

## OECD R&D Tax Incentives Database<sup>1,2,3</sup>

### General and country-specific notes

#### OECD time-series estimates of government tax relief for R&D expenditures (GTARD)

There are several ways to measure the value and generosity of R&D tax provisions. The OECD-NESTI data collection on R&D tax incentives attempts to identify and address subtle differences in the tax treatment of R&D, the relevant tax benchmark and measurement approaches. National experts on science and technology indicators have collaborated with public finance and tax authorities to provide the most up-to-date and internationally comparable figures possible.

Estimates reported in this website exclude income-based incentives – preferential treatment of incomes from licensing or asset disposal attributable to R&D or patents – and incentives to taxpayers other than companies. Figures refer to incentives applied at a national level through corporate income taxes, employer social security contributions and withholding taxes for R&D personnel. Personal and consumption tax incentives are not included. While typically non-discretionary, some countries require pre-approval of R&D projects or accreditation by government agencies or third parties.

#### *Estimates of the cost of R&D tax incentive support*

Tax expenditures are deviations from a benchmark tax system ([OECD, 2010](#)) and countries use different national benchmarks. The 2013 OECD questionnaire and subsequent surveys adopted a common reference framework based on full deductibility of current R&D expenditures and a country's baseline treatment of capital investments. Available estimates typically reflect the sum of foregone tax revenues – on an accruals basis – and refunds where applicable, with no or minimal adjustments for behavior effects. Some countries only report claims realised in a given year (cash basis), while others report losses to government on an accrual basis, excluding claims referring to earlier periods and including claims for current R&D to be used in the future. The new edition of the OECD Frascati Manual incorporates a new chapter dedicated to the measurement of R&D tax incentives ([OECD, 2015](#)), see <http://oe.cd/frascati>.

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<sup>1</sup> This database provides a set of indicators that reflect the level and structure of central and subnational government support for business R&D in form of R&D tax incentives and direct funding across OECD member countries and eleven non-member economies (Argentina, Brazil, Bulgaria, People's Republic of China, Croatia, Cyprus, Malta, Romania, Russian Federation, South Africa, and Thailand). This includes [time-series indicators of tax expenditures for R&D](#), based on the latest 2022 OECD data collection on tax incentive support for R&D expenditures that was completed in December 2022.

<sup>2</sup> This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

<sup>3</sup> The Statistical data for Israel are supplied by an under the responsibility of the relevant Israeli authorities or third party. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

**Territorial coverage of latest available edition:**

- In response to Russia's large-scale aggression against Ukraine, the OECD Council decided on 8 March 2022 to immediately suspend the participation of Russia and Belarus in OECD bodies. In view of this decision, the OECD suspended its solicitation of official statistics on R&D and R&D tax incentives from Russian authorities, leading to the absence of more recent R&D and R&D tax relief statistics for this country in the OECD database, while previously compiled data are still available.
- In this latest edition, the OECD has decided to put under review data on government tax relief for R&D expenditures (GTARD) and government-financed BERD for Iceland for the years 2011-2020 and 2015-2020 respectively, suppressing the publication of these headline indicators for those years until a number of questions on the coherence of these data have been effectively addressed.
- In the latest edition of the OECD Main Science and Technology Indicators Database, the OECD has decided to put under review the data on government-financed BERD for China for the years 2019 and 2020, suppressing the publication of this headline indicator for those years until a number of questions on the coherence of these data have been effectively addressed.

**General notes**

- For Brazil, Canada, Chile, Denmark, France, Malta, New Zealand, Romania, South Africa and the United Kingdom, preliminary R&D tax incentive estimates are reported for 2020 (or closest year). Figures are rounded to the second decimal unless rounding would result in a value of zero.
- For Australia, Germany, the Russian Federation, South Africa, Switzerland and the United States, latest available figures of direct and tax support for business R&D refer to 2019 instead of 2020. For Spain, figures refer to 2018, while those for Brazil and China correspond to 2017.
- In Austria, R&D tax incentive support is included in official estimates of direct government funding of business R&D until the year 2015. It is removed from direct funding estimates to avoid double counting. In the case of South Africa, where the overlap of estimates cannot be identified based on available budget data, this transformation was not undertaken.
- For Thailand, estimates of direct funding are not available at the time of reporting.
- In 2020 (or closest year), Bulgaria, Costa Rica, Cyprus<sup>4</sup>, Estonia, Finland, Latvia, Luxembourg, and Switzerland did not provide expenditure-based R&D tax incentives.
- Estimates refer to the cost of incentives for business expenditures on R&D provided at central and subnational government level, both intramural and extramural, unless otherwise specified.
- Estimates do not cover income-based R&D tax incentives and are limited to the business sector (excluding tax incentive support to individuals). Data refer to estimated initial revenue loss (foregone revenues) unless otherwise specified.

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<sup>4</sup> Footnote by Türkiye: The information in this document with reference to « Cyprus » relates to the southern part of the Island. There is no single authority representing both Turkish and Greek Cypriot people on the Island. Türkiye recognizes the Turkish Republic of Northern Cyprus (TRNC). Until a lasting and equitable solution is found within the context of United Nations, Türkiye shall preserve its position concerning the "Cyprus issue".

Footnote by all the European Union Member States of the OECD and the European Union: The Republic of Cyprus is recognized by all members of the United Nations with the exception of Türkiye. The information in this document relates to the area under the effective control of the Government of the Republic of Cyprus.

- R&D tax benefits are taxable in Australia, Canada, Chile, the United Kingdom (Above-the-line tax credit for large enterprises), the United States and Thailand. Exemptions of payroll withholding tax and social security contributions (Belgium, France, Netherlands, Hungary, Spain, Sweden and Türkiye) are effectively taxable as they reduce the amount of expenditure deductible from taxable income. In some of these countries, estimates of government R&D tax relief may be presented gross of tax and thus overstate the actual cost of R&D tax support.
- Estimates of total OECD direct funding of BERD cover 38 OECD countries, excluding Costa Rica<sup>5</sup>, whereas estimates of total OECD R&D tax support (central government level) cover 38 OECD countries.

### Country specific notes

Country	Details
<b>Argentina</b>	Estimates, based on data provided by MINCyT (Ministerio de Ciencia, Tecnología e Innovación Productiva), refer to the tax credit for R&D projects and exclude non-R&D-specific tax credits awarded as part of the same call (i.e. "Technological modernization", "Technological services" or "Advisory services"). Estimates reflect the value of tax credits of R&D projects approved by Fondo Tecnológico Argentino (FONTAR), and may thus potentially overstate the actual cost of R&D tax support. Since 2018, Argentina has not carried out any R&D tax incentive calls.
<b>Australia</b>	Estimates, on an accruals basis, refer to R&D Tax Incentive, as published in the Taxation Expenditures Statement. The R&D Tax Incentive replaced the previous R&D Tax Concession from July 2011 onwards. The key elements of the R&D Tax Concession were: (1) a 125% Tax Concession (for investment in R&D which is 'Australian-owned') introduced in 1986; (2) an R&D Tax Offset for small companies, enabling them to cash out any tax losses (in relation to Australian-owned R&D only) introduced in 1986; (3) an R&D incremental (175% Premium) Tax Concession for additional investment in Australian-owned R&D (available as of 1 July 2001); and (4) a 175% International Premium incremental tax concession for additional investment in 'foreign-owned' R&D (available as of 1 July 2007).
<b>Austria</b>	Estimates, on a cash basis, refer to the refundable research premium introduced in 2002. Until 2011, estimates also include the cost of an R&D tax allowance which was abolished in that year.
<b>Belgium</b>	Estimates, on an accruals basis, refer to the R&D tax credit and the payroll withholding tax credit for young innovative companies, private companies and

<sup>5</sup> For Costa Rica, data on government budget allocations for R&D, BERD and direct government funding of BERD have not yet been included. The OECD is currently working with Costa Rica's authorities to collect and report internationally comparable R&D data for publication of the R&D statistics in future editions of the OECD databases on [Main Science and Technology Indicators](#), [R&D Statistics](#) and [R&D tax incentives Indicators](#).

Country	Details
	partnership agreements with universities. They exclude the investment deduction for environmental projects as the R&D component cannot be identified. Belgium retrospectively revised its estimates for the refundable R&D tax credit and total GTARD from 2006 onwards, applying a new estimation method.
<b>Brazil</b>	Estimates, based on data from the Ministry of Science, Technology, Innovation and Communications (MCTIC), refer to the R&D tax allowance. Estimates include the tax benefits earned and claimed in the current year only.
<b>Bulgaria</b>	No R&D tax incentives in 2020.
<b>Canada</b>	Estimates, on a cash basis, refer to the scientific research and experimental development tax credit for current R&D expenditures (expenditures of a capital nature or expenditures for the right to use capital property (lease) do not qualify for SR&ED tax incentives if incurred after 2013). Estimates for the cost of accelerated depreciation provisions are not available. Estimates of the cost of provincial governments' R&D tax incentives provided by many Canadian provinces are separately reported for the years 2008 to 2020.
<b>Chile</b>	Estimates, on a cash basis, partially include baseline tax deductions taking a 100% deduction of current R&D expenditure as benchmark (a 65% allowance applies in Chile). The estimate for 2020 refers to the tax credit for intramural and extramural R&D (Law 20.570). The estimate for 2008 refers to the R&D tax credit for extramural R&D (Law 20.241) which was replaced by the former tax credit in September 2012.
<b>China</b>	Estimates are based on responses by firms to the national R&D survey. No further details were provided. Estimates for the cost of accelerated depreciation provisions and subnational R&D tax incentive provisions are not available.
<b>Colombia</b>	Estimates refer to the R&D tax allowance and R&D tax credit in Colombia, the latter replacing the former in 2017.
<b>Croatia</b>	Estimates, on an accrual basis, refer to the new R&D tax allowance (Act on State Aid for Research and Development Projects - NN 64/18) introduced by Croatia in 2019. Croatia offered two previous R&D tax allowance schemes (state aid for research and development) from 2003 to 2006 and 2007 to 2014.
<b>Cyprus</b>	No R&D tax incentives in 2020.

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<b>Czech Republic</b>	Estimates are on a cash basis refer to the R&D tax allowance introduced in 2005.
<b>Denmark</b>	Estimates, on a cash-basis, refer to the cost of accelerated depreciation of R&D capital. From 2012 onward, the estimates further reflect the value of the R&D tax credit for deficit related R&D expenditures. From 2018 onwards, they further reflect the value of the enhanced tax allowance on R&D capital.
<b>Estonia</b>	No R&D tax incentives in 2020.
<b>EU Total</b>	Estimates of Total EU GTARD reflect the magnitude of expenditure-based R&D tax incentive support (central government level) in 27 EU countries.
<b>Finland</b>	No R&D tax incentives in 2020.
<b>France</b>	Estimates, on an accruals basis, refer to the Crédit d'Impôt Recherche (CIR) and special provisions for social security contributions by young and innovative firms (JEIs) and young university enterprises (JEU), but exclude the cost of accelerated depreciation incentives for capital R&D. The JEI and JEU status were established in 2004 and 2008 respectively.
<b>Germany</b>	Germany introduced a refundable R&D tax credit (Forschungszulage) in 2020. Estimates of government tax relief are not yet available for 2020.
<b>Greece</b>	Estimates refer to the volume-based R&D tax allowance which replaced the previously existing, incremental R&D tax allowance scheme in 2013. Estimates include the tax benefits earned and claimed in the current year only.
<b>Hungary</b>	Estimates, on an accruals basis, refer to the R&D tax allowance, the innovation contribution related R&D tax allowance (available since 2010; estimates include the tax benefits earned and claimed in the current year only), and the payroll withholding tax remission (special provision for social security and vocational training contributions for researchers, including Ph.D. students and doctoral candidates, introduced in 2013), but exclude the local business tax allowance. The estimates for 2004-2011 (2005-2014) also include the value of the innovation contribution related R&D tax credit (R&D tax credit on wages of researchers), and those for 2010-2020, the value of the innovation contribution related R&D tax allowance. From 2014 onwards, the figures also include the value of the development tax incentive. Estimates of the cost of subnational R&D tax incentive support are separately reported for the years 2010 to 2020.

Country	Details
<b>Iceland</b>	Estimates, on a cash-basis, refer to the R&D tax credit providing a deduction of eligible R&D expenses from the income tax. Estimates are under review and suppressed in this edition of the OECD R&D tax incentives database.
<b>Ireland</b>	Estimates, on a cash basis, refer to the R&D tax credit on current, machinery and buildings expenditures, introduced in 2004. Estimates for the cost of accelerated depreciation provisions are not available.
<b>Israel</b>	No R&D tax incentives in 2020.
<b>Italy</b>	Cash-based estimate for 2020 (year of accrual) refers to the following tax credits: R&D tax credit for SMEs (Law 449/1997), volume-based tax credit for R&D collaborations with universities and public research consortia (Law 449/1997), 10% volume-based R&D tax credit (Law 296/2006), an incremental R&D tax credit of 50% (Legge di Stabilità 2015, Article 1, par 35) and a volume-based R&D tax credit (Law 160/2019, Law 178/2020), replacing the incremental R&D tax credit in 2020.
<b>Japan</b>	Estimates are on an accruals and final revenue loss basis (net present value of disbursements, time-value adjustment of cash flows). The volume-based R&D tax credit (permanent measure) is currently available in addition to the open innovation activity-based R&D tax credit (permanent measure) and high R&D intensity-based tax credit (temporary measure, proposed extension in 2022 for additional three years until March 31, 2026). The high R&D intensity tax credit was introduced in 2008 as alternative option to the incremental R&D tax credit which was abolished with effect of 1 April 2017. Estimates of the cost of subnational R&D tax incentive support are separately reported for the years 2011 to 2020.
<b>Korea</b>	Estimates, on a cash-basis, refer to the tax credit for research and human resources development and the R&D investment credit. The tax credit for research and human resources development has a volume and incremental component only the larger one of which applies; a volume-based R&D tax credit is further available for high-growth firms with original technology.
<b>Latvia</b>	Estimates, on an accruals basis, refer to the R&D tax allowance on current R&D expenditures introduced in 2014 and abolished with effect from 2018.
<b>Lithuania</b>	Estimates, on an accruals basis, refer to the R&D tax allowance on current R&D expenditures, available since 2008. Estimates for the cost of accelerated depreciation provisions are not available.

Country	Details
<b>Luxembourg</b>	No R&D tax incentives in 2020.
<b>Malta</b>	In 2020, estimates, on an accrual basis, refer to the Research and Development tax credit (2014 - 2020).
<b>Mexico</b>	Estimates refer to the incremental R&D tax credit introduced by Mexico in 2017. From 2000 to 2008, estimates reflect the value of the R&D tax credit available in Mexico from 1995-2008 and converted into direct assistance in 2009. Estimates for the cost of accelerated depreciation provisions (2002-2013, 2016-19 for taxpayers with an annual income less than 100 million pesos) are not available.
<b>Netherlands</b>	Budget-based estimates refer to the WBSO payroll tax credit for R&D labour and to the R&D tax allowance (RDA) for non-labour related R&D expenditures which was introduced in January 2012 and merged with the WBSO scheme in 2016.
<b>New Zealand</b>	Estimates refer to the tax credit for research and development tax losses, effective as of April 2015. The estimate for 2008 refers instead to the temporary R&D tax credit introduced by New Zealand in 2008 and repealed in 2009.
<b>Norway</b>	Cash-based estimates for the fully refundable SKATTEFUNN R&D tax credit, available to SMEs since 2002 and extended to large firms in 2003.
<b>OECD Total</b>	Estimates of Total OECD GTARD reflect the magnitude of expenditure-based R&D tax incentive support (central government level) in 38 OECD countries.
<b>Poland</b>	The estimate for 2020, on a cash-basis, refers to the R&D tax allowance introduced in 2016. Estimates for the cost of accelerated depreciation provisions and tax deductions for R&D Centres are not available. The New Technology Tax Relief scheme for the acquisition of intangible assets is excluded as it does not necessarily apply to R&D.
<b>Portugal</b>	Estimates, on an accruals basis, for the SIFIDE-II tax credit which includes current and R&D-related capital expenditures. Following the temporary suspension of the tax credit in 2004-05, the tax credit was reintroduced in 2006, at the same volume-based and incremental rate.
<b>Romania</b>	Figures, on an accruals basis, refer to the R&D tax allowance on current and depreciation related R&D expenditures, available since 2010. Estimates for the cost of accelerated depreciation provisions are not available.



Country	Details
<b>Russian Federation</b>	Figures for 2000-19, based on data published by the Ministry of Finance of the Russian Federation, refer to the R&D tax allowance, accelerated depreciation provision for R&D capital and the R&D tax credit. The R&D tax credit covers value-added tax exemptions on R&D and property tax credits for national R&D centres and organisations implementing state-approved R&D projects. R&D tax allowance estimates were adjusted to reflect only the value of the enhanced 50% tax deduction and avoid the inclusion of baseline tax deductions. The estimates for the VAT exemption, available to business and non-business entities performing R&D, were adjusted, based on the average percentage of GERD performed by business in the Russian Federation from 2010 to 2019, to reflect only tax relief to business.
<b>Slovak Republic</b>	Estimates, on an accrual basis, refer to the R&D tax allowance scheme restricted to grant recipients (Tax relief for subsidy recipients: Income Tax Act §30b). From 2015 onward, estimates also include the R&D super deduction introduced that year.
<b>Slovenia</b>	Estimates, on a cash-basis, refer to the R&D tax allowance scheme introduced in 2005.
<b>South Africa</b>	Figures refer to the volume-based R&D tax allowance scheme and are based on the National Budget Review.
<b>Spain</b>	Figures, on a cash-basis, refer to the R&D and innovation tax credit, including support for technological innovation. According to data from a non-random subset of firms, this instrument (Informes Motivados) accounts for around 40% of qualifying expenditures and deductions for R&D and technological innovations. Estimates do not include the cost of the accelerated depreciation provision for R&D capital. The estimates for 2014-2018 also refer to allowances for employers' social security contributions introduced through Royal Decree 475/2014 of 13 June. Estimates for the cost of subnational R&D tax incentive provisions (Basque Country, Navarre, and Canary Islands) are not available.
<b>Sweden</b>	Figures, on a cash-basis, refer to the partial exemption of social security contributions for R&D employees introduced in Sweden in 2014.
<b>Switzerland</b>	No R&D tax incentives at central government level in 2020. Switzerland has offered an R&D tax allowance at cantonal level on an optional basis since 2020.
<b>Thailand</b>	Figures refer to the R&D tax allowance available in Thailand since 2000. These figures represent preliminary estimates calculated based on the amount of



Country	Details
	<p>qualifying R&amp;D expenditure approved by tax authorities in Thailand as tax-expenditure based estimates of the cost of government tax relief for R&amp;D expenditure are currently not available. These estimates account for the taxability of R&amp;D tax benefits in Thailand and provide an upper boundary of the actual cost of tax support provided through the R&amp;D tax allowance. Estimates for the accelerated depreciation provision for machinery and equipment used in the context of R&amp;D projects are not available.</p>
<b>Türkiye</b>	<p>Estimates, on a cash-basis, refer to allowances for current R&amp;D and machinery expenditures in eligible R&amp;D centres and companies (R&amp;D discount under Corporate Tax Law and Law No 5746) and to partial relief on social security contributions, available since 2008. Figures may include the cost of standard deductions for current R&amp;D expenditures and may therefore overstate tax support in relation to other countries. Estimates were calculated by Turkstat based on data from the Turkish Ministry of Finance.</p>
<b>United Kingdom</b>	<p>Estimates, on an accrual basis, refer to the Research &amp; Development Relief for Corporation Tax, and the Research and Development Expenditure Credit (RDEC) Scheme for large companies introduced for expenditure incurred on or after 1 April 2013. The RDEC scheme was initially optional, running alongside the Large Company enhanced-deduction scheme which it replaced in April 2016. Estimates for the cost of accelerated depreciation provisions are not available. Enhanced R&amp;D tax deductions were first introduced for SMEs in 2000 and extended to large companies from 2002. Break in-series in 2014, linked to the inclusion of additional claims in the production of HMRE tax relief statistics (<a href="#">HMRC, 2022</a>).</p>
<b>United States</b>	<p>Estimates, on an accruals basis, refer to the federal research and experimentation tax credit (only corporations), based on SOI corporate tax return data. For international comparability, the cost of allowing for the expensing of research expenditures is not included. Estimates for the cost of subnational R&amp;D tax incentives are not available.</p>

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, April 2023.