

adão carvalho **view from the top**

Missed government targets bring research policy into disrepute

In recent decades, setting targets for R&D spending as a percentage of GDP has become a common, even fashionable, practice in a growing number of countries, motivated by the belief that higher R&D spending is a critical driver of innovation and economic growth. All EU member states have set such goals, along with the majority of OECD countries.

The Lisbon agenda in 2000 and the Barcelona targets of 2002 set such goals for the EU, raising their visibility and credibility. Governments followed suit, putting R&D intensity centre stage in science, technology and innovation policy.

Users of R&D targets want to increase research spending and are drawn towards the simplicity and status of the indicator. Such targets may also reflect a limited understanding of the relationship between R&D spending and innovation, which is complex and non-linear.

It is far more common for such targets to be set than to be met. In a recently published study I analysed 112 R&D intensity targets set by 45 countries and the EU between 1990 and 2011. Of these, only two were met—by Finland and Denmark. In many countries, spending on R&D actually fell as a proportion of GDP during the period.

Governments' near-universal failure to meet their targets stems from several interrelated factors, including the nature of the indicator itself and underlying economic conditions.

A nation's R&D spending is the sum of activity by businesses, higher education, government and not-for-profit organisations. Expressing this total as a proportion of GDP is one of the oldest innovation indicators, used by the OECD and Eurostat for mainly international comparisons. The figure depends on the evolution of the economy, which determines GDP, and on firms' R&D expenditures. These tend to go up when the economy is growing and fall during economic downturns.

For R&D intensity to increase, research spending has to rise more quickly than GDP. Governments, however, have no direct control over either business spending or GDP. Many have offered companies generous incentives to increase their R&D budgets, but such policies carry the risk of excessive state intervention and wasted public resources, particularly if the economy lacks the infrastructure, skills and industries capable

of transforming research outputs into innovation.

Why do governments keep setting targets for R&D intensity if they are almost never met and if the crucial variables are beyond state control? I would suggest three factors: the belief in a strong link between R&D spending, innovative capability and economic growth; the desire to catch up with other countries; and the idea of having an innovation indicator that can be easily measured and used for international comparisons.

These motivations have changed little since the 1960s, which was an earlier era of goals-based R&D policy. But since then the economy and the nature of innovation has changed, and the understanding of how innovation works and how to measure it has vastly improved.

Making relative R&D spending the centrepiece of innovation policy is economically questionable, although it might be justifiable for strategic and political reasons. The policy seems to stem from a mixture of ambition, imitation, wishful thinking, fashion, the need to please the European Commission, lack of accountability and perhaps ignorance.

What are the consequences of this serial failure to reach research spending targets? First, there is damage to reputations. Governments have made promises that they are not able to keep, and continue to do so. When governments set unrealistic goals for an indicator they have no control of, they undermine its credibility as a policy tool.

Second, there are questions of accountability. A government's objectives have major strategic and economic implications, and it matters whether it meets them or not. It is not acceptable that most governments do not provide an economic rationale for their goals for R&D intensity, and it is not acceptable for governments to keep setting new goals without proper assessments of past policies.

Third, and finally, there are implications for policymaking. In the long run, the innovation process will benefit when policymakers recognise that other drivers of innovation—such as investment in education and training—are just as important as R&D intensity and easier for them to control.

The problem with R&D intensity lies with how governments use it, not with the indicator itself. By making it an unrealistic and economically unsound goal, governments risk undermining policies aimed at enhancing innovation and growth.

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