R&D Tax Incentives: Korea, 2019

Design features

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.

- 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 5 years (10 for start-ups) under both schemes.
- Under the volume-based R&D tax credit, tax benefits are limited in the case of large companies where the maximum credit rate – a function of the R&D expense ratio – is capped at 2%.

### Table 1. Main design features of R&D tax incentives in Korea, 2019

<table>
<thead>
<tr>
<th>Type of instrument</th>
<th>R&amp;D tax credit</th>
<th>R&amp;D investment credit</th>
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</thead>
<tbody>
<tr>
<td>Eligible expenditures†</td>
<td>Hybrid (volume or increment)*</td>
<td>Volume based</td>
</tr>
<tr>
<td>Headline rates</td>
<td>Volume: 1-2, 1+1.5 R&amp;D expense ratio†, 8 (HPE), 25 (SME)***</td>
<td>Increment: 20, 40 (HPE), 50 (SME)****</td>
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<tr>
<td>Refund</td>
<td>No</td>
<td></td>
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<tr>
<td>Carry-over (years)</td>
<td>5 (carry forward) [10 years for start-ups]</td>
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<tr>
<td>Thresholds &amp; ceilings</td>
<td>Base amount</td>
<td>R&amp;D spending in the previous year</td>
</tr>
<tr>
<td>Ceiling</td>
<td>Tax credit capped at 2% of R&amp;D spending (large firms)</td>
<td></td>
</tr>
</tbody>
</table>

**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 generally equals the greater of either 1) the volume-based tax offset, or the 2) incremental tax offset; *: 20-30 for large firms and HPE under the Growth Industry and Basic Technology scheme; †*: 30-40 for SMEs under the Growth Industry and Basic Technology scheme; ***: 15/10 for firms losing SME status (see compendium); **** 40 for firms losing the SME status and HPE. Korea also offers an income-based tax incentive for outcomes of R&D activities. This incentive is beyond the scope of this note.


Recent developments and trends

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 2019, 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 0.19 (0.17). The tax subsidy rate for large firms equals 0.03 (0.02) in the profit (loss)-making scenario, below the OECD median of 0.14 (0.10).

The generosity of R&D tax incentives in Korea has experienced changes over the 2000-19 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 led to some smaller variations in implied tax subsidy rates over the 2000-19 period.

### Figure 1. Implied tax subsidy rates on R&D expenditures: Korea, 2000-19

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

Source: OECD, R&D Tax Incentive Database, http://oe.cd/rdtax; December 2019

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

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Public support for business R&D: the policy mix

In 2017, Korea is among 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 0.31% of GDP.

Figure 2. Direct government funding of business R&D and tax incentives for R&D, 2017 (nearest year)

As a percentage of GDP


- From 2007 to 2017, total government support for BERD as a percentage of GDP increased in Korea by 0.03 pp, while the OECD median (2006-17) increased by 0.015 pp.
- During this period, business R&D intensity in Korea increased from 2.29% to 3.62%.
- In 2017, R&D tax incentives accounted for 46% of total government support for BERD in Korea.

Trends in government support for business R&D

Between 2007 and 2017, 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 3. Direct government funding of business R&D and tax incentives for R&D, Korea, 2007-17

As a percentage of GDP, 2010 prices (right-hand scale)


- The cost of tax relief rose (in 2010 prices) from KRW 1.6 trillion (100 KRW = 0.075 EUR, Q3 2019) in 2007 to KRW 2.9 trillion in 2013, and declined thereafter, reaching KRW 2.2 trillion in 2017.
- As percentage of GDP, tax support reached a peak of 0.21% in 2013 and amounted to 0.14% in 2017.
- Direct funding of BERD sustainedly rose from 0.11% of GDP in 2000 to 0.17% in 2017.
- The share of R&D tax incentives in total government remained fairly stable over the 2007-17 period, varying between 45% and 54% and reaching 46% in 2017.


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