructure need of \$2.2 trillion over five years (ASCE 2009). The ASCE cited many reasons for concern, including aging and deficient infrastructure, dangers to public safety, and congestion.

On the other hand, many commentators suggest that America is investing too little in other types of infrastructure with higher economic returns. For example, America lags behind other countries in its rollout of broadband and other information technology infrastructure that has become increasingly important over time (OECD 2010). Similarly, a recent study found that each dollar of school construction spending increases local property values by at least \$1.50, suggesting that the returns to new school construction exceeded the initial investment cost (Cellini, Ferreira, and Rothstein 2010). These studies suggest that changes to the current mix of investments could raise their net economic return.

But improving investment decisions is only one way to get more from our system of infrastructure. Research also suggests that we can get more from existing infrastructure by using it more wisely. Infrastructure use is efficient when users take into account the full costs of their use not just on themselves, but also on others. When this does not happen,

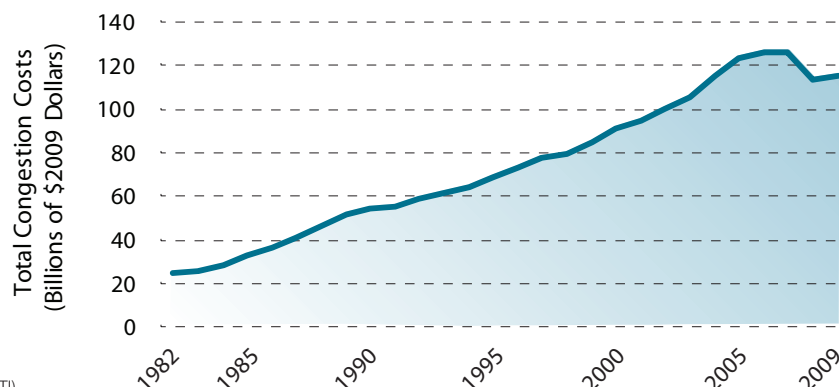
users often impose excessive costs on others—externalities—when choosing how much to drive, how to ship goods, or even how to allocate takeoff and landing slots at airports. In most cases, users do not account for these costs. For example, drivers need not consider their contribution to congestion—additional traffic that delays all other drivers—when they choose to drive at peak times or on crowded roads.

These concerns are not merely theoretical. Road congestion is a chronic problem in major metropolitan areas. Commuters now spend an extra thirty-four hours each year stuck in traffic due to congestion, as opposed to fourteen hours twenty-five years ago (Schrank, Lomax, and Turner 2010). Freight delays cost \$8 billion annually (U.S. Department of Transportation [DOT] 2005). The Texas Transportation Institute’s 2010 “Urban Mobility Report” (Lomax, Schrank, and Turner 2010) suggests that total costs due to congestion increased from just over \$20 billion in the early 1980s to more than \$120 billion in recent years (see Figure 7). (The decline since 2008 is a consequence of the doubling of unemployment in the Great Recession.)

Similarly, excessively laden trucks do many times the damage to local roads as do passenger cars, but often it is in the financial interest of truckers to maximize their loads. Flight delays at airports across America inconvenience many passengers unnecessarily, in part because larger planes with hundreds of passengers are held up by smaller planes carrying only a handful of people.

State and local governments play a central role in providing the building blocks for our future economic growth and prosperity. In these challenging economic times, it is imperative that states and communities continue to focus on long-term investments while addressing near-term demands. In the next section, *The Hamilton Projects* presents several principles that can help states and municipalities address these long-run infrastructure investments more efficiently and effectively in order to maximize their value.

FIGURE 7
Total Congestion Costs, 1982–2009



Source: Texas Transportation Institute (TTI)

Chapter 2: Economic Principles for State and Local Governments to Achieve Broad-Based Growth and Future Prosperity

In a constrained budget environment, it is particularly important that investments in infrastructure (and elsewhere) be chosen carefully to promote broad-based growth. We emphasize themes that The Hamilton Project believes are particularly important to pursue in order to protect the needs of future generations. Although this paper focuses on infrastructure, these ideas have much broader applicability and could provide guidance on decisions about education, health care, and other investments.

PRIORITIZE INVESTMENTS FOR THE FUTURE

Even though states are facing tremendous fiscal pressure, they must prioritize investment in people and infrastructure to drive economic productivity and growth.

A 2007 survey of the latest research on the link between infrastructure investment and economic growth noted, “there is now more consensus than in the past that public capital furthers economic growth” (Romp and de Haan 2007). Some

Even though states are facing tremendous fiscal pressure, they must prioritize investment in people and infrastructure to drive economic productivity and growth.

of the benefits of infrastructure are direct, while others are less obvious but equally significant. Schools and hospitals are some of the most obvious examples of infrastructure that improve our lives. Transportation systems—and increasingly telecommunications networks—facilitate trade, connect workers to jobs, and support efficient production methods such as just-in-time inventory management and economies of scale. Infrastructure also enables mobility and connectivity, providing access to education and medical care, and promoting social and cultural interaction. Finally, it supports basic needs, such as providing clean water and electricity and removing waste.

But the types of infrastructure most central to American economic life have changed drastically over time. In the 1800s, canals and the railroad were built to move people and things. In the 1950s, the United States began building an interstate highway network to connect all large metropolitan areas, ports, and airports. This network that connects places is foremost a network that connects people—it allows people (and firms) to interact, creating trade and economic activity. Today, 75 percent of goods are transported by truck, and 90 percent of commutes to work are made by car or bus (Winston 2010, 38). Research by John Fernald (1999) found that the NHS had a significant impact on productivity during the 1950s and 1960s until it was largely completed in 1973. (Productivity gains from subsequent expansions have been much smaller.)

These legacy investments remain central to American prosperity, but continued economic growth necessitates finding and making new high-value infrastructure investment. For instance, broadband infrastructure investments have

increased connections between far-flung markets, expanded educational opportunities, facilitated healthcare information technology, and helped promote commerce. It also has widened the gap between areas that are well-connected and areas that are underserved, and has highlighted the potential gains that could accrue from bringing the latter up to speed. As discussed in a 2007 Hamilton

Project discussion paper by John Peha, in underserved areas e-commerce merchants are able to attract fewer customers, online universities attract fewer students, and users of e-mail, internet telephony, and videoconferencing communicate with fewer friends and business associates. Crandall and Jackson (2001) estimated that faster deployment of near-universal broadband access could produce benefits amounting to \$500 billion in net present value.

USE EXISTING RESOURCES MORE EFFICIENTLY

Previous generations of Americans endowed today's economy with an extremely valuable infrastructure network. However, underinvestment in maintenance and overcrowding and overuse threatens to reduce the value Americans get from these resources. Devoting more resources to maintenance, implementing new technologies and practices, and introducing appropriate user fees has the potential to increase the social value of existing infrastructure.

Maintain existing infrastructure

The collapse of Minnesota's I-35W bridge is an extreme example of the consequences of deferring maintenance. We are not allocating enough resources to maintain and improve our existing transportation network—the American Society of Civil Engineers estimates a yearly deficit of nearly \$110 billion (ASCE 2009). Cost-benefit analysis reveals that preservation, maintenance, and enhancement of existing infrastructure, such as restriping an old road and building guardrails, often has higher returns relative to costs than new infrastructure construction. Not only is our system aging, it is not being used as well as it could be because of congestion and disrepair.

In their Hamilton Project discussion paper, “Fix It First, Expand It Second, Reward It Third: A New Strategy for America's Highways,” Matthew Kahn and David Levinson (2011) propose directing all federal Highway Trust Funds to the repair, maintenance, rehabilitation, reconstruction, and enhancement of existing roads and bridges on the NHS. At a minimum, this would increase federal spending to maintain and improve our infrastructure by approximately \$12 billion. The authors also present options that encourage states to use road and congestion pricing to reduce traffic and lower maintenance costs. Each of these steps would improve the condition of our existing system and enhance users' experiences and value.

Implement new technologies and practices

The traffic control system in most cities was developed when the automobile was a new form of transportation, and now is in dire need of upgrading. For example, according to the National Transportation Operations Coalition, bad signal timing contributes to some 300 million vehicle hours of annual delay (Winston 2010, 56). Municipalities may be able to improve traffic flow and reduce travel times by investigating new technologies that could more efficiently direct traffic. New research in signal timing, known as telematics technologies, could maximize road efficiency in urban areas. Similarly, the expansion and standardization of electronic toll collection for highways could help lower congestion costs and speed travel times. Such innovations may also have environmental benefits. Evaluation

of the implementation of electronic toll collection outside Baltimore showed that environmentally harmful emissions were reduced by 16 to 63 percent (Saka and Agboh 2002).

Innovation does not simply mean technological wizardry—many more-mundane practices can improve safety and reduce travel times with high benefit-to-cost ratios. For instance, shoulder rumble strips have estimated benefit-to-cost ratios ranging from 30:1 to more than 60:1 in the appropriate context, and states are expanding their usage on secondary highways (New York State Department of Transportation).

Introduce appropriate user fees

Road congestion is a chronic problem in major metropolitan areas, resulting in delays, productivity losses, accidents, and pollution. One way to encourage drivers to internalize the costs that they impose on others is through congestion pricing. With congestion pricing, road users would pay a fee that fluctuates with the amount of traffic—or more specifically, that corresponds to the additional amount of traffic they cause by trying to squeeze onto an already crowded road. This system would encourage drivers with more-flexible schedules to travel at off-peak times, use alternative routes, and rely on public transportation—while allowing drivers in greatest need to get to their destination on time.

California's SR-91 express lanes are a case study for the effective use of congestion pricing. Along this four-lane, ten-mile stretch, one-way tolls are charged ranging anywhere from \$1.20 to \$10.00, depending on congestion. Average speed during peak hours on the SR-91 lanes is, as a result, three times the average speed on free lanes at the same time. Lewis (2008) estimated, more generally, that charging a toll of \$0.10 to \$0.40 per vehicle mile on roads with congestion above a 70 percent volume-to-capacity ratio would lower highway driving by 10 to 16 percent and allow remaining drivers on the highway to drive 7 to 10 percent faster.

Congestion pricing promises not only to relieve the economic and social costs of congestion, but also to give clearer signals about the demand for different types of infrastructure. Some resources would be shifted from highways to mass transit, yielding a better balance between these two transportation systems. The need for construction and maintenance would also decrease. The FHWA estimated in 2007 that congestion pricing would reduce the annual amount of money needed to maintain highways and bridges by more than 27 percent (FHWA 2007, Exhibit 10-4). Proceeds from the tolls could be used to supplement dwindling highway and road maintenance funds as well as compensate low-income drivers, who would otherwise bear disproportionate costs from a congestion policy. In a Hamilton Project discussion paper, “America's Traffic Congestion Problem: Toward a

Framework for Nationwide Reform,” David Lewis outlines what a comprehensive framework for congestion pricing would look like (2008).

Commuters are not the only infrastructure users who impose these kinds of costs on others. Tractor-trailers and other heavy vehicles are currently taxed according to the total weight of their vehicles, despite evidence that weight per axle more closely tracks the amount of highway damage a truck causes (CBO 2008a). Governments could reduce road damage by taxing truck owners based on weight per axle and thereby encouraging the adoption of less-costly equipment and loading practices. Similarly, according to Small, Winston, and Evans (1989), taxing truck owners depending on the type of road they use (urban interstate highways and lighter-duty roads are more expensive to repair) would encourage carriers to adjust their routes to travel on roads that are more durable. (See Small et al. 1989, as cited in CBO 2008a, 24.)

Another area where user fees would reduce delays is commercial aviation. As discussed in a Hamilton Project discussion paper, “Air Support: Creating a Safer and More Reliable Air Traffic Control System,” Dorothy Robyn suggests charging airlines and other aircraft operators (rather than passengers, as is current practice) for the cost of air traffic control services and scarce runway space (2008). Charging prices that reflect not just monetary costs, but also delay costs that each user imposes on other users would help reduce airport congestion and flight delays. She furthermore suggests reversing the current bias in favor of small aircraft: at most airports, smaller aircraft use the same runway and air traffic control capacity as larger aircraft. But these aircraft pay far less to use those resources because fees are based on the number of passengers. Some evidence suggests that charging owners of small jets for the delays they cost to passengers of larger planes would generate economic benefits of \$16 billion annually (Morrison and Winston 2007).

INVEST EFFICIENTLY

New infrastructure investment can be allocated more efficiently. Increased use of cost-benefit analysis and delivery process reforms could significantly improve the social value of new infrastructure investments. Importantly, improving the allocation of spending would increase the benefit from investments without increasing investment budgets.

Cost-benefit analysis

Getting the most out of public investments requires that the benefits of the investment in the form of increases in trade, productivity enhancements, traffic reductions, quality-of-life improvements, or environmental benefits exceed the costs to taxpayers and disruptions to local residents. The standard way to weigh these tradeoffs is cost-benefit analysis, which rigorously

quantifies both the anticipated costs and the expected benefits to determine if an investment makes economic sense. Although some governments already use cost-benefit analysis to help make investment decisions, most do not, and seldom do governments look back after the fact to evaluate whether old projects were worth their cost. The nation as a whole could benefit from building capacity at the state level for more and better analysis.

Properly implemented, cost-benefit analysis would encourage decisionmakers to weigh less-tangible factors such as noise from highways that makes homes less restful and air pollution from automobiles that contributes to respiratory disease, to promote infrastructure that enhances both the economy and quality of life. Setting even a small percentage of funds from each program aside for ex post evaluation of programs would allow state and local governments to determine which investments have the greatest return.

In addition to prioritizing highway maintenance, the Hamilton Project discussion paper “Fix It First, Expand It Second, Reward It Third: A New Strategy for America’s Highways” by Matthew Kahn and David Levinson (2011) also would require states to use cost-benefit analysis when making highway and transportation investments, and reward them for doing so. Funding for states to build new and expand existing roads would come from a newly created Federal Highway Bank, which would require benefit-cost analysis to demonstrate the efficacy of a new project. New and expanded transportation infrastructure that meets or exceeds projected benefits would receive an interest rate subsidy from a Highway Performance Fund that is financed by net revenues from the Federal Highway Bank. As a result, the federal government would subsidize borrowing costs for projects that met performance standards specified in cost-benefit assessments, such as reductions in congestion or carbon emissions.

Improve delivery processes

Another way to increase the return on new infrastructure is to improve the process that is used to build and operate new projects. Currently, when breaking ground on a new project, a government agency makes the initial investment by awarding a contract to a private firm to construct the project. After construction is complete, the infrastructure project is turned back over to the government for maintenance and operation. This structure can generate adverse incentives—low-cost bidders have incentives to minimize the cost of construction even when that means higher maintenance costs down the road.

In PPPs, this problem is solved by assigning responsibility for construction, maintenance, and operation to a single firm and reimbursing the firm’s costs through user fees. The classic example is a new toll road, where a private partner bids to build, maintain, and operate the road in return for the right to collect

tolls. “Bundling” the initial investment and operation costs alters the incentives of the private company so that they invest today with future maintenance and operations costs in mind.

PPPs also can have an added benefit when the project is financed by user fees. Private partners will not invest in projects where user fees are not expected to cover the costs of construction. This can provide a screen against inefficient investments whose costs exceed projected benefits.

Despite these potential benefits, PPPs in the United States have been dogged by contract design problems, waste, and unrealistic expectations. Inflexible contracts combined with unforeseen circumstances have led to high-profile and costly bankruptcies. In other cases, governments “sold the future,” by using a PPP to capture future revenues for present consumption—for example, selling an existing toll road for cash today in exchange for a loss of revenues down the road. When there is no efficiency gain to the trade, this just changes the timing of spending, effectively saddling future taxpayers with the bill.

In their Hamilton Project discussion paper, “Public-Private Partnerships to Revamp U.S. Infrastructure,” Eduardo Engel,

Increased use of cost-benefit analysis and delivery process reforms could significantly improve the social value of new infrastructure investments.

Ronald Fischer, and Alexander Galetovic (2011) propose ways to remedy these drawbacks of PPPs and outline how best to use PPPs to provide infrastructure. They suggest employing innovative Present-Value-of-Revenue (PVR) contracts, in which private contractors bid on the revenue they need to undertake the investment rather than on the cost of the project. Under a PVR contract, toll revenues or other user fees flow to the private partner until the specified revenue level is met. As a result, unexpected changes in demand no longer impose risks on the private partner, reducing the likelihood of bankruptcy or contract renegotiation. They also argue for the transparent accounting of PPPs on governments’ balance sheets to provide accountability for transactions that attempt to shift costs to future taxpayers. Finally, they call for better governance, which would divide the initial execution and ongoing regulation of PPPs contracts between different public agencies.

INCREASE TRANSPARENCY AND ACCOUNTABILITY

State and local governments typically disclose only limited financial information, often with a long delay. This reduces the transparency of decisionmaking and of governments’ financial situations, reducing accountability of public officials to taxpayers.

As a basic principle of good governance, taxpayers deserve to have accurate and timely information on their governments’ activities. Such information can help citizens make reasoned decisions at the ballot box about their leadership. Increased transparency can also protect future generations from paying for today’s spending. Proper accounting for PPPs, infrastructure investments, and retirement benefits would help protect future revenues and resources from being used for current consumption. Proper accounting also can improve investment decisions by forcing governments to factor in the full costs of a given investment.

The market for municipal bonds is a clear example of the high cost that a lack of transparency and disclosure can have. States and municipalities usually raise revenues for infrastructure projects by issuing bonds. This allows states and municipalities to finance projects with large upfront costs and long-term benefits.

The municipal bond market is characterized by poor information and illiquid trading. The dearth of easily available market information means that municipal issuers cannot compare their borrowing costs to determine if they are paying more than other similar issuers. The market is relatively

illiquid, also, because municipal bonds are usually issued in small quantities that are complicated to price. Both factors drive up borrowing costs for municipal issuers (for a review of the financial literature, see Ang and Green 2011). Because municipal issuers are usually small and operate independently, they have few resources or opportunities to remedy these problems on their own.

In their Hamilton Project discussion paper, “Lowering Borrowing Costs for States and Municipalities Through CommonMuni,” Andrew Ang and Richard Green (2011) examine the high costs in the market for municipal bonds and propose establishing an institution called “CommonMuni” to address these problems. CommonMuni would provide municipal issuers with independent, high-quality advice, help centralize and disseminate financial information to market participants, increase price transparency, and encourage practices to improve market liquidity.

Chapter 3: Conclusion

State and local governments educate our nation's children, protect our property, and provide the environments in which our nation's businesses flourish. They are key investors in education, infrastructure, and other public goods that are critical to the nation's long-run productivity and growth; partners in funding and administering federal programs like Medicaid that help the most vulnerable members of our society; and local providers of critical basic services that benefit all households.

The unprecedented fiscal pressure that states and cities are facing, however, is jeopardizing their ability to deliver on these critical priorities and programs. The most acute pressure stems from the Great Recession and the blow it has dealt to state revenues. However, state and local governments face even more-daunting budget challenges down the road, including rising healthcare costs and unfunded pension liabilities.

Although states will need to make tough decisions in order to right their fiscal houses, they must make these needed changes in a way that does not place future growth and prosperity at risk. Cutting back on investments in education or infrastructure may enable states and cities to balance their annual budgets today, but at a high cost for future generations.

The tough budget climate states are now facing is a crossroads that presents challenges, but also opportunities. States and local governments can seize the initiative by experimenting with new and innovative policies, to help lay the foundation for future growth and prosperity. By prioritizing spending, making economically sound investments, and implementing much-needed changes, the states can continue to serve as the laboratory for new ways of doing business that will help America remain competitive in an increasingly competitive global economy.

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Hamilton Project Papers: Infrastructure

INFRASTRUCTURE STRATEGY PAPERS

- **“An Economic Strategy for Investing in America’s Infrastructure”**

by Manasi Deshpande and Douglas Elmendorf

Infrastructure investment has received more attention in recent years because of increased delays from road and air congestion, high-profile infrastructure failures, and rising concerns about energy security and climate change. The United States now has the opportunity to channel public concern and frustration into a national infrastructure strategy that promotes infrastructure as a central component of long-term, broadly shared growth. While increased spending on infrastructure is likely to be needed, large gains could be reaped by using existing infrastructure more efficiently and by making better decisions about how to invest in infrastructure.

INFRASTRUCTURE DISCUSSION PAPERS

- **“Lowering Borrowing Costs for States and Municipalities Through CommonMuni.”**

by Andrew Ang and Richard C. Green

Proposes the establishment of CommonMuni, a not-for-profit advisory firm designed to reduce borrowing costs for municipalities by overcoming the difficulty individual municipalities and investors have coordinating their actions and sharing market knowledge.

- **“Public-Private Partnerships to Revamp U.S. Infrastructure”**

by Eduardo Engel, Ronald Fischer and Alexander Galetovic

Proposes a series of best practices for state and local governments to follow when using public-private partnerships to provide infrastructure.

- **“Fix It First, Expand It Second, Reward It Third: A New Strategy for America’s Highways”**

by Matthew E. Kahn and David M. Levinson

Proposes a reorganization of our national highway infrastructure priorities to preserve, maintain and enhance existing infrastructure and the creation of the Federal Highway Bank to meet these goals.

- **“Pay-As-You-Drive Auto Insurance: A Simple Way to Reduce Driving-Related Harms and Increase Equity”**

by Jason E. Bordoff and Pascal J. Noel

Discusses the case for pay-as-you-drive auto insurance, where motorists pay for accident insurance per mile rather than in a lump sum.

- **“America’s Traffic Congestion Problem: Toward a Framework for Nationwide Reform”**

by David Lewis

Outlines the case for congestion pricing that would charge drivers to use the nation’s most congested roadways at the most congested hours to reduce traffic and improve safety and efficiency.

- **“Bringing Broadband to Unserved Communities”**

by John M. Peha

Discusses how government can facilitate the expansion of broadband infrastructure into unserved communities through a suite of interrelated policies.

- **“Air Support: Creating a Safer and More Reliable Air Traffic Control System”**

by Dorothy Robyn

Calls on Congress to shift the operation of the air traffic control system out of the Federal Aviation Administration and into a new agency within the Department of Transportation, and proposes that the air traffic control system be funded through cost-based user fees.

- **“The Untapped Promise of Wireless Spectrum”**

by Philip J. Weiser

Outlines a new direction for spectrum policy reform, calling on policymakers to judge the Federal Communications Commission’s (FCC) success by whether it can spur the more efficient use of spectrum.

Hamilton Project Papers: Education

EDUCATION STRATEGY PAPERS

- **“An Education Strategy to Promote Opportunity, Prosperity, and Growth”**
by Joshua Bendor, Jason E. Bordoff, and Jason Furman
Investments in education yield large returns to both society and the individual. To better secure the benefits of education, The Hamilton Project outlines an evidence-based education strategy that emphasizes new investments in some areas (such as early education) and structural reforms in others (such as the teacher tenure system).

EDUCATION DISCUSSION PAPERS

- **“Success by Ten: Intervening Early, Often, and Effectively in the Education of Young Children”**
by Jens Ludwig and Isabel Sawhill
Outlines the creation of a new program, “Success by Ten,” to provide a major expansion and intensification of Head Start and Early Head Start.
- **“College Grants on a Postcard: A Proposal for Simple and Predictable Federal Student Aid”**
by Susan M. Dynarski and Judith Scott-Clayton
Proposes a simplification of the current system of educational grants and tax incentives into a single, streamlined grant administered through the Department of Education.

- **“Summer Opportunity Scholarships (SOS): A Proposal to Narrow the Skills Gap”**
by Molly E. Fifer and Alan B. Krueger
Proposes the creation of Summer Opportunity Scholarships (SOS) for economically disadvantaged children in kindergarten through fifth grade to participate in a summer school or summer enrichment program of their parents’ choosing.
- **“Identifying Effective Teachers Using Performance on the Job”**
by Robert Gordon, Thomas J. Kane, and Douglas O. Staiger
Proposes expanding federal support to help states measure the effectiveness of individual teachers—based on their impact on student achievement, subjective evaluations by principals and peers, and parental evaluations.
- **“Investing in the Best and the Brightest: Increased Fellowship Support for American Scientists and Engineers”**
by Richard B. Freeman
Proposes tripling the number of National Science Foundation graduate research fellowships, restoring the program’s balance between awards given out and the number of science undergraduates.



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February 2011 Hamilton Project Discussion Papers

Lowering Borrowing Costs for States and Municipalities Through CommonMuni

by Andrew Ang and Richard C. Green

States and municipalities depend on the municipal bond market to raise funds for investments in America's schools, roads and highways, hospitals, utilities, and public buildings. Additionally, many individuals rely on municipal bonds as a dependable investment. Evidence suggests, however, that state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds may pay billions of dollars each year in unnecessary fees, transactions costs, and interest expense due to the lack of both transparency and liquidity in the municipal bond market. This paper proposes the establishment of CommonMuni, a not-for-profit, independent advisory firm that would reduce borrowing costs for municipalities and increase returns for investors by overcoming the difficulty individual municipalities and investors have in coordinating their actions and sharing market knowledge.

Public-Private Partnerships to Revamp U.S. Infrastructure

by Eduardo Engel, Ronald Fischer and Alexander Galetovic

Public-private partnerships are often touted as a "best-of-both-worlds" alternative to public provision and privatization. But in practice, they have been dogged by contract design problems, waste, and unrealistic expectations. This paper proposes a series of best practices that communities can undertake to ensure that public-private partnerships provide public value. These include choosing partnerships for the right reasons; relying on flexible-term Present-Value-of-Revenue (PVR) contracts; including partnerships on government balance sheets; and implementing good governance practices. Enacting these reforms will help maximize taxpayer value and reduce risks for each party involved in a public-private partnership.

Fix It First, Expand It Second, Reward It Third: A New Strategy for America's Highways

by Matthew E. Kahn and David M. Levinson

The roads and bridges that make up our nation's highway infrastructure are in disrepair as a result of insufficient maintenance that increases travel times, damages vehicles, and can lead to accidents that cause injuries or even fatalities. This paper proposes a reorganization of our national highway infrastructure priorities to "Fix It First, Expand It Second, and Reward It Third." Revenues from the existing federal gasoline tax would be devoted to preserve, maintain and enhance existing infrastructure; funding to build new and expand existing roads would come from a newly created Federal Highway Bank; and projects that meet or exceed projected benefits would receive an interest rate subsidy from a Highway Performance Fund.



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