

PUBLIC PRODUCTION:
GOVERNMENT FAILURE VERSUS MARKET FAILURE

Statement of

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The Economic Questions

Every year federal and state governments attempt to promote economic growth by investing hundred of billions of dollars in the nation's physical capital stock—roads, airports, urban rail systems, and the like—and in the nation's human capital. Investments in the latter include education and R&D subsidies.

My testimony will focus on the following questions: What is the economic justification for public as opposed to private investment in these areas? Are these investments efficient? How can these investments be improved?

The Justification for Government Intervention

In theory, government intervention in economic life is justified to stabilize the macroeconomy, correct market failures such as monopoly and externalities, and to pursue social goals such as reducing poverty and ensuring fairness in the labor market.

How does public investment fit into these justifications? Generally, a private firm will provide a good or service if it can earn a normal profit. Market failure occurs when a socially desirable good or service—that is, a good or service whose social benefits exceed its social costs—is not provided because firms would find it unprofitable to do so. For example, when the nation was developing its road system, a private firm or firms may not have been able to raise sufficient capital (let alone repay the accumulated debt) to build a private interstate highway system. Similarly, a private urban rail system may not be able to attract sufficient ridership and charge sufficiently high fares to be profitable. In such cases, the government can increase economic welfare by financing socially desirable services like roads and public transit that would not be supplied by the private sector. Thus *public production* of these activities is correcting a market failure.

Another area of market failure occurs when firms' R&D creates positive spillovers to their actual or potential competitors. Innovative effort may therefore be suboptimal because knowledge can be transmitted from its creator to prospective competitors at low cost. The federal government has tried to spur innovation—and correct another potential source of market failure—by establishing the patent system and subsidizing firms through direct funding, tax credits, and competitions.

In contrast to the preceding forms of public investment, the justification for government intervention to promote human capital is not completely clear. For example, it could be argued that education subsidies may generate a positive externality by raising the skills of the nation's workforce or by correcting possible failures in capital markets (e.g., student loans). But it could also be argued that the subsidies seek to accomplish a social goal of providing a merit good—that is, goods or services that American society believes every citizen is entitled to regardless of whether he or she can afford them. A public education, social insurance, protection from criminals, and the like are considered to be merit goods.

In the remainder of my testimony, I will focus on production and financing of public infrastructure and public services because I have conducted research in this area. A summary of the effects of government efforts to spur innovation is contained in chapter 4 of my book, *Government Failure Versus Market Failure*, which can be freely downloaded from my website. Most scholarly assessments of education subsidies have primarily evaluated them on the grounds of whether they are achieving a social goal in an efficient manner rather than whether they are efficiently correcting a potential market failure. A common theme in the literature is that subsidies for college education often go to households whose children would go to college anyway without these subsidies.

An Assessment of Public Production

Before assessing public production, it would be desirable to determine whether private production is feasible and, if so, whether it would generate greater net benefits to society than public production. However, economists have generally not taken this approach.

Instead, economists have taken public production as given and explored whether the government's pricing, investment, and operating policies are maximizing economic efficiency. Generally, this is accomplished when the government sets efficient (cost-based) user charges for public facilities and finances investments up to the point where marginal benefits are equal to marginal costs. Of course, the public sector may not perfectly allocate resources in accordance with optimal pricing and investment but still improve upon the private sector's provision.

Theoretical guidelines are useful for suggesting public policies to correct market failures, but the effect of public production on economic welfare can be assessed only with empirical evidence. I will summarize empirical evidence on the efficacy of public production from studies noted in chapter 5 of *Government Failure Versus Market Failure*, which is appended to this testimony.

Simple descriptive measures indicate that the nation's public infrastructure and services are beset with economic problems including growing highway congestion and delays in major metropolitan areas, growing congestion and delays in air travel, and growing operating and capital deficits in public bus and rail transit. The summary findings I draw from the available scholarly evidence are:

Public financing and management of transportation infrastructure, public lands, and various services have been extremely inefficient and have strained the budgets of all levels of government.

Pricing and investment inefficiencies. The primary sources of the inefficiencies are prices that do not accurately reflect the cost of service and investments that waste resources.

Road Pricing: Highway expenditures are primarily financed by state and federal gasoline taxes. But the gas tax is highly inefficient because it hardly varies by time of day and by

stretch of road in a given metropolitan area. Thus it does not discourage cars and trucks from traveling during peak periods on major thoroughfares which contributes to congestion. In addition, the gas tax does not discourage heavy trucks from damaging the roads. Road damage is related to roughly the third power of a truck's weight per axle, indicating that for a given load trucks with more axles do *less* damage to the road than trucks with fewer axles. But the gas tax provides perverse economic incentives for truckers to reduce road damage because trucks that operate with more axles get lower fuel economy and pay higher gasoline taxes.

Road Investment: Roads eventually wear out unless they are repaved. Investments to keep roads durable trade off the costs of maintaining current pavement against the capital costs of building thicker pavement, which is less costly to maintain. Optimal investments minimize the sum of maintenance and capital costs. Generally, highway authorities have not minimized investment costs because they have built thinner pavements to reduce up-front capital costs. Road users are also affected by suboptimal road design because they must drive slower on roads in poor condition.

Airport Pricing: The principal cost that an aircraft incurs when it lands and takes off is the delay that it imposes on other aircraft. Current runway landing fees are based on an aircraft's weight subject to guidelines set by the Federal Aviation Administration. However, congestion at a given airport varies by time of day in accordance with the volume of aircraft traffic. Aircraft weight has little effect on congestion because a plane weighting to take off or land is delayed roughly the same amount of time by a jumbo jet as by a small private plane; thus, weight-based landing fees bear little relationship to airport congestion.

Airport Investment: New runways can substantially reduce air travel delays. But runway construction and expansion face formidable political and bureaucratic obstacles, as indicated by the five- to ten-year average delay to add runway capacity at major congested airports. Indeed, only three runways were built during the 1980s and six during the 1990s. Twelve runways have been built during this decade but some have been more than twenty years in the making.

Waterway Investment: Inland waterways are used by water freight carriers to transport bulk commodities and low-value bulk goods. The Bureau of Reclamation and the Army Corps of Engineers are responsible for building and rehabilitating the waterways. Among the inefficiencies that have been identified in public investment in waterways are that benefit-cost ratios of Army Corps' projects are consistently and unequivocally below one, the Corps' has adjusted cost-benefit calculations to justify projects, and concerns that there will be substantial cost overruns in the Corps' management of the Florida everglades project.

Public transit pricing: State and local governments are responsible for managing and providing most of the bus and rail transit in U.S. metropolitan areas. Transit operations and investments are funded by farebox revenues and federal, state, and local subsidies. Transit fares are significantly below the marginal cost of transit service and have failed to

keep up with rising operating and capital costs. The operating and capital subsidies that make up this shortfall currently exceed \$20 billion.

Public transit investment: Investments are made to expand bus routes and frequency and to build new urban rail systems and expand routes of existing systems. The investments appear to be excessive because transit use is low. Rail fills only 18 percent of its seats with paying passengers throughout the day, and transit buses fill only 14 percent (loads are somewhat higher during the morning and evening rush hour). The desirability of building new urban rail systems seems questionable because the benefits generated by almost all systems—including benefits to users and the reduction in road congestion—are exceeded by the required subsidies to close deficits. Rail transit has been unable to attract sufficient patronage to reduce its high average costs—a problem that has been complicated enormously by new patterns of urban development with geographically dispersed residences and jobs.

Amtrak Service: The National Railroad Passenger Corporation (popularly known as Amtrak) provides intercity passenger rail transportation. Formed in 1970 because private railroads no longer wanted to provide this service, Amtrak was expected to be self-sufficient within a few years of its inception and to operate without subsidies. But it has continued to rely on subsidies to provide service. Recently, subsidies have made up 20-30 percent of its revenues. The subsidies would be justified if they were exceeded by Amtrak's social benefits. But it appears that with the exception of the Northeast corridor, Amtrak is not socially desirable in many parts of the country.

US Postal Service Pricing: The United States Postal Service is the nation's largest public enterprise. The postal system was intended to be financially self-sufficient, but its recent annual losses amount to more than \$1 billion. Prices for first-class mail—which is falling as people substitute to Internet-based communications—are above marginal costs and are used to partly subsidize prices for second-, third-, and fourth-class mail, which are below marginal costs. The postal service also uses outdated, labor-intensive technologies that not only inflate costs but result in slower mail delivery times than optimal.

Summary. The costs of inefficient pricing and investment policies for public infrastructure and services continue to grow with current estimates exceeding \$100 billion annually. In fact, these costs understate the full costs of inefficient public production because they do not include X-inefficiencies—that is, the inflated costs of providing services in the public sector. A classic example is the Davis-Bacon Act, which requires that private contractors who undertake various road projects must be paid union wages that are applicable to the jurisdiction where the work takes place. It has been estimated that such inflated wages cost the federal government at least \$1.5 billion annually. The inefficiencies in public production are reflected in slower productivity growth. For example, it has been estimated that the annual returns from highway investments have fallen from 17 percent during the 1970s to less than 5 percent during the 1980s and 1990s.

Policy Recommendations

Common explanations for the inefficiencies of public production focus on the political pressure exerted by interest groups who benefit from the current state of affairs and the inflexibility and limited vision of federal agencies. To be sure, the federal government has recently indicated its support for public private partnerships and its interest in congestion pricing experiments that could lead to improvements in efficiency.

However, my view is that more significant institutional change in the form of privatizing public facilities and services will be necessary to dramatically improve efficiency and spur growth. Increasing concerns about the waste associated with public financing of vital social services is motivating interest in whether the private sector could do a better job than the public sector is currently doing to finance and offer these services. In theory, privatization would enable private firms to operate in a competitive environment without bureaucratic controls and political pressures. Private firms would have a financial incentive to reduce existing inefficiencies, introduce innovative services, and respond to users' preferences.

Of course, empirical evidence is necessary to strengthen the case that privatization would lead to improvements in social welfare over public provision. Accordingly, I believe it is essential to obtain hard evidence from experiments about privatization's likely economic effects. Hopefully, members of Congress will be persuaded of the importance of such experiments and we can begin the task of carefully designing selected experiments to learn whether, in fact, privatization can overcome the inefficiencies of public production, which are increasingly becoming a drag on the nation's economic growth.