Economic
Policy
Institute

How to improve infrastructure project selection

Account for positive regional spillovers, environmental impacts, and job creation benefits

Report • By Josh Bivens • October 18, 2017

Economic Policy Institute • Washington, DC

View this report at epi.org/136743

What this report finds: Resources for infrastructure investment are limited; therefore it is critical that we select and prioritize those projects that provide the highest net economic and social benefits. Under our current system, the benefits and costs of certain projects may be underestimated, leading to underprioritization of critical projects and overprioritization of projects that have a high social cost (e.g., transportation projects that result in significant carbon emissions). We find three major weaknesses in the current system:

- First, an insufficient level of coordination across levels of government means that the significant regional and national benefits ("spillover effects") of local infrastructure projects aren't always taken into account.
- Second, the costs of climate change—and therefore the value of mitigating carbon emissions through green energy investments—are likely being underestimated when prioritizing infrastructure projects.
- And finally, the economic benefits of infrastructure projects to distressed communities—both through job creation and through addressing critical needs like safe drinking water—are likely also being underestimated in the prioritization process.

Why it matters: Infrastructure plays a key role in the economic vitality of our country. When infrastructure investment is managed inefficiently, we lose opportunities to meet some of our country's most critical needs: maintaining the quality and integrity of our national infrastructure networks, addressing the challenges of climate change, and narrowing economic gaps across regions.

What can be done about it: Establish a governing body at the federal level to oversee infrastructure coordination; regularly reassess the social cost of carbon (SCC) emissions; and earmark a significant portion of infrastructure investment as economic stimulus for communities in distress.

SECTIONS

Introduction

Despite a recent outpouring of bipartisan rhetorical support for an increased investment effort in infrastructure, resources for public investment of all kinds—including infrastructure—remain extremely strained. Net federal investment, for example, saw its most recent peak in 2010 and has been lower than this peak level in each year since (BEA various years).

Given this, it is crucially important to make sure that each dollar actually shaken free for infrastructure investment provides maximum "bang for the buck" in terms of social and economic benefits. Further, a number of developments in the American economy—for example, the growing threat of climate change and the extraordinarily uneven pace of recovery from the Great Recession—mean that current methods for prioritizing infrastructure projects are inadequate because they fail to ensure that we have the right mix of investments to meet future challenges.

This report highlights weaknesses in the status quo of how infrastructure projects are selected and prioritized, and it provides broad recommendations for how these weaknesses can be addressed.

Key findings and recommendations of this report are:

- **Infrastructure investment in the United States could benefit from much greater coordination of project selection across levels of government (federal, state, and local).** Coordination is essential because a bigger-picture view is essential to ensuring that the benefits of regional and national spillover effects are taken into account when selecting and prioritizing projects. The benefits of coordination will likely grow in the near future as key infrastructure challenges that require a coherent national response—such as fundamental restructuring of the electric utility sector—rise in importance.

  Recommended policy solution: **Establish a governing body at the federal level to oversee infrastructure coordination.** Effective coordination across levels of government will almost certainly require a strong lead role for federal government institutions. Either a cabinet-level agency or an empowered interagency working group (modeled after the Financial Stability Oversight Council) would likely be needed to develop both the capacity and the authority to have meaningful sway over project selection decisions. A potentially useful federal tool for developing the capacity to make informed project selection decisions could be a national infrastructure bank; this bank could also explicitly specialize in projects with large likely regional spillover effects.

- **Cost-benefit analyses in the selection of infrastructure projects likely underestimate the full costs of carbon emissions that lead to climate change.** The federal government under the Obama administration took a major step forward by including a social cost of carbon (SCC) emissions estimate in many governmental decision-making processes, but the current SCC value is potentially too low and likely

underestimates the value of greenhouse gas mitigation. In addition, states are still free to essentially ignore the costs of carbon emissions (and the benefits of mitigation) when making infrastructure prioritization decisions.

Recommended policy solution: **The federal government's estimate of the SCC should be reassessed on a rolling basis by a panel of experts** that continually track new research and estimate its implications for the SCC. The "insurance value" of the SCC—stemming from the probability of climate catastrophes occurring due to greenhouse gas emissions should be given a larger weight in the SCC's calculation.

- **The welfare costs of regional disparities in economic health are likely underestimated in the national process for selecting and prioritizing infrastructure projects.** This is mostly because so much infrastructure selection is done by state governments, which understandably do not take other states' economic circumstances into account when making investment decisions. However, even some of the official guidance provided by federal agencies to states about what should be considered a benefit of infrastructure investment likely radically undervalues the job-creation character of this investment.

  Recommended policy solution: **A significant tranche of federal investment funds should be earmarked for allocation based on long-term indicators of labor market distress**, both by geography and (perhaps) by community groups within regions. The explicit goal should be to use the public investment to make sure that jobs created disproportionately benefit the places and communities that are experiencing the most labor market distress.

The need for greater coordination of infrastructure investment decisions

As noted in an earlier report (Blair 2017b), there is substantial evidence indicating that infrastructure investments can lead to positive spillover benefits across regions. A key example concerns potential network effects. If there were only one commercial airport in the U.S., that wouldn't be very helpful to domestic travelers. Two airports is better. And with each successive airport built, the value to consumers of each additional node increases. Similar dynamics of increasing returns to scale in consumption hold for the internet. When very few people had access to the internet, it had little effect on commerce and communication. With widespread usage, the value to the individuals and businesses that use it has increased dramatically.

Such positive spillovers imply that purely regional analyses of the benefits of particular infrastructure benefits may well underestimate the aggregate benefits. This could in turn lead to national underinvestment in infrastructure projects with strong network effects.

This possibility of underinvestment due to underestimation of the national returns to infrastructure investment when regional governments undertake much project selection is

well recognized. For example, the Organization for Economic Cooperation and Development (OECD) highlights the need for coordination across national and subnational governments in public investment planning in its 2014 report on maximizing the effectiveness of public investment. Specifically, the OECD notes:

> The scale and positive (or negative) spillovers of a public investment may require joint action, either to reduce the cost of the investment or to implement the complementary measures needed to make the most of the investment…For example, investments in housing need to be complemented by the right investment in transport networks. Such complementarities often need to be constructed and combined in integrated strategies. (OECD 2014, 6, 8)

The danger that subnational (e.g., state and local) governments may perceive a lower rate of return to purely local investment decisions than such investments actually generate when spillovers are considered is apparent in the most traditional of infrastructure investments: highways. As Pereira and Andraz (2004) note:

> …only 20 percent of the aggregate effects of public investment in highways in the U.S. are captured by the direct effects on each state output of public investment in the state itself. The remaining 80 percent correspond to the spillover effects from public investment in highways in other states.

Highway spending already has crosscutting and intertwined roles for federal and subnational governments to finance and direct. This should in theory allow some mechanism that will help address the potential problem of spillovers leading to underinvestment. But many other key elements of the nation's infrastructure are starting from a much more fractured place in terms of layers of governmental responsibility, yet will require deep and thoughtful planning and coordination that addresses coming economic and social challenges.

Perhaps the clearest example concerns the transformation of the U.S. electric utility sector. The traditional model of electric utilities was a vertically integrated monopoly in which a single economic institution owned both the generating capacity and the transmission lines for electricity. This model flowed naturally from economies of scale in electricity generation and transmission: electrical generating units (EGUs) tend to be extraordinarily capital-intensive. Once they are built, each successive unit of energy generated tends to fall in price as the huge fixed cost of EGU construction is spread over greater output. Transmission lines follow the same logic: once the lines are built, the marginal cost of sending more power over them tends to be extraordinarily low, making it possible for incumbents to always undercut potential new entrants. The natural monopoly of electricity generation has generally led subnational governments to form regulatory bodies that set prices.

Electric utility profits under highly regulated monopoly markets have tended to come from markups utilities charge over average costs of production. These markups have generally been justified by the need to expand electricity-generating capacity to meet growing demand caused by population growth.

But as a number of authors have pointed out, technological change and demographics and the need to reduce carbon emissions have combined to fundamentally disrupt the traditional model of electric utilities.[1] Electricity demand is not forecast to grow steadily into the future absent large policy changes.[2] Energy efficiency efforts and slowed population growth have combined to significantly reduce projected growth in the current policy baseline. Technological changes in how electricity is generated—particularly the growing economic competitiveness of smaller plants that can often come on- and off-line more nimbly during periods of peak electricity demand—have started to erode the huge economies of scale in generation due to enormous upfront capital investments in generating units. Additionally, developments in information and communications technology (ICT) have made it easier for utilities to potentially monitor and vary production and distribution over periods of peak and subpeak demand without sacrificing reliability.

In the vertically integrated utility model of the past, far more capacity had to be available at most points in a given day than was used because the EGU had to be able to handle the peak load (e.g., midafternoon air conditioning use in summer) and the ability to vary generation during the day was limited. Now, with the rise of distributed energy generation sources (rooftop solar, for example) and the ability to manage demand much more tightly (for example, utility customers can agree to let utilities cycle their air conditioning less intensely if demand on generating capacity spikes), the need for huge sources of centralized, redundant generating capacity is reduced. Finally, and most importantly, the need to transition to a less carbon-intensive economy means that measures that can link renewable energy generation in one region of the country (solar farms in the sun-rich Southwest, for example) with energy demand in other regions (e.g., households in Ohio that would otherwise have to rely on the region's old coal-fired plants) would be most welcome.

The upshot of all of these changes is that the electric utility sector could (and likely should) see a fundamental restructuring in coming decades. Instead of being pure consumers of electricity, households are likely to increasingly become both buyers and sellers of energy. Households that install rooftop solar panels or windmills, and perhaps complement that with investments in efficiency measures, should be able to recoup the costs of these investments by selling the excess supply of energy back to utilities. This implies that a key activity of the electric utility sector of the future should be acting as a clearinghouse between all buyers and all sellers of energy. Because there is no particular reason to think that there are economies of scope between large-scale electrical generation and this clearinghouse function, the vertical integration of today's electric utilities is potentially obsolete. Finally, there is a large payoff to be had in terms of reduced carbon emissions; if we invest in infrastructure that would allow excess supply of renewably generated electricity to be moved to places with excess demand, we can reduce use of traditional forms of energy (e.g., coal-based) and thus reduce carbon emissions.

The incumbents in today's electric utility sector will likely be resistant to change, as incumbents in all economic sectors are. Further, the incentive for individual states to plan for a future with a nationally interconnected series of clearinghouses and grids is surely blunted if states don't know whether their neighboring states will make complementary investments. These considerations illustrate why coordination in infrastructure planning

between and among the federal government and subnational governments will be so important. But there is not currently any government body or cabinet agency or other institution that can tackle this coordinating role.

Recommendations for improving coordination

The previous section clearly highlights the costs of uncoordinated investment decisions, but specifying policy levers that allow effective coordination is difficult. Key recommendations made by the OECD (2017) to foster coordination:

- "Develop a strategic vision for infrastructure…identifying which investments should be undertaken, determining the essential components, needs and trade-offs, and how they should be prioritised" (2)
- "Choose how to deliver the infrastructure…[balancing] political, sectoral, economic, and strategic aspects. Legitimacy, affordability and value for money should guide this balancing" (4)
- "Ensure good regulatory design…[which is] necessary to ensure sustainable and affordable infrastructure over the life of the asset…. If tariffs do not cover the long-term depreciation of capital assets, for instance…infrastructure could fail to be appropriately maintained and upgraded "(5)
- "Integrate a consultation process…[taking] account of the overall public interest and the views of the relevant stakeholders" (7)
- "Co-ordinate infrastructure policy across levels of government…[encouraging] a balance between a whole of government perspective and sectoral and regional views" (8)
- "Generate, analyse and disclose useful data" (10)
- Build in resilience, as "critical risks materialize and technological change can fundamentally disrupt sectors and economics…. Damages to one asset, for example electricity disruption, could result in downstream disruptions to various sectors, e.g. water purification" (13)

These are all daunting tasks, and there is no entity in the U.S. government today that has the mission or authority to ensure that they are carried out. Such authority and accountability needs to be created. One could imagine creating a cabinet-level department to house this authority, or an entity modeled after the Financial Stability Oversight Council (FSOC). The FSOC is an interagency group that includes 10 voting members from the Treasury, Federal Reserve, and other federal agencies and that has a statutory mandate to identify and respond to threats to the nation's financial stability. Along with this mandate, the FSOC was given the statutory tools to respond to it, such as the ability to designate nonbank financial firms for additional regulatory scrutiny if it is determined that the health of those firms is vital to the overall health of the financial sector.

Given the vast interconnecting issues and interest involved in getting national infrastructure project selection right, a body with FSOC-type authority and scope to guide decisions for infrastructure projects could well be needed.

It is nearly impossible to imagine that effective coordination of infrastructure policies could happen without a strong federal role of some kind in setting standards for project selection, even if these *specific* routes (a cabinet agency or an FSOC-type interagency group) are not established. In this regard, the arguments in Blair (2017b) are important: policymakers likely have carved out too small a role for federal leadership in infrastructure investment.

A potentially key federal *tool* for gathering data and ranking proposed infrastructure projects could be the creation of a national infrastructure bank. Often proposals to start an infrastructure bank highlight the alleged benefits of such banks for funding and financing projects. These benefits are essentially nonexistent, as shown in Blair 2017a. But there are huge benefits from having a repository of knowledge and data on infrastructure projects. For one, a national infrastructure bank could identify and enforce best practices for state and local governments that want to engage in public-private partnerships (PPPs). Too often PPPs are assumed to be useful as substitutes for effective governance of infrastructure. They are not—indeed they require effective governance to avoid becoming pure private-sector rent extraction. A national infrastructure bank could ensure that projects financed by PPPs are useful and well-governed.

Additionally, a national infrastructure bank could begin carving out clear best practices for project selection, including the assessment of spillovers that should be accounted for. The bank could indeed specialize precisely in those projects for which subnational investment would be inefficiently low because spillovers haven't been taken into account. Because the bank would be a central repository of data on infrastructure projects, it would have the capacity to ensure that regulatory systems and subnational plans are not working at cross purposes.

In short, the calls for greater coordination across levels of government in making infrastructure investments are clearly valid. But this greater coordination will not happen unless a specific institution is tasked with this job and empowered to undertake the steps needed to complete it. A cabinet-level agency or an interagency working group, supported by the resources and tools housed in a national infrastructure bank, could potentially be the right institution to take on this job. There are likely other options for institutions that could undertake this task as well.

Taking the cost of carbon seriously

The federal government plays a large role in funding and financing transportation infrastructure investments (mostly through the federal Highway Trust Fund). However, much of the funding it provides is granted to states that then make decisions about which specific infrastructure projects they will build. The criteria used to assess specific projects are essentially as varied as state governments. Further, much of the Highway Trust Fund

grants are allocated on the basis of state miles per road or through other formulas that do not make any attempt to rank the economic payoff of specific projects.

It is widely considered best practice in infrastructure project selection to apply some form of cost-benefit analysis to projects and to prioritize those with the highest net benefits. An absolutely key element of cost-benefit analysis in the transport sector (among others) is the *social cost of carbon emissions*.

The transportation sector is a major source of greenhouse gas emissions, accounting for more than quarter of all U.S. emissions in recent years. If these emissions are ignored in cost-benefit analyses, particular infrastructure projects might look better than they would in a world where the cost of carbon emissions is accounted for.

Estimates of the social cost of carbon are attempts to measure the monetized costs of carbon emissions by taking into account the future damage likely to result from global climate change. The social cost of carbon is a necessary input for estimating the optimal price that should be imposed on production of carbon emissions to fully internalize the costs. Under the Obama administration, rules were adopted instructing the federal government to use the social cost of carbon in regulatory cost-benefit analyses. However, there is no mandate that federal grants to states for infrastructure projects require a calculation of the social cost of carbon when prioritizing projects.

Further, the value of the social cost of carbon chosen by the Obama administration has been criticized as being potentially too low—which, if it is too low, would lead to underinvestment in regulations and projects that reduce emissions.

Ackerman and Stanton (2012), for example, note that the central estimate of the cost of carbon emissions emphasized by the Obama administration ($21 per ton in 2014, updated to $36 in 2016) stems from a number of choices that could lead to an underestimate.

One option for pricing carbon is to use an *average* of estimates of climate sensitivity to carbon concentrations in the atmosphere. One of the key unknowns in forecasting the potential damage caused by global warming is how a given carbon concentration (say parts per million in the atmosphere) maps onto a specific change in temperature. Because this climate sensitivity could be highly nonlinear, many have argued that policymakers should take not just average sensitivity into account, but extreme values (like the 95th percentile of estimated climate sensitivity). Weitzman (2012) has highlighted how important it is to estimate the “insurance value” of climate policy that accounts for avoiding extreme scenarios. Policy decisions (e.g., setting the social cost of carbon) that are based on average rather than extreme values of parameters ignore this insight about insurance value and the benefits of avoiding extreme scenarios.

Another potential parameter choice that could lead to an understatement of the social cost of carbon is the choice of discount rate. The discount rate is largely a measure of how much the possibility of future consumption is discounted in value when making decisions that balance present and future costs or benefits. The higher the discount rate, the less valuable benefits that will occur in the future are to present generations. The Obama administration, in a working group document, argued that the plausible range of discount

rates is 1.4 to 3.1 percent, and expressed skepticism about the lower range. Ackerman and Stanton (2012) note that "both descriptive and prescriptive arguments can be made for discount rates below 3 percent." This parameter is crucial because the lower the discount rate, the greater the value of engaging in aggressive climate mitigation in the short term. A lower discount rate means that the benefits of mitigation to future generations are given more weight in the decision-making of today's policymakers.

Ackerman and Stanton (2012) argue that making different parameter assumptions can easily lead to the correct social cost of carbon approaching $900 per ton rather than the $21 central estimate used by the Obama administration when their article was written. This is particularly true if one values the benefits of avoiding extreme climate catastrophes heavily.

Foley, Rezai, and Taylor (2013) also note that costs and benefits of carbon mitigation and the discount rate itself can only be specified based on the reference path of consumption and environmental quality that the economy finds itself on. If this reference path is "business as usual," with no marginal cost assigned to the emission of carbon, then the benefits of carbon mitigation are far larger than they are under a reference path that sees the economy set to stabilize (or even reduce) carbon concentrations at a fixed level in the future. That is, if we're currently doing nothing to slow down the emission of greenhouse gases, the benefits of the first investments we take to mitigate emissions will be enormous.

Further, because the "business as usual" reference path would eventually result in a pronounced slowdown in economic growth more broadly as damages from climate change cumulate, this also implies a steep reduction in the discount rate. The discount rate is driven in large part by how much we are willing to forgo today to benefit future generations. If we assume growth is rapid and ongoing, then we can assume that future generations will be considerably richer than we are. Under that scenario, forgoing consumption today to provide for future generations is perhaps not a terribly pressing concern. But if we know that our actions (failing to mitigate greenhouse gas emissions) will slow growth considerably and could even make future generations poorer than us, then the reasons for taking action today to mitigate emissions become much more compelling.

Taking these factors into account, Foley, Rezai, and Taylor (2013) argue that the marginal benefit of mitigating one ton of carbon emissions in the "business as usual" reference path is over $400 per ton. They also find that even on a fully optimized path this cost would be 50 percent higher (at $55 per ton) than even the updated Obama administration estimates.

Both Ackerman and Stanton (2012) and Foley, Rezai, and Taylor (2013) argue that these estimates of the social cost of carbon are likely far in excess of what would be required to eliminate carbon emissions as rapidly as is technologically feasible. Given this, the exact value of the social cost of carbon loses importance, and the clear policy prescription becomes simply reducing emissions as rapidly as possible. In this state of the world, a strategy for prioritizing projects should shift from cost-benefit on carbon emissions mitigation to cost-effectiveness in pursuit of rapid emission reductions.

Recommendations for establishing the social cost of carbon

The original Interagency Working Group on the Social Cost of Carbon, formed under the Obama administration, began work in 2010 and provided its findings by 2013. The group included the White House Council of Economic Advisers; the Council on Environmental Quality; the departments of Agriculture, Commerce, Energy, Transportation, and Treasury; the Environmental Protection Agency; the National Economic Council; the Office of Management and Budget; and the Office of Science and Technology Policy.

Since the formation of this working group, several new findings relevant to the debate over the social cost of carbon—both economic and scientific—have been published. While specifying the exact social cost of carbon that should be used by the federal government is well beyond the scope of this report, it seems completely clear that this cost is subject to rapid change and reassessment and hence that the process by which it is specified by the federal government should be subject to frequent reassessment as well.

The clearest first step would be to make the Interagency Working Group on the Social Cost of Carbon a permanent and ongoing endeavor, with a full complement of expert staff dedicated exclusively to this project. An annual assessment of the social cost of carbon—including an explanation of how the research had evolved over the past year and informed the final value—should be provided. Expert comment should be solicited on an ongoing basis.

Prioritizing infrastructure investments in chronically depressed communities

Since the 2016 election, much has been written about the stark disparities in economic performance among regions and communities since the Great Recession ended. These regional disparities are often large even within states. For example, in 2016 Seattle had an average unemployment rate of 4 percent (substantially below the national average rate of 4.9 percent over that year) and had seen wage growth of over 19 percent in the previous two years (compared with wage growth of less than 5 percent for the nation as a whole). Yet for Washington state as a whole, youth unemployment (among 16- to 24-year-olds) was 12.3 percent, well above the national rate of 10.4 percent.[3]

Further, we know that particular demographic groups—young African American men, for example—often have unemployment rates multiples higher than the overall national rate. In communities with particularly large shares of such disadvantaged groups, even a tight national labor market may not translate into acceptable levels of economic opportunity.

Regional disparities in labor market outcomes may indeed be getting worse in recent

years. In December 2006, the national unemployment rate was 4.4 percent. In December 2016, the national unemployment rate was just a bit higher than this level of a decade before, at 4.7 percent. Yet in 2006, the highest unemployment rate in a metropolitan statistical area (MSA) was 15.4 percent (in El Centro, California), while in December 2016 the highest MSA unemployment rate was 18.8 percent (also in El Centro, California). This isn't a fluke—the standard deviation of MSA unemployment rates was higher in December 2016 than in 2006 as well (1.75 percent versus 1.5 percent).

Infrastructure investments are often considered to be good fiscal policy for helping to fight national recessions or shortfalls of aggregate demand, and Bivens (2017) shows that infrastructure investments are indeed highly effective fiscal stimulus. But even after the national labor market returns to full employment, it is likely that some regions will experience excess unemployment while others experience overfull employment. A national policy that could iron out regional and community differences in unemployment rates even at national full employment has the potential to boost national welfare.

A long-run, sustained increase in infrastructure investments that is disproportionately targeted toward communities and regions with high long-run rates of unemployment can be part of such a policy aimed at narrowing gaps in labor market performance. This means that policymakers should use differences in long-run labor market conditions between regions and communities as an input when deciding which infrastructure projects to prioritize.

Too often in today's prioritization process, such considerations are minimized or outright excluded. For example, guidance given to states about how to conduct cost-benefit analyses for the TIGER (Transportation Investment Generating Economic Recovery) grant program, started in 2009, explicitly says that jobs created by such infrastructure investments should not be counted as benefits. Specifically, this guidance (USDOT 2016) states:

> Transfers are not benefits. Analysis should distinguish between real benefits and transfer payments. Benefits reflect reductions in real resource usage and overall benefits to society, while transfers represent payments by one group to another and do not represent a net increase in societal benefits. In the case of job creation, for example, every job represents both a cost to the employer (paying a wage) and a benefit to the employee (receiving a wage), so it is a transfer payment rather than a net benefit.

This claim that job creation provides no net economic benefit seems deeply myopic. It certainly represents faithful interpretation of what economics textbooks say about perfectly competitive (and hence imaginary) labor markets, but it is not consistent with real-world evidence.

For example, the same models that interpret job creation as a pure transfer also predict that workers can always find equivalent work should their current job be terminated. And yet this is obviously not true. Surveys of happiness find that spells of unemployment are some of the most traumatic and damaging life episodes people face, lagging only behind death of a loved one or divorce (Winkelmann and Winkelmann 1998). This strongly implies

that the textbook models predicting people can always and everywhere find near-equivalent alternative work should they lose their current job are wrong.

Less dramatically, models of "imperfect competition" in the labor market highlight that successful labor market matches (i.e., workers finding jobs) can generate an economic surplus that can be split between the worker and firm (see Manning 2010 for an extensive overview of models of imperfect competition in the labor market). In short, a successful match generates net benefits and does not just generate a transfer payment.

Reducing unemployment should be seen as a clear potential benefit of infrastructure investment. Given this, and given the large dispersion in unemployment rates among geographic regions and particular communities within regions, welfare gains can be obtained by steering infrastructure investments to more distressed communities.

To be clear, this is not just a call to attack temporary spikes in unemployment with "shovel-ready" projects. While infrastructure boosts should be a key part of anti-recessionary fiscal policy, there is also need for an unemployment-fighting role even during recoveries and expansions. Even when national unemployment seems acceptably low, there will always be some regions with high unemployment. Further, these differentials will generally be predictable and long-lived. This argues strongly for a policy of not only maintaining aggregate demand at levels consistent with full employment *nationally*, but for using policy to ensure that this demand is equitably distributed across regions and communities. Infrastructure project selection is one of the best policy tools available for this kind of fine-grained targeting of aggregate demand.

Recommendation for targeting investments toward economically distressed communities

A tranche of federal infrastructure investment could be set aside for allocation based on the long-term economic health of communities and regions. A portion of this tranche could be allocated to geographic areas that have persistently higher unemployment rates over long periods of time (other measures of labor market distress, such as low shares of prime-age adults who are employed, could potentially be used instead of unemployment rates to target such spending). Because this recommendation is not about very-short-term changes in unemployment (and is not just about fighting outright recessions), but is instead about combating long-term disparities that persist even during recoveries and expansions, the "triggers" for receiving more federal investment funds should be relatively long-run averages of labor market distress. For example, geographic areas with five-year average unemployment rates substantially above the national average over the same time period could receive disproportionate shares of investment.

Besides targeting specific geographic areas, an additional tranche of the federal investment pool could target funds to address long-term labor market distress of particular

demographic groups within geographic areas. For example, while the unemployment rate for a particular metropolitan area may be low, there may well be groups—for example, young African American men—within the metro area that still suffer from high unemployment. If infrastructure projects could be specifically identified that would effectively target high rates of joblessness among these groups, it could do much good.

Whether infrastructure investments can be that well-targeted even within tight geographic areas (like cities) is an open question. There is some reason to think it is possible, however. There are indicators that areas with insufficient infrastructure investment also often have elevated unemployment. A clear example is the probability of lead exposure from old water pipes. Even within cities this probability varies dramatically and seems clearly elevated in poorer zip codes. An investment in infrastructure for clean and safe water in a particular community can be paired with providing jobs to residents in that community. To ensure that such investments actually create jobs in the communities being targeted, they can be paired with "hire local" provisions.

It is clear that job creation should be counted as a benefit when assessing the costs and benefits of infrastructure investments. It is also clear that needs for job creation vary dramatically across geographic regions and even between communities within geographic areas. Targeting infrastructure investments to distressed areas and communities can be an efficient use of resources with a potentially large payoff in economic and social benefits.

Conclusion

There are surely dozens, if not hundreds, of quite specific reforms that could be made to increase the efficiency of project selection for American infrastructure investments. But there are three notable weaknesses in this system of selection, as we have highlighted in this report.

First, decentralization of project selection to subnational governments (states and localities) means that benefits or costs that spill over from one region to another may not be accounted for in subnational project selection. If spillovers provide national benefits that are not recognized or captured by the subnational entity undertaking the investment, this can lead to underinvestment.

Second, given the vital importance of infrastructure in efforts to combat global climate change, an appropriate figure for assessing the benefit of mitigating emissions of greenhouse gases needs to be estimated and used in project selection efforts. The Obama administration introduced this figure ("the social cost of carbon") into cost-benefit debates, but ample evidence has arisen that the precise figure being used currently is too low and potentially massively understates the benefits of mitigating greenhouse gas emissions.

Third, the job-creation benefits of infrastructure investments are not often deployed using the most strategic methods. Given the huge need for infrastructure investment and the great variance in measures of labor market health across American neighborhoods and

communities, a tranche of infrastructure investment should be explicitly prioritized toward those communities suffering great long-term labor market distress.

A necessary condition for each of these recommendations is a governmental entity with authority and accountability to make these criteria relevant to project selection. This fact likely buttresses the case made by Blair (2017b) that a stronger federal role in infrastructure investment decisions will likely be needed in coming decades to most efficiently meet many of our most pressing economic challenges.

Acknowledgments

This research was made possible in part by a grant from the Peter G. Peterson Foundation. The statements made and views expressed are solely the responsibility of the author.

About the author

Josh Bivens joined the Economic Policy Institute in 2002 and is currently the director of research. His primary areas of research include macroeconomics, social insurance, and globalization. He has authored or co-authored three books (including *The State of Working America, 12th Edition*) while working at EPI, edited another, and has written numerous research papers, including for academic journals. He often appears in media outlets to offer economic commentary and has testified several times before the U.S. Congress. He earned his Ph.D. from The New School for Social Research.

Endnotes

1. See MIT Energy Initiative 2013 for a comprehensive summary of these arguments.
2. For example, if greenhouse gas emissions are priced, this could certainly induce a rise in electricity demand if, for example, electric cars displace gasoline-powered cars at scale.
3. Statistics on unemployment are from the Bureau of Labor Statistics Labor Force Statistics from the Current Population Survey and Local Area Unemployment Statistics, both accessed in August 2017.

References

Ackerman, Frank, and Elizabeth Stanton. 2012. "Climate Risks and Carbon Prices: Revising the Social Cost of Carbon." *Economics: The Open-Access, Open-Assessment E-Journal* vol. 6.

Blair, Hunter. 2017a. *No Free Bridge: Why Public–Private Partnerships or Other 'Innovative' Financing of Infrastructure Will Not Save Taxpayers Money*. Economic Policy Institute, March 21.

Blair, Hunter. 2017b. *What Is the Ideal Mix of Federal, State, and Local Government Investment in*

Infrastructure? Economic Policy Institute, September 11.

Bivens, Josh. 2017. *The Potential Macroeconomic Benefits from Increasing Infrastructure Investment*. Economic Policy Institute, July 18.

Bureau of Economic Analysis (BEA). Various years. *National Income and Product Accounts [NIPA] Tables* [online data tables]. U.S. Department of Commerce.

Bureau of Labor Statistics (BLS). Various years. Labor Force Statistics from the Current Population Survey. U.S. Department of Labor.

Bureau of Labor Statistics (BLS). Various years. Local Area Unemployment Statistics. U.S. Department of Labor.

Foley, Duncan, Armon Rezai, and Lance Taylor. 2013. "The Social Cost of Carbon Emissions: Seven Propositions." *Economics Letters* vol. 121, no. 1.

Manning, Alan. 2010. "Imperfect Competition in the Labor Market." Centre for Economic Performance, London School of Economics and Political Science.

MIT Energy Initiative. 2013. *The MIT Utility of the Future Study*. Cambridge, Mass.

Organization of Economic Cooperation and Development (OECD). 2014. *Effective Public Investment across Levels of Government*.

Organization of Economic Cooperation and Development (OECD). 2017. *Getting Infrastucture Right: The Ten Key Governance Challenges and Policy Options*.

Pereira, Alfredo, and Jorge Andraz. 2004. "Public Highway Spending and State Spillovers in the US." *Applied Economics Letters* vol. 11, 785–88.

U.S. Department of Transportation (USDOT). 2016. "2017 TIGER Additional Guidance: Benefit-Cost Analysis Guidance for Applicants" [web page].

Weitzman, M.L. 2012. "GHG Targets as Insurance against Catastrophic Climate Damages." *Journal of Public Economic Theory* vol. 14, no. 2, 221–244.

Winkelmann, Liliana, and Rainer Winkelmann. 1998. "Why Are the Unemployed So Unhappy? Evidence from Panel Data." *Economica* vol. 65, 1–15.