

# R&D Tax Incentives: Korea, 2021

## Design of R&D tax relief provisions

Korea provides R&D tax relief through a hybrid R&D tax credit and a volume-based investment credit for machinery and equipment and buildings.

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

		R&D tax credit	R&D investment credit
Type of instrument		Hybrid (volume or increment)*	Volume-based
Eligible expenditures <sup>†</sup>		Current	Machinery & equipment, buildings
Headline rates (%)		<p><u>Volume:</u> 0-2 (Large firm) [0.5 R&amp;D expense-sales ratio], 8-15 (HPE), 25 (SME)</p> <p><u>Increment:</u> 25 (Large firm), 40 (HPE), 50 (SME)***</p>	1 (Large firm), 3 (HPE), 7 (SME)
Refund		No	
Carry-over (years)		10 (carry forward)	5 (carry forward)
Thresholds & ceilings	Base amount	R&D spending in the previous year.	
	Ceiling	Tax credit capped at 2% of R&D spending (large firms)	

R&D expense ratio=R&D/revenue; HPE: High Potential Enterprise (do not qualify as SME, respect rules about being part of a group and have sales below KRW 500 billion); \* The R&D tax credit equals the greater of either 1) the volume-based tax off-set, or the 2) incremental tax off-set; \*\*Under the Growth Industry and Basic Technology scheme available to firms with R&D aimed at New Growth and Basic technologies (235 technologies in 12 areas, incl. future cars, next generation electronic information devices, energy and environment), enhanced volume-based tax credit rates apply to SMEs (30-40; 15/10 for firms losing SME status, see compendium) and to large firms and HPEs (20-30); \*\*\* 40 for firms losing the SME status. Korea also offers an income-based tax incentive for outcomes of R&D activities. This incentive is 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:

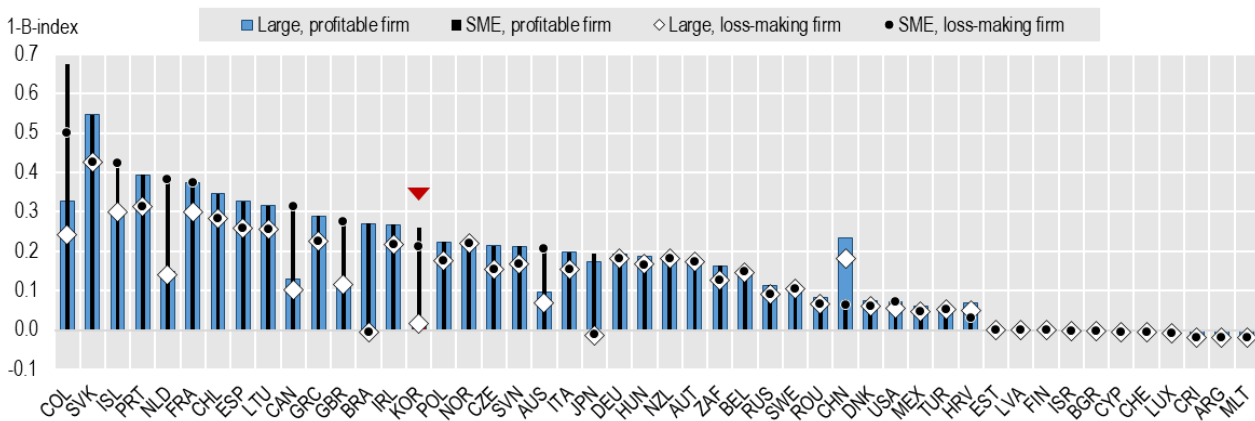
- Under the hybrid R&D tax credit, R&D tax relief generally equals the larger of the volume-based or the incremental tax offset.
- In case of insufficient tax liability, unused credits can be carried forward for 10 years (previously 5 years) under the hybrid R&D tax credit, and for 5 years under the R&D investment credit.
- Under the volume-based R&D tax credit, tax benefits are limited in the case of large companies where the maximum tax credit rate – a function of the R&D expense ratio – is capped at 2%.

## 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 2021, the marginal tax subsidy rate for profit-making (loss-making) SMEs in **Korea** is estimated at 0.26 (0.21), above the OECD median of 0.20 (0.18).

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

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.

The implied R&D tax subsidy rate for large firms equals 0.02 (0.02) in the profit (loss) case, well below the OECD median of 0.17 (0.15). These estimates focus on the hybrid R&D tax credit (not accounting for the enhanced tax credit rates applicable to a subset of firms under the Growth Industry and Basic Technology scheme) and the R&D investment credit.

## 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, **Korea** undertook **two changes** in its R&D tax relief provisions:

- The scope of the Growth Industry and Basic Technology scheme – one component of the R&D tax credit in Korea - was extended to additionally cover 25 technologies, most of which are related to "Korean New Deal" such as the Digital New Deal and Green New Deal. For both SMEs and large firms (see Table 1), enhanced tax credit rates apply to expenses incurred for innovative growth-related technology investments.
- The scope of the R&D tax credit was extended to additionally cover expenses paid for intellectual property research and analysis.

None of these policy changes were related to **the COVID-19 crisis**.

## Trends in the generosity of R&D tax support

The generosity of R&D tax incentives in **Korea** has experienced changes over the 2000-21 period, across the four different scenarios. In the case of large firms, a drop in implied tax subsidy rates follows the reduction of the incremental tax credit rate applicable to large firms from 50% to 40% in 2003, from 40% to 30% in 2017, and from 30% to 25% in 2018. With this, the volume-based tax offset becomes more favourable for large firms.

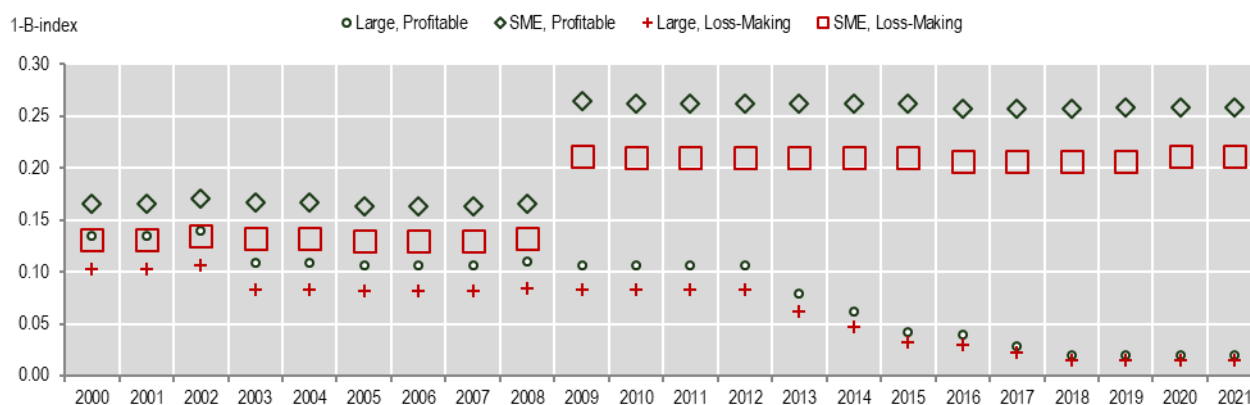
The definition of the base amount in excess of which R&D expenditure qualifies for the incremental tax credit was adjusted from 2013 to 2015, the number of years based on which the average R&D spend is computed (initially 4 years) was reduced by one year each year. This resulted in a step-wise decrease of the R&D tax subsidy rate estimated for large firms.

For SMEs, marginal tax subsidy rates increased in 2009 when the volume-based tax credit rate for SMEs was raised from 15% to 25%. For large firms, the volume-based tax credit rate was reduced from 3% to 2%. Changes in the R&D investment tax credit rate further led to some smaller variations in implied tax subsidy rates over the 2000-21 period.

If the modelling of R&D tax incentives accounts for the maximum volume-based tax credit rate available to SMEs (30-40%) and large firms (20-30%) under the Growth Industry and Basic Technology scheme – one component of the hybrid R&D tax credit, the implied R&D tax subsidy rate for SMEs is equal to 0.41 (0.33) in the profit (loss case) and the one for profitable (loss-making) large firms amounts to 0.37 (0.29).

**Figure 2. Implied tax subsidy rates on R&D expenditures: Korea, 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.

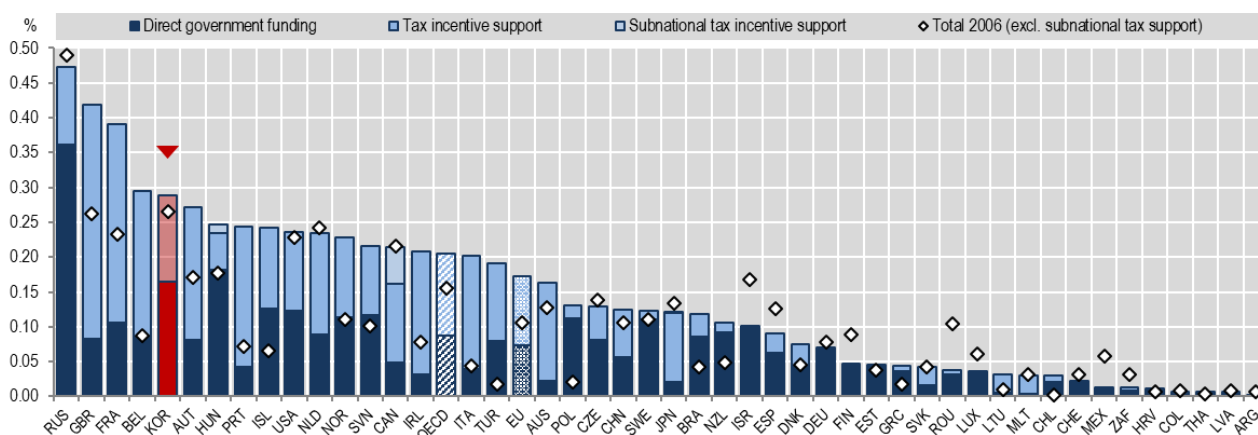
*Source:* OECD, R&D Tax Incentives Database, <http://oe.cd/rntax>, December 2021.

## Policy support for business R&D: the policy mix

In 2019, **Korea** is placed among the OECD countries that provide the largest level of total government support to business R&D as a percentage of GDP, at a rate equivalent to 0.29% of GDP.

**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.

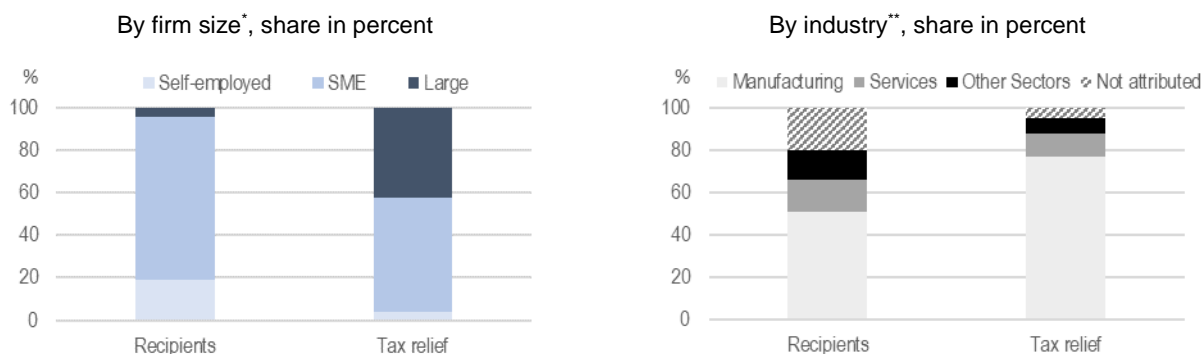
### Key points:

- From 2007 to 2019, total government support for BERD as a percentage of GDP increased in **Korea** by 0.02 percentage point (pp), while the OECD average (2006-19) increased by 0.05 pp.
- During this period, business R&D intensity in **Korea** increased from 2.19% to 3.73%.
- In 2019, R&D tax incentives accounted for 43% of total government support for BERD in **Korea**.

## 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, 2019**



Note: Figures refer to the R&D investment credit and R&D tax credit. \*SMEs are defined as firms that have i. total asset amount less than 500 trillion KRW, ii. total sales less than 40-150 trillion KRW (the threshold varies by business sector), and iii. are not related to other large firms and do not run a lodging business or bar management. \*\*Economic activity is defined as follows: Manufacturing (Steel, automobiles, food, etc. all kinds of products made in a factory), Services (Legal, consulting, advertisement, education, etc.), Other sectors (Agriculture, mining, fishing, construction, wholesale, retail, finance, healthcare, etc.)

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

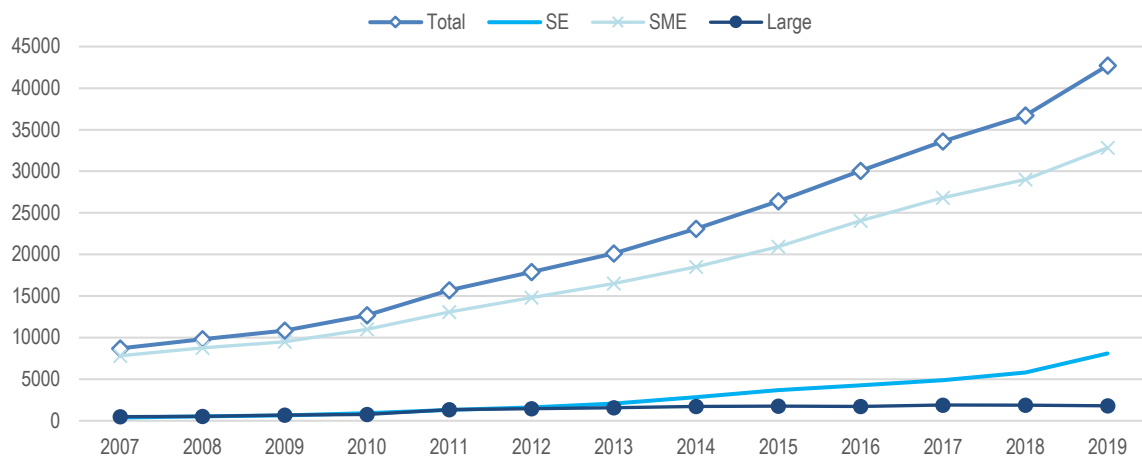
### Key points:

- In **Korea**, SMEs accounted for 77% of R&D tax relief recipients in 2019, while the share of R&D tax support accounted for by SMEs amounted to around 54% in this year. 42% of R&D tax benefits were allocated to large firms, comprising 4% of the population of R&D tax relief recipients in 2019.
- In 2019, firms in manufacturing represented around 51% of R&D tax relief recipients in **Korea**, followed by firms in services with a share of 15%. The share of R&D tax benefits accounted for by the latter amounted to 11% in that year, while this share amounted to 77% in the case of firms in manufacturing.

## Trends in the uptake of R&D tax incentives

Over the period 2007-2019, the number of R&D tax relief recipients increased more than fourfold in **Korea**, from around 8 700 to close to 42 700 recipients in 2019. Most of this increase is attributable to SMEs. Throughout these years, SMEs accounted for 80-90% of R&D tax relief recipients in **Korea**.

**Figure 5. Number of R&D tax relief recipients, Korea, 2007-2019**



Note: Figures refer to the R&D investment credit and R&D tax credit.

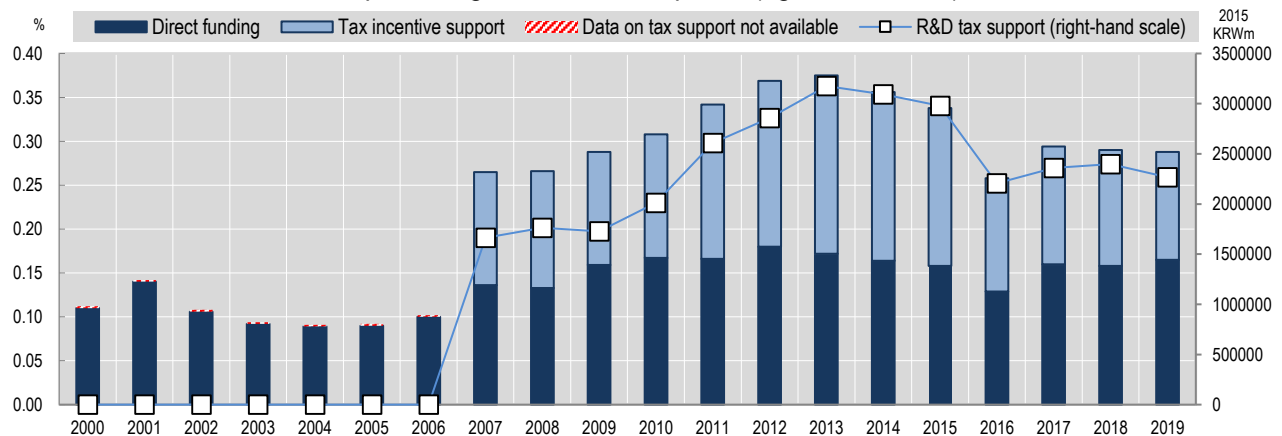
Source: OECD, R&D Tax Incentives Database, <http://oe.cd/rdtax>, December 2021.

## Trends in government support for business R&D

Between 2007 and 2019, the importance of tax incentives has increased in **Korea** in absolute terms, whereas the relative magnitude of tax compared to direct support has remained fairly stable over this period.

**Figure 6. Direct funding of business R&D and tax incentives for R&D, Korea, 2000-19**

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 rose (in 2015 prices) from KRW 1.7 trillion (100 KRW = 0.073 EUR, Q3 2021) in 2007 to KRW 3.2 trillion in 2013, and declined thereafter, reaching KRW 2.3 trillion in 2019.
- As percentage of GDP, R&D tax support reached a peak of 0.20% in 2013, declined thereafter to reach 0.12% in 2019.
- Direct funding of BERD rose from 0.11% of GDP in 2000 to 0.17% in 2019.
- The share of R&D tax incentives in total government support remained fairly stable over the 2007-18 period, varying between 45% and 54%, and amounted to 43% in 2019.

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