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Investing for growth: Is public investment in infrastructure the key to Europe's deficit crises?

Sylvain Broyer & Johannes Gareis - Natixis

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With austerity measures having failed to bring the expected consolidation in public finances, European policy-makers are increasingly concerned with encouraging growth as a means to ease debt to GDP ratios. Nevertheless, budget constraints remain tight and governments are keen to ensure value for money. As the following analysis demonstrates, infrastructure investment is an excellent policy option in this regard, generating very high returns on investment, and large, positive effects on economic performance, even more in economic bad times.

Infrastructure investment has a substantial, positive effect on the economic performance of Euro area countries. According to our calculations, a single euro invested in transport infrastructure in France, Germany, Italy and Spain (the four largest Eurozone economies), has the potential to raise the GDP level on impact by 14 euros. In addition, as higher output implies higher tax revenues over time, infrastructure investment is likely to pay for itself in the long term.

In order to arrive at our findings, we constructed a vector autoregressive (VAR) model, factoring in output, employment, private investment, and public infrastructure spending across the "4-EMU" countries. Across all four we found that an increase in public infrastructure investment, defined as government gross capital formation in the transport infrastructure sector, was associated with an increase in output, private investment and employment.

According to our research, this would not be simply a temporary boost. For Germany and France, were they to embark on a programme of public infrastructure investment the benefits would be anticipated to last approximately five years. In Italy and Spain, the numbers suggest that any such advantages would be felt over a much longer period – the effect on output in particular could last up to 12 years.

The "output elasticity" of infrastructure investment across the EMU-4 as determined under our model, proves equally impressive. Across France, Germany, Italy and Spain a one per cent increase in government infrastructure investment could be anticipated to result in a 0.17 per cent increase in GDP in the long-term, and of 0.11 per cent within a year. Obviously, there are some substantial differences between these countries. Nevertheless, the boost provided by infrastructure investment is clear in all cases.

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However, while the output elasticity figures demonstrate the effectiveness of public infrastructure investment, it is the size of the 'infrastructure multiplier' that is really of most interest to policymakers. To obtain this number we established the average euro-area wide change in output resulting from an increase in infrastructure spending and then normalised it to 1 per cent. We then multiplied this number by the average ratio of GDP to public infrastructure investment across the Eurozone, resulting in an infrastructure multiplier of 14. As discussed above, this means that a single euro invested in transportation infrastructure in Germany, France, Italy, and Spain can be expected to raise the GDP level by 14 euros.

All in all, we conclude that infrastructure investment has a substantial positive effect on the economic performance of euro area countries. Moreover, as higher output implies higher tax revenues over time, our finding of a very large infrastructure multiplier strongly suggests that infrastructure investment is likely to pay for itself.

As a final test, we also sought to establish whether infrastructure spending had an additional impact during recessionary periods. Estimating the multiplier for different economic regimes we find that infrastructure investment has a higher impact on activity in economic bad times than in a more stable economic environment, across the four largest European economies. One has to be slightly careful in drawing general conclusions from this exercise, as there is a great deal of variance within the individual results. But we can report that the direct effect of infrastructure investment on output should be approximately four times larger in bad economic times than in general.

These findings suggest that infrastructure investment is highly recommendable as a policy lever to augment GDP and reduce the public debt burden in countries across Europe. This is especially the case given the current economic context, and the tremendous budgetary pressures being faced by sovereigns and other traditional lenders.

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Sylvain Broyer and Johannes Gareis are economists at Natixis.

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