

Invest One -- Get Two Extra: Public Investment Crowds In Private Investment



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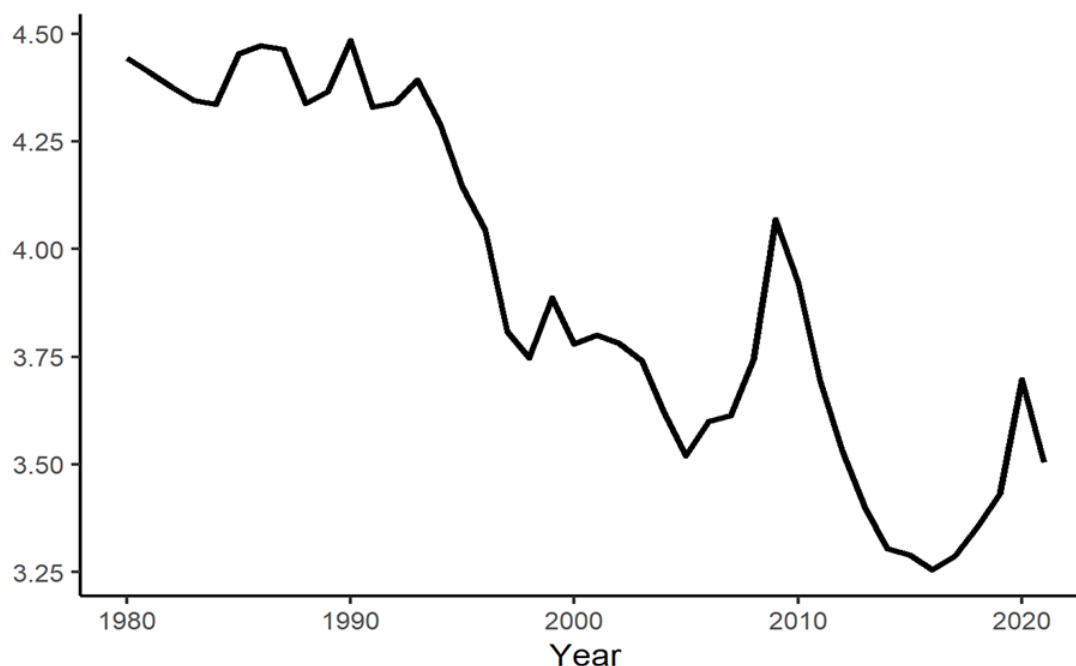
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Matvejevs and Tkacevs (2022) explore the relationship between public and private investment in OECD countries. They demonstrate that the immediate effect of public investment on private investment is either small or statistically insignificant, but in the medium to long term extra public investment crowds in private investment. The crowding-in effect arises because private investment adjusts to bring private capital closer to its long-term cointegrating relationship with public capital. The estimated 7-year cumulative median public investment multiplier is around 2, which means that each additional dollar of public investment attracts approximately two dollars of private investment. Public investment in economic affairs, education and health infrastructure appears the most effective in attracting private investment. Finally, the paper shows that the crowding-in effect gets stronger with improvements in the quality of institutions.

Motivation and novelty

Accumulation of public capital is an important engine of economic growth. However, over the past several decades and especially in the aftermath of the Great Recession, there has been a significant decline in public investment ratio (Figure 1). It left scars on economic growth, as GDP growth rates remained subdued throughout several years after the crisis. In addition to the direct negative impact on GDP, it might have led to a decline in private investment and further depressed output.

Figure 1: Public investment in OECD countries, % of GDP



Notes: Calculated as the ratio between the sum of public investments and the sum of gross domestic products of all OECD countries, for which data are available in each of the sample years. Source: OECD.

Standard macroeconomic theory makes the traditional argument that increasing any type of government spending promotes competition for the available resources, such as capital and labour, leading to higher interest rates and crowding out private investment. The possibility of the opposite crowding-in effect in the longer term was empirically explored by several studies. Using the neoclassical production function approach, Aschauer (1989) showed that in the short term higher public investment raises public capital and pushes the total capital stock of the economy above an optimal level chosen by rational economic agents, thus crowding out private investment. However, in the longer term it increases the marginal productivity of private capital and crowds in private investment.

The empirical evidence of the crowding-in effect was provided in Agrimon et al. (1997) for OECD countries, Erenburg (1993) for the US, Toshiya (2010) for Japan, Eden and Kraay (2016) for 36 low-income countries, Dreger and Reimers (2016) for the core countries of the euro area, etc. On the other hand, several studies demonstrated the absence of the crowding-in effect or the inconsistency in the results. Overall, the previous literature yields inconclusive evidence and suggests that the outcome depends on the chosen method of analysis.

Matvejevs and Tkacevs (2022) explore the relationship between public and private investment in OECD countries. They contribute to the existing literature by:

- calculating public investment multiplier (absent in the previous literature),
- investigating the possibility that public investment in specific areas is more successful in raising private capital productivity,
- exploring whether the quality of institutions could matter for the relationship between public and private investment.

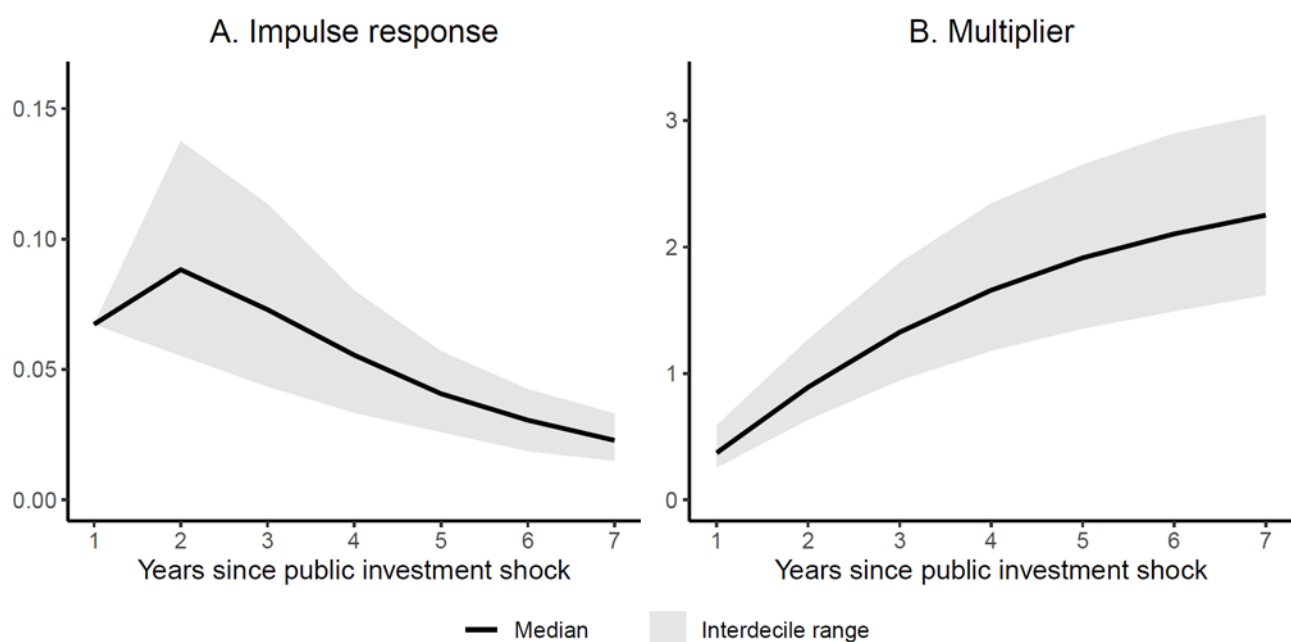
The study employs the stock-flow approach. First, it estimates the cointegrating relationship between public and private capital stocks. Next, it incorporates the deviation from the stock equilibrium in the private investment equations, estimated for a time horizon of up to 7 years using the Jorda local projection approach. The study uses annual panel data for OECD countries for the period between 1995 and 2017.

Public investment crowds in private investment, but by how much?

The study finds that public and private capital are cointegrated and private investment adjusts when public capital deviates from the long-term stock equilibrium. More specifically, public investment hikes increase public capital stock, leading to a growing gap between the two types of capital and eventually to a rise in private investment to accelerate private capital accumulation and restore the long-term equilibrium.

As the estimated impulse responses of private investment remain positive over the 7-year horizon, the public investment multiplier keeps rising over time, which implies that every dollar invested by the government has a meaningful lasting effect on attracting private investment over many years into the future (Figure 2). Over the period of three years, additional public investment crowds in extra private investment of approximately the same absolute amount. Seven years after the initial public investment shock, the cumulative multiplier reaches 2, indicating that an extra dollar of public investment eventually leads to two additional dollars of private investment.

Figure 2: Private investment impulse response to a public investment shock and public investment multiplier



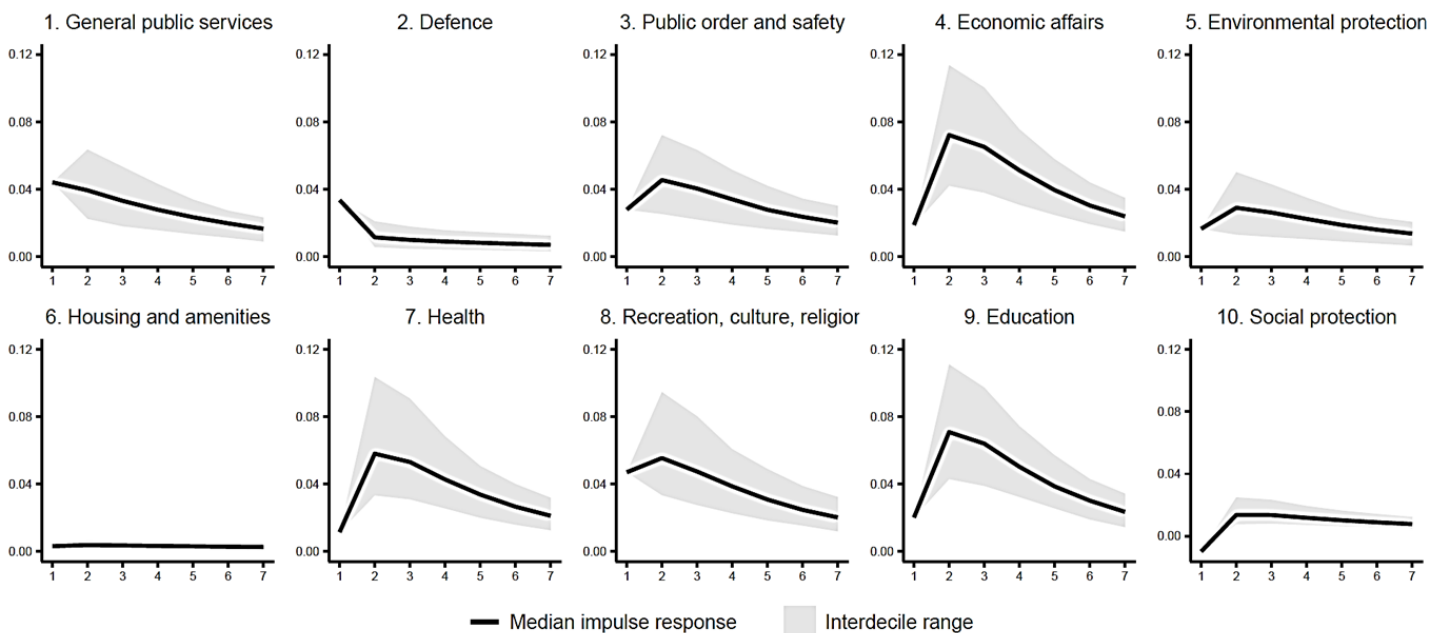
Notes: The impulse response (panel A) shows by how much (in percent) private investment increases every year after an increase in public investment by 1% in year 1. The public investment multiplier (panel B) shows how many additional dollars are invested by the private sector in total over a certain horizon (the number of years since a shock to public investment) in response to each dollar invested by the public sector. Source: Matvejevs and Tkacevs (2022).

The magnitude of the crowding-in effect differs across public policy areas

Matvejevs and Tkacevs (2022) decompose public capital and government investment into 10 categories according to the Classification of the Functions of Government (COFOG) and follow the same estimation strategy as above. The evolution of private investment impulse responses estimated for a shock in public investment in each policy area mostly resembles that estimated for a shock in total public investment (Figure 3). There is much lower or no crowding-in effect in Housing as well as Social protection areas, where cointegration between capital stocks is not found. The crowding-in effect is small for investment in Defense.¹ In turn, the strongest crowding in effect is found in the areas of Economic affairs, Education, Recreation, culture and religion, and Health.

The reason for such a strong response in these areas is likely related to the fact that investing in human capital (health, education) and economic infrastructure (economic affairs) makes a country particularly more attractive to private investors. Investing in recreation, culture and religion is probably mostly associated with stimulating tourism and building new hotels, restaurants and other private amenities.

Figure 3: Private investment impulse response to a public investment shock by policy areas



Notes: X-axis – Years since public investment shock, Y-axis - The impulse response which shows by how much (in percent) private investment increases every year after an increase in public investment in a policy area by 1%. Source: Matvejevs and Tkacevs (2022).

Institutions matter as well

One of the previous papers, Cavallo and Daude (2011), showed that in a sample of developing economies, the crowding-out effect is smaller in countries with better public institutions and higher openness to international trade, as well as in countries with a less restricted access to international capital markets. Matvejevs and Tkacevs (2022) confirm that also for a sample of industrialized OECD economies, the effect of public investment varies depending on the quality of institutions in each country captured by different governance indicators. In general, improving the rule of law, general effectiveness of the government and eliminating corruption have the largest positive effect on attracting private investment in response to a hike in public investment. Thus, the positive effect of institutional quality is not idiosyncratic to the group of developing countries - there is a room for institutional improvements to increase crowding in of private investment in industrialized OECD economies as well.

¹When interpreting this result, one should keep in mind that the study explores the relatively peaceful period (between 1995 and 2017) when the issue of external security was not high on the agenda.

Takeaways

The results obtained in this paper suggest that the lack of public capital restricts private investment. This effect is particularly strong in certain policy areas. Additional public investment in infrastructure and human capital could encourage the private sector to accelerate private capital accumulation.

Among other things these results imply that increasing public investment has a long-lasting multiplier effect and attracts private capital for many years into the future, hence is a powerful policy tool to increase productive capacity of the economy. Therefore, fiscal policy frameworks should encourage public investment spending in cases when it does not jeopardize fiscal sustainability. ■

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