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BETTER POLICIES FOR BETTER LIVES

Policy Brief

How do governments direct support for innovation?

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Key messages

- Governments strive to find the appropriate level and balance of financial support for innovation to address competing and pressing policy objectives. Choices on the design of instruments, beneficiaries and support conditions shape how support for innovation can be directed towards priorities. “Directionality” is however multifaceted and still not sufficiently well understood and managed.
- While calls for more directionality of innovation support are on the rise, OECD data show that when it comes to supporting business R&D, the majority of OECD and EU governments have increasingly relied on R&D tax incentives, supposedly neutral instruments. Only the global financial crisis and COVID-19 pandemic briefly halted their rising popularity. In 2021, R&D tax incentives accounted on average for close to 60% of total measured support for R&D in the OECD and EU areas.
- R&D tax incentives are effective in raising total R&D, especially among credit constrained small R&D performers. However, they are more effective at boosting investment towards incremental development than more transformational, higher spillover-potential knowledge. And while theoretically easier to administer, authorities must address potential fraud or misuse. Although tax incentives contribute to building and sustaining R&D capabilities, they are insufficient to direct innovation towards specific policy priority areas and address the global challenges today’s economies are facing.
- Major measurement gaps persist in key areas that are critical for innovation systems to contribute to key transitions - both in terms of monitoring support for innovation activities other than R&D as well as support provided through indirect mechanisms, reflecting the sensitive nature of financial support to business in today’s competitive landscape. There is however scope for working towards a more comprehensive understanding of the landscape of government support for business R&D and its impact to inform policy making in this area.

There are widespread calls for more directionality in innovation policy, but what does this effectively entail?

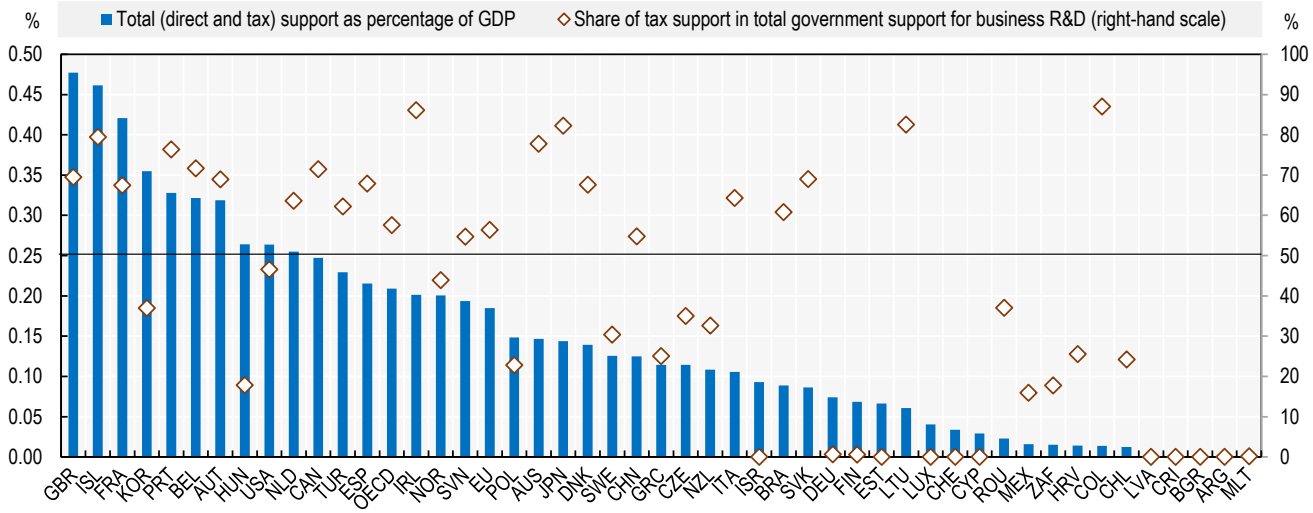
Governments worldwide strive to find the appropriate level and balance of financial support for innovation to address several competing and pressing policy objectives, such as improving productivity or addressing the climate crisis. Choices on the design of policy instruments, beneficiaries and support conditions shape how public financial support for innovation can be directed towards political and societal priorities. Such choices are limited by budgetary and administrative capacity, as well as domestic and international rules that aim to preserve an open and level playing field but reduce the effective scope for policy discretion.

However, supposedly neutral instruments are not free from bias, favouring incumbents and the status quo, e.g. driving incremental improvements in polluting technologies as opposed to radical advances in green technologies. In this context, the OECD calls for sustained investments and greater steering of innovation to contribute to priority transformations (OECD, 2024[1]), including the use of mission-oriented innovation policies to accelerate the development and uptake of low-carbon innovations (OECD, 2023[2]).

Despite calls for greater directionality of innovation support, R&D tax incentives remain the prominent instrument of support for business R&D.

Over the past two decades, R&D tax incentives that reduce the effective cost of doing R&D for firms have become the pre-eminent instrument of support for business R&D. Tax incentives for R&D expenditures accounted on average for nearly 60% of total measured government support for business R&D in the OECD and EU areas in 2021 (Figure 1). This reflects an increasing number of countries using these incentives, more favourable tax subsidy terms (see http://oe.cd/rdtax), and business demand. Their position as instrument of choice vis à vis support through R&D grants or procurement of R&D services (i.e. "directed funding") has withstood episodes such as the global financial crisis and the COVID-19 pandemic. Additional tax incentives such as patent boxes, allowing companies to have their income from business R&D and innovation taxed at more favourable rates, have also become more popular despite international agreements to limit their tax base erosion and profit shifting potential (OECD, 2023[3]).

Figure 1. Direct government funding and government tax support for business R&D, 2021



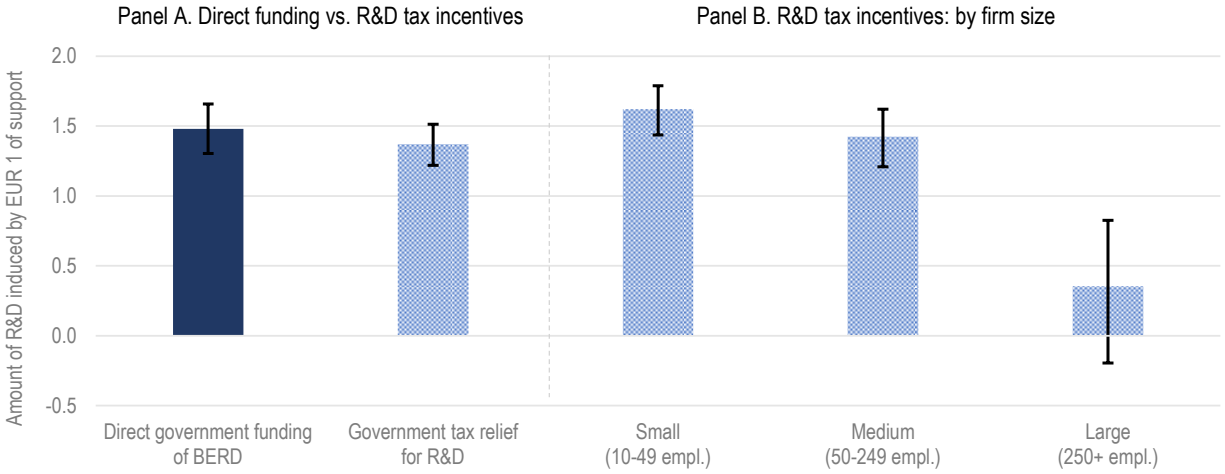
Source: OECD MABIS-RDTAX project. OECD R&D Tax Incentives Database, http://oe.cd/rdtax, July 2024.

Non-discretional on-demand support via R&D tax incentives has proved effective in spurring R&D, especially among small credit constrained firms. However, it has limited effect on high-spillover R&D and it is not so simple to administer.

In addition to providing international comparisons and monitoring trends, OECD micro-based analysis on the impacts of innovation support instruments (OECD, 2023[4]) concludes that expenditure-based R&D tax incentives and direct funding are equally effective in incentivising additional levels of business R&D investment. One EUR of either tax or direct support results into around EUR 1.4 worth of business R&D (Figure 2). This effect is more pronounced for smaller firms and inversely related to the initial level of R&D.

Figure 2. Estimated effectiveness of government support in raising business R&D

Amount of R&D induced by EUR1 of support



Note: This figure displays the amount of R&D induced by EUR 1 of public support (gross incrementality ratio) by type of policy instrument, i.e. direct funding of business R&D (BERD) and government tax relief for R&D (notional R&D tax subsidy based on uptake). The whiskers mark the 90% confidence interval, which covers the "true" incrementality ratio with a probability of 90%.
Source: OECD MABIS-microBeRD project (OECD, 2023[4])

OECD analysis suggests that R&D tax incentives are more effective when designed to relieve R&D investment in credit-constrained companies, for example start-ups not yet generating sufficient income tax liabilities. Observed business R&D investment responsiveness to tax support is significantly larger in systems when tax relief refunds are available to companies that do not generate sufficient tax income or can redeem them against payroll taxes. Furthermore, the effect of R&D tax incentives is effectively concentrated on "experimental development", the D of R&D, while unlike for directed support, the impact on research is virtually nil (OECD, 2023[4]). R&D tax incentives are a more suitable tool for encouraging the formalisation and extension of product and process development activities in the business sector, but less effective at promoting applied research that can result in a wide variety of concrete applications.

Innovation and tax authorities are also realising that they need to monitor carefully potential fraud and misuse. Several countries use R&D project pre-approvals by specialised R&D bodies, but even in those cases tax authorities can contest the size of claims. Systematic random checks are needed to ensure tax relief schemes are being appropriately used for eligible R&D activities. Evidence on the use, impacts and implementation of R&D tax incentives suggests that many governments need to rebalance their innovation support portfolios to regain directionality to match their stated policy priorities, and to achieve that, they need to develop the appropriate regulatory frameworks and build adequate management capacity.

Measurement progress is key to a more comprehensive analysis of the impact and directionality of government support for business R&D and innovation

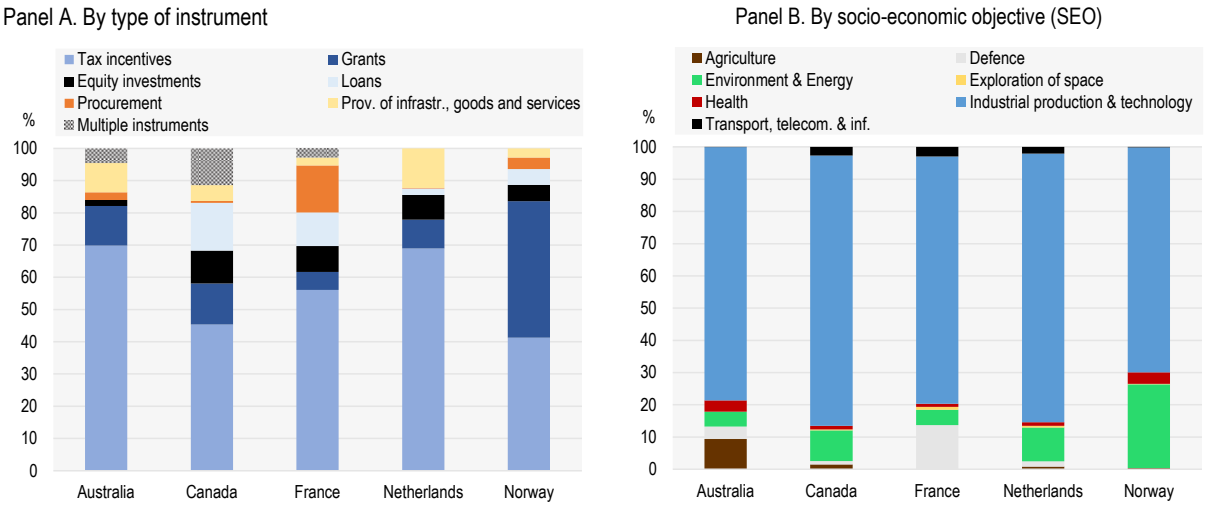
Major measurement gaps persist in key areas that are critical for innovation systems to contribute to key transitions. There is scope for achieving a more comprehensive understanding of the landscape of government support for business R&D and its impact. While already present in OECD statistics on Government Budgets for R&D by objectives (http://data-explorer.oecd.org/s/1r), directionality for innovation policy remains to be formally defined for practical usage. Recent OECD work (OECD, 2023[5]), has proposed and tested a framework for measuring how governments direct resources in support of innovation, building from the analysis of individual instruments and programmes to full support portfolios. Viewing directionality as a multifaceted concept, the framework addresses the following dimensions while also providing quantification guidance in gross and net subsidy terms to allow international comparability:

- Which innovation activities are excluded from or eligible for different levels of support?
- What are the explicit policy objectives of support for business innovation?
- Which government authorities are responsible for funding and providing support and how do they delegate responsibilities?
- Which actors are eligible to benefit or are excluded from innovation support?
- What mechanisms are used to provide support, specifying what government provides and what firms, if anything, need to provide in return?

These choices and their data gaps shape the capacity of governments to direct support and innovation. It is also important to contrast *ex ante or planned directionality* and effective *ex-post directionality*. For example, a neutral R&D tax incentive will have limited prior directionality, but it is possible to anticipate that the final distribution of tax subsidies, when measured, will closely resemble the distribution of R&D across existing companies, industries, and technologies.

Figure 3. Directionality of government support for R&D and innovation, selected OECD countries

Amount of support within each category as % of total government support identified in the SUPRINNO pilot study



Note: Figures for France, Norway, and the Netherlands refer to calendar year 2021, while those for Australia and Canada refer to fiscal year 2021-22. The figures reported, especially those for Australia and the Netherlands are likely to understate the amount of business innovation support provided by government at subnational level. Panel A: 'Multiple instruments' indicates policies for component instruments are not separately identifiable. Panel B: For programmes with multiple objectives, funding has been evenly allocated across them.
Source: OECD MABIS-SUPRINNO project. (OECD, 2023[6])

The OECD pilot mapping exercise (OECD, 2023[7]) provides insights on Australia, Canada, France, Norway, Netherlands, five countries with unique strengths in their R&D and innovation monitoring systems which volunteered to test the framework (Figure 3). All these countries make extensive use of tax incentives, slightly less so in the case of Norway where tax relief caps per firm apply (Panel A). Grants tend to be the second most important instrument, followed by equity investments and loans, which remain difficult to quantify, just as procurement of innovations. The pilots also highlight the importance of accounting for subnational programmes, not captured here for Australia and the Netherlands. The importance of tax incentives is also reflected in the distribution by socio-economic objective (SEO), as they have been allocated to "Industrial production and technology" (Panel B). The breakdowns reveal specific national priorities.

What can policymakers do?

- Policymakers should embark on a careful and strategic reflection on the size and balance of their innovation support portfolios in relation to the state of their innovation systems and their stated policy objectives, which straddle several policy areas and include transformation goals.
- There is scope in many countries for fine-tuning specific instruments based on available evidence. For example, R&D tax incentive reforms should heed evidence that their rationale is stronger as means to build and sustain systemic innovation capacity among SMEs and that this effect is facilitated by provisions that allow refunds or immediate reductions in social security and payroll taxes for cash constrained firms.
- Policymakers should consider rebalancing their innovation support portfolios to regain directionality to match their stated policy priorities, and to achieve that, develop the appropriate regulatory frameworks and build adequate management capacity.
- To ensure policy learning, impact, and value for money in their investments for innovation, governments need to adopt more effective, transparent, and comprehensive national monitoring mechanisms. These should go beyond traditional R&D support instruments like grants or tax incentives, but also monitor support provided in different guises (e.g. financial instruments, public procurement) and across different policy domains, as innovation can be an enabling factor rather than ultimate objective (e.g. green transformation, digitalisation, security).

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About the OECD-MABIS project

The OECD project Measuring and Assessing Government Support for Innovation (MABIS) is a multi-year initiative comprising several measurement analysis and measurement strands. It not only documents the use of tax support for R&D and innovation but also develops data infrastructures and assessment methodologies for the coordinated international monitoring of innovation support at the aggregate, programme, and micro level. It benefits from financial support from the EU.

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