Improving the quality of public finances is a major challenge for European policy makers. The current economic crisis has increased budgetary pressures and accentuated the tension between the need to sustain public spending aimed at raising the EU growth potential and the increased scarcity of public resources. Rising the efficiency and effectiveness of public spending in growth-enhancing areas such as education, R&D and innovation has become, therefore, even more important.

This paper reviews the innovation performance of the different EU Member States and provides estimates of the relative efficiency of their R&D spending. In doing so, it aims at moving the policy discussion from mere volume-based policy targets towards a better assessment of the quality and effects of public R&D spending. The main contribution of this paper is therefore the identification of both (1) a suitable methodology for the evaluation of efficiency levels across Member States and (2) structural and policy determinants which may contribute to raise efficiency levels of R&D spending across countries and over time.

Results indicate that there exist large cross-country differences in terms of measured efficiency, which is an indication that in many Member States there remains a significant potential for further improvement. Currently, there appears to be a divide in efficiency levels between old and new Member States. The estimated efficiency scores indicate that all EU Member States have improved their efficiency levels over time. Moreover, there is some evidence that the new Member States are catching up. There is evidence that the efficiency of R&D spending is higher in countries with a strong knowledge base which, in turn, implies
that increases in R&D spending do not necessarily lead to reductions in efficiency levels. Other factors that affect efficiency levels include the high-tech specialisation of the economy, the level of investment in education, the employment share in science and technology, and the degree of protection of intellectual property rights. Finally, a R&D tax treatment more oriented towards fiscal incentives rather than direct subsidies appears to affect positively the efficiency level of R&D spending across EU Member States.

This work is based on both a quantitative measurement of efficiency levels and a qualitative analysis of the policy instruments used in the Member States to promote R&D efficiency and effectiveness. Efficiency scores are calculated by means of the Stochastic Frontier Analysis for a set of input and output indicators in order to overcome the limitations associated with the choice of one specific indicator.

A complementary survey of national governments highlights some further policy instruments that could contribute to increase the efficiency of R&D and innovation policies, in particular at the national level. The results of the survey argue in favour of adopting a systemic approach to R&D, education and innovation policies, including three main elements: (i) adapting educational programmes and the research infrastructure to the needs of science and industry; (ii) making a sustained commitment to knowledge investment by adopting medium-term funding programmes; and (iii) evaluating existing R&D programmes in order to determine which policy tools are the most effective and in which areas R&D investments offer the highest returns.

More recently, Member States have introduced R&D spending measures specifically targeted to deal with the consequences of the economic crisis. A closer look at these measures reveals that Member States consider direct grants and offers of tax relief as appropriate instruments to counteract the effects of the crisis. It should be clear that such policy measures should be tailored to the specific needs and strengths of every Member State in the current situation.