

The University of Tokyo - the only winner?

Institutional expenses and the allocation of competitive funding

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One often hears claims that the distribution among institutions of Grant-in-Aid for Scientific Research (Kakenhi) is outrageously uneven. Some are of the opinion that since faculty from only certain universities are involved in the selection process for competitive funding, such funding is distributed unevenly. One also often hears that the reason the number of female staff in the scientific community is so small is due to the small number of female screening committee members. It would be very regrettable if this were true. It would be intolerable if this insularity of supporting only one's own kind remained strongly rooted in this area. Since the merits and demerits should not be judged based on rumor or hearsay, we tried to examine the relevant data as a fastidious scientist. As public offices of the Japanese government, the Japan Society for the Promotion of Science (JSPS)¹⁾ and the Cabinet Office²⁾ release detailed data on their websites, enabling our own analysis based on these figures.

Is competitive funding distributed fairly?

Let's begin with a look at the figures. A look at the distribution amounts of Grant-in-Aid for Scientific Research by institution¹⁾ in the 2008 fiscal year shows that the University of Tokyo is in the overwhelming top position, with a figure approximately 40% higher than the second highest, that of Kyoto University. But are there any signs of favoritism in the selection process? The same data includes selection rates (for the top 30 schools) by university or similar institution (see **Table 1**). Liberal-arts schools such as the Tokyo University of Foreign Studies and Hitotsubashi University are in the top ranks, followed by a number of public and private universities and research institutions so diverse that it is difficult to spot any trend. The 2008 fiscal year was no exceptional case. A look back over several years shows a similar trend in the top schools. From this data alone it would not appear that the University of Tokyo is favored in particular. In addition, while it also is said that the seven former imperial universities dominate the top ranks of schools receiving Grant-in-Aid for Scientific Research, a look at the top schools in terms of selection rates shows no such biased trend. Is this not evidence that, contrary to rumor, selection

Table 1 The top schools in terms of new selection rates for Grant-in-Aid for Scientific Research in the 2008 fiscal year¹⁾

| | Institution | Selection rate (%) | Selections |
|----|--|--------------------|------------|
| 1 | Tokyo University of Foreign Studies | 44.2 | 34 |
| 2 | Hitotsubashi University | 43.0 | 37 |
| 3 | Aichi Cancer Center (Research Institute) | 42.6 | 26 |
| 4 | National Institute of Informatics | 39.1 | 27 |
| 5 | Fukui Prefectural University | 37.3 | 19 |
| 6 | National Institute for Physiological Sciences | 34.9 | 44 |
| 7 | Chuo University | 33.1 | 44 |
| 8 | Institute for Molecular Science | 32.5 | 27 |
| 9 | Kyoto University | 32.4 | 945 |
| 10 | The University of Tokyo | 32.1 | 1,170 |
| 11 | Kyushu Dental College | 31.7 | 26 |
| 12 | National Institute of Genetics | 31.3 | 31 |
| 13 | Joetsu University of Education | 30.5 | 18 |
| 13 | Doshisha University | 30.5 | 67 |
| 15 | Japan Advanced Institute of Science and Technology | 30.0 | 45 |
| 15 | Iwate Prefectural University | 30.0 | 24 |
| 17 | Kwansei Gakuin University | 29.7 | 38 |
| 18 | National Institute for Environmental Studies | 29.6 | 21 |
| 19 | National Institute for Basic Biology | 29.5 | 23 |
| 20 | Keio University | 29.3 | 269 |
| 21 | Nagoya University | 29.2 | 566 |
| 22 | Hosei University | 28.9 | 46 |
| 22 | Tokyo Metropolitan Organization for Medical Research | 28.9 | 59 |
| 24 | Konan University | 28.8 | 17 |
| 25 | National Institute of Information and Communications Technology | 28.7 | 29 |
| 26 | Nara Institute of Science and Technology | 28.2 | 81 |
| 27 | National Center of Neurology and Psychiatry | 28.1 | 34 |
| 28 | Osaka University | 28.0 | 790 |
| 28 | Tokyo Metropolitan Institute of Gerontology, Foundation for Research on Aging and Promotion of Human Welfare | 28.0 | 26 |
| 30 | Tokyo Gakugei University | 27.4 | 31 |
| 30 | Japan Aerospace Exploration Agency | 27.4 | 40 |

Notes:

1. Figures above represent totals for research subjects other than research promotion, costs of promotion of release of research results, and costs of promotion of special researchers.
2. Organized by university or other institution to which the representative researcher is affiliated.
3. Subject to analysis: universities and other institutions applying for 50 or more grants (selection rate = number selected/number of applications).

of subjects for Grant-in-Aid for Scientific Research in fact is conducted very fairly?

It is a fact that even if the selection process is fair, large amounts of competitive funding are distributed to a limited number of universities. Members of the group of universities referred to as the seven former imperial universities all are large, comprehensive universities. Since data from the Cabinet Office also shows the number of faculty members at universities

and other institutions, a look at correlation with university institution size shows some fairly interesting trends.

Take a look at **Fig. 1**. A line can be drawn connecting the seven former imperial universities and the Tokyo Institute of Technology. This is the group of universities with high amounts of Grant-in-Aid for Scientific Research received per faculty member. This group also includes science and technology universities with relatively

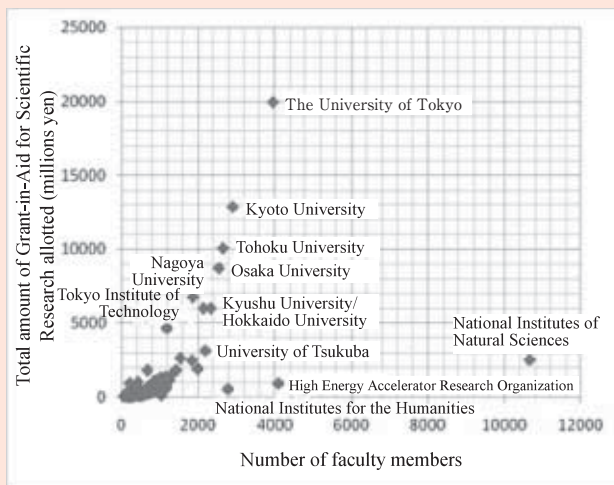


Fig. 1 Correlation between amount of Grant-in-Aid for Scientific Research allotted and number of faculty members (Data from 2).

small numbers of faculty members, such as the Nara Institute of Science and Technology, the Japan Advanced Institute of Science and Technology, Tokyo Medical and Dental University, Tokyo University of Agriculture and Technology, Toyohashi University of Technology, Nagaoka University of Technology, and the Obihiro University of Agriculture and Veterinary Medicine. Another extreme visible in this figure is the line made up of inter-university research institutes. A grouping of educational universities also is positioned around this line. The majority of other university institutions, such as the University of Tsukuba, are positioned between these two groupings. While there probably is a need for separate analysis of the universities with a relatively small number of faculties positioned near the origin of this graph, a general trend can be seen. Grant-in-Aid for Scientific Research is not the only type of competitive funding. There are numerous other types, including Core Research for Evolutional Science and Technology (CREST, etc.), Special Coordination Funds for Promoting Science and Technology, and Health and Labour Sciences Research Grants. However, even when all of these are added the trends shown in **Fig. 1** remain unchanged.

Researchers involved in the selection process of not just Grant-in-Aid for Scientific Research but other types of competitive funding as well are likely to be very familiar with the fact that selection is conducted fairly. What is behind the fact that, regardless of this fact, rumors such as those described at the start of this paper still are spoken of as plausible? It cannot be due simply to ignorance.

Knowledgeable readers probably already have noticed that the higher the relative number of science and technology faculty members at a university the more competitive funding the university receives, and as a result, such universities receive considerable revenues from discretionary indirect costs. While it can be said that Japan's policy of aiming to be a

country based on science and technology is bearing fruit, at the same time taking into consideration university management it is thought that receipt of large amounts of competitive funding is a very important funding resource supplementing subsidies for operating expenses, which are expected to decrease steadily over time.

Costs of operating universities and other institutions

Ordinary revenues of national university corporations and similar institutions in the 2007 fiscal year totaled 2.5 trillion yen, of which 1.1 trillion yen consisted of subsidies for operating expenses. Since becoming national university corporations, these institutions have seen these subsidies for operating expenses decrease by 1% per year, for an annual decrease of approximately 10 billion yen. Since just over 50% of university corporation expenditures are accounted for by labor costs, responding to this long-term decrease naturally would require a reduction in labor expenses by a similar rate. To a nation based on science and technology, depletion of the human resources promoting research is a waste of considerable effort. Today, 30% of indirect expenses are added to competitive funding, and institutions are attempting to secure infrastructure using this funding. Can a calculation method for a general framework be developed?

Viewed broadly, Grant-in-Aid for Scientific Research accounts for roughly 70% of the total amount of competitive funding, with the remaining 30% consisting of other funding including CREST, Special Coordination Funds for Promoting Science and Technology, and Health and Labour Sciences Research Grants. In the 2008 fiscal year, Grant-in-Aid for Scientific Research totaled 193.2 billion yen, of which 44.5 billion yen covered indirect costs. On this point, by what rate is Grant-in-Aid for Scientific Research increasing? A look at the average increase over five years beginning with the total amount for the 2003 fiscal year shows an increase of only 3.34 billion yen per year. That is, since the annual increase in competitive funding overall is approximately 5 billion yen and the total amount of indirect expenses is only just over 1.1 billion yen, only about 10% of the annual decrease of 10 billion yen can be supplemented. Even the total amount of competitive funding, which everybody strives frantically to secure, would cover only about one-half of the decrease in subsidies for operating expenses each year.

Is the idea itself of trying to do whatever

it takes to supplement subsidies for operating expenses mistaken, since these subsidies are decreasing as part of the national government's structural reforms? As described above, the current selection methods for competitive funding can be said to be pretty fair. There is unlikely to be any need to change these just for change's sake. While effort management has come to be advocated strongly based on the judgment that concentration of Grant-in-Aid for Scientific Research on a small number of researchers is undesirable, a look at the general flow of such subsidies results in no particular feeling of inequity.

While no figures are available estimating the degree to which increases in competitive funding have contributed to generation of scientific results on an international basis, it is clear that Japanese science has an important position even when viewed on a worldwide basis. We would like to believe that history will be the judge of whether the results are suitable to the amount of taxpayer funds used. While one cannot say that there are no sciences or technologies that can generate earnings today or in the near future, due to their nature as national funds we would like these funds to be invested in science and technology that will benefit the future of humankind.

It is thought that what to do about the expenses of running a university or similar institution should be viewed from another point of view, and that the budgeting needed for institution survival—put another way, basic costs of providing proper education and securing the basis for carrying out research under competitive funding—should essentially be arranged separately from each institution's basic costs.

- 1) Data on Grant-in-Aid for Scientific Research from the Japan Society for the Promotion of Science (JSPS) <http://www.jsps.go.jp/j-grantsinaid/27_kdata/#4>
- 2) Japan Cabinet Office reference materials on a FY 2009 survey of science and technology activities at national university corporations and other institutions <<http://www8.cao.go.jp/cstp/siryu/haihu71/siryu2-5-2.pdf>>

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