COMMENT TO "PUBLIC CAPITAL IN THE 21TH CENTURY: AS PRODUCTIVE AS EVER?" BY JASPER DE JONG, MARIEN FERDINANDUSSE AND JOSIP FUNDA

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Introduction

The recovery of investment, both public and private, since the crisis has been particularly slow in most advanced economies. A growing empirical literature has therefore emerged to revisit earlier evidence on the links between output growth and investment, on the one hand, and between public and private investment, on the other. To contribute to this literature, Jasper de Jong, Marien Ferdinadusse and Josip Funda focus on public investment (measured in terms of general government gross fixed capital formation) and GDP growth in a set of 20 OECD countries during 1973-2013. They set out to identify changes in the growth-investment nexus over time in individual countries and computed impulse responses for the euro area countries. The paper's main finding is that impulse responses vary across countries but have not increased over time, despite falling government investment and, in some cases, public capital stocks.

The broader context of how business and public investment have recovered since the crisis in the OECD area provides a backdrop to the paper. Comparison with the pre-crisis period suggests that there is an investment shortfall in most OECD countries: current-price investment-to-GDP ratios remain considerably below pre-crisis levels, especially in those countries that were severely hit by the crisis (see chart below). The weakness in business investment has been due essentially to weak demand, higher user cost of capital, overall policy uncertainty, and high corporate leverage before the crisis. In turn, public investment has been held down by fiscal consolidation following the withdrawal of stimulus after the crisis, with a particularly sharp contraction at the subnational level, which accounts for close to two-thirds of public investment on average among OECD countries. Current investment is also estimated to be below long-term trends and steady-state levels (OECD, 2014).

The empirical analysis and other considerations

The findings reported in the paper are by and large in line with recent empirical literature, which shows mixed results but in general falling output elasticities over time. Some discussion is nevertheless warranted on the empirical analysis reported in the paper, especially on the computation of impulse response functions, which may provide directions for future work. In addition, there are more general, conceptual issues that need to be taken in to account when assessing longer-term investment trends.

A key difficulty in the empirical assessment of linkages between GDP growth and investment is the identification of exogenous shocks to investment or the capital stock, which are needed for the computation of impulse responses. Dealing with reverse causality has indeed motivated a growing empirical literature since the onset of the global crisis, including on the sign and magnitude of fiscal multipliers (see de Mello, 2014, for a review of the literature). Recent contributions to this literature include alternative identification strategies that supersede on both analytical and statistical grounds the more conventional one pursued by the authors, which is based on the ordering of the variables in an unrestricted VECM. Among these alternative options is the

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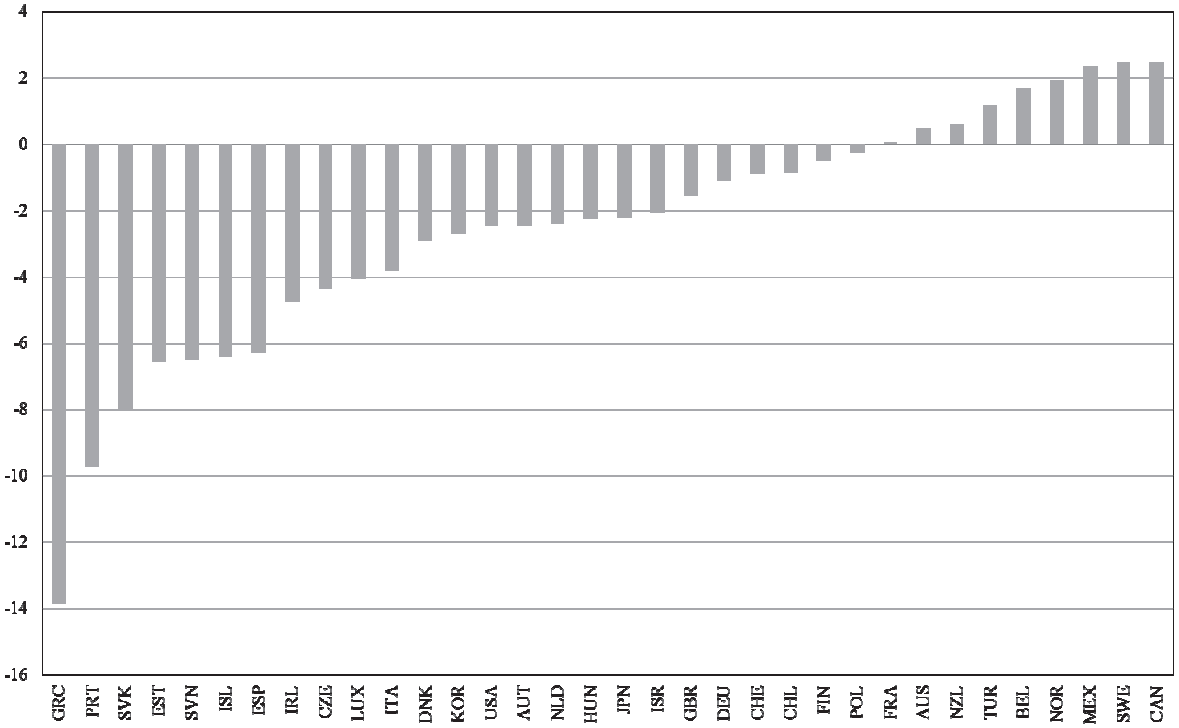
Figure 1

Investment Gap, 2015
(percent of GDP)



Note: Investment gap is defined as total investment as a percentage of GDP in 2015 minus the 1996-2007 average.
Source: OECD Economic Outlook database.

estimation of SVARs, which allow for greater refinement in the identification of exogenous shocks on the basis of hypotheses about the temporal linkages among the variable of interest. Narrative-based strategies have also been proposed more recently, building on a chronology of policy announcements that can be used as identification devices (see, for example, Blanchard and Perotti, 2002; Auerbach and Gorodnichenko, 2012; Alesina *et al*., 2012).

Indeed, the crisis and the policy responses it brought about provide interesting narrative-based identification options that the authors could use in their analysis. Policy activism in the immediate aftermath of the crisis included the announcement of stimulus packages that in some cases delivered sharp rises in public investment, often at the subnational levels of government. These announcements and the timing of implementation of stimulus measures, which are well documented for OECD countries (see OECD, 2015, for recent policy announcements), could therefore be used to identify exogenous shocks and the computation of impulse responses. Moreover, the authors could also report the confidence intervals around the impulse responses to demonstrate the strength of the responses reported in the paper and discuss in greater detail their motivation for introducing a time trend in the cointegrating vector.

More fundamentally, and going beyond empirical considerations, the investment shortfall since the crisis brings a number of questions to the fore. One is whether or not the weakness of the recovery of investment is due essentially to a lack of attractive investment opportunities. This question is related to the nature of innovation and technological change over the last decade or so,

and the opportunities they create for business investment. In particular, the range of applicability of innovation (for example, steam engine versus electricity) determines the extent of adaptation required to technological change and the associated investment needs. Innovation and technological change also have a bearing on the extent of complementarity (or substitution) that exists between public and private investment, which, in turn, affects the growth elasticity of investment.

Another consideration is related to demographics and changes in the price of capital goods. In particular, population ageing could bring down the rate of return on investment and the investment rate altogether, although there could be offsetting effects on saving behaviour that would need to be taken on board. Moreover, the post-crisis investment shortfall could be related to changes in the price of capital goods: if prices fall, then the same amount of investment requires less spending in relation to GDP, which in turn affects the estimated elasticities (see IMF, 2014, for evidence for advanced economies, and Eichengren, 2014, for a more general discussion on investment trends).

All in all, while a better understanding of the empirical linkages between growth and investment remains important, there is much room for broadening the analysis in future work to include longer-term determinants of investment, including not least these related to innovation and changes in demographics and the price of capital goods.

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