

R&D Tax Incentives: China, 2021

Design of R&D tax relief provisions

China provides R&D tax relief through a volume-based R&D tax allowance.

Table 1. Main design features of R&D tax incentives in China, 2021

R&D tax allowance (Super-deduction)	
Tax incentive*	Tax allowance
Type of instrument	Volume-based
Eligible expenditures[†]	Current and depreciation (machinery and equipment, land and buildings)
Headline rates (%)	75 (100 for manufacturing enterprises as of 1 January 2021)
Refund	No
Carry-over (years)	5 (carry-forward) – 10 (SMEs and HNTEs)
Ceilings	Tax relief limited to 80% of eligible costs (per project); no cap currently applies in the case of foreign R&D service providers

* China also offers an accelerated depreciation of machinery and equipment used in R&D (immediate write-off up to a limit of CNY 1 million and declining balance depreciation at a rate of 40% above this limit). In addition, China provides customs duty and value added tax exemptions for purchases of R&D equipment. It also provides income-based tax incentives (reduced corporate income tax rate for high and new tech enterprises and Advanced Technology Service Enterprises and a tax concession on technology transfer) for outcomes of R&D activities. The latter incentives are beyond the scope of this note.

Note: For more details, see [OECD R&D Tax Incentive Compendium](#) and [Eligibility of current and capital expenditure for R&D tax relief](#)

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rntax>, December 2021.

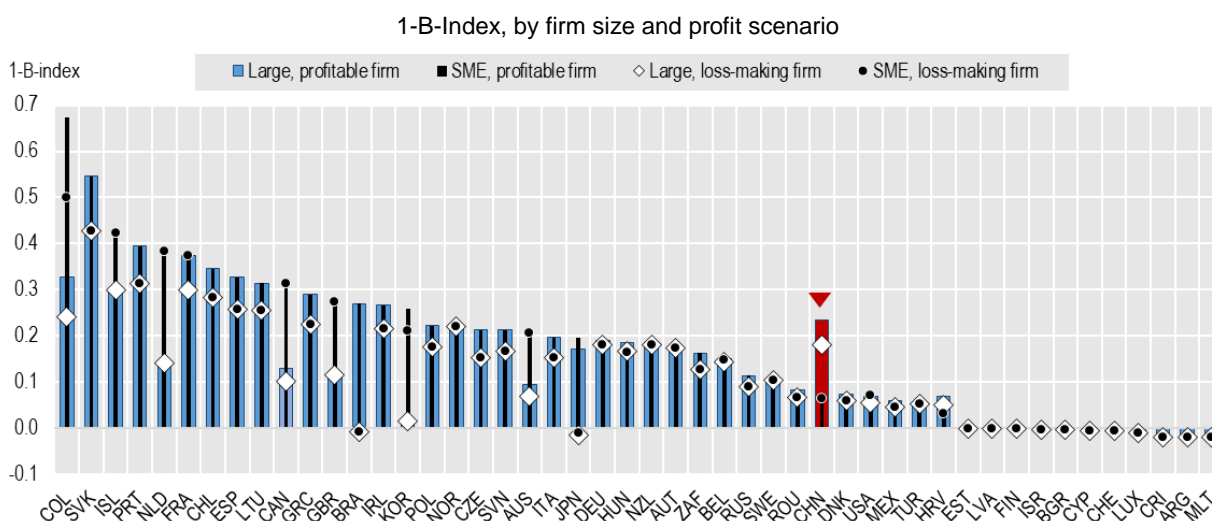
Key features:

- The headline rate is 75% for SMEs and large enterprises, up from 50% in 2017 and 2020 respectively. In 2021, the headline rate was enhanced and raised to 100% in the case of manufacturing firms.
- In case of insufficient tax liability, unused credits can be carried-forward for 5 years. With effect of January 2018, this carry-over period has been extended to 10 years in the case of SMEs and so-called high and new technology enterprises (HNTEs).
- In the case of subcontracted R&D, R&D tax relief is limited to 80% of eligible costs (per project).

Generosity of R&D tax support in 2021

Differences in the design of R&D tax incentives drive significant variation in the expected generosity of tax relief per additional unit of R&D investment. In 2020, the marginal tax subsidy rate for profit-making (loss-making) SMEs in **China** is estimated at 0.08 (0.06), well below the OECD median of 0.20 (0.18). The tax subsidy rate for large enterprises is equal to 0.23 (0.18) in the profit (loss)-making scenario, larger than the OECD median of 0.17 (0.15). These estimates model the provisions for the R&D tax allowance and the accelerated depreciation of R&D capital and account for the preferential corporate income tax rate of 10% (vs. 25%) for SMEs, reducing the value of tax deductions which are directly linked to the CIT rate.

Figure 1. Implied tax subsidy rates on R&D expenditures: China, 2021



Note: Implied marginal tax subsidy rates, presented for different firm size and profitability scenarios, are calculated based on headline tax credit/allowance rates (see [methodology](#) and [country-specific notes](#)), providing an upper bound value of the generosity of R&D tax support, not reflecting the effect of thresholds and ceilings that may limit the amount of qualifying R&D expenditure or value of tax relief.

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rntax>, December 2021.

Recent developments in R&D tax relief provisions

Regular reforms of R&D tax incentives lead to continuous changes in the availability, scope and generosity of R&D tax incentives. Such reforms relate to the launch of new tax incentives, the R&D definition adopted for tax purposes, changes in tax credit and allowance rates, adjustments of thresholds or upper ceilings on qualifying R&D expenditure or tax relief amounts, or changes in the terms and availability of refunds.

In **2021**, **China** extended its R&D tax allowance (super deduction) for research and development expenses for three years to December 31, 2023 and increased the rate of the enhanced tax deduction for manufacturing enterprises from 75% to 100%. **Another and recent change** in the design of the R&D tax allowance in **China** occurred in **2019**, when the headline R&D tax allowance rate for large firms was lifted from 50% to 75%, coinciding with the enhanced deduction rate applicable to SMEs.

Trends in the generosity of R&D tax support

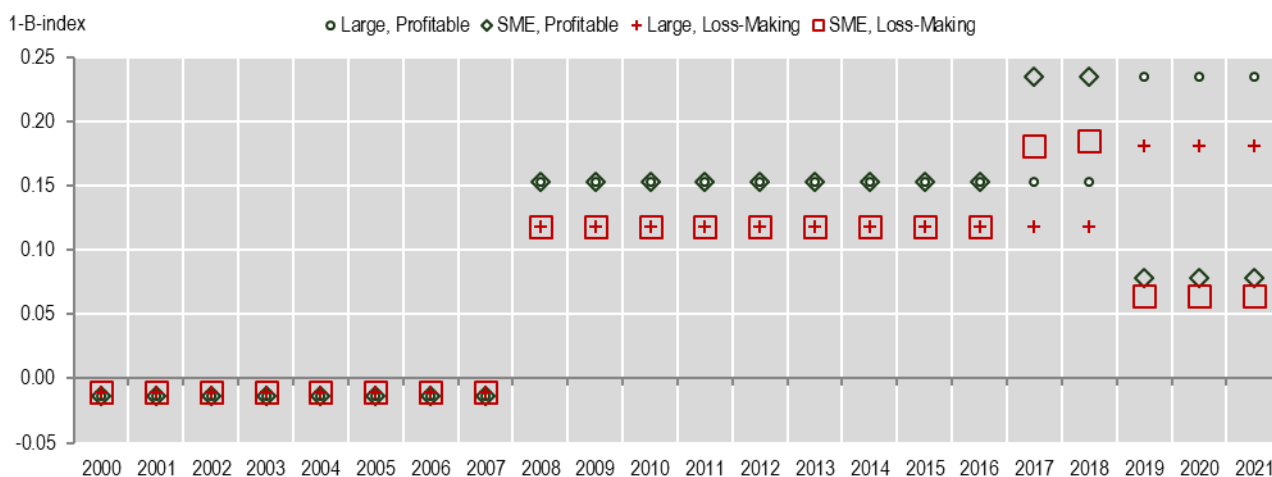
Since the broader implementation of the R&D tax allowance in **China** in 2008¹, implied marginal subsidy rates on R&D expenditures have remained stable until 2017. In that year, the R&D tax allowance rate was raised for SMEs from 50% to 75%. This led to an increase in the implied R&D tax subsidy rate for SMEs from 0.15 (0.12) to 0.23 (0.18) in the profit (loss) making scenario.

In 2019, the tax allowance rate of 75% was extended to large firms, leading to an increase in the implied tax subsidy rate for large firms from 0.15 (0.12) to 0.23 (0.18) in the profit (loss) making scenario. At the same time, a preferential corporate income tax rate of 10% (vs. 25%) was introduced for SMEs, reducing the value of tax deductions which are directly linked to the CIT rate. This led to a drop of the marginal R&D tax subsidy rate for SMEs from 0.23 (0.19) in 2018 to 0.08 (0.06) in 2019 in the profit (loss) making scenario.

With no further changes in the provision or design of R&D tax incentives in 2021, the implied marginal R&D tax subsidy rate estimated for 2021 coincides with the one for 2019 and 2020 across the four scenarios considered. These estimates focus on modelling the provisions for the R&D tax allowance available to SMEs and large firms at a rate of 75% and do not account for the enhanced tax allowance rate of 100% available to manufacturing firms with effect from 2021, owing to lack of information on their respective weight in the SME and large firm population of R&D performing firms.

Figure 2. Implied tax subsidy rates on R&D expenditures: China, 2000-21

1-B-Index, by firm size and profit scenario



Note: Implied marginal tax subsidy rates, presented for different firm size and profitability scenarios, are calculated based on headline tax credit/allowance rates (see [methodology](#) and [country-specific notes](#)), providing an upper bound value of the generosity of R&D tax support, not reflecting the effect of thresholds and ceilings that may limit the amount of qualifying R&D expenditure or value of tax relief.

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rntax>, December 2021.

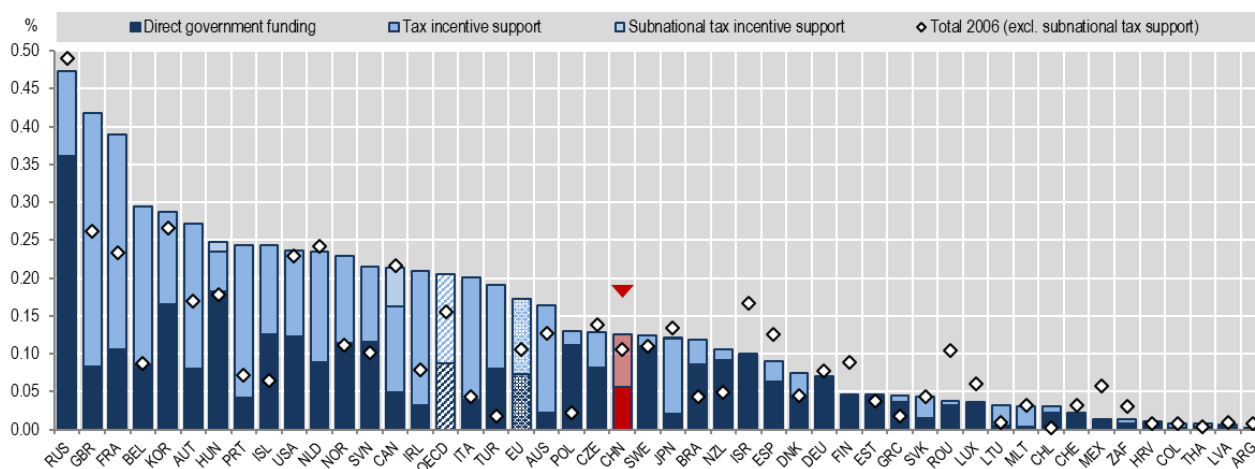
¹ The R&D super deduction was introduced as part of China's "Medium to Long Term Plan for the Development of Science and Technology" in 2006 but broadly implemented by provinces not before 2008. In this year, the State Administration of Taxation issued "Administrative Measures for the Pre-tax Deduction of Enterprise Research and Development Expenses" which provided a unified and simplified framework for implementing this R&D tax incentive in China (Zhen et al, 2018).

Policy support for business R&D: the policy mix

China is placed below the OECD average in terms of total government support to business R&D as a percentage of GDP, at a rate equivalent to 0.13% of GDP in 2017 (latest figure available).

Figure 3. Direct government funding of business R&D and tax incentives for R&D, 2019 (nearest year)

As a percentage of GDP



Note: Data on subnational tax support are only available for a group of countries.

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, December 2021.

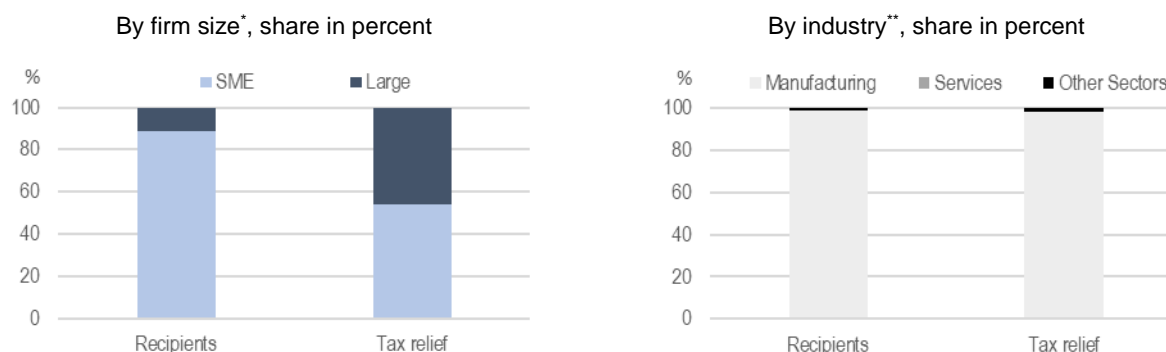
Key points:

- From 2009 to 2017, total government support for BERD as a percentage of GDP increased in **China** by 0.02 percentage point (pp), while the OECD average (2006-19) increased by 0.05 pp.
- During the 2009-17 period, business R&D intensity in **China** increased from 1.22% to 1.64%.
- In 2017, R&D tax incentives accounted for 55% of total government support for BERD in **China**.

Distribution of R&D tax relief recipients and government tax relief for R&D

The distribution of R&D tax relief recipients and government tax relief for R&D expenditures (GTARD) provide insights into what types of firms claim and benefit from tax relief.

Figure 4. Number of R&D tax relief recipients and value of government tax relief for R&D, 2017



Note: Figures refer to the R&D tax allowance. *Details on SMEs definition are not available. **No details on the classification available.

Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, December 2021.

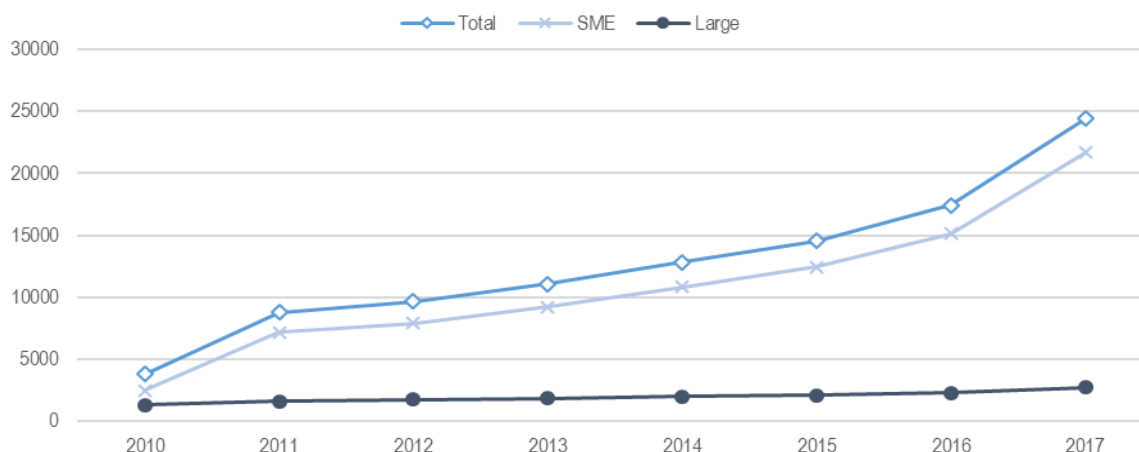
Key points:

- In **China**, SMEs accounted for 89% of R&D tax relief recipients in 2017, while the share of R&D tax support accounted for by SMEs amounted to around 54% in this year. 46% of R&D tax benefits were allocated to large firms, comprising 11% of the population of R&D tax relief recipients in 2017.
- In 2017, firms in manufacturing represented 99% of R&D tax relief recipients in **China**. The share of R&D tax benefits accounted for by the latter similarly amounted to 98% in that year.

Trends in the uptake of R&D tax incentives

Over the 2010-2017 period (for which relevant data are available), the number of R&D tax relief recipients increased more than six-fold in **China**, reaching nearly 24 500 in 2017. Most of this increase is attributable to SMEs. Throughout these years, the number of SMEs receiving R&D tax support increased from around 2 500 to 22 000, while the number of large firms receiving tax support increased from approximately 1 300 to 2 800. In 2017, SMEs accounted for around 90% of R&D tax relief recipients in **China**, up from 65% in 2010.

Figure 5. Number of R&D tax relief recipients, China, 2010-2017



Note: Figures refer to the R&D tax allowance.

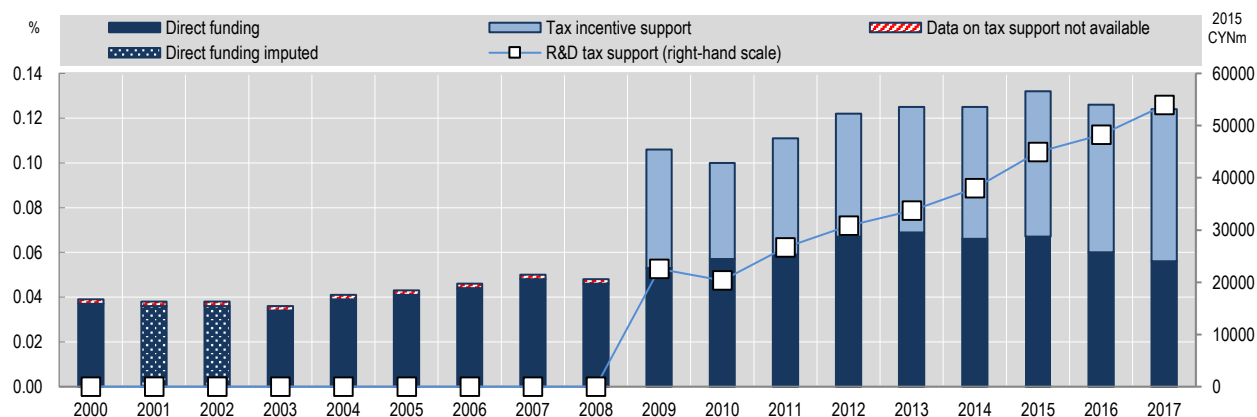
Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, December 2021.

Trends in government support for business R&D

The importance of R&D tax relief has increased in absolute terms in **China** since 2009, whereas the relative magnitude of tax vis-à-vis direct support fluctuated between 2009 and 2017.

Figure 6. Direct funding of business R&D and tax incentives for R&D, China, 2000-17

As a percentage of GDP, 2015 prices (right-hand scale)



Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, December 2021.

- The cost of government tax relief for R&D (central government level) rose (in 2015 prices) from CNY 22 578 million in 2009 to 53 917 million in 2017 (1 CNY = 0.131 EUR, Q3 2021).
- As percentage of GDP, R&D tax support increased from 0.05% to 0.07% of GDP during this period.
- Direct funding of BERD similarly increased from 0.05% to 0.06% of GDP between 2009 and 2017.
- The share of R&D tax incentives in total government support varied somewhat over this period, decreasing from 50% in 2009 to 43% in 2010 and increasing thereafter to reach 55% in 2017.

Please cite this note as: OECD (2021). "R&D Tax Incentives: China, 2021", www.oecd.org/sti/rd-tax-stats-china.pdf, Directorate for Science, Technology and Innovation, December 2021.

Disclaimer: <http://oe.cd/disclaimer>

© OECD 2021