Public infrastructure is an important factor in urban economic development. Whether local governments can carry a large part of the burden of financing public investment without severely curtailing other necessary programs is not clear. What is clear is that the longer public works improvements are neglected, the harder it will be to break the cycle between deteriorating infrastructure and economic growth.

Conclusion
The Eagle Avenue ramp is currently under repair, with financing comprised largely of federal funds. Once reopened, the ramp will provide an important access to one of Cleveland's industrial areas. While this renovation does not promise to bring new growth to an area that has lagged behind the national average during the last decade, it is nonetheless necessary for the routine operations of a local economy.

The solution to other infrastructure problems may not be as easy. Metropolitan governments are faced with some very difficult trade-offs between the long-run development of the city and the short run well-being of subgroups of its population.

Public infrastructure deterioration has an important effect on urban economic development. Many cities with an aging industrial base are caught between the need to maintain or improve public capital stock and the immediate demand for community welfare programs. Neglecting public infrastructure may make it more difficult for these cities to achieve future economic growth.

Public Infrastructure and Economic Development
by Douglas Dalenberg and Randall W. Eberts

T he condition of the nation's public capital stock has received much publicity over the past several years. Titles such as America In Ruins and Fragile Foundations have raised our awareness of the declining state of our nation's public works.¹

Rather than simply add to this awareness by documenting the deterioration of infrastructure in the Midwest, this Economic Commentary discusses the seemingly vicious circle in which many older cities find themselves with regard to public infrastructure and economic development. Cities that have an aging industrial base often find that they cannot afford to maintain or improve their infrastructure because of the heavy demand for welfare programs and the decline in the tax base caused by a sagging local economy.

Analysis shows that public investment is necessary for future local economic development. In many cases, however, cities find themselves in a no-win situation when trying to juggle their budgets. If city governments attend to the immediate welfare needs of the community at the sacrifice of public investment, then these needs will continue to grow as economic development is stifled. If they attend to public infrastructure needs, which can promise more long-term than short-term benefits, then substantial groups within the community may suffer.

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This difference in age across various types of cities is disturbing not only with respect to the condition of capital stock in cities like Cleveland, but also with respect to the ability of local areas to adapt to changing demands for infrastructure. Not only does the spatial demand for infrastructure change, but the demand for the various types of infrastructure also varies. Suburban airports have replaced downtown railroad stations, freeways have replaced trolley lines, and an information-based economy is encroaching on a material-processing economy. Thus, lack of discretion in how limited funds can be spent is a serious problem for older cities in their efforts to position themselves for future economic development.

The Importance of Public Infrastructure to Economic Development

The importance of public infrastructure to economic development might be captured in one business owner’s response to the possible closing of Cleveland’s Eagle Avenue ramp. “The ramp is the only viable way for my East Side customers to find me.” When the ramp did close for repairs, no businesses reportedly shut down. It is not clear, however, what would have happened had the ramp remained permanently.

Implicit in much of the discussion of the need for public infrastructure is the belief that deterioration in the quality of a city’s public capital stock reduces the city’s attractiveness to firms and residents, stifling economic development, productivity, and the creation of jobs. Furthermore, policymakers concerned with regional issues have claimed for years that public infrastructure investment is one of the primary means to implement a regional growth strategy.

Empirical studies support the established intuition that public infrastructure plays an important role in economic development. In general, studies show that public infrastructure investment affects the growth rate of a region as measured by personal income.

The effect of public infrastructure on economic development can come through various channels. Research has found that the level of public infrastructure significantly affects manufacturing output in metropolitan areas. Studies also show that public investment stimulates private investment, both in local economies and at the national level.

Of particular importance to the issues discussed here is the finding that public investment has a greater effect on net capital formation in distressed cities than in growing cities. Furthermore, studies show that specific types of infrastructure, such as transportation and communication, have a larger effect on economic growth than do other types of infrastructure.

If public infrastructure indeed provides important services to the private sector, then another way to measure the condition of the nation’s infrastructure is to compare the growth of public investment to private investment. We find that the annual rate of public works investment versus private manufacturing investment in U.S. cities has declined steadily since the 1950s. Between 1958 and 1978, manufacturing private capital stock has grown at an annual rate of 2.7 percent, while public capital stock has grown at an annual rate of 1.6 percent.

These trends cast doubt on the ability of current levels of infrastructure to support future economic expansion.

Sources of the Problem

The reasons for the general decay of the nation’s infrastructure are many and varied, and no single factor can be blamed. For Cleveland and cities like it, much of the problem can be traced to an aging industrial base, which yields a double-edged sword, both reducing the fiscal base and increasing the need for welfare programs.

In many cities, immediate welfare needs have supplanted the longer-run benefits of public investment programs. For example, poverty-related social expenditures per capita in Cleveland increased 55 percent from 1977 to 1985, while the average of these expenditures for a representative sample of 37 large urban areas increased only 13 percent. Meanwhile, per capita expenditures on development services in Cleveland fell 6 percent over the same period, while the average in other urban areas increased 10 percent.

While needs have increased and local resources have declined, federal assistance has fallen. Federal grants in aid have dropped to 20 percent of local government receipts in 1985 from a high of 30 percent in the late 1970s. This percentage matches the federal government’s role in 1965, which predates major federal initiatives such as the Clean Air and Water acts, general revenue sharing, and many block grant programs. The states have picked up about half of the loss of federal funds, but local governments must absorb the shortfall through some combination of raising additional revenues, eliminating services, cutting back on welfare transfers, or reducing public investment.

The greatest impact of reduced federal assistance to local governments has been on infrastructure projects, primarily because of the way in which various levels of government have assumed responsibility for public works. Local governments are responsible for construction of over 50 percent of the public works investment in the country, and this percentage is growing. More than half of the financing for these projects comes from federal grants, however, and this percentage is declining.

The federal budget for 1989 and the proposed budget for 1989 have further reduced some of the key public works programs and have called for the elimination of others, including Urban Development and Assistance Grants and the Economic Development Administration. Highway funding is the only area that remains uncut, partly because its expenditures come from a trust fund and do not compete for funds from the general budget.

FIGURE 1 PERCENT OF CURRENT INVESTMENT DOLLAR REQUIRED TO MAINTAIN PUBLIC CAPITAL STOCK

<table>
<thead>
<tr>
<th>Percent</th>
<th>1965</th>
<th>1985</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cleveland</td>
<td>120%</td>
<td>50%</td>
</tr>
<tr>
<td>Chicago</td>
<td>100%</td>
<td>30%</td>
</tr>
<tr>
<td>Detroit</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>Denver</td>
<td>60%</td>
<td>10%</td>
</tr>
<tr>
<td>Dallas</td>
<td>40%</td>
<td>5%</td>
</tr>
<tr>
<td>Atlanta</td>
<td>30%</td>
<td>0%</td>
</tr>
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</table>


The trend is increasing for both the Midwest and the United States. In Detroit, it took 60 cents per investment dollar to maintain public capital at its present level. As can be seen in figure 1, the situation is similar in Chicago. 90 cents of every public investment dollar goes toward keeping public capital stock at its present level. Places that have had a robust economy during the past decade, such as Atlanta, Dallas, and Denver, spend only 20 cents of every $50 per person per year. Cleveland spent 80 cents per dollar in 1985, while the average in other urban areas is 90 cents. For the United States, the current stock of public capital at its present level, according to our estimates, amounts to more than $150 per person per year.

As can be seen in figure 1, the situation is similar in Chicago. 90 cents of every public investment dollar goes toward keeping public capital stock at its present level. Places that have had a robust economy during the past decade, such as Atlanta, Dallas, and Denver, spend only 20 cents of every $50 per person per year. Cleveland spent 80 cents per dollar in 1985, while the average in other urban areas is 90 cents. For the United States, the current stock of public capital at its present level, according to our estimates, amounts to more than $150 per person per year.
The trend is increasing for both the city, while today it requires the entire dollar to maintain their level of public capital. This amounts to more than $50 per person per year. In the past, such as Atlanta, Dallas, and the Midwest and the United States. In 1965, it took 60 cents per investment dollar to maintain their capital stock or due to a population decline. Much of the problem can be traced to the existing capital stock.

The importance of public infrastructure to Economic Development The importance of public infrastructure to economic development might be captured in one business owner’s response to the possible closing of Cleveland’s Eagle Avenue ramp. “The ramp is the only viable way for my East Side customers to find us.” When the ramp did close for repairs, no businesses reportedly shut down. It is not clear, however, what would have happened had the ramp closed permanently.

In much of the discussion of the need for public infrastructure is the belief that deterioration in the quality of a city’s public capital stock reduces the city’s attractiveness to firms and residents, stifling economic development, productivity, and the creation of jobs. Furthermore, policymakers concerned with regional issues have claimed for years that public infrastructure investment is one of the primary means to implement a regional growth strategy. Empirical studies support the established intuition that public infrastructure plays an important role in economic development. In general, public works investment versus private manufacturing investment in U.S. cities has declined steadily since the 1950s. Between 1958 and 1978, manufacturing private capital stock has grown at an annual rate of 2.7 percent, while public capital stock has grown at an annual rate of 1.6 percent. These trends cast doubt on the ability of current levels of infrastructure to support future economic expansion.

The greatest impact of reduced federal assistance to local governments has been on infrastructure projects primarily because of the way in which various levels of government have assumed responsibility for public works. Local governments are responsible for construction of over 50 percent of the public works investment in the country, and this percentage is growing. More than half of the financing for these projects comes from federal grants, however, and this percentage is declining. The federal budget for 1989 and the proposed budget for 1989 have further reduced some of the key public works programs and have called for the elimination of others, including Urban Development and Assistance Grants and the Economic Development Administration. Highway funding is the only area that remains uncarved, partly because its expenditures come from a trust fund and do not compete for funds from the general budget.
Public infrastructure is an important factor in urban economic development. Whether local governments can carry a large part of the burden of financing public investment without severely curtailing other necessary programs is not clear. What is clear is that the longer public works improvements are neglected, the harder it will be to break the cycle between deteriorating infrastructure and economic growth.

Douglas Dalenberg is an assistant professor of economics at John Carroll University, Cleveland. Randall W. Eberts is an assistant vice president and economist at the Federal Reserve Bank of Cleveland. The views stated herein are those of the authors and not necessarily those of the Federal Reserve Bank of Cleveland or of the Board of Governors of the Federal Reserve System.

Footnotes

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One obvious way to break the cycle is for the local economy to begin to grow. Public infrastructure investment provides the essential foundation to support economic development.

The Extent of the Problem

The Eagle Avenue ramp on the western edge of downtown Cleveland is typical of the problem of public infrastructure deterioration and its effect on urban development. This 58-year-old structure has received considerable attention in the last year. The only convenient major transportation link between two key areas of the city, the ramp was unsafe for several years and without considerable repair would have had to be closed. Closing the ramp would limit access to the surrounding industrial region, threatening to raise the cost of doing business in this area and to cause the possible flight of businesses.

We focus on the Eagle Avenue ramp not because it is unique, but because it is only one example of the thousandss of roads, bridges, and other public structures that share a similar condition. Comparable stories could be told about bridges and ramps in Pittsburgh, Chicago, or Detroit that need repair and that in various degrees impede economic activity.

This highlights a problem that plagues mature cities. At one time, public structures (such as highways, water treatment and distribution, sewers, or airports) is used just to maintain the...