

Michael J. Boskin  
Tully M. Friedman Professor of Economics, Stanford University  
Wohlford Family Hoover Institution Senior Fellow  
former Chair, President's Council of Advisers  
September 30th, 2021 11am (ET)  
Assessing the Federal Government's COVID-19 Relief and Response Efforts and Its Impact

**Federal Infrastructure Policy in the Current Macroeconomic Context**  
**Michael J. Boskin**

**Testimony for the House Transportation Committee**  
**September 30, 2021**

The “Covid-recession” was unprecedented in its cause and in its depth and speed as dated by my colleagues on the NBER Business Cycle Dating Committee. The \$5 trillion dollar cumulative Covid response spending by the federal government thus far and related FED policies certainly both helped the economy recovery more quickly and cushioned the hardship experienced by many. Given the immense ex ante uncertainty that accompanied the rapid lockdown of much of the economy and the early massive unemployment, it should be expected that the policy response likewise was unprecedented.

I support policies to mitigate short-run economic pain caused by a crisis like the COVID-19 pandemic and help spur recovery, as long as the long-run cost is reasonable. As the economy has recovered considerably since those horrible days of March and April 2020, the potential short-run macroeconomic benefits of additional spending are much lower now than then and any additional spending is better focused on long-run societal benefits with spending levels, allocations among projects and financing methods designed to pass rigorous national cost-benefit tests.

It is early days in the detailed evaluations of the economic effects of the several responses to the Covid crisis and recession, and their many components, by independent scholars, I will address my comments to the desirability of additional spending, and its methods of finance under consideration for traditional infrastructure. I present what I believe are the

best estimates based on leading academic research on the short-run impacts of government spending, especially on infrastructure (as opposed to, say, transfer payments, for which whatever the desirability may be on other grounds, the macroeconomic benefits are far less). Much of the research I cite below is based on evaluations of the 2009 ARRA, but some focus as well as other data and periods.

But first, America certainly has infrastructure needs. The American Society of Civil Engineers, serious if somewhat self-interested, rates the nation's infrastructure a C-. Some claim there is a multi-trillion dollar "infrastructure deficit" and others have long blamed inadequate public investment in infrastructure for holding back U.S. economic productivity (e.g., Aschauer, 1991). Yet others argue that a closer analysis shows U.S. infrastructure in much better shape, and advocate for improving the allocation of funding over massive new expenditures (Duranton, Nagpal, and Turner, 2020). In a similar vein, the World Economic Forum rates U.S. infrastructure 13<sup>th</sup> out of 141, behind top rated Singapore and Hong Kong, but ahead of countries like Sweden and Denmark.

At even a fraction of some of the infrastructure spending being discussed today, there is ample opportunity to do considerable *productive long-run* infrastructure investment (the attached Table is my attempt to give a sense of the scale of the nation's infrastructure). But only some of that is appropriately a governmental, and only a part of that is appropriately a federal, responsibility. And the long-run net economic effects of a new federal infrastructure program, following the expiration of the 2015 FAST ACT and the impending exhaustion of the Highway Trust Fund will depend not just on the level of spending, but also the ex -ante quality of the projects funded, their ex post execution and their financing method(s).

Done well, the program can produce substantial societal benefits; but done to excess or with poor design incentives, a plethora of poor return projects, even boondoggles, would likely result. As a general guide, the larger the appropriated spending, the greater the likelihood of the laws of diminishing returns and of unintended consequences creating a large set of sub-standard projects. Ditto the further the financing deviates from use of already appropriated funds and user fees or their gas and vehicle miles driven tax cousins. In short, the federal infrastructure program should fund projects that pass *rigorous national* cost benefit tests and the better aligned the incentives for state and local officials, federal authorities and private citizens, the more likely that result becomes.

It should be noted that the economy is now back to its pre-pandemic level and is growing solidly. While risks remain and we should keep a close eye on job growth to make sure unemployment continues its downward movement to full employment, it does not appear likely to need considerable additional short-run stimulus on top of that already provided and in process. And some argue the risk of entrenching longer-term some of the considerable recent inflationary pressures are a greater risk. Certainly the larger the program and the more front-loaded, the bigger that risk.

Some suggest that huge additional infrastructure spending will dramatically spur growth and employment. With government borrowing rates low, the argument goes, deficit finance amounts to a cheap way to increase employment. In fact, existing research suggests that is a misguided conclusion. First, while infrastructure spending may have made for good short-run stimulus in the 1930s, that is not the case today (Glaeser 2016). The best evidence (Ramey

(2019, 2020) is that each dollar of infrastructure spending would increase GDP only 60 cents—even in a soft economy, there are no magically large multipliers.

And, of course, when the dollar is financed with taxes (now, or in the event debt-finance is used, later), the tax hikes exact a cost on the economy. Students learn in Economics 1 that cost rises with the square of tax rates; doubling rates, quadruples the harm from the distortion of private decisions to work, hire, save, invest, innovate, etc. Thus, the incremental cost rises with the tax rate. This is not a doctrinal issue; it has to do with the area under supply and demand curves. A rough estimate would be that each dollar of taxes (now or in discounted present value terms later to pay interest on the debt) costs the economy about \$1.25-\$1.30. So the projects chosen for funding really do need to be prospectively high societal return, yet the CBO estimated the return on public infrastructure investment at 5%, just half of the return on the private investment likely to be crowded out by taxes or debt. The best way to minimize these distortionary costs is to finance the spending with user fees or, where applicable, their tax cousins, the gas tax and vehicle miles driven tax, that tie the responsibility for payment closely to the benefits received.

Debt finance of the Covid relief funding was certainly justifiable in a deep recession and early in an uncertain recovery, but is unwise, even risky (Boskin, 2020) in normal times. Historically, huge debt buildups have usually been followed by serious problems: sluggish growth, an uptick in inflation, a financial crisis, or all of them. We cannot be certain which problems will occur or what debt-to-GDP ratio will signal trouble for which countries. And the US does have the advantage of issuing the world's leading reserve currency, at least for time being. But inflation risks are rising – a trend that more deficit-financed spending will only accelerate. To be sure, I support policies to

mitigate the short-run economic pain caused by a crisis like the COVID-19 pandemic and help spur recovery, as long as the long-run cost is reasonable. But be careful not to run huge deficits that persist long after the economy is back to full employment (the Administration projects the unemployment rate to be down to 4.1% next year and a low of 3.8% thereafter).

It is also important to realize that only a very small fraction of those unemployed today have the skills and experience for the kind of work required by today's infrastructure challenges; we cannot instantly train the unemployed to safely and effectively operate tower cranes or giant excavators, for example. There are few public infrastructure projects that require only a shovel. Additionally, planning and approval hurdles that were absent in the 1930s are omnipresent today, slowing the speed with which funds can be disbursed and infrastructure built. As a result, research has found that large increases in infrastructure spending within a short window of time may lead not to increases in employment, but to backlogs that result in higher profits for a relatively small set of contractors (Balat, 2017).

Worse yet, when federal funding is too abundant and not closely tied to national, as opposed to local, benefits, political incentives exacerbate the tendency to fund too many low return projects. A prime example is the boondoggle of California's High-Speed Rail project, which originally used a grant from the 2009 ARRA to pay, six years later, for a tiny initial rail line. The entire project is mired in a tripling of cost estimates, technical problems and epic mismanagement for what is now prospectively blended speed rail amid widespread lack of support and outright hostility in the Central Valley where billboards clamor to "Build Dams Not Trains."

Second, large public infrastructure projects—highways, dams, etc.—are designed to last many decades, and eventually interest rates on government debt will rise and render rolling over the larger debt much more expensive. CBO (2021) estimates net interest payments as a share of (rising) GDP will increase sharply beginning in the middle of this decade and more than triple in the following two decades, with interest costs exceeding even rapidly growing spending on Social Security, and dwarfing all discretionary spending, including on defense. Thus, the view that infrastructure spending in today's low-interest rate environment is essentially a free lunch is misguided.

While large changes in interest rates are unlikely in the near term, the is fact financial markets and government and private forecasters have often failed to anticipate them – for example, during the inflation of the 1970s and the disinflation of the early 1980s. After 2008, all grossly underestimated how long the Fed would keep its target interest rate at zero.

Infrastructure spending seems to be one of a few areas of potential bipartisan agreement. As mentioned above, there is ample room for a considerable well-crafted infrastructure spending program that is economically beneficial. Some policymakers, interest groups, and constituents still view infrastructure spending as shovel-ready work that is both desperately needed and great at creating new jobs. As President Obama eventually stated “there’s no such thing as shovel-ready projects.” The New Deal did not end the Great Depression, nor did Japan’s massive ongoing infrastructure expenditures spare it from its “lost decades.” To repeat, most of the unemployed do not have the skills or experience to operate modern equipment such as giant excavators and tower cranes.

Recent academic evidence on the matter, however, does suggest that better allocation of infrastructure spending is more important for long-run productivity than increased spending (Duranton, Nagpal, and Turner, 2020), and casts doubt on whether a large allocation of federal funds for infrastructure will work as an effective stimulus (e.g., Balat, 2017; Gallen and Winston, 2019; Ramey, 2020).

Garin (2019) studies how funding allocated by the federal government for road construction projects through the 2009 American Recovery and Reinvestment Act (ARRA) affected local employment. He finds that every dollar of ARRA spending increased local construction payrolls by thirty cents, but had virtually no effect on employment. Balat (2017) analyzes the effect of ARRA spending on highway-related procurement in California, finding that the sudden infusion of cash into an industry that was already working near capacity did not grow the number of construction firms or construction employment, but resulted in higher procurement prices. This capacity constraint is directly at odds with a 1930s vision of what infrastructure spending can accomplish. The highly specialized and technologically advanced nature of the work now requires skills, experience, and certifications that make it difficult to quickly expand the number of firms and workers. In California, Balat (2017) finds that the government paid 6.2% more on stimulus projects and 4.8% more on other projects as a result of ARRA, stimulating the economy by increasing construction company revenues, but forgoing about \$335 million that could have been spent on other road projects.

Additional work, such as Ramey (2020), demonstrates that infrastructure spending is usually slow to move from appropriation to implementation to actual use, making even the most productive and most shovel-ready projects poor candidates for short-run economic



stimulus. In fact, as Gallen and Winston (2019) argue, disruptions that come from a slew of highway infrastructure projects can even result in negative short-run effects on total employment. Studies of the ARRA also provide cautionary tales on the ability of infrastructure spending to create jobs in the short-run and on the cost of doing so. Leduc and Wilson (2017), for example, find a cost of \$500,000 per job in 2010, considerably costlier than the roughly \$125,000-\$200,000 per job that other papers have attributed to ARRA spending overall (Wilson, 2012; Conley and Dupor, 2013).

Long-run productivity is a different story, but the devil is in the details. As discussed above, the research literature generally stresses that quality and rigor behind fund allocation and incentive preserving funding mechanisms are key to large enough long-run returns to justify the spending, much more so than the sheer volume of spending. In particular, repairs and maintenance seem to have consistently higher returns than new construction.

In conclusion, the evaluation of government spending in response to previous recessions suggests quite limited short-run macroeconomic benefits. The ex-post estimates of spending “multipliers” for ARRA was one-third that of Administration economists in 2009. The response to the unprecedented Covid pandemic and recession likely did somewhat better, and the humanitarian case given the widespread suffering was compelling. But as the economy approaches full employment, the case for additional spending as “stimulus” is far weaker and tax and deficit financed spending likely will be quite costly in the longer-term. The most compelling case for additional federal spending is simply to find good projects and methods of financing that pass rigorous national (not local) cost-benefit tests based on sensible estimates of the factors affecting benefits and costs. That should conceptually govern the size of the

spending. But given the budgetary process, the headline number will undoubtedly be determined by other factors. But then the federal, state and local agencies involved need to hew as closely as possible to the dictates of cost-benefit tests to maximize the opportunity for reasonable returns on the (current and/or future) taxpayers' investment.

## References:

Aschauer, David A. 1991. "Infrastructure: America's Third Deficit," *Challenge*, 34(2), pp.39-45.

Balat, J., 2017. "Highway Procurement and the Stimulus Package: Identification and Estimation of Dynamic Auctions with Unobserved Heterogeneity." *Working Paper*.

Boskin, Michael J. 2020. "Are Large Deficits and Debt Dangerous?" NBER Working Paper No. 26727 (condensed version published in American Economic Association Papers and Proceedings, Vol. 110, May, pp145-48).

Brooks, Leah and Liscow, Zachary. 2019. "Infrastructure Costs," Hutchins Center Working Paper No. 54, *Brookings Institution*.

Brooks, Leah and Liscow, Zachary. 2020. "Can America Reduce Highway Spending? Evidence from the States" in *Economic Analysis and Infrastructure Investment*. University of Chicago Press.

Congressional Budget Office, The 2021 Long-Term Budget Outlook, March.

Conley, Timothy G. and Dupor, Bill. 2013. "The American Recovery and Reinvestment Act: Solely a Government Jobs Program?" *Journal of Monetary Economics*, Vol. 60, Iss. 5, pp. 535-549.

Duranton, Gilles, Nagpal, Geetika, and Turner, Matthew A. 2020. "Transportation Infrastructure in the US," in *Economic Analysis and Infrastructure Investment*. University of Chicago Press.

Gallen, Trevor and Clifford Winston, 2019. "Transportation and its Effects on the U.S. Economy: A General Equilibrium Approach." Technical report, Purdue University.

Garin, A. 2019. "Putting America to Work, Where? Evidence on the Effectiveness of Infrastructure Construction as a Locally Targeted Employment Policy," *Journal of Urban Economics*, 111, 108-131.

Glaeser, Edward L. 2016. "If You Build It...Myths and Realities About America's Infrastructure Spending," *City Journal*.

Leduc, Sylvain, and Daniel Wilson. 2017. "Are State Governments Roadblocks to Federal Stimulus? Evidence on the Flypaper Effect of Highway Grants in the 2009 Recovery Act." *American Economic Journal: Economic Policy*, 9 (2): 253-92.

Ramey, Valerie A. 2019. "Ten Years After the Financial Crisis: what Have We Learned From the Renaissance in Fiscal Research?" *Journal of Economic Perspectives*, Vol. 33, No. 2.

Ramey, Valerie A. 2020. "The Macroeconomic Consequences of Infrastructure Investment" in *Economic Analysis and Infrastructure Investment*. University of Chicago Press.  
<http://www.nber.org/chapters/c14366>

Wilson, Daniel J. 2012. "Fiscal Spending Jobs Multipliers: Evidence from the 2009 American Recovery and Reinvestment Act," *American Economic Journal: Economic Policy*, Vol. 4, Iss. 3, pp. 251-282.

## America's Vast and Varied Infrastructure Enterprise

Type	How Large is it?
Highways and roads	4.5 million miles (IHS = 1%)
Airports	19,000 (Over 500 have commercial flights)
Bridges	615,000
Commercial Ports	360
Dams and Reservoirs	9,000
Water distribution pipes	1.2 million miles
Oil and gas pipelines	2.6 million miles to gather, transmit, and distribute
Railroads	140,000 miles of track, 100,000 bridges
Electricity Transmission	200,000 miles high voltage, 5.5 million miles local distribution
Phone lines	No recent data, 1950s = 22 million miles
Cell phone towers	307,000
Fiber optic cable	3 million miles (13,000 miles of co-axial cable)
Mass transit	Over 500 miles for New York, Washington D.C., and Chicago

\*A more expansive definition would include private and public space satellites, airwave spectrum, internal water navigation, SPRO, and infrastructure inside homes and businesses.