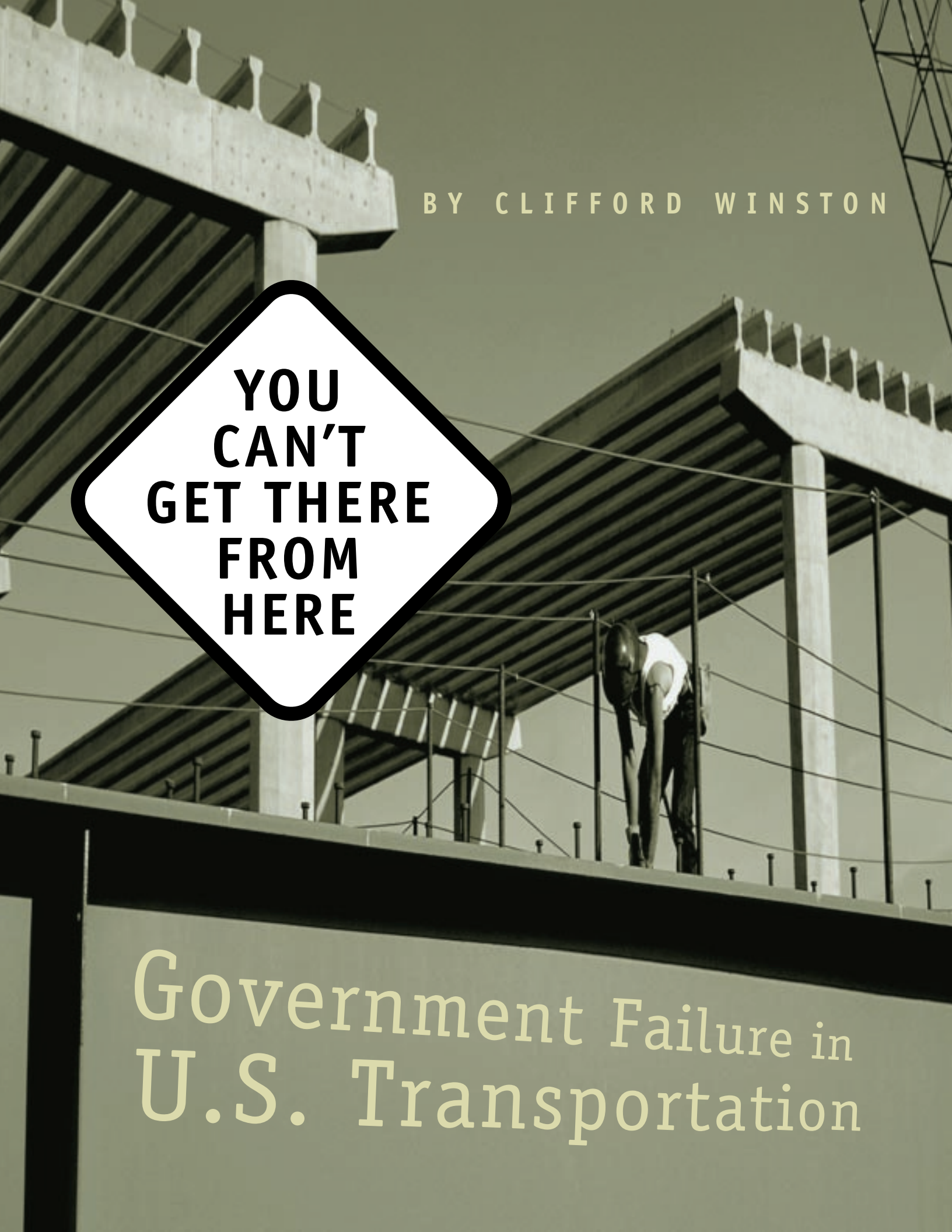
BY CLIFFORD WINSTON
YOU CAN'T GET THERE FROM HERE
Government Failure in U.S. Transportation

Getting goods and people to their destinations accounts for an enormous share of U.S. economic activity. In 1996, Americans spent roughly $600 billion commuting to work, traveling for pleasure, and buying and operating vehicles. Firms spent more than $500 billion shipping products to distribution centers and retail outlets, sending their employees to meet with customers and suppliers, and buying and operating vehicles. Local, state, and federal government spending on transportation infrastructure and services upped the total to $1.3 trillion or roughly 17 percent of GDP.

Transportation also absorbed users' time—a valuable commodity excluded from GDP. In 1996, travelers spent roughly 120 billion hours in transit, and surface and air freight absorbed 3.4 billion hours. If travelers value time at half their hourly wage—a common assumption among economists for urban commuters—and if shippers attach a cost of, say, 7 percent of their shipments' value for each additional day spent in transit, then transportation accounts for another $1.2 trillion in economic activity.

Transportation is also an important means for government to exert its influence on the economy. Washington, in cooperation with foreign governments, effectively regulates international air and ocean transport. State and local governments regulate taxis in most U.S. cities. Local governments, with state and federal financial support, are quasi-monopoly providers of urban bus and rail transit. A federal government corporation (Amtrak) is a monopoly provider of intercity passenger rail transport. Most U.S. roads, bridges, airports, and ports are owned and operated by federal, state, or local governments. All modes of transportation are subject to governmental safety, pollution, and noise regulations. Research and development of new transportation and infrastructure technologies is largely supported by the government. Virtually the only exception to this rule of government involvement is intercity rail freight, truck, and air transport, large parts of which were deregulated by Washington in the late 1970s and early 1980s. And even there, Congress and the Department of Transportation sometimes cannot seem to leave well enough alone.

Policymakers who view the huge transportation market as subject to a variety of serious market failures—economies of scale, negative spillovers such as congestion and pollution, and imperfect information—believe such extensive government intervention is necessary to correct those failures. But others, myself included, believe the potential market failures are exaggerated and that the government has done more harm than good.

In my view, the preponderance of scholarly evidence developed in transportation economics over the past several decades leaves no question that the government should greatly reduce its role in all aspects of transportation. By repeatedly failing to enact efficient policies to correct market failures and by rigidly pursuing policies that have undermined the efficiency of every transportation mode and the welfare of most users—especially those with the lowest incomes—policymakers have assured that pervasive government failures are compromising the performance of the U.S. transportation sector far more than market failures.

This is not to say that getting the government out of transportation will be easy and that the private sector will perform flawlessly in the transportation market once government involvement is curtailed. But by ridding the transportation sector of most observable government failures and by allowing innovation and state-of-the-art technology to flourish free of government interference, the private sector can vastly improve transportation and thereby advance our standard of living. The only real uncertainty is how long policymakers will resist change.

Evidence of Government Failure: The Deregulation Experiment

Scholarly journals, as well as newspapers and magazines, are replete with assessments of and opinions about the effect of government policy on transportation. The popular media often report sharp disagreements—disagreements that turn out largely to reflect the views of interest groups and ideologues. The scholarly assessments, by contrast, have reached a consensus. Without pretending to be exhaustive, I

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FOR THE MOST PART, DEREGULATION HAS WORKED THE SAME WAY IN EACH INDUSTRY—AND EVEN BETTER THAN EXPECTED.

will distill the scholarly evidence in what follows. Readers wishing a more comprehensive discussion are encouraged to consult the research cited.

Perhaps the earliest empirical evidence of government failure came in scholarly analysis of the economic effects of government regulation of rail freight, trucking, and airlines. This evidence was crystallized by assessments of rail freight, truck, and air deregulation that showed significant improvement in transportation efficiency when tasks once performed by the government were handed over to the market.

Regulatory Policy toward Intercity Carriers

According to the conventional argument that has prevailed for much of this century, economic regulation of railroads and airlines was supposed to benefit society because both modes were alleged to be natural monopolies (an unusual situation in which social costs are minimized when one carrier serves the market). Price regulation would protect consumers from monopoly abuses, and entry and exit regulation—rules governing when a carrier could serve or leave a market—would assure efficient and dependable service. Trucks were never considered natural monopolies, but at the railroads' insistence their operations were brought under the regulatory umbrella.

Although the Interstate Commerce Commission began regulating railroads in 1887 and trucks in 1935 and the Civil Aeronautics Board began regulating airlines in 1938, it was not until the late 1950s and 1960s that scholarly studies began to reveal that regulation was harming consumers. For example, in a 1965 *Yale Law Journal* article, Michael Levine found that flights from Boston to Washington cost considerably more than flights—of roughly the same distance—from San Francisco to Los Angeles. The explanation was that fares on the interstate Boston to Washington route were regulated by the CAB while fares on the intrastate San Francisco to Los Angeles route, overseen by the California Public Utilities Commission, were determined primarily by market forces. Other researchers found that truck rates for farm goods exempt from ICC regulation were lower (on a ton-mile basis) than rates for goods subject to ICC regulations. Perhaps the crowning blow was a 1966 article by George

Hilton in the *Journal of Law and Economics*, which flatly concluded that even railroad regulation was an inappropriate response to the conditions in the late 1880s that brought it forth.

Timing, of course, is everything. When the broad scholarly consensus on the desirability of deregulation was reached during the inflation-plagued 1970s, politicians were already on the lookout for ways to fight inflation. They were happy to be handed clear evidence of how trucking and airline deregulation would simultaneously do that and benefit their constituents. Political scientists Martha Derthick and Paul Quirk argue in a 1985 Brookings book, *The Politics of Deregulation*, that deregulation would never have occurred if economists had not generally supported it through research and participated actively in policy debates.

Railroads, unlike trucking and airlines, were deregulated to keep the industry alive and in the private sector. By the 1970s, several major bankruptcies had already forced the government to take over part of the railroad industry by creating Conrail, and some policymakers feared that the entire industry would have to be nationalized. The 1973 report to the Council of Economic Advisers by the Task Force on Railroad Productivity, chaired by John R. Meyer, showed that regulation was inhibiting rail profitability and that the industry needed much greater pricing and operating freedom to avoid more bankruptcies. That the railroad industry, unlike the airline and trucking industries, supported deregulation also made it politically attractive.

Experience with Deregulation

Full deregulation did not happen overnight in any sector. Cautious regulatory agencies tried a variety of experiments and partial deregulatory actions, including CAB liberalization of airline entry and discount fare experiments during the mid-1970s and ICC liberalization of trucking and railroad rates (and railroad contracting with shippers) during the late 1970s. Congress followed with the Airline Deregulation Act of 1978, the Motor Carrier Reform Act of 1980, and the Staggers Rail Act of 1980. Airline fares, entry, and exit were completely deregulated by 1983; trucking entry and interstate rates were, in practice, completely deregulated in 1980 (intrastate rates in 1994); railroads and shippers were free to set contracts in 1980.

Now, some 20 years later, the results of the deregulation experiments are in. For the most part, deregulation has worked the same way in each industry—and even better than expected. (For a comprehensive summary, see my chapter with Steven A. Morrison in a new Brookings book, *Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer*.) Eliminating entry barriers stimulated competition from both incumbent firms and new entrants. Intensified competition spurred innovations in marketing, operations, technology, and governance that enabled firms to become more efficient, improve their service quality, introduce new services, and become more responsive to consumers' preferences. The railroad industry got back on its feet, becoming much more profitable than it had been under regulation. But in the end, consumers gained the most.

Air travelers, enjoying a 33 percent decline in real average fares, as well as greater service frequency, have reaped annual net benefits of nearly $20 billion (1996 dollars). Truck and rail shippers' annual benefits—primarily a 35–75 percent decline in real average rates and faster and more reliable service—amount to nearly $30 billion. And these benefits have been achieved with continued improvements in safety.

Who lost from deregulation? Labor's experience was mixed. Truck drivers' wages fell, but rail and airline workers' wages held firm on average. Rail employment fell, but airline and trucking employment rose. For the most part, labor opposed deregulation—rightly for its own interest—but its losses are at most a small fraction of consumers' gains. As noted, rail profits increased and airline profits, though volatile, on average also rose, while truckers' profits declined. Probably the most vocal critics of deregulation are the minority of travelers and shippers who, often temporarily and for idiosyncratic reasons, face very high prices and receive poor service. To be sure, long-distance air travelers on busy routes have benefited more than short-distance travelers on less-traveled routes, and large rail and truck shippers have gained more than their small counterparts. But the unequal distribution of benefits generally has had a rational basis. For example, roughly 90 percent of the difference between the gains of air travelers on busy routes and those on less-traveled routes is attributable to the higher costs of serving the latter routes, where smaller planes have a higher cost per seat-mile and fly with a smaller share of their seats filled.

The central point here is what deregulation's accomplishments teach us about government failure in transportation. Deregulation succeeded because firms were allowed and encouraged to respond to market forces by becoming more efficient and innovative. The intensity of competition unleashed among incumbent carriers and new entrants in each industry was unexpected. Other surprises included airlines' accelerated development of hub-and-spoke route structures to increase flight frequency; railroads' use of combined train-truck systems and double stack trains to improve service; and truckers' development of high-service megacarriers that even attracted business from shippers accustomed to providing their own trucking service. The problem in intercity transportation was not market failure but government failure. By suppressing competition, regulation had suppressed innovation and hurt consumers in ways that could be fully revealed only by deregulation.

More Evidence of Government Failure

Scholars have also developed evidence of government failure in regulating international transportation and taxis, providing urban transit and intercity rail passenger transportation, managing roads and airports, addressing transportation spillovers, and investing in transportation R&D. Although this evidence argues for additional deregulation or privatization that would enable the

SAY WHAT?

Transportation regulatory policy has baffled economists by consistently undermining the very public interest it was supposed to promote. One of the best examples of regulatory failure is its suppression of innovation in the railroad industry. As described by Robert Gallamore in his chapter in *Essays in Transportation Economics and Policy*, during the early 1960s railroads were exploring ways to develop more specialized freight cars to lower operating expenses. To exploit the innovation, a railroad might need to induce volume by lowering rates for the intended traffic. But when Southern Railway tried to use incentive pricing to introduce "Big John" aluminum grain cars, the Interstate Commerce Commission disallowed the rate for violating minimum rate regulations—thus protecting barge operators and other railroads while delaying innovation in an industry that sorely needed it.

Even a deregulated industry is not safe from regulation's pernicious effects. The Department of Transportation, for example, claims to want more competition in the deregulated airline industry, but the cumulative actions of its own agency, the Federal Aviation Administration, are restricting competition. FAA perimeter rules prohibit long-distance flights to or from Washington's Reagan National and New York's La Guardia airports. Slot controls limit the number of takeoffs and landings per hour at La Guardia, National, Kennedy, and Chicago O'Hare. The FAA's inefficient and outdated technology prevents carriers from expanding their operations because it constrains airport and air space capacity. And by suspending ValuJet after initially defending it in the wake of a 1996 crash in the Florida Everglades, the FAA appeased the media but set back the reputation of all start-up carriers. With allies like that, who needs enemies?

private sector to improve transportation efficiency, policymakers have largely resisted change that would fully expose their failures in these areas.

International Transportation

Washington intervened in international air travel and ocean shipping several decades ago, not because of market failure but because of international disputes. The result, however, has been the same: government failure.

Today bilateral government treaties control air service between the United States and a foreign country. In most cases, these treaties restrict carriers' freedom to set fares and service frequency. Fares are roughly 30 percent higher than they would be in a deregulated market—even higher in more heavily regulated Asian-U.S. markets—and service frequency has been curtailed. Federal regulations also prevent foreign carriers from serving U.S. domestic routes. Although some U.S. officials advocate so-called Open Skies agreements that let market forces determine international fares and service, few support opening the domestic market to foreign carriers. Government negotiators are sensitive to U.S. carriers' complaints that foreign carriers are subsidized by their home governments and that the huge U.S. market offers foreign carriers more potential passengers than foreign markets offer U.S. carriers.

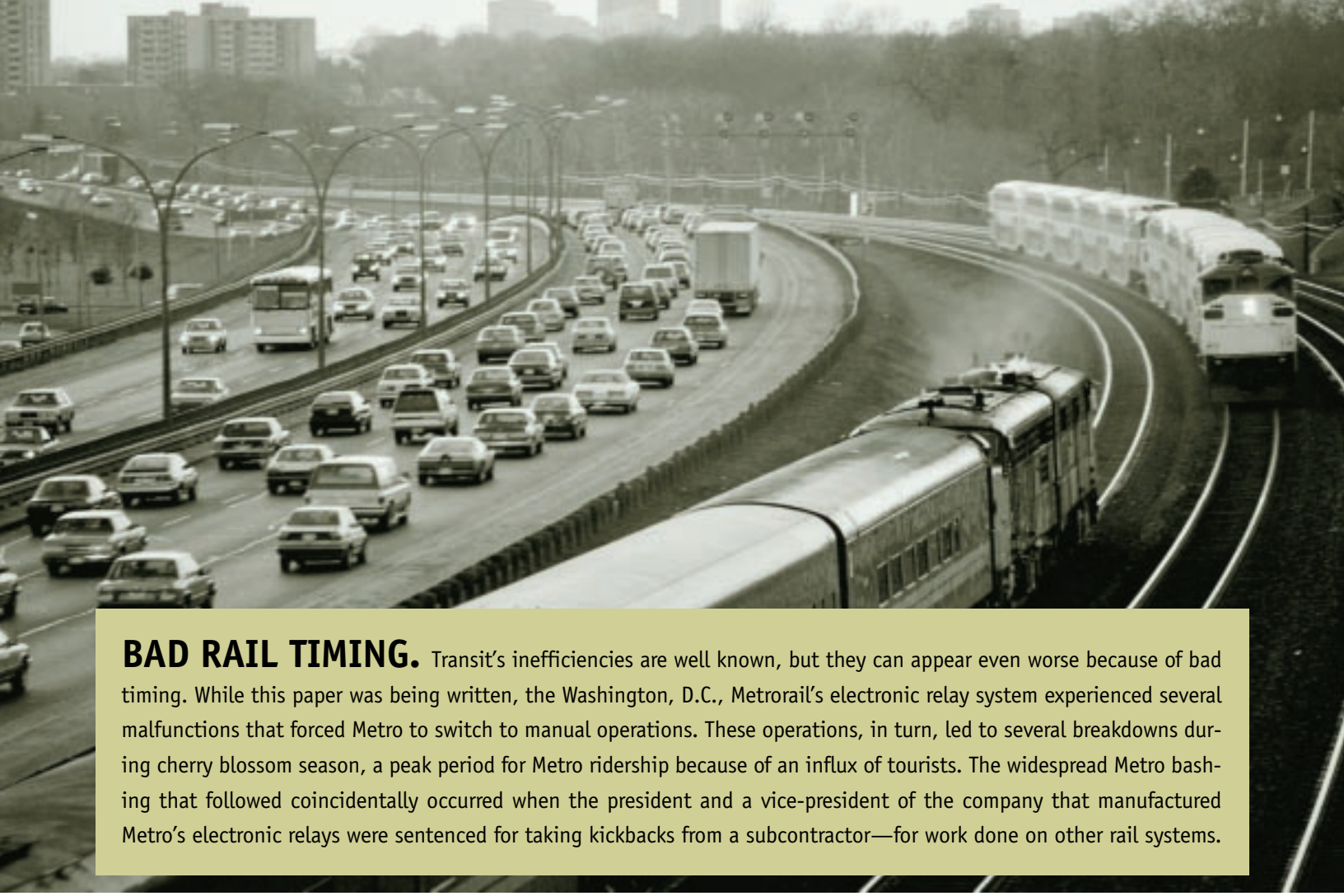
Unable to serve more markets abroad, U.S. air carriers have increased their presence there by entering into marketing alliances with and buying partial ownership of foreign carriers. U.S. carriers whose foreign partners have signed Open Skies agreements acquire antitrust immunity, which, of course, undercuts the competition encouraged by Open Skies.

American consumers would benefit if carriers focused solely on improving the quality and efficiency of their international operations. But the remaining regulatory regime encourages carriers to engage in repeated games with the government to maximize access to foreign routes while fending off competition.

In ocean shipping, rates and capacity are jointly determined by carriers themselves in government-sanctioned cartels, called "conferences." (A few smaller independent carriers choose to set rates outside the conference proceedings but must file them with the Federal Maritime Commission.) Rates are more than 20 percent higher than they would be in a competitive market, and service has been temporarily halted to some U.S. ports. As in international air transport, U.S. carriers have used the regulatory arena to seek protection from competitors while expanding their markets through global alliances. Government restricts operations in other ways, too. U.S. ocean carriers face curtailed competition from international air cargo because the latter is governed by bilateral treaties. And the 1920 Jones Act requires domestic shippers of waterborne freight to use U.S. carriers. Even in the post-NAFTA era, Canadian and Mexican carriers cannot move freight between U.S. ports.

Taxis

Closer to home, taxi fares and entry are subject to regulation by state or local governments in most urban areas. It appears that taxis were originally brought under regulation in major cities during the Depression simply to limit the number of licensed operators and ensure minimum profitability. But taxis are not natural monopolies, so, as in the case for trucks, regulation has primarily protected them from competition rather than benefiting consumers. For example, taxis often use the regulatory process to keep vans and limousines from serving airports. Deregulating taxis is not without controversy, however. Roughly 20 U.S. cities have tried it; some have seen fares fall and service improve; others have seen the opposite. Taxi deregulation is most likely to succeed as part of a broader strategy to stimulate competition in all modes of urban transport. Unfortunately, taxi's main competitor, urban transit, is provided by government.



BAD RAIL TIMING. Transit's inefficiencies are well known, but they can appear even worse because of bad timing. While this paper was being written, the Washington, D.C., Metrorail's electronic relay system experienced several malfunctions that forced Metro to switch to manual operations. These operations, in turn, led to several breakdowns during cherry blossom season, a peak period for Metro ridership because of an influx of tourists. The widespread Metro bashing that followed coincidentally occurred when the president and a vice-president of the company that manufactured Metro's electronic relays were sentenced for taking kickbacks from a subcontractor—for work done on other rail systems.

Urban Transit

Fifty years ago most urban transit was privately provided. During the early 1960s, with the financial condition of private transit companies deteriorating badly and with big city mayors arguing that subsidizing urban transit would be more cost-effective than building highways, Congress agreed to help cities buy their transit companies. Federal operating subsidies followed in the 1970s. Today, most operating assistance comes from state and local governments while Washington shoulders most capital investment.

But despite huge federal, state, and local subsidies, transit's share of all trips in large urban areas has fallen from more than 20 percent in 1960 to less than 10 percent today. And transit's high share of empty seats attests to its inefficient operations. In the mid-1990s rail filled roughly 18 percent of its seats with paying customers, buses roughly 14 percent.

Transit deficits are a serious drain on the public purse. By 1995, the U.S. public transit operating deficit approached $9 billion annually. Continuing capital investments swelled this deficit further. And here, as everywhere in transportation, government involvement portends better things for special interests than for travelers. It has been estimated that as much as 75 percent of federal spending on mass transit goes to transit workers (as above-market wages) or to suppliers of transit capital equipment (as profits and interest). Just 25 percent goes to improve service and reduce fares. Deficits can be economically justified if they are less than the benefits provided by the subsidized service. But in our 1998 Brookings book, *Alternate Route: Toward Efficient Urban Transportation*, Chad Shirley and I found that the benefits provided by bus to urban travelers in the United States were well below its subsidies and that the benefits provided by rail just equaled its subsidies.

One reason for the public transit deficits is that policymakers set fares far below the cost of service. Shirley and I showed that an efficient policy—charging travelers for the cost of their trips and sharply curtailing service to the point where the added benefits equaled the added costs—would eliminate these deficits and enable transit operations to produce positive social benefits.

A second reason for the deficits is that public bus and rail companies fail to keep down costs. The large share of empty bus and subway seats is one indicator that costs are too high. Others are excessive wages (the typical Washington, D.C., Metrobus driver, for example, gets paid twice as much as drivers for the handful of private bus companies in the D.C. area) and declining productivity. According to Charles Lave, in a 1991 paper in *Transportation Planning and Technology*, transit productivity has fallen 40 percent since the public takeovers in the mid-1960s.

When intercity deregulation revived air, rail, and truck competition, carriers adjusted operations and developed new services to respond to customer prefer-

ences. But transit companies, not particularly concerned about competition, appear heedless to travelers' preferences. Their high share of empty seats reflects not only operating inefficiencies but also insufficient demand for current service even at subsidized prices. Bus and rail operations have generally failed to respond to socioeconomic and demographic changes that offer more ridership. They have not, for example, expanded service from inner cities to suburban areas where job opportunities are growing. And they have been painfully slow to introduce new technologies, such as real-time, demand-responsive services, or minibus operations that could benefit travelers.

It might be possible to overlook all these inefficiencies if the value of transit's service to the elderly and poor exceeded their financial contribution to transit. But it probably doesn't. According to recent evidence, the mobility of the elderly depends little on public transit. And not only has public transit failed to connect lower-income inner-city residents with new jobs in the suburbs, the new routes it has created mainly serve well-heeled commuting professionals heading toward the central business district—and are financed by taxes that fall disproportionately on the poor. With the average annual household income of bus commuters approaching $40,000 and that of rail commuters approaching $50,000, the poor are hardly transit's primary beneficiaries. Indeed, urban transit's financing and service inequities are probably one of government's least recognized failures.

Intercity Passenger Rail

Spurred by the 1970 bankruptcy of Penn Central, Congress created the National Railroad Passenger Corporation as a for-profit, quasi-public enterprise to provide intercity rail passenger service. Amtrak, as the corporation has come to be known, has always relied on federal subsidies to defray operating and capital expenses. In a 1990 article in the *Journal of Law and Economics*, Steven A. Morrison found that Amtrak's value to travelers falls short of its subsidies on almost all routes except those in the well-traveled Northeast corridor.

Unlike deregulated rail freight carriers, which improved efficiency by abandoning unprofitable routes, Amtrak rarely abandons even socially undesirable ones. Amtrak is hoping to spur rail travel by investing in faster trains, not only in the Northeast corridor but nationwide, but its low ridership in most parts of the country makes large social returns on these investments unlikely.

Infrastructure Mismanagement

At an estimated value of roughly a trillion dollars, transportation infrastructure is America's largest civilian public investment. Federal, state, and local governments share responsibility for financing, building, and maintaining the nation's roads, bridges, airports, and ports. Their huge investment has been a boon to travelers and shippers, but waste and deteriorating quality are today evident everywhere.

The heart of the problem, as with public transit, is a mismatch between prices and costs. The costs of road use include congestion, which is caused by all types of vehicles, and road damage and bridge wear, which are caused by trucks only. The gasoline tax is used as a rough charge for all those costs but in fact bears little relationship to them. Costs could be covered much more effectively by charging users for the particular costs they incur. Congestion costs, for example, depend on the time of day motorists travel and the roads they use. Thus, motorists should pay a congestion toll—assessed electronically to avoid long lines—based on the cost of the delay they impose on others. Road damage depends on a truck's weight per axle (the more axles a truck has for a given load, the less pavement damage) and should be covered by a user charge per mile based on axle weight. Bridge wear, which depends solely on vehicle weight, should be covered by a user charge based on weight.

The same disjunction between prices and costs affects airports and ports. Airport landing fees are based on an aircraft's weight: a commercial jumbo jet pays considerably more to land during a given hour than a small private plane. But the principal cost of an aircraft takeoff or landing is the delay it causes other aircraft, which depends on the time of day it happens and on the airport's capacity. (Generally, the delay from a takeoff or landing by a small private plane is roughly the same as that from a takeoff or landing by a commercial jet.) All aircraft should pay an efficient takeoff and landing congestion toll based on the cost of the delay they impose on other aircraft. In the case of ports, user fees are generally held below the costs of servicing a vessel to encourage greater port use. With less than 40 percent of their total financing coming from revenues, ports require large government subsidies, which could be cut substantially by cost-based charges.

Besides being mispriced, roads, airports, and ports have been incorrectly built. Road pavements, recent research has discovered, are too thin. Thicker pavement would hold up better under heavy truck use and require far less maintenance. And airports have been underbuilt. Optimal investment calls for many more runways at congested airports or, when this is not feasible, the use of capacity-enhancing technology, such as ground-positioning satellites, to help controllers manage traffic flow more effectively. Port facilities, by contrast, generally suffer from excess capacity, and much port capital is outdated.

Replacing current pricing of and investment in roads, airports, and ports with optimal pricing and investment would speed motorists' and air travelers' trips, lower highway maintenance costs and aircraft operating costs, and eliminate port subsidies. Total annual benefits would approach $30 billion (for details see my 1991 article in the *Journal of Economic Perspectives*).

Government management of new infrastructure investments is also a problem. Although private managers are free to choose the contractor with the best combination of quality and cost, public agencies must choose the lowest-cost bidder. To prevent contractors from substituting inferior materials and construction techniques, public agencies write

minutely detailed specifications, thus encouraging contractors to adhere to the letter of the contract rather than to seek higher-quality, efficient alternatives. And because the government cannot always keep up with the latest technologies, some infrastructure investments need upgrading almost as soon as they are complete. Legislatures tend to encourage inefficiency by ignoring cost-benefit analysis when authorizing spending. When they do use such analysis, they often overestimate future demand and underestimate costs. Federal legislators load transportation bills with demonstration or pork barrel projects to ensure passage (the 1998 Transportation Equity Act for the 21st Century is larded with some $9 billion of pork). State and city officials tend to prefer investments that entail a large federal contribution over those that could yield greater social benefits. In fact, the highway laws of several states direct officials to select projects to maximize the use of federal funds.

In short, government's failure to make the most efficient use of its transportation infrastructure investment and to get the highest return from additions to it has substantially elevated the nation's transportation bill.

Transportation Spillovers

One form of market failure addressed by government is socially costly spillovers such as congestion, noise, pollution, and accidents. How well has government handled these problems?

Let's start with congestion. Though government has (sometimes feverishly) built new roads (which almost immediately fill up with cars) and overspent on mass transit partly to lure people from their cars, it has not implemented *efficient* policies (such as tolls) to reduce congestion. Left to their own devices, urban commuters have avoided congestion by living closer to work, using (heavily subsidized) public transit, commuting during off-peak travel periods, and so on.

The federal government *has* addressed noise, pollution, and safety, but often without considering how the market responds to such transportation spillovers and how to maximize social benefits. For example, aircraft noise standards set by the Federal Aviation Administration have done more economic harm than good. In a forthcoming *Journal of Law and Economics* paper, Steven A. Morrison, Tara Watson, and I show that the noise standards, which forced airlines to replace planes prematurely, generated far more costs to airlines and travelers than benefits to homeowners. But even an optimal noise policy—one that relies on noise taxes or surcharges to encourage airlines to find their own ways to lower noise levels—would produce very small benefits, in part because the cost to airlines of lowering noise is still greater than the benefit to those homeowners who have a high enough tolerance for noise to be willing to live closer to a flight path.

Pollution is one area where govern-

ment regulation has produced benefits, but even there, government could have done better. Instead of saddling auto manufacturers and oil companies with costly technology and product mandates, government could have achieved comparable results at less cost with a pollution tax that encouraged people both to drive less and to buy cars that emit less pollution.

Corporate Average Fuel Economy standards were originally set by Washington during the early 1970s to increase the fuel economy of new cars and potentially reduce pollution. In a 1992 article in the *Journal of Economic Perspectives*, Robert Crandall concluded that the standards often failed to improve on the market's ability to induce consumers to purchase fuel efficient cars. They also produced negative net benefits because they raised vehicle prices and created unintended costs—smaller, less safe cars that were driven more.

Buses and electric vehicles have also been touted as ways to reduce auto emissions. But buses, as Chad Shirley and I showed in *Alternate Route*, have done little to improve urban air quality because of their low ridership and their diesel particulate emissions, which are more harmful than auto emissions. And electric vehicles, as noted by Robert Leone in his chapter in *Essays in Transportation Economics and Policy*, fail a social cost-benefit test because current technology is costly and has little impact on the environment. The vehicles themselves may have no harmful emissions, but the power plants that generate their electricity do, and discarded electric vehicle batteries may also damage the environment.

How about transportation safety? Ian Savage concludes, in his chapter in *Essays in Transportation Economics and Policy*, that the transportation product market may, in theory, fall short on safety. But has government policy helped address the problem?

Automobiles' earliest safety features—headlights, brakelights, emergency brakes, windshields, and headlight dimmers—were introduced by automakers without any government pressure. Over the years autos have become increasingly safe because of improved visibility, handling, brakes, reliability, and body structures. Automakers have needed to be convinced that their (often substantial) investments in vehicle safety will be recouped—that consumers value and are thus willing to pay for them. But once convinced, they have made one type of safety investment after another.

Government, however, has felt that it could improve on the market's provision of automobile safety. In the late 1960s, the National Highway and Traffic Safety Administration required cars to be equipped with seat belts, an energy-absorbing steering column, penetration-resistant windshield, padded instrument panel, and dual braking systems, even though market acceptance of these safety items, with the possible exception of seat belts, had been negligible. In a classic 1975 paper in the *Journal of Political Economy*, Sam Peltzman found that the regulations' benefit to vehicle occupants had been completely offset by drivers taking more risks that increased pedestrian deaths and nonfatal accidents. Although subsequent research has debated Peltzman's finding, few analysts question the existence of some offset. Nor have researchers been able to show that the market would not have introduced these safety features once motorists were willing to pay for them.

In a 1995 article in the *Journal of Law and Economics*, Fred Mannering and I concluded that automakers began widely offering air bags not because of government action, but because consumers were finally willing to pay for their (less costly) installation and more reliable deployment. Supporters of government regulation of auto safety often argue that consumers have insufficient information about the benefits of safety devices. But Mannering and I found that consumers followed information about experiences with air bags (most spectacularly, the head-on collision near Culpeper, Virginia, of two air bag–equipped Chryslers whose drivers walked away unhurt) as it spread through the media and friends and were therefore increasingly willing to pay for air bags. Once the market accepted air bags, however, government intervened to set a deployment standard for all air bags, thus delaying improvements in technology.

Although the public has expressed concern that deregulation of airlines, railroads, and trucks might cause carriers to sacrifice safety for short-term profits, intercity carriers have in fact become much safer over the past few decades. Government's role in promoting that safety, however, is debatable. The National Civil Aviation Review Commission, for example, has called for the airline industry to increase self-regulation instead of relying so heavily on federal enforcement and safety rules. The railroad industry maintains that government regulations have had little to do with its improved safety record. And police crackdowns on truckers' driving violations have been much more effective than any safety regulations.

Research and Development

Research and development may be prohibitively expensive, and its benefits insufficient, for the private sector to carry out. Government involvement here is justified on the grounds that the benefits of the R&D investment it undertakes—because the private sector cannot or will not—spill over into large parts of the economy.

But the history of government R&D in transportation is not encouraging. During the 1960s, Washington spent nearly a billion dollars to jump-start development of a supersonic commercial airplane. When the project began, the aircraft industry was expected to bear 25 percent of the costs; in fact its share was only 10 percent. Facing mounting technical problems, rising costs, and opposition by environmentalists and local airport authorities, the federal government eventually abandoned the program. Left on its own, the private sector went on to invest successfully in new fleets of efficient wide-bodied and short-haul jets, but not in supersonic planes.

Now Washington has made $1 billion available to promote development of high-speed ground transport, including standard rail retrofitted for higher speeds, new high-speed rail, and magnetic levitation (Maglev) transport. States are also getting into the act. California, Texas, and Florida, among others, are considering high-speed rail lines to link their major cities. A congressionally mandated cost-benefit study, however, found that the net benefits from federal support of high-speed ground transportation were negative. And with construction costs of some $30 billion, the proposed bullet train between San Diego and northern California would also be hard pressed to generate positive net benefits. Whether the public would be willing to underwrite these projects is highly uncertain.

Washington has also spent more than $500 million—and has committed another $1.3 billion over the next five years—to develop an intelligent transportation system that uses sophisticated information technology to navigate and even operate vehicles, thus improving both automobile safety and congestion. Conservative estimates are that fully developing a national system could ultimately cost the government more than $100 billion. Without compelling and persuasive benefit estimates, it is hard to justify this sort of megaspending when there are far less costly ways to improve safety and reduce congestion.

Causes of Government Failure

Many social scientists, including some Nobel Prize winners, have developed general theories of government to explain why certain policies are implemented and others are not. Without drawing completely on any one theory, the simplest answer to why government repeatedly pursues inefficient transportation policies is that policymakers—appropriately—respond more to political forces than to market forces. Transportation policy has thus become a giant grab bag whose benefits are available to various vested interests—some just get more than others—at the expense of a more efficient transportation system that could save the public at large billions of dollars. And the costs of government failures have soared because the grab bag continues to grow.

To be sure, intercity transportation deregulation prevailed over the objections of the trucking and airline industries and of transportation labor. (Policymakers also tinkered with deregulation—unnecessarily, as it turned out—to appease air travelers from small communities, who feared they would lose service, and rail shippers who might be captive to one railroad and face exorbitant rates.) But intercity deregulation is a rare case where a more efficient transportation policy overcame the resistance of entrenched interests.

The rest of the transportation system continues to channel the public's money to vested interests. Remaining regulatory regimes raise the profits of airlines, ocean carriers, ship builders, and taxi owners; urban transit policy rewards transit managers and labor as well as suppliers of capital while subsidizing transit patrons; infrastructure policy subsidizes truckers, aviators, motorists, and mariners; and government R&D spending benefits consultants, engineering companies, and so on. Social regulations confer benefits on and exact costs from particular groups in disproportionate measure. Noise regulation benefits homeowners but taxes air travelers and airlines excessively; emissions and safety regulations (partly) mollify environmentalists and safety advocates and benefit some of the public but cost automakers and motorists more than necessary.

Can the government shift its habitual focus from nurturing these political interests to improving transportation policy? In a 1998 *Journal of Economic Perspectives* article Joseph Stiglitz asserted that his effort, as chairman of the Council of Economic Advisers, to institute congestion pricing at airports failed because general aviation (owners of corporate jets and small planes) lobbied against reform and because the government was unable to make a credible commitment to compensate them for the higher landing fees they would have to pay. Perhaps. But I would argue that the government *could* credibly commit to building reliever airports to accommodate general aviation without sharply raising their landing fees. The real stumbling block is that the flying public's appreciation of efficient takeoff and landing fees would be mild at best.

Policymakers are capable of designing mechanisms to compensate subsidized interests (as they did to gain passage of intercity deregulation), but they have no interest in doing so unless the political payoffs are large. And it is extremely difficult for the government to implement efficient reforms. Consider airport congestion fees. To determine efficient charges, government would have to get accurate estimates of the value of passengers' travel time and of how long an aircraft's takeoff and landing delays other aircraft (to name just a few variables). Charges would then have to be carefully assessed for thousands of daily operations at a given airport and varied in accordance with traffic flows. In the longer run, and even more challenging, government would be expected to reduce the delay caused by aircraft operations—and thus lower congestion fees—by building new runways and implementing technological advances to expand capacity.

In my view, government simply lacks the appropriate economic incentives and faces too many practical and political constraints on its use of labor,

acquisition of technology, and so on to implement even rough approximations of efficient airport charges. (Imagine the battles it would take just to reach a consensus on an estimate for the value of passengers' time). The solution is for government officials to approve the policy's goal and then allow the private sector to achieve it—in this case, by privatizing airports.

Excellent precedents exist for this approach. For example, during the 1970s deregulation debates Congress recognized that regulation had generally elevated air fares above efficient levels. But instead of giving the Civil Aeronautics Board a detailed set of guidelines on how to adjust fares to make them more efficient, it deregulated the airline industry and allowed the private sector to solve the problem.

Elected officials do have an incentive to keep the costs of their failures as low as possible. Why completely waste resources that could be given to some interest in return for political support? Nonetheless, the inefficiencies that government has created in the transportation sector are large and will persist as long as government continues to provide service, regulate carriers, and manage the infrastructure. We can reduce them only if government cedes to the private sector the responsibility for most of its current tasks.

Improving Performance Via the Private Sector

It is unreasonable to expect government intervention in an imperfect market to produce perfectly efficient results. But government failures in transportation have clearly imposed costs that go beyond acceptable imprecisions in pursuit of correcting (possible) market failures. Similarly, it is unreasonable to expect that allowing the private sector a freer hand in transportation will produce perfectly efficient outcomes. But it is reasonable to expect private markets to respond effectively to potential market failures and to expect that the cost of their imperfections will be considerably less than the cost of government failure.

Domestic Intercity and International Transportation

Early critics of airline and railroad deregulation maintained that small airline and railroad markets could not support competition. In fact, air travelers to and from small communities have been able to choose among carriers that offer service with smaller (regional) jets, while rail shippers who appear captive to one railroad have the option of using railroads that have formed a small system or using another major railroad with trackage rights over the "monopoly" carrier's track. Rail users can also benefit from source competition—for example, Alabama utilities that face rate increases on coal shipped from Colorado can switch to coal from Kentucky if they can access a different railroad—and from product competition—for example, utilities that face rate increases on natural gas can shift to coal or oil if their technology permits such substitution. To be sure, a minority of air travelers and rail shippers have limited competitive options and face high prices—even higher than those under regulation. But this situation is often temporary. Air carriers, such as Southwest, do enter routes dominated by one carrier, and shippers can negotiate lower rates and better service from a major railroad by, for example, using a combined truck-rail operation that gives them access to a different railroad as a bargaining chip.

Despite deregulation's widespread and ongoing benefits and the market's ability to solve imperfections that arise from time to time, some Washington officials continue to bend to lobbying efforts by particular interests. The Department of Transportation drew up competition guidelines partly in response to claims by the Air Carrier Association of America, the small, low-fare carriers' lobbying association, that some large airlines have set predatory prices. Travelers' complaints of shoddy service spurred Congress to consider a "passengers' bill of rights" that, among other things, increases compensation to passengers who are denied boarding. But carriers' alleged predatory behavior has had little effect on travelers' welfare, and overbooking is a long-standing industry practice, the threatened penalty for which will only increase costs and fares. The market has been and continues to be the best way to promote competition and protect travelers against carrier abuses.

Rather than meddling in a deregulated industry, federal policymakers should be more aggressive in seeking to extend the benefits of domestic deregulation to international airline markets and should also open up the domestic air transportation market to foreign competitors. The new Ocean Shipping Reform Act, which allows importers and exporters to negotiate individual, confidential contracts with ocean shipping lines, appears to be a step in the right direction. But further reform is needed because shipping lines retain their immunity from

federal antitrust laws and can still set their rates collectively.

Urban Transit and Taxis

It is true that the federal government got involved in urban transit during the 1960s because private transit failed. But subsequent research has pointed out that private bus operations had been seriously hampered by government regulation. Today, privatization is the only realistic hope for paring the huge inefficiencies accumulated in urban transit under public management.

Just how would privatization make a difference? Private bus and rail companies, competing vigorously with each other and the private auto, would set prices and service to maximize profits. Chad Shirley and I found that the economic effects of such competition are remarkably similar to the effects of efficient pricing and service. Society would gain from eliminating transit deficits, and the traveling public would gain from more efficient, responsive, and innovative services. As in intercity deregulation, new entrants, such as jitneys and minibuses, would be key. Taxis should also be deregulated as part of a broader strategy to stimulate competition in urban transport. No longer enjoying a secure niche between the private car and the city bus or rail service, taxis would be forced, for example, to compete with vans that operate like taxis and offer links with rail and bus operations. The increased competition and coordination in the new urban transit system should lower taxi fares, improve service quality, and enable taxi operations to impose some competitive pressure on transit.

Critics of privatizing mass transit often object that its benefits would be achieved only by redistributing income from low- or fixed-income travelers to wealthier citizens. But, as noted, the poor and elderly do not especially benefit from the current system of financing and providing mass transit. A compelling example of the potential benefits of privatization for low-income workers is the dollar-a-ride service in the New York City borough of Queens. Queens Van Plan, a private company serving mostly low- to middle-income minority workers whose neighborhoods are neglected by public mass transit, provides an essential service and operates at a profit. Current regulations, however, prevent the company from serving other low-income areas of New York. Under a privatized system, Queens Van Plan and similar entrants would be free to expand where the market demanded.

Federal policymakers should use grants to encourage cities to run privatization experiments. The experiments, of course, would not be problem free. As in intercity deregulation, service providers and travelers would need time to adjust to the new competitive order. And although privatization is unlikely to cost low-income travelers more in the long run, short-term assurances—perhaps in the form of transportation vouchers—could help build support for the experiments. But once experiments begin, policymakers must allow competitive markets to evolve and not micromanage the transition.

Infrastructure

Although it would undoubtedly be a challenge to enable the private sector to curb the huge pricing, investment, and production inefficiencies in public infrastructure, it is possible to sketch how it could be done. Many economists, myself included, have resisted private sector involvement and held out hope, for example, that the public sector would institute highway congestion pricing. And there have been some promising signs, such as the new high occupancy toll (HOT) lanes in southern California and Houston, where solo drivers can pay a toll to use a less congested carpool lane, and the successful congestion pricing experiment on a private highway in California's Orange County. But a few HOT lanes and congestion tolls on a private highway are still light years from a widely adopted congestion pricing policy. And congestion pricing does not address the massive inefficiencies in building and maintaining roads and bridges. In the case of airports, Boston Logan did reduce congestion by increasing landing fees for general aviation, but Logan's price increase was found to be discriminatory—landing fees for larger planes had been cut to keep the plan revenue neutral—and it had to be rescinded.

I have come to believe that infrastructure inefficiencies will persist unless managing authorities face some competitive discipline. The limited evidence bears me out: when private firms are hired to perform highway maintenance, collect tolls, and manage airports, cost savings total 20–30 percent. New Zealand is considering a bold first step, called commercialization, where the government turns its roads over to commercial road companies, which would be expected to charge for their use and earn a return on capital while being regulated as public utilities. Such a policy would be problematic in the United States, where government regulation of public utilities is renowned for creating inefficiencies. But pure privatization raises the fundamental problem of a lack of competitive options to curtail monopoly abuses. Could that problem be addressed? Suppose the government distributes roads to commercial companies, as in commercialization, aiming to allocate potentially competitive sections (for example, California's Highway 101 and Interstate 5) to different companies. Private companies would be free to establish their own investment and maintenance policies, but they would negotiate prices (long-term contracts) with private local and state organizations representing motorists, truckers, railroads, and private transit companies. Government transportation would also be represented by a bargaining organization. Thus public and private users *en masse* would be able to bring competitive discipline on prices, and private companies would have a financial incentive to minimize costs and provide high-quality service.

Although such a scheme may seem far-fetched, there is a growing reason for considering something like it. As noted, Washington has already spent roughly $500 million and is committed to spending far more on exploratory plans for an intelligent transportation system, which if fully developed would ultimately cost hundreds of billions of

dollars. Such a system would call for much greater public management of highway travel and, if history is any guide, add substantially to infrastructure inefficiencies. Only the private sector has the incentive and ability to develop and hold down the costs of an intelligent transportation system and maximize its life- and time-saving capabilities. If Washington wants to move to a new era of highway transportation, it should give serious thought to allowing the private sector to own and manage the road system.

Similarly, the government should increase the private sector's presence in air travel by privatizing airports and air traffic control. As with private roads, private airports and air traffic control would negotiate user fees with commercial and general aviation. Facing competitive discipline from users and alternative facilities, private airports and air traffic control would have an incentive to minimize costs and provide high-quality and technologically up-to-date service such as "free flight," which enables pilots to choose their optimum flight patterns instead of being crammed into the limited number of FAA-defined air routes. More efficient use of airport and air space capacity would also enhance airline competition.

Privatizing roads and airports would also make it much easier to introduce technologically current aids to improve safety and to set efficient prices for transportation spillovers. Indeed, the substantial improvement in automobile safety should convince policymakers that their periodic regulatory interventions would have little value. As part of the privatization contract, road companies would be required to include a cost-based pollution tax and airports, a noise tax. Inefficient federal regulations to curb emissions and limit noise could then be rescinded.

Finally, the government should withdraw from the railroad business. Funds for high-speed rail and subsidies for Amtrak should be eliminated. Existing and new modes should be forced to meet the market test. If high-speed rail is commercially viable, the private sector will pursue it. If the only way Amtrak can stay in business is by serving just the Northeast corridor, then it should be allowed to abandon service elsewhere.

What Will Spur Change?

The scholarly case for greater private sector involvement in transportation has been built slowly but broadly. In the 1950s, John Meyer and his research collaborators laid the intellectual foundation for deregulating intercity transportation. Nearly 50 years later and despite strong evidence, some policymakers still need to be convinced that deregulation has succeeded and can continue to succeed on its own. Subsequent research has provided a basis for expanding the cause to deregulate international transportation and taxis and, more recently, to privatize transit and transportation infrastructure.

Based on the evidence reported here, annual benefits of some $50 billion would be accrued from greater private sector involvement in transportation. But that figure greatly underestimates the potential gains for two reasons. First, it fails to account for ridding the system of transportation-related costs that are hard to quantify, such as bloated inventories and urban sprawl. Second, it does not include costs of government failure that become clear only after deregulation or privatization takes place.

Because policymakers benefit from business as usual, why would they consider fundamental changes in policy to pursue greater transportation efficiency? Intercity deregulation became politically attractive when the political benefits to policymakers from working in harness with carriers and labor were overwhelmed by the potential political gains from reducing inflation. Similarly, the probability of deregulating or privatizing other areas of transportation will increase if the prospect of major political gain becomes clear. Unfortunately, it probably won't in the near future. Despite the obvious benefits for consumers, international airline deregulation is moving slowly, especially because carriers from other countries are wary of competing with U.S. carriers. U.S. transit subsidies and infrastructure inefficiencies are large and growing, but recent successes in eliminating state and federal budget deficits have temporarily eased pressure to cut wasteful spending on transportation. In fact, recent federal legislation vastly increases support for transit, highways, and airports well into the next century.

Eventually, the political cost of sustaining large transportation inefficiencies will spur change, but policymakers must see the political payoff from reducing these inefficiencies. And while the current state of evidence strongly suggests that any inefficiencies resulting from further deregulation and privatization will not come close to the cost of government failure, there are clearly risks associated with these policies. Researchers can help ease policymakers' fears by continuing to show them the economic—and political—benefits of a more efficient U.S. transportation system. They can also demonstrate how these benefits can be achieved by deregulation and privatization and how technological change can facilitate competition—the key to the success of deregulation and privatization—in ways once unimaginable. Policymakers will not forgo the chance to increase the system's efficiency forever. ■