

Infrastructure

Infrastructure, defined to include transport, telecommunication, electric power, water, and sanitation, is high on the agenda of both industrial and developing countries. In the United States, concern has been mounting about insufficient maintenance and the resulting decline in the quality of infrastructure facilities and services, especially in transport. Additional investments in infrastructure have also figured heavily in proposals to stimulate demand, employment, and economic growth. In developing countries, infrastructure's challenges relate more to increasing capacity to provide services to both existing urban residents and the two billion new urban residents projected to arrive by 2050. The Lincoln Institute's seventh annual land policy conference, held in early June 2012, addressed many aspects of infrastructure including investment, maintenance, and its externalities.



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Economic aspects. Empirical work carried out over the past 25 years on the macroeconomic returns to infrastructure investment have produced a wide range of outcomes—from negative returns to those above 30 percent annually. A careful survey of more recent studies indicates that infrastructure investment in transport, power, and telecom is likely to have positive macroeconomic effects and raise productivity.

At the same time, many countries allocate only modest sums to infrastructure maintenance, even though a broad consensus of opinion and empirical evidence indicate that the returns to maintenance—particularly transport—are very high. Inadequate maintenance may result from donor preferences to fund new capacity in developing countries, but maintenance shortfalls are also common in developed countries, suggesting that other institutional factors are likely to be important.

Networked infrastructure normally is subject to scale economies, and some networks are natural monopolies. Such infrastructure must be subject to economic regulation to prevent firms from engaging in monopoly pricing. While the need for regulation is most apparent when infrastructure is provided by private firms, regulatory oversight is often necessary when provision is by a public enterprise.

Spatial aspects. Infrastructure has a strong influence on spatial development patterns and can be used to direct

growth and—along with zoning and other incentives—to encourage more dense and compact development patterns. While only a few studies are available, however, empirical work indicates that the cost of redeveloping brownfield sites exceeds the cost of greenfield development including the costs of new infrastructure service.

The de-industrialization of cities has been going on for a long time, but recently some cities, such as San Jose, California, have stopped supporting the conversion of industrial or office space to residential or commercial use. They seek to maintain appropriate space for employment when economic growth returns so that they can compete for new firms and encourage local job creation.

Externalities. Metropolitan areas produce about three-quarters of global anthropogenic greenhouse gas emissions annually, with a large share coming from transport and electric power. The replacement of aging systems and installation of new capacity provide a major opportunity to switch to more energy- and emission-efficient systems in urban areas. System management also can be improved with congestion tolls, parking fees, and transit expansion; by ensuring that tariffs cover the costs of water and electric power; and by promoting green buildings.

Relocating households in the path of infrastructure expansion involves a large number of people displaced by new roads or the widening of existing roads, the location of new facilities such as power plants, and reservoirs that flood broad areas behind dams. Estimates indicate that between 10 and 23 million persons are resettled involuntarily in developing countries each year, and that the majority of relocations are related to infrastructure. Some of these involuntary resettlements meet the safeguard standards promulgated by the World Bank or other standards such as the Equator Principles, but most resettlement is subject to only national or provincial policies.

These topics and many others—including the impacts on infrastructure of mega-events such as the Olympics, the taxation of utilities, the locational effects of congestion tolls, the variation in quality of infrastructure services, and the remarkable impacts of mobile telephony in Africa—will be covered in the conference proceedings that will be available as a printed volume in May 2013 and later as an eBook. [L](#)