

Budgeting for Investment

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Executive Summary

A potential area of consensus in Washington is on the need to increase investment in public infrastructure. But there is less agreement on how the federal budget process should treat investments that may have future economic and social returns. Some believe the current budget process is biased against public investment. However, there are challenges in defining such investment, identifying the degree of bias, and constructing an improved process.

As a prelude to reformed treatment of investment in the federal budget process, steps could be taken now to improve the information and analysis available to inform choices and help identify public investments that are most likely to yield social returns, justifying their up-front budgetary cost. To that end, Congress and the Administration should consider several process changes:

1. Establish and track investments as a separate budget classification, including both spending and tax expenditures that generate streams of future social benefit. Within that category, identify and track critical infrastructure investments or investments of national significance.
2. Improve measures of the cost of investments that generate returns.
3. Improve estimates of the social returns on public investments.

Introduction¹

A potential area of consensus seems to have emerged amid polarized debates about the federal government's role and size: the need to increase investment in public infrastructure. Across the political spectrum, many people have been arguing that federal funding is insufficient to maintain and improve America's infrastructure and other types of public investment, and that this is reducing the economy's long-run performance.²

Much recent attention has been given to alleged shortfalls in federal investment in public infrastructure: highways and bridges; water and sewer; ports and rail; and others. Most of this capital is owned and operated by lower levels of government or by private companies. However, spending on physical infrastructure is part of a broader category of spending (including spending through the tax code) that is distinguished by its potential for producing long-term returns in the form

of higher economic productivity and growth and, in many cases, other social benefits.

But how could the federal government budget for such investment spending in a responsible way? The standard rationale for public capital investments, and the evidence for their contribution to economic growth, is summarized by the Council of Economic Advisers (CEA) in the 2016 *Economic Report to the President*. As the Obama Administration CEA put it, "well-targeted infrastructure investments increase the economy's long-run growth potential."³ Many or most lawmakers in both parties would agree. The same could be said, with varying degrees of confidence and agreement, for other types of public investment – including research and development and human capital investment through education, training, and better health – again with the important proviso that, using the CEA's term, these are *well-targeted at*

¹ This report was presented to the National Budgeting Roundtable on January 26, 2017. Thanks to Paul Posner, Stuart Butler, Roy Meyers, and Marvin Phaup for their comments on earlier drafts.

² See Puentes and Galston, 2016.

³ CEA, 2016.

spending that will contribute to long-run economic and social performance.

There can be disagreement about whether we need more public investment and of what type, how the federal government can best support it, and whether now is the time for the government to borrow more for this purpose. The focus of this report is with how investment should be treated in the federal budget process to help Congress make wise decisions. A different treatment of investments in the budget process might improve decisions about where and how resources should be invested to promote future economic growth and other national policy objectives.

Problems with Today's Budgetary Treatment of Investment

We need to ask whether the current federal budget process serves to facilitate or hinder smart decisions about when and where to invest. An obstacle to such smart decision-making is that the current budget presentation and process make little distinction between investment and other spending, so long-term benefits are often ignored. Treating spending that produces long-term economic and budget returns the same as spending that does not have long-term effects tends to create a bias against spending to support investment.

Those in both parties who want to remove this bias, and who advocate a longer horizon for budgeting—including earlier recognition of major commitments for health and retirement—thus may want to consider giving parallel treatment to investments that promise to support future growth. But to advance that argument, and make the case for the distinctive character of investment spending and its potential long-term benefits, there need to be answers to a series of questions:

- How does the current budget process treat public capital investment and other forms of investment?
- Does a bias in the process actually lead to chronic underinvestment?
- Does the current federal budget process provide adequate incentives and information to support

decisions directing resources to investments with the highest social returns?

- Would a capital budget help?

What counts as federal investments?

Both the Office of Management and Budget (OMB) and the Congressional Budget Office (CBO) have defined federal investment spending as including spending on physical capital and infrastructure (regardless of who owns it), research and development spending, and spending for education and training.⁴ Neither has included tax expenditures in its estimates, meaning those features of the tax code that are the equivalent of spending on particular individuals or organizations. That is a shortcoming; it would not be too difficult to identify provisions of the tax code that support investment activities and thus could be included in the totals for investment. Doing so would serve not only to capture the full magnitude of investment but also to help highlight alternative ways of supporting investments. For example, during the 2016 election, the Trump campaign proposed to subsidize private equity financing of public infrastructure development using a tax credit; however, it might as easily have proposed a guarantee of private financing or direct subsidies to fund construction projects. Subsidies provided through the tax code and those provided through spending programs, in other words, can serve identical purposes.

Do other categories of spending not included in the current standard definition also constitute investments? Defense spending for weapons system development, military bases, hardware, and military research and development *are* included in the standard definition of public investment spending, accounting for about 40 percent of total federal investment.⁵ A case could be made that some defense spending, notably for spin-offs from military research and development, makes a long-term contribution to the economy and thus is indeed an economic investment.⁶ On the other hand, a complete assessment of investment spending as a component of defense spending would acknowledge that funds spent for military equipment and bases, or weapons R&D, may crowd out public spending for investments that contribute more

⁴ OMB, 2016; CBO, 2013.

⁵ Defense investment as defined by CBO and OMB includes physical capital and R&D (mostly development of weapons systems) but does not include military training. For a variety of reasons, the contribution of military investments to economic performance is less clear than that of non-defense investment. For details on defense

investment, see CBO (2013, pp. 7-12).

⁶ Capital asset purchases for defense are recorded as they are consumed (depreciated or destroyed) in the Bureau of Economic Affairs' National Income and Product Accounts (NIPA) estimates of capital investment. NIPA does not treat spending for education and training or research and development as capital spending.

directly to increasing private sector capital and labor productivity.

Another potential component of federal investment is housing. This is subsidized through direct spending, especially for low-income rental subsidies, but more heavily through tax expenditures to homeowners, including two of the largest tax expenditures—the mortgage interest deduction and non-taxation of owners' net imputed rental income. A much smaller low-income housing tax credit supports construction of low-rent apartments.⁷

It could be argued that subsidies to housing, because they are largely consumed by private households and have localized benefits, are not public investments in the same sense as investments that have mainly public and often national benefits. On the other hand, the capital tied up in housing has still been diverted from other potential uses with possibly higher economic returns; treating these subsidies as an alternative to other budget support for private investment and growth would highlight this tradeoff.

The closer we look at federal investment, the more the variety in its form and likely effects becomes apparent, suggesting perhaps that efforts to improve budget decisions should focus not so much on the aggregate level of federal investment as on the details of investment choices and their implications. Based on evidence of their long-term benefits, for instance, various early childhood interventions can be treated as investments intended to produce life-long gains in health and other aspects of livelihood. Thus, a case could be

made for including as investments at least a portion of housing vouchers that help low-income families with children pay the rent and move to opportunity. However, sorting out what parts of spending are true investments is challenging. Hence, a decision to institute special treatment of investments in the budget should be preceded by a careful effort to specify which spending programs and tax expenditures are truly designed to produce long-term social and economic returns on their up-front budgetary cost.

Is there evidence of process bias?

Is there really a bias against investments in the current budget process? To consider this, and estimate the extent to which investments may be disadvantaged in the current process relative to other spending, we need to consider both empirical evidence and political logic.

Consider the empirical case. Whether measured narrowly as non-defense capital, (i.e., public infrastructure spending) or broadly as total federal investment, including R&D, education and training, the pattern of federal spending has certainly changed over time. It peaked, both as a percent of outlays and as a percent of GDP, in the 1960s and 1970s, which coincided with such endeavors as the construction of the interstate highway system and missions to the moon. But investment (other than for defense) dropped sharply during the Reagan presidency and has since been roughly constant as a proportion of GDP (see figures 1 and 2, reproduced from Jacobs, 2016).⁸

⁷ The two largest homeownership provisions reduced revenue by over \$160 billion in 2016. With revenue losses of about \$8 billion annually, the LIHTC is by far the largest housing construction program in the budget.

⁸ Public investment by OECD countries, measured narrowly as gross fixed capital formation, declined as a percent of GDP from the mid-1980s to 2006 (OECD, 2011).

Figure 1: Major Public Physical Non-Defense Capital Spending, Direct Federal Plus Grants, 1946-2014.

Source: OMB Historical Table 9.3, <https://www.whitehouse.gov/omb/budget/Historicals>

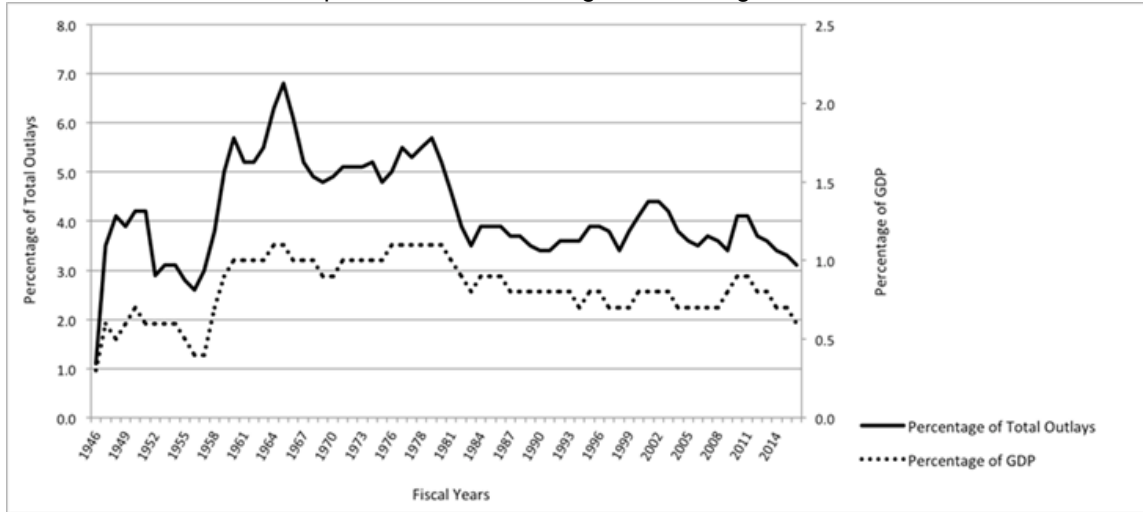
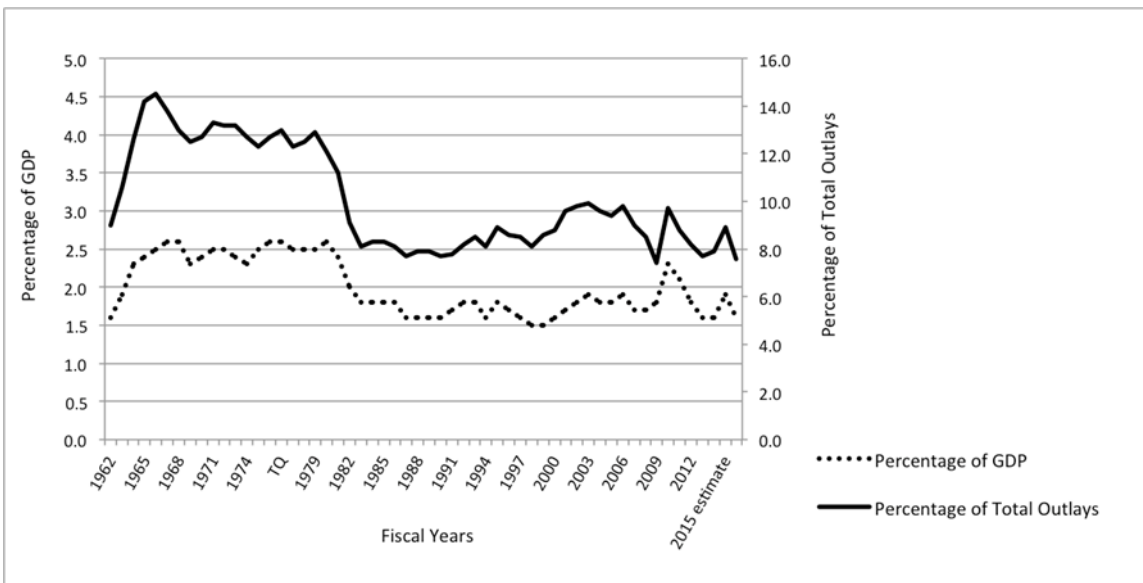


Figure 2: Total Investment Outlays (including Major Public Physical Capital, R&D, and Education and Training), 1962-2015 (estimate).

Source: OMB Historical Table 9.1, <https://www.whitehouse.gov/omb/budget/Historicals>



It is difficult to make a broad statement about the sufficiency of federal infrastructure or other investment funding, although many have cited evidence that the inadequate maintenance of various categories of infrastructure has increased transportation costs and reduced economic performance.⁹ Evidence is mixed; for example, it is

interesting to note that over the last decade, while funding for bridge projects remained stable at about \$6 to \$7 billion annually, the number of bridges classified as structurally deficient fell from 13 percent to 10 percent nationwide.¹⁰

These numbers do *not* include tax expenditures supporting investment. However, the

⁹ Puentes and Galston, 2016.

¹⁰ GAO, 2016, p. 10.

use of tax expenditures has generally increased over the period, including those supporting certain kinds of private corporate and personal investment. In addition to those for housing, major examples of tax expenditures supporting investment include provisions related to higher education, energy production and investment, and regional development. If housing support through the tax code were viewed as investment, tax expenditures for homeowners would sharply increase the proportion of tax expenditures categorized as investments.

Apart from the empirical evidence, do particular features of the current budget process tilt against investment? Certainly, federal investment that is part of the discretionary budget has been squeezed by the statutory cap on this category of spending. In a working paper for the National Budgeting Roundtable, Alan Jacobs argues that the policy-making process, including the budget process, is biased against policies that address the long term. His argument, in brief, is that “it is *generally* difficult for politicians in a democratic political system to impose costs on citizens in the present for the sake of long-term policy benefits.” He observes that public investment poses an intertemporal dilemma for political leaders, in that its costs must be paid before its full *benefits* have been realized.¹¹ Political resistance to investments may increase to the extent that the public has doubts about the future realization of benefits, perhaps because they do not trust that budget commitments will be kept.

An exception to this might be so-called ‘pork barrel’ spending, the controversial practice of putting earmarks in appropriations proposed by individual members of Congress for projects in their districts. However, this way of prioritizing capital spending tilts toward projects with localized and sometimes dubious societal benefits rather than projects with measurable economic merit. In the Clinton Administration, the President briefly possessed and used authority to veto individual ‘line-items’ in appropriations, but this was found unconstitutional. Since 2010, Congress has curtailed—or sometimes disguised—such earmarking; but given its popularity as a way to gain

votes and grease the legislative wheels, it is likely to reemerge.

The case for process bias against investment spending is thus not clear cut. In fact, it can be argued that the establishment of separate caps for outlays and budget authority effectively tilts in favor of investment. Under a budget authority (BA) cap, capital spending can compete well with other funding because capital is slower to spend out and therefore requires less BA in the first year to support a given level of outlays.¹²

Would a capital budget help?

One way to deal with the timing mismatch between up-front costs and long-term economic benefits, and the presumed resulting bias against capital spending, would be to segregate specified investments into a separate capital budget. Private sector accounting and the budgets of most states already make this distinction. Many advocates of a separate federal capital budget propose that the capital budget spread project costs over the period when benefits would accrue by recording costs as capital depreciates or is consumed, thus reducing or eliminating the timing mismatch.

However, there are concerns. CBO has noted that introducing a capital budget using accrual concepts would “increase complexity, diminish transparency, and make the federal budget process more sensitive to small changes in assumed parameters, such as depreciation rates.”¹³ Contributing to the problem of defining which investments would receive such treatment, the shift would require decisions on whether to include assets which the federal government funds but does not own or operate. As noted earlier, most federal capital spending is for assets owned by others.

Some who have opposed the idea of a federal capital budget have also been concerned that relaxing constraints against federal capital spending would crowd out either private investment or competing public spending that might bring higher social returns. They also worry about the lack of discipline on such spending, unlike the discipline exerted in the private sector by market tests.¹⁴ For instance, if a federal capital budget records costs only as capital is consumed or depreciated, budgets

¹¹ Jacobs, pp., 5,8.

¹² An important exception that creates a disincentive for funding physical capital is the OMB-enforced requirement that full BA for federal capital projects be appropriated up front. Faced with a spike in funding of projects’ full costs in a single year, agencies may decide against going forward (GAO, 1998, pp. 2-3). To avoid this problem, large agencies like the Department of Defense aggregate investments

in budget accounts that, in effect, are dedicated capital accounts. Other agencies establish working capital funds to help finance these costs. Still other agencies, like the Department of Commerce or the Army Corps of Engineers, receive incremental funding for capital by rule of the appropriators, contradicting OMB policy.

¹³ CBO, 2008, p. 1.

¹⁴ See Schultze, 1998.

recognize only a small fraction of the cost of a capital project up front; that would increase incentives for additional capital spending that may not be justified based on its long-term benefit or its cost to the government, including future maintenance requirements. Other national governments that have introduced accrual budgeting for capital have tried in various ways to mitigate such incentive problems;¹⁵ yet some countries have abandoned capital budgeting, partly from concern that this approach undermined fiscal discipline.¹⁶

What Budget Process Reforms Would Support Wise Federal Investments?

Debates about the level of federal investment should not distract us from the bigger problem of ensuring that, in a period of chronic fiscal imbalance, resources are used in ways most likely to provide long-term economic returns by increasing the productivity of both labor and capital. To the extent that there are biases or incentive problems with the current treatment of investments in the federal budget, reforms are needed to correct for those and lead to better choices. These reforms need to address decisions both about the overall *mix* between investment and current consumption and the *returns* on investments supported through the budget.

1) Establish separate classifications and allocations.

When developing and enacting budgets, it could help to systematically categorize individual programs of spending and tax expenditures as either *investment* or *consumption*, recognizing that the line between these two is at best fuzzy and that most spending can be described as a blend. In an environment where spending caps are applied, classifying a set of programs as ‘investments’ might help policy makers make better decisions. If they

chose to favor this category of spending (or tax expenditure) over others, the prioritization of investment would then be clear; legislators could set a less restrictive cap on investment spending while perhaps tightening the cap on other spending.

In constructing a new category of federal investment spending, it makes sense to begin with the standard set of spending programs already identified as such by OMB and CBO, including grant programs used primarily to support capital projects. It also makes sense to expand the set to include tax expenditures that similarly support physical capital, R&D, and education and training. The Government Accountability Office (GAO) has repeatedly expressed support for establishing a separate category of investment spending in the budget process.¹⁷ To make this category clear and distinct, a process reform would need to identify spending programs and tax expenditures that have a similar profile of up-front costs yielding primarily long-term economic and social benefits. The congressional budget resolution might then include a separate allocation each year for appropriated investment spending.¹⁸

2) Improve measures of costs.

To help decision-makers properly trade off among competing investments and other resource uses, the costs of policy choices that generate a sequence of cash flows from and to the Treasury over a period of years could be recorded, in today’s dollars, in the year resources are committed. This change was made in the 1992 credit reform act for loan and loan guarantee programs which support a broad range of public investments. However, other public investments supported by cash grants, equity investments, or tax expenditures also produce future returns to the Treasury that will partly offset their full up-front costs over time. Ignoring their effects on future receipts overstates their cost in a given year’s budget, relative to spending that yields no such offsetting return to the Treasury. It can be

¹⁵ See Robinson, 2009, pp. 21-25.

¹⁶ CBO, 2008, pp. 12-13.

¹⁷ A 1995 GAO report noted that establishing an “investment component within the discretionary spending caps would be an appropriate and practical approach to supplement the unified budget’s focus on macroeconomic issues” and that “a mechanism is needed to focus decision-making on the appropriate allocation of resources, such as establishing investment targets within the discretionary spending caps (report highlights, <http://www.gao.gov/products/T-AIMD-95-178>).” See also GAO (1998) pp. 5-8. A few countries have followed what is referred to as a “golden rule” that allows the government to borrow to invest but not to fund current consumption. The IMF observes that the UK’s “golden rule”, in place from 1997 to 2009, “helped public investment recover from historic lows in the

1990s (IMF, 2015, p. 31).”

¹⁸ From a national interest perspective, a case can be made for favoring certain types of federal investment spending over others. For instance, within the larger classification of physical capital spending, it may be useful to specify a subset of federal investments that contribute to the nation’s *critical infrastructure* – assets, systems, and networks identified by the Department of Homeland Security as forming the backbone of the national economy, security, and health (White House, 2013). Their protection and resilience are of such importance that these arguably deserve higher priority in the federal budget than other investments. It makes sense, therefore, to highlight and separately track such critical investments as potential budget priorities.

argued, therefore, that budgets should measure and appropriate the net costs of investments to level the playing field with other types of spending and to properly compare the costs of alternative federal investments.¹⁹

As noted, federal loans or loan guarantees for investment already receive such treatment. Extending credit treatment to investment programs that use equity financing would more accurately record the current cost of these commitments in the federal budget. The same would apply to equity provided to an infrastructure bank or other new public capital financing entity created as a government corporation, as some have proposed.²⁰ There is precedent for this change in the budget treatment mandated in the 2008 legislation authorizing the Treasury's Troubled Asset Relief Program (TARP), which employed equity purchases as well as direct loans and loan guarantees.²¹ After all, government equity financing is not functionally different from government guarantees to support debt financing of similar projects.²²

Changing the measure of cost would better align the timing of budgetary cost recognition for programs where the initial cash outlay overstates the net cost to the budget in most cases. Experience with this treatment of loans and loan guarantees since 1992 suggests that focusing on net cost and requiring that this cost be appropriated up front helps appropriators make proper tradeoffs between these programs and other spending. Taking such an approach eliminates a bias toward guarantees and against direct loans that existed under cash budgeting and may provide incentives for budgeters to adopt reforms that reduce program costs or to offset costs by charging fees.²³

However, this treatment cannot apply to investments that take the form of grants-in-aid to other governments or businesses to be used for physical capital development, nor to grants to pay for college or training. It also cannot apply to tax expenditures. All of these are scored in the current process on a cash basis. However, some of these expenditures could be budgeted on a basis that recognizes the present value of their expected net cost to the government in the year when they are

authorized. One way to expand accrual treatment to these other investment programs is to redesign them to employ loans or guarantees. This can only be done, however, to the extent that the federal government can make a plausible claim on future repayments or identify and claim a security interest if terms of the credit are violated. Another way to extend accrual treatment to such investments, including tax expenditures, would be to net against their initial cost any expected future payments to the Treasury. This could be done where there are identifiable private recipients who can be reliably estimated to gain future income subject to tax; for example, companies will increase R&D spending supported by the credit with the expectation that this will yield higher future profits, which can be expected to increase their tax liability.

In all such cases, a change to accrual treatment would reduce the estimated budgetary cost of federal investments by the present value of amounts that would accrue through credit repayments or recoveries or from higher future tax payments to the Treasury by private direct beneficiaries. But, if this change were made, the question is what would prevent advocates from counting the revenue effects of economic growth attributed to particular infrastructure or education investments over time as an offset in the budget process to scoring of current costs? To avoid opening a large back door to new spending, it would be important to establish a clearly enforceable rule that only the gains to identifiable direct recipients estimated to result in higher expected future receipts can be counted as offsets when estimating budget costs.

Where would this change leave other investments—including those for which there is little potential return to private investors even with federal guarantees to support private lending or direct equity investment? These include critical investments for which there is no potential private market, so excluding them from accrual treatment creates a new potential process bias.

However, even if the costs of many investments continue to be recorded on a cash basis, any process bias against investment can be

¹⁹ This would be consistent with a recent study's recommendation that the budget change the OMB rule requiring that the full cash cost of federal government operating and capital leases, capital investments, and purchases be appropriated and scored up front. Appropriators have provided frequent exceptions to the current rule, allowing the costs of such investments to be spread over multiple fiscal years. In place of the current regime, the study group recommends that these types of investments be evaluated on a life-cycle cost basis and budget authority for the net present value of the investment recorded

in the year of the supporting appropriation. See National Council for Public-Private Partnership and Urban Land Institute, 2016, pp. 9-10.

²⁰ Galston and Davis, 2013.

²¹ Rhinesmith, 2016.

²² This is consistent with the Modigliani-Miller theorem that a project's cost of capital is not dependent on the mix of equity and debt used to finance it (see Lucas, 2014, p. 3).

²³ GAO, 2016.

reduced to the extent that better information is developed about their expected social returns. As discussed below, a way to help policy makers make better choices about both the level and mix of investments is to develop and use reliable measures of the expected societal returns from proposed investments, prioritizing those with the highest expected returns to the economy or other societal objectives.

3) Improve estimates of social returns.

The budget only records the **costs** of spending programs or tax expenditures. However, to make better choices about how much and where to invest, we need a method of comparing their expected **benefits** with their costs. Suppose we were able to rank programs or classes of projects by their expected societal return on initial investment (SROI), to inform either budget choices or later project selection. If we could estimate such social returns on investment for categories of investment, this would provide a basis for distinguishing wise public investments from those that promise low or no return to society and to the economy. However, major analytical challenges and much empirical work lie ahead before such estimates can be made with confidence and used routinely to inform budget choices. CBO could guide and contribute to such an effort in coming years, while budgets could present such SROI estimates where reliable information is available.

Analytical issues. To reliably estimate and rank investment programs or even specific projects based on their expected contribution to the economy and society, several analytical issues must be addressed. One big hurdle to valuing investments is how to discount the future stream of project effects, including primary and secondary economic effects. Another is how to measure these effects and their distribution, taking into account how other governments and private investors will alter their behavior over time in response to federal support for particular investments.

CBO's work on this to date highlights the uncertainties inherent in predicting and measuring such effects.²⁴ It has published its best efforts to estimate the average economic returns on federal investment. These include the short-term boost to growth from construction jobs, the longer-term return to the economy and the budget, and the offsetting increase in private cost of capital if federal borrowing is increased. CBO concludes that the average return on federal investment is roughly half the average return on private investment. However, as CBO acknowledges, the research basis for these estimates is shaky.²⁵ Perhaps more importantly, many of the public assets created by federal spending could not be reproduced in the private market and yet undergird the nation's economic growth or produce other widely shared benefits that could not be priced or purchased in private markets.

More empirical research will yield much better, and more differentiated, estimates of rates of societal return from different types of investment.²⁶ For example, Larry Summers observed at a recent Brookings Institution event that research shows an "extraordinarily high rate of return" on spending on highway maintenance, whereas returns on heavy duty mass transportation projects are generally far lower.²⁷ At the same event, Kristen Butcher noted that "a robust body of research indicating that children's environment in the prenatal, neonatal, and early childhood periods can profoundly affect the capacities that children develop. These capacities persist into adulthood, affecting earnings, health, and other life outcomes."²⁸ She identifies specific federal program interventions that have been found to have high social returns by altering early childhood environments. Much of the evidence on social returns from physical and human capital investments has only recently become available, in part because rigorous longitudinal studies over decades are needed to fully capture the returns on some investments. The recent emergence of such evidence of long-term returns argues for expanding this type of research.

²⁴ CBO, 2016. The methodological challenges of estimating returns on public investment also are evidenced by benefit-cost studies conducted since 2006 by the Army Corps of Engineers to inform budgets. GAO (2010) has been critical of the methods employed in these studies.

²⁵ CBO, 2016, pp. 2-4.

²⁶ Selecting the correct rate at which to discount future costs and benefits is critical to properly estimating and comparing the values of costs or benefits received at various times. One way to choose the discount rate is *empirical*: asking what is the market cost of capital to finance similar activities, assuming comparable investments are

financed in the private sector. Another way to choose the discount rate is *normative*: it puts a value on the future compared to today. If, for example, one is primarily concerned about today's population and not particularly concerned about future generations, then a high discount rate would be appropriate. Selecting a higher discount rate in this fashion assumes either that the effects of today's investments are highly uncertain, or that the ability of future generations to deal with those effects will be sufficient to conclude that they can handle them as needed.

²⁷ Summers, 2017.

²⁸ Butcher, 2017, p. 1.

To provide useful estimates of the social benefits of federal investment spending, it is essential to reduce the nominal social return on such spending both for: (1) the extent to which subsidized activity merely substitutes for other investment that would have occurred in the absence of federal support; and (2) the extent to which new subsidized investment competes with and accelerates the loss of existing capital. What appears initially to be increased investment often either substitutes for comparable unsubsidized investment or, if initially incremental, accelerates the demise of established capital—in either case producing no net increase.

Thus, to assess the economic returns from specific investments or investment programs it is necessary to determine the extent to which subsidized investments create new assets that would not be produced in the absence of federal support. In other words, to what extent does federally subsidized investment merely substitute for (and subsidize) private investment that would have occurred in the absence of subsidy, shifting capital to take advantage of lower financing costs? The Trump proposal during the election campaign to subsidize private equity investment in infrastructure projects with a new tax credit provides a good example of the analytical problem. Investors are of course drawn to such incentives like bees to honey, but many of the resulting projects would likely be ones already likely to go ahead in the same period using other financing.

Moreover, if an investment is genuinely incremental, adding to the capital stock, will it be offset over time by the accelerated failure or abandonment of existing investments that cannot compete with newer subsidized activity? A good example of this phenomenon is the use of the Low-income Housing Tax Credit for apartment construction. Over time, building subsidized projects such as these, especially in soft housing markets, accelerates the abandonment of older, less appealing unsubsidized low-cost apartments, partly negating the gain in affordable supply.²⁹

Analytically, a strong base of empirical evidence and strong methods are needed to estimate the net gain in investment, discounted for these offsets. To address these and other research

challenges, an effort is needed to improve methods of estimating the social returns over time from alternative types of or approaches to subsidized investment.³⁰ This work would eventually yield the evidence required to evaluate and rank investment programs and projects based on their expected rates of return in relation to economic growth and other policy objectives.

Using investment cost and return information in the budget process. As improved estimates of both the net costs of and expected social returns from investment are developed, they can be deployed at critical points in the budget process to better inform decisions. A first step could be for budgets to publish SROI measures wherever reliable estimates are available. A broader process change that would focus more attention on strategic alternatives to advance major national policy objectives could be a good way to deploy such estimates in the decision process.³¹ A 2015 survey of infrastructure spending internationally found “weak correlation between average annual public investments over the previous three years and the perceived improvement in infrastructure coverage and quality.”³² The International Monetary Fund (IMF) also observed that “more binding fiscal frameworks, stricter criteria for project appraisal and selection, and tighter controls over capital budget execution constrain public investment by raising the threshold for financing new projects.”³³ In countries with more rigorous review of proposed public investments, the effect seems to have been to reduce investment levels but at the same time to increase investments’ effectiveness as measured by contributions to economic performance.

Conclusion

Budgets should display reliable present value estimates of expected returns on investments supported by federal spending and tax expenditures, ranking these where possible. With such reliable information in hand, the President’s and congressional budget procedures can use it to prioritize various types of investment and other resource commitments. To identify wise investments likely to yield long-term gains in economic productivity and other benefits, the

²⁹ These issues can be addressed to some extent through program design. For example, the R&D tax credit is available only for *increased* qualifying research and experimentation expenses above an established baseline rate of expenses for the same activities.

³⁰ State of the art guidelines for measuring SROI have been produced by the SROI Network (2012) and the American Public Human

Services Association (2013).

³¹ For a description of this “portfolio budgeting” approach, see Posner and Redburn (2016).

³² IMF, 2015, p. 13.

³³ IMF, 2015, p. 30.

proposed procedural reforms would help give more attention to bigger strategic alternatives to address the largest national challenges and policy objectives.

A country facing a long-term fiscal imbalance cannot afford unwise resource choices, especially those that generate short-term profits for developers but are unproductive over the long horizon. The greater risk facing the U.S. may not be that it will budget too little for infrastructure or other investments, but that it will make wasteful investments that reduce rather than increase the economy's growth potential. Proper use in budgeting of good information about costs and social returns from alternative resource uses is a good way to reduce this risk.

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