Turnover for Scientific Research and Development

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Introduction of SN 2007

- At 2-digit level no changes in the population have occurred.

- At 3-digit level some changes occurred
  1. 98 % of turnover 73.1 → 72.1
  2. 2 % of turnover 73.1 → 72.2
  3. 100 % of turnover 73.2 → 72.2

Turnover transferred from 73.1 → 72.2 accounts for 10 percent of the total turnover in 72.2

<table>
<thead>
<tr>
<th>Nace Rev 1.1</th>
<th>Nace Rev 2.</th>
<th>Turnover</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>73.100</td>
<td>72.190</td>
<td>86 %</td>
<td>74 %</td>
</tr>
<tr>
<td>73.100</td>
<td>72.110</td>
<td>12 %</td>
<td>21 %</td>
</tr>
<tr>
<td>73.100</td>
<td>72.200</td>
<td>2 %</td>
<td>5 %</td>
</tr>
<tr>
<td>73.200</td>
<td>72.200</td>
<td>100 %</td>
<td>100 %</td>
</tr>
</tbody>
</table>
Surveys on turnover within Nace 72

- Structural Business Statistics (SBS)
  - An annual statistic, which measures several economic variables in absolute terms.
  - Covers all units within the business sector
  - Sample survey. Enterprise is statistical unit. Coverage rate > 90 %, measured by turnover
  - Preliminary data are published t+10 months
  - Final data are published t+18 months
Turnover in Nace 72, SBS. 2008


- 72.11. Research and experimental development on biotechnology: 654
- 72.19. Other research and experimental development on natural sciences and engineering: 1,235
- 72.2. Research and experimental development on social sciences and humanities: 5,342
R &D activities within the largest enterprises in SBS, Nace 72.11

- Vaccines for salmon and other fisharts
- Testing of medical products for the medical indistru
- Projects within spesific medical fields
- R&D on products/processes where fibres from trees are used as rawmaterial
- R&D on seafood processing
R &D activities within the largest enterprises in SBS, Nace 72.19

- Materials and chemistry
- Energy technology
- Fisheries technology
- Building and infrastructure
- ICT
- Petroleum
- Geoscientific
- Protection of water bodies and quality.
R &D activities within the largest enterprises in SBS, Nace 72.19

- Industrial economics
- Public welfare services
- Macro, pensions and workinglife
- Culture and societies
- Language
- Computing
- Transport and communication
Data sources for SBS

1. For sample units: Annual accounts

2. For units outside the sample:
   - Annual accounts
   - Register of Annual Company Reports (Joint-Stock units)
   - VAT-register
   - Questionnaire

- For the reference year 2008, 92 per cent of the turnover were collected through the annual accounts
## Some results from the SBS 2008

<table>
<thead>
<tr>
<th>NACE Code</th>
<th>No. Of enterprises</th>
<th>Employees</th>
<th>Turnover (NOK million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>72.110</td>
<td>81</td>
<td>653</td>
<td>654</td>
</tr>
<tr>
<td>Research and</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Experimental</td>
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<td></td>
<td></td>
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<tr>
<td>Development on</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72.190</td>
<td>285</td>
<td>5 516</td>
<td>5 342</td>
</tr>
<tr>
<td>Other Research</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>and Experimental</td>
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<td></td>
<td></td>
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<tr>
<td>Development on</td>
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<tr>
<td>Natural Sciences</td>
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<td></td>
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<tr>
<td>and Engineering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>72.200</td>
<td>123</td>
<td>2 134</td>
<td>1 235</td>
</tr>
<tr>
<td>Research and</td>
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<td>Experimental</td>
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<tr>
<td>Development on</td>
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<tr>
<td>Social Sciences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>and Humanities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total nace 72</strong></td>
<td><strong>501</strong></td>
<td><strong>8 303</strong></td>
<td><strong>7 232</strong></td>
</tr>
</tbody>
</table>
Some results from the SBS 2008

<table>
<thead>
<tr>
<th>Employmentgroups</th>
<th>Enterprises</th>
<th>Employment</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>81 %</td>
<td>6 %</td>
<td>10 %</td>
</tr>
<tr>
<td>10-19</td>
<td>4 %</td>
<td>4 %</td>
<td>3 %</td>
</tr>
<tr>
<td>20-49</td>
<td>7 %</td>
<td>13 %</td>
<td>15 %</td>
</tr>
<tr>
<td>50+</td>
<td>8 %</td>
<td>77 %</td>
<td>72 %</td>
</tr>
<tr>
<td>Total</td>
<td>100 %</td>
<td>100 %</td>
<td>100 %</td>
</tr>
</tbody>
</table>
Some results from the SBS 2008


NOK million

Year

Enterprises
Establishments
Some results from the SBS 2008

Public subsidies and operational income. SBS. 2008

NOK billion

Nace

Public subsidies
Operational income
Limitations and uncertainties

• No data collection at product level

• Errors in administrative register

• Majority av R&D activities takes place outside the scope of the SBS. SBS is therefore not a tool for measuring total activity level within R&D in Norway
Surveys on turnover within Nace 72

- Short term statistic
- Quarterly turnover index, which produces index-values.
- Sample survey, statistical unit is establishment
- Sample is stratified after nace group, size (turnover), type, age and identical/new units.
- Data are published 55-60 days after the end of the reference period.
Sample for the quarterly turnover index

Sample, turnover index 2010. Coverage rate
Estimation of index

• We distinguish between identical and new units. Both types of units receive a questionnaire, asking for turnover.

• For all units in the population we have information concerning employment from administrative registers.

• For identical units a ratio estimator is applied to each stratum to inflate sample to population level.

- For new units, turnover is estimated for the population from a factor between turnover/employees from sample units, in each stratum.
Results from the quarterly turnover index, Nace 72
Limitations and uncertainties

• Errors in administrative registers

• Response from establishments sometimes include public subsidies. This should be not included in the turnover

• Sample Survey
Comparison between the statistics

- Possible reasons for differences between the statistics
  - errors in the questionnaires
  - differences in nace code
  - census versus sample survey

![Graph showing annually growth rates in turnover, SBS and STS data. Nace 72. 2004-2008.](chart.png)
Other statistics within R&D

• Scope of R&D activities/expenditures in the business sector, divided by:
  - intra/extramural activities
  - industry sector
  - technology og thematic fields
  - Employment

The survey is annually
Some results from the last survey

Intra and extramural expenditures. 2007-2008. +10 employees
Some results from the last survey

Intramural R&D expenditures in the business sector, divided by industry. 2005-2008. +10 employees

<table>
<thead>
<tr>
<th>Industry</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing industry</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Service industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other industries</td>
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</tbody>
</table>
Total scope of R & D activities in Norway

- NIFU STEP (Norwegian Institute for Studies in Innovation, Research and Education) - and Statistics Norway has published figures which shows total R&D expenditures in Norway, divided by sector.

- Total expenditures: NOK 41 billion

- Comparison with SBS 2008
  Total turnover: NOK 7-8 billion