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Public Spending for Long-Run Growth: A Practitioners' View

Norman Gemmell, Florian Misch, and Blanca Moreno-Dodson

By financing public goods and services that enhance productivity and promote private investment, public spending is widely believed to be critical for long-run growth. Such effects are distinct from any short-run Keynesian response to a public spending stimulus. While a short-run response generally operates through aggregate demand, long-run growth effects alter aggregate supply conditions. While academic literature generally supports the belief that public spending promotes growth in the long run, understanding which public expenditure allocations can trigger such effects in a particular country setting is challenging in practice. The objective of this note[1] is to review the trade-offs faced by fiscal policy makers in developing countries who are considering using public expenditure policy as an instrument to promote long-run growth, provide guidance from the empirical literature, and review the types of data sources that are helpful in this context.

The existence of long-run growth[2] effects from public spending is hardly contested in policy debates. At the international level, assistance to developing countries comes mostly in the form of loans and grants to create fiscal space to ultimately increase public spending, at least temporarily. In the European Union, the second largest budget item is the cohesion policy, which essentially consists of grants that are mostly given to relatively less developed regions to spur growth. Finally, at the national level, similar systems exist in many countries, where relatively rich regions or the central government make transfers to support long-run growth in economically lagging parts of the country.

Supporting Theoretical and Empirical Evidence

Growth literature that has emerged over the last 20 years supports the belief that public spending affects long-run growth.[3] First, standard growth models explaining total output level as a function of factor inputs (capital and labor), as well as the productivity through which these inputs are combined, have been extended by incorporating various elements of fiscal policy. In particular, the growth models assume that the government raises taxes to finance various types of public expenditures that raise the marginal product of factor inputs in the output production process. This may, for instance, be motivated by the fact that private equipment, such as machinery and vehicles, can be employed more productively when public infrastructure is in place. Other models embody additional transmission channels through which public spending affects aggregate private investment. In neoclassical models, there are effects on growth only for a transitional period, as the economy moves to its new level of output—though the length of this transition remains subject to debate and may last a long time. The 1990s, however, saw the development of endogenous growth models in which, under certain assumptions, various fiscal policy

parameters have more persistent effects by affecting the long-run growth rate of the economy.

Second, empirical evidence increasingly suggests that, in both developed and developing countries, fiscal policy affects long-run growth, which broadly confirms the predictions of the theoretical literature. These studies consider fiscal policy parameters as explanatory variables and identify various public expenditure categories that tend to promote long-run growth. Although most of the existing studies are based on cross-country data, which have been somewhat challenged by various papers, more recent studies have resolved a number of econometric issues and appear to be more robust. In addition, a few more recent papers use national and subnational fiscal policy data from one country. There is also a large body of literature on the impact of the public infrastructure stock on economic performance, which has been reviewed in detail by Romp and de Haan (2007).

Third, there is strand of the growth literature, including Temple (1999) and Rodrik (2003), that identifies more fundamental determinants of growth.[4] This literature has identified three deep determinants of growth: trade, institutions, and geography. Here, anecdotal evidence also suggests that many of these factors and/or their effects are influenced by public expenditure. Poor geography may at least partially be overcome through, for example, public spending on better infrastructure links, public health programs, and agricultural research. The quality of institutions also depends on public services such as the judiciary and public administration, which are both, at least partially, financed through public spending. Finally, Anderson and van Wincoop (2004) show that trade costs are large and likely to affect trade patterns. Further, trade costs are influenced by the level and quality of publicly financed services, partially or totally, such as customs, trade logistics, and transport links.

Fiscal Policy Challenges in Practice

From a policy perspective, it is essential to understand what types of public spending allocations promote long-run growth in a particular country setting. This is challenging, however, given that fiscal policy is subject to inherent trade-offs that arise in part due to government budget constraints, which are difficult to evaluate. The fundamental property of the government budget constraint is that, like any other identity, it requires every fiscal change to be offset by a compensating change. Increases in a certain category of public spending must be financed by increases in tax revenue, in the deficit, or in the level of grants. Otherwise, other types of spending would have to be lowered, or the offsetting mechanism could be a combination of some or all those elements. The net effects of any fiscal change on growth therefore depend on the way it is offset. The direct and indirect growth effects of the offsetting element may have similar or opposite signs. In addition, the growth effects of alternative offsetting changes are likely to differ in magnitude and time horizon.

The composition of public spending

Since not all types of public spending have the same level of importance, increasing certain public spending types at the expense of others, on a pro rata basis, affects long-run growth. Therefore, the relative productivity of different public expenditure categories is critical for policy makers to determine the composition of public spending. To this end, policy analysis sometimes distinguishes between capital and current government spending to predict the growth effects of public spending. Underlying this categorization is the belief that capital spending leads to the accumulation of public capital and therefore to higher economic growth, whereas current or consumptive spending affects, at best, welfare, while being growth neutral, or in a more pessimistic scenario, is growth inhibiting and may not even affect welfare.

However, this approach is being increasingly questioned by economic research. In models of growth and public finance, the growth effects of public spending depend on whether the particular types of public spending affect the productivity of labor and private capital, and on the magnitude of these effects. In other words, whether public spending results in the accumulation of public capital is less relevant. Rather, through affecting private productivity, certain types of public spending potentially raise the returns to investment and thereby the rate of total (private and public) capital accumulation. It is the latter transmission channel that is essential to understand the effects of public spending on growth. Further, alternative approaches emphasize that it is essential to consider capital and current expenditures together, given the fact that they usually have a joint effect on growth and that their distinction is often mechanical and artificial in practice.

In this note, the term "growth-enhancing expenditure"[5] refers to public spending categories that affect private sector productivity and private investment. In the context of developing countries, empirical studies usually consider public spending on education and research, health, transport, communication, water supply, energy, and law enforcement to be, a priori, growth enhancing. However, both the intersectoral and intrasectoral composition of public spending that are conducive to growth need to be determined in the specific country context. By contrast, there are those public spending categories that are, a priori, not expected to affect private sector productivity, and, taken by themselves, are therefore expected to be growth neutral, at best. However, it is important to recognize that nonproductive public spending may fulfill important roles from a welfare point of view.

The level of public spending

Given the government budget constraint, the effects of increasing the overall level of public spending on growth are ambiguous. First, they depend on whether there are across-the-

board changes or changes to the particular types of public spending being increased. However (and second), even if the overall spending increase is driven by spending categories that are supposedly growth promoting, the government budget constraint dictates that the "net effects" of public spending increases depend on the exact financing mechanism, that is, how such an increase is financed. This implies that even if certain types of public expenditures are expected to be beneficial for growth, governments should not automatically finance them.

Short-run versus long-run growth

During economic downturns, governments may increase public spending as a means of stabilizing aggregate demand. Ideally, stimulus packages meet both the objectives of short-run output stabilization and long-run growth promotion, but, in practice, numerous trade-offs arise. For example, public investment items are often considered a key element of short-run stimulus programs. However, existing evidence on their impact is mixed, and in some cases negative. The objective of short-run stabilization often dictates that any public investment projects financed be labor intensive and able to be quickly implemented. By contrast, large and complex investment projects (such as major roads, railways, or electricity generation facilities), which are often required to remove bottlenecks for growth, are more likely to be subject to long implementation lags and may be less labor intensive, and therefore less attractive as stimulus plans. Finally, stimulus programs aimed at short-run stabilization may be designed to be more labor intensive than required, thereby creating inefficiencies even if, in principle, they could contribute to long-run growth.

Policy Insights from Fiscal Policy Growth Literature

Empirical growth literature presents predictions for fiscal changes that promote long-run growth; table 1 includes a summary of these predictions. The literature distinguishes between growth-enhancing and growth-neutral public spending, as described above, and differentiates between tax types labeled as "distortionary," expected to adversely affect growth through lowering the returns to private investment, and those labeled as "nondistortionary," which, in principle, should not affect private investment choices and can therefore be expected to be growth neutral. In the context of this literature, corporate and personal income taxes are considered more distortionary, while consumption taxes are usually seen as nondistortionary with respect to economic activity and growth.

Categorizing public expenditures and tax types in this way allows analysis to visualize potential long-run growth effects of fiscal policy that depends on both the level and the composition of public expenditures, as well as the forms of taxation, or deficit, used to finance them. Positive, negative, or zero effects are each possible, depending on the combinations of different elements of fiscal policy used.

Table 1 suggests that reallocating public resources from growth-neutral categories to growth-enhancing categories can be expected to have a positive impact on growth. Similarly, an increase in growth-enhancing expenditures financed by nondistortionary taxation is also likely to promote long-run growth. By contrast, it is more difficult to judge whether debt-financed increases in growth-enhancing public spending are beneficial or not. While unsustainable public debt levels do endanger macroeconomic stability and therefore undermine private investment and growth, it can be argued that growth-enhancing spending, for instance, will pay for itself through faster long-run growth, which, in turn, generates higher public revenue. However, this is only the case if the returns on public spending, reflected in higher growth rates, exceed the interest on debt to be repaid, which is often relatively high in developing countries, reflecting the perceived danger of sovereign default. The literature therefore suggests that the levels of both the deficit and the accumulated debt matter for the growth effects, as shown in table 1.

In addition to the direction of the growth effects, estimates of the magnitude of some (but not all) types of public spending changes can be extracted from this literature. However, observation shows a fairly high degree of robustness is still lacking. Some of the differences in the results can be attributed to the econometric specifications used and the expenditure changes being estimated, but this feature makes it hard to compare and to verify individual parameter estimates. In addition, using the reported estimates to predict the effects of changes of functionally disaggregated intrasectoral expen-

Table 1. Expected Growth Effects of Public Spending Changes

Increase of / financed by	Growth-enhancing expenditure	Growth-neutral expenditure
Growth-enhancing expenditure	-	Negative growth effects
Growth-neutral expenditure	Positive growth effects	-
Distortionary taxation	Ambiguous growth effects	Negative growth effects
Nondistortionary taxation	Positive growth effects	Zero growth effect
Debt accumulation (deficit < 1.5% of GDP)	Positive growth effects	Negative or zero growth effects
Debt accumulation (deficit > 1.5% of GDP)	Negative growth effects	Negative growth effects

Source: Adam and Bevan (2005).
Note: GDP = gross domestic product.

diture categories—for instance, expenditure types within the education sector (primary, secondary, and so forth)—is also problematic for various reasons. Gemmell, Misch, and Moreno-Dodson (2012) provide detailed summary tables containing the estimates of the growth effects.

Especially in cross-country studies, unobserved heterogeneity may be one of the reasons why some of the estimates are not robust. In turn, one potential source of heterogeneity is related to unobserved differences in the actual execution/implementation of public spending—that is, the extent to which public spending actually translates into public services delivered (such as teachers performing their duties in school and students learning more) and public infrastructure assets being built (such as roads being constructed and used by the public).

Poor governance is the prime cause of low levels of public spending execution/implementation, which in turn may be a significantly more important policy issue than both the composition and level of public spending. Evidence from public expenditure tracking surveys that trace the flow of public resources from origin to destination suggests that low accountability and public spending leakages are the primary concern of policy makers and the area in which improvements may have greater effects on growth.[6] For example, studies may find that public spending on roads has hardly any growth effects simply because the resources are ultimately deviated for other purposes and not used for road construction, although they still appear in the government budget as infrastructure spending.

As a consequence, it is important that any country-level analysis of the growth effects of fiscal policy exploits data sources that are more innovative compared to cross-country macrodata, which existing literature predominantly uses. Examples of such alternative data include subnational fiscal policy data, firm-level data, and internationally comparable indicators of government effectiveness that are available for the majority of countries and that may be helpful to evaluate the effects of fiscal changes.[7]

About the Authors

Norman Gemmell is *Holder* of the *Chair* in *Public Finance* at *Victoria University* in Wellington, New Zealand. *Florian Misch* is *Deputy Head* of the *Corporate Taxation and Public Finance Department* at the *Centre for European Economic Research* in Mannheim, Germany, and a *Consultant* at the World Bank. *Blanca Moreno-Dodson* is a *Lead Economist* at the *World Bank*.

Notes

1. This *Economic Premise* summarizes Gemmell, Misch, and Moreno-Dodson (2012).
2. In this context, "long-run" as a time period is defined as longer than three years.
3. Gemmell, Misch, and Moreno-Dodson (2012) briefly summarize this literature.
4. Other prominent contributions include Sachs and Warner (1995); Krueger (1998); Acemoglu, Johnson, and Robinson (2001); and Sachs (2001).
5. In the literature, this type of public spending is often called "productive" and "core."
6. Examples of tracking surveys include López-Cálix, Alcazar, and Wachtenheim (2002) and Reinikka and Svensson (2004).
7. Gemmell, Misch, and Moreno-Dodson (2012) outline these approaches in greater detail.

References

Acemoglu, D., S. Johnson, and J. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91 (5): 1369–1401.

Adam, Christopher S., and David. L. Bevan. 2005. "Fiscal Deficits and Growth in Developing Countries." *Journal of Public Economics* 89: 571–97.

Anderson, James E., and Eric van Wincoop. 2004. "Trade Costs." *Journal of Economic Literature* XLII: 691–751.

Gemmell, Norman, Florian Misch, and Blanca Moreno-Dodson. 2012. "Public Spending and Long-Run Growth in Practice: Concepts, Tools, and Evidence" (chapter 2). In *Is Fiscal Policy the Answer? A Developing Country Perspective,* ed. Blanca Moreno-Dodson. Washington, DC: World Bank.

Krueger, A. 1998. "Why Trade Liberalisation Is Good for Growth." *Economic Journal* 108 (450): 1513–22.

López-Cálix, J. R., L. Alcazar, and E. Wachtenheim. 2002. "Peru: Public Expenditure Tracking Study." World Bank, Washington, DC. http://siteresources.worldbank.org/INTPUBSERV/Resources/peru.pets.concept.sep9.2002.pdf.

Moreno-Dodson, Blanca (ed.). 2012. *Is Fiscal Policy the Answer? A Developing Country Perspective*. Washington, DC: World Bank.

Reinikka, R., and J. Svensson. 2004. "Local Capture: Evidence from a Central Government Transfer Program in Uganda." *Quarterly Journal of Economics* 119 (2): 679–705.

Rodrik, D. 2003. "Institutions, Integration, and Geography: In Search of the Deep Determinants of Economic Growth." In *In Search of Prosperity: Analytical Narratives on Economic Growth*, ed. D. Rodrik. Princeton, NJ: Princeton University Press.

Romp, W., and J. de Haan. 2007. "Public Capital and Economic Growth: A Critical Survey." *Perspektiven der Wirtschaftspolitik* 8 (S1): 6–52.

Sachs, J. 2001. "Tropical Underdevelopment." Working Paper 8199, National Bureau of Economic Research, Cambridge, MA.

Sachs, J., and A. Warner. 1995. "Economic Reform and the Process of Global Integration." *Brookings Papers on Economic Activity* 26: 1–118.

Temple, J. 1999. "The New Growth Evidence." *Journal of Economic Literature* 37 (1): 112–56.

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