

PUBLIC INVESTMENT

Statement before the
Financial Services Committee
United States House of Representatives

March 23, 2007

Andrew F. Haughwout

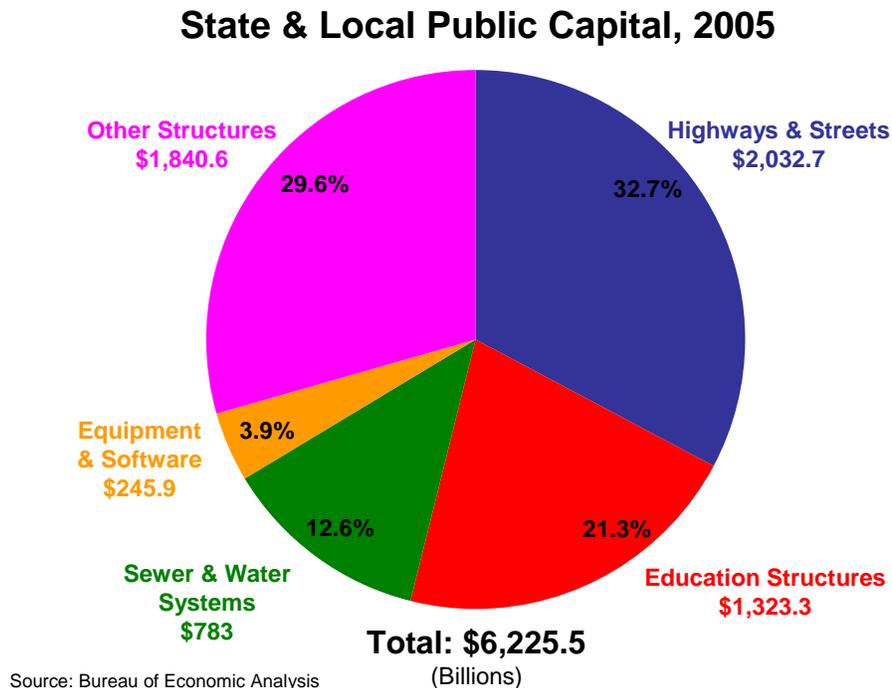
Andrew F. Haughwout is a Research Officer at the Federal Reserve Bank of New York. The views expressed here are those of the author and do not reflect those of the Federal Reserve Bank of New York or the Federal Reserve System.

Chairman Frank, Ranking Member Bachus, and Members of the Committee:

Thank you very much for the opportunity to speak to you on the important subject of public investment. Today I will be discussing research on public investment and its relationship to economic growth and well-being. All the views I will express are my own, and not those of the Federal Reserve Bank of New York or the Federal Reserve System.

Physical public capital – what I will refer to as infrastructure – is the dominant component of the nation’s publicly owned wealth, and it is that kind of investment that my research has focused on. This infrastructure stock consists largely of highways and streets, buildings like schools, stadiums, and city halls, and sewer and water systems (Figure 1).

Figure 1



The flow of new public investments in physical capital was about \$430 billion in 2006 (Figure 2), an amount that was added to a stock of publicly owned physical capital that would have cost nearly \$8 trillion to replace in 2005, according to the Bureau of Economic Analysis. Public capital represents about one-fifth of total (public and private) non-defense fixed assets (Figure 3). About 90% of the stock of non-defense public assets in the United States is owned by state and local governments. Of course, the federal government plays a large role in financing the construction of capital goods that state and local governments own.

Figure 2

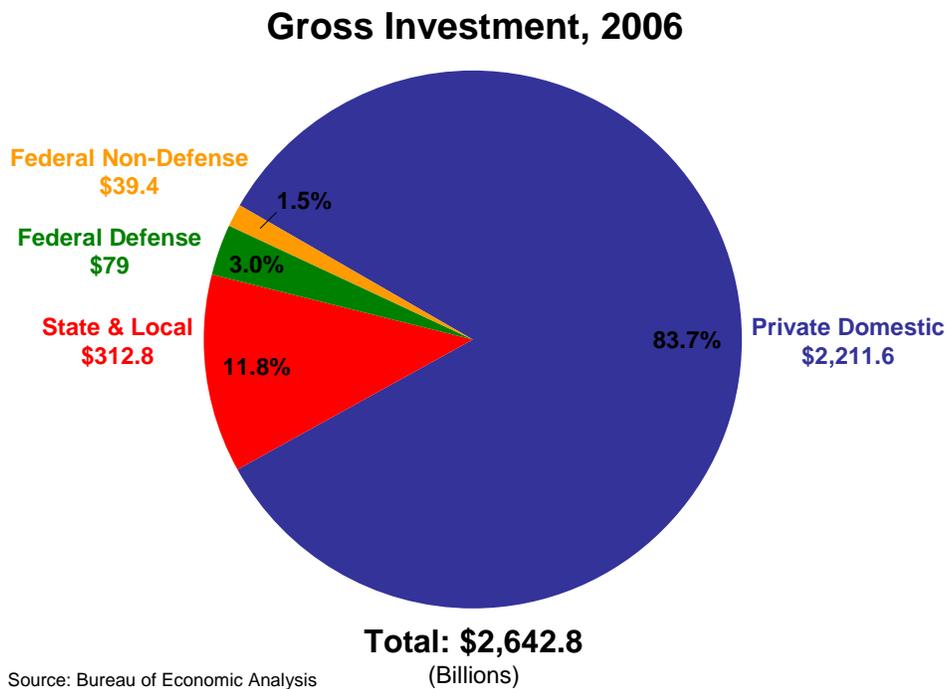
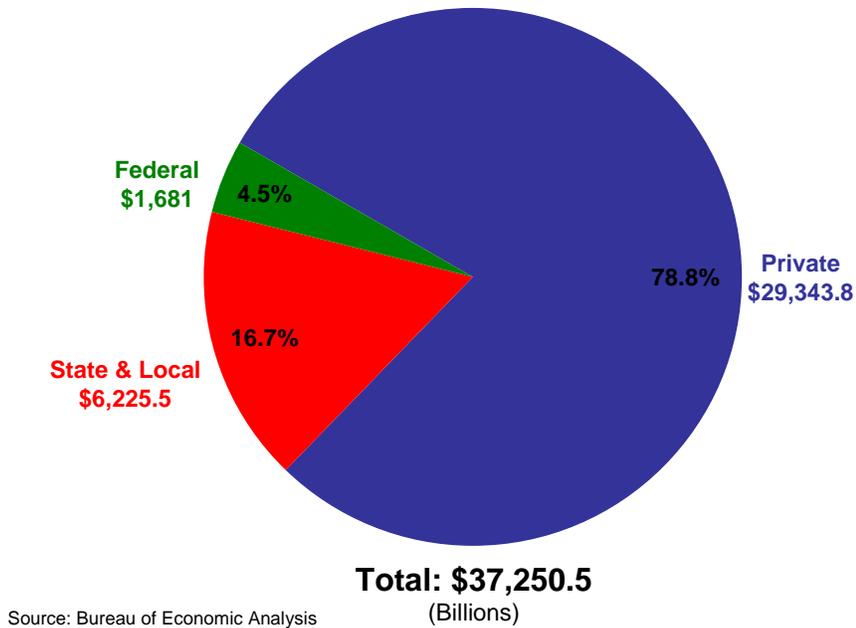


Figure 3

Replacement Value of Fixed Assets, 2005



The ultimate goal of the large amount of resources devoted to public investment is improvement of the welfare of the American people. In my view, there are three crucial issues surrounding our public investment policies. The first concerns how and to what extent public investment affects economic growth, an issue that has formed the centerpiece of economic research on infrastructure. The second, which has received far less attention from economists, is based on the idea that infrastructure may have direct effects on households, because these investments influence households' ability to consume valuable goods that are not traded in markets. These are benefits that do not appear in the usual income accounting framework. The third issue centers on the notion that the total benefits we receive from our public investments is affected by how we

finance and locate new investments, since where activities occur has significant effects on levels of both productivity and household well-being. Below, I discuss each of these issues and provide examples.

Evidence of the Effects of Infrastructure Investment

Perhaps not surprisingly, economists' research on the effects of infrastructure investment has focused on income growth. Income and firm activity are relatively easy to measure, since statistics on income, output, and employment are carefully collected and widely available. Household well-being is a much more elusive and difficult-to-measure concept. So the majority of economic research on infrastructure has asked the question, "What effect do additions to the stock of public capital have on growth of firm productivity, output, and employment?"

There have been many studies over the last twenty years that were designed to answer this question. This research is based on the fact that private companies are users of infrastructure systems like highways, water and sewer systems, etc. When these infrastructure systems are expanded, companies can become more efficient, and the benefits show up as more jobs and investment, higher wages, and higher returns on capital.

There is no doubt that well-functioning infrastructure systems are critical to a well-functioning economy, but it is also clear that the US already has extensive public infrastructure. The evidence we currently have points to a conclusion that additional infrastructure investments have positive effects on firms. Unfortunately, it is also fair to say that no consensus has emerged on the critical issue of the magnitude of these effects.

Early estimates – from the 1980s - had indicated that infrastructure’s contribution to firms’ output was approximately twice as large as that of private capital, which led to concerns of a severe infrastructure shortfall. More recent research has resulted in significantly lower estimates of the productivity of infrastructure, and most economists now agree that the earlier estimates were too high. While the exact size of public infrastructure’s contribution to income growth remains a subject of some controversy, many recent estimates put the figure at a level somewhat below the return to private capital.

The social value of infrastructure as a direct contributor to household welfare has received relatively little attention, in part because the quality of life is difficult to measure. But in my opinion, the consumption benefits of public investments are likely to be very important because households, just like private firms, are heavy users of public infrastructure systems.

Of course, some public works are specifically designed to benefit households alone. An obvious example is the construction of public parks and recreation facilities. The nearly \$8 billion that state and local governments alone spent on parks and recreation capital in fiscal year 2004 seems clearly intended to provide direct benefits to households. Even elements of what many authors refer to as “core infrastructure” -- transportation, sewer and water systems -- provide large direct benefits to households.

An example may clarify the difference between the productivity studies that currently dominate much of the economics literature and a more comprehensive accounting of infrastructure’s benefits. Imagine that the state builds a new road from your home to your place of work that cuts your one-way commuting time by 15 minutes. Will

you arrive earlier at work each day, or sleep later? The way economists have traditionally thought about infrastructure implies that all employees will choose to arrive early at work, increasing the output they produce. But at least some workers will probably sleep later or read the paper longer each morning. This potential for increased leisure will not be accurately measured in standard studies of income or productivity, but is still a real benefit, since it improves the well-being of the individuals whose homes are newly accessible. Accounting for the consumption value of public works is thus an important, but difficult, task.

Few studies have undertaken to measure the consumption benefits of public investments on a large scale, but some evidence is available. In my own work, I have used a spatial equilibrium model to estimate the aggregate value that households put on public investments in central cities and metropolitan areas. Using this method, I estimated that the present value to households of increases in central city infrastructure is considerably higher than the comparable benefit to firms.

The Importance of Location

One of the distinguishing features of infrastructure investment is that it is largely fixed in place. The idea that fixed public investments, especially transportation infrastructure, alter the geography of economic activity is supported by both economic theory and a substantial historical record. But geography has not been central to most infrastructure research until recently. The basic question posed by state infrastructure productivity studies is whether states with more public capital grow faster than those with less. But relatively few these studies have taken seriously the possibility that additions to

infrastructure stocks have important effects on patterns of activity within states. These effects could be very significant.

The interstate highway system, for example, was developed primarily to facilitate interstate travel for private businesses and government. But today's interstates serve many functions, including moving people around within metropolitan areas. I believe that there is now convincing evidence that the interstate system has helped facilitate the movement of population and jobs to suburbs.

Even if new infrastructure investments do not have very big measured effects across states, it does not necessarily follow that they are not valuable to private employers and households. The fact that these economic agents move *within* states in response to infrastructure development indicates that they value it quite highly.

If one of infrastructure investment's primary effects is to induce changes in the geography of economic activity, then a relevant question becomes whether these changes have any implications for well-being. Evidence from a variety of studies indicates that where things happen is an important determinant of economic well-being and growth and that an important way in which infrastructure policy affects the economy is through this indirect channel.

A large body of research indicates that private firms in urban environments are more productive than their counterparts in less densely developed areas. There are many reasons for this phenomenon, ranging from easier matching of employees and jobs in thick labor markets to spillovers of ideas from one firm or industry to another. A typical and influential study shows that doubling employment density across counties within a state increases output per worker by 6%. And more recent evidence suggests that these

kinds of benefits are spread over relatively small areas – one influential study indicates that over 80% of the growth benefit of a cluster of firms is captured within a radius of just one mile. So fostering the growth of dense centers is a key mechanism for fostering income growth.

Because they are valuable and are often placed in relatively undeveloped areas, public investments provide individual firms and households with incentives to move from more to less dense environments. But if decentralization *reduces* productivity growth, then the placement of new infrastructure goods in relatively undeveloped areas may not be the most effective use of public monies.

Project Selection and Finance

An important challenge for policymakers is thus to design institutions that can maximize the effectiveness of our infrastructure investments in light of the importance of intra-state relocations in determining the aggregate benefits of these investments. Organizations with a broad geographic scope have become influential bodies for making infrastructure investment decisions. Metropolitan planning organizations (MPOs) like the North Jersey Transportation Planning Authority and the New York Metropolitan Transportation Council -- the MPOs for the New York City area – have been empowered by the federal government to balance regional interests in making many of the relevant choices in transportation policy. In many areas, port and transportation authorities are designed to prioritize projects based on their contributions to well-being in the region as a whole. Yet the authority of these organizations is typically limited to transportation, and they often do not have control over the amount of money they have to spend.

The decentralizing effect of infrastructure investments is partly attributable to our system for paying for new public works projects. Because public works are funded by a complex web of local spending, state aid and direct spending, and federal grants, a large share of the cost of new infrastructure can be exported through the tax and grants systems. This financing structure makes it possible for localities to push for new public works that will provide local benefits, while much of the cost is paid by residents of other places. As a result, new or improved infrastructure might be skewed more to less dense areas than is evident or intended. Maximizing the effectiveness of our public investment budget requires careful attention to both the levels of funding and the design of institutions for allocating infrastructure investments.