The Transformation of China’s research evaluation: from Native Mode to International mode

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Outlines

- Background
- Two Evaluation modes
  - Native mode
  - International mode
- Challenges
Background

- Evaluation is widely used in China to promote S&T development
  - Institute Evaluation: CAS
  - Program Evaluation: NSFC, MOST
  - Talent Evaluation: Bairen Talent Project, Qianren Talent Project
  - Discipline evaluation: Tsinghua university, Peking university, etc.
  - …

- S&T Evaluation is an attractive issue in China
  - Quantitative evaluation brings problems in S&T development
  - Reforming the S&T evaluation has reached a consensus
Background

- How to reform the research evaluation? Are there any successful practices in China?
- We put forward two modes of China’s research evaluation: Native mode and International mode
- China’s research evaluation is transferring from native mode to international mode
What is native mode?

**Evaluation Indicators:**
Focus on quantitative indicators, such as number of SCI papers, number of patents, amount of the funds.

**Evaluation methods:**
Mainly by quantitative evaluation

**Native mode**

**Evaluation Benchmarks:**
Comparison with domestic counterparts, lack of international benchmark

**Evaluation Results:**
Ranking or grading according to quantitative evaluation
Linked with resource allocation
Case; evaluation of CAS Institutes in 1993~1998

Evaluation Indicators:
awards, academic articles, citations, publications, patents, funds, etc.

Evaluation methods:
Institutes were given a score according to the quantitative indicators

Evaluation Benchmarks:
Comparison with the institutes in CAS

Evaluation Results:
Ranking or grading according to the scores
Why native mode?

- **In the era of planned economy**
  - Established a S&T system: Government research institutes, universities, etc.
  - Resource allocation, management of the institutes following the Planning

- **After reform and opening up**
  - Project: introduced competition in S&T management system
  - Universities, research institutes has more autonomous rights
  - S&T evaluation was introduced to the S&T management

- **S&T development level was low**
  - Several articles published in *Nature* and *Science* by Chinese scientists
  - Far behind the international level
What is International Mode?

**Evaluation Indicators:**
Research quality, impact, international status

**Evaluation methods:**
Mainly by peer review
Experts from overseas attend evaluation

**Evaluation Benchmarks:**
Comparison with international counterparts

**Evaluation Results:**
Focus on diagnosis
## Cases

<table>
<thead>
<tr>
<th>Evaluation Type</th>
<th>Details</th>
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| **Recruitment evaluation** in Academy of Mathematics and Systems Science, CAS | - E-peer review by 4~5 experts from overseas and 4~5 experts from China  
  - Focus on Research quality, international status  
  - Competed among international counterparts |
| **Research direction evaluation** in Institute of Physics, CAS | - E-peer review by at least 4 experts from overseas  
  - Focus on the importance, significant, innovativeness, impact of the research directions |
| **Disciplines evaluation** in Tsinghua University, Peking University, Shanghai Jiaotong University, etc | - E-peer review and on-site review by experts from overseas  
  - Focus on the international status of the disciplines |
Why International mode?

- **Requirement of economic development**
  
  Traditional development pattern of China’s economy is facing big challenges.

*Energy consumption per capita GDP*

*Labor cost*

*Average personal income*
Why International mode?

R&D investment increased rapidly

S&T should play its leading role on accelerating the transformation of the pattern of economic development and construction of innovative country
Why International mode?

- S&T progress

Number of SCI papers and the share in total

Top 1% and Top 10% articles by CAS
**Why International mode?**

**S&T progress**

Invention patents granted in selected countries

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<thead>
<tr>
<th></th>
<th>China</th>
<th>Japan</th>
<th>USA</th>
<th>Korea</th>
<th>EPO</th>
<th>Russia</th>
<th>Canada</th>
<th>Italy</th>
<th>Germany</th>
<th>France</th>
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<tbody>
<tr>
<td><strong>Domestic</strong></td>
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<td>164459</td>
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<td>42129</td>
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<td>2029</td>
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<td>10284</td>
<td>9228</td>
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<tr>
<td><strong>Foreign</strong></td>
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<td>51969</td>
<td>8530</td>
<td>17468</td>
<td>1958</td>
<td>4151</td>
<td>1301</td>
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<tr>
<td><strong>Total</strong></td>
<td>128489</td>
<td>193349</td>
<td>167349</td>
<td>56732</td>
<td>51969</td>
<td>34824</td>
<td>19497</td>
<td>18277</td>
<td>14435</td>
<td>10529</td>
</tr>
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**Rank**

3 1 2 4 5 6 7 8 9 10

Why International mode?

- Problems of native mode

**Main problems**
- Overemphasis quantitative indicators
- Value orientation deviation
- Limited role of peers
- Unsuitable application of evaluation results

**Consequences**
- Ignoring the contribution and ability
- Scientists can not concentrate on research
- Short-term behavior, impetuous psychology, academic misconduct, etc.
Challenges

- How to deal with the imbalance of developments in different agencies, disciplines or regions?
- How to make the international evaluation better and better? expert selection, quality control…
- How to promote the transformation? How to change the value orientation?
Conclusions

- Research evaluation is playing more and more important role in China.
- China’s research evaluation is transferring from native mode to international mode.
- The improvement of S&T progress is the root causes of the transformation.
- The transformation is still facing a lot of challenges. Two modes may coexist in a long period.
Thanks for your attention!

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