

Japanese claims exaggerated

Tokyo

THE Japanese government is spending considerably less on academic research than its own figures would suggest, according to a book just published by a team of British researchers. *Investing in the future: an international comparison of government funding of academic and related research* by John Irvine and co-workers at the Science Policy Research Unit of the University of Sussex concludes that figures provided by the Statistics Bureau of Japan's Management and Coordination Agency to the Organization for Economic Cooperation and Development (OECD) grossly overestimate the level of government spends on academic research. The book will add to growing Western criticism of Japan's apparent failure to contribute to basic research.

Irvine said there are major overestimates in the OECD category of General University Funds. This is the most important category for the Ministry of Education, Science and Culture (MESC), which is responsible for nearly all academic research in Japan. The Statistics Bureau gives a General University Funds total of ¥875,000 million (\$5,830 million) for 1987 but Irvine's team estimates that if a fair comparison is to be made with other countries, the figure should be only ¥535,000 million.

The discrepancy arises because the bureau includes salaries for all university staff in private, public and national universities, regardless of whether they do any research. Irvine's team suggests that only half of the salaries should be included, so that the true figure is ¥220,000 million less.

Another discrepancy stems from the inclusion by the bureau of figures for a considerable amount of "self-financed research and development" by junior colleges and technical colleges. These institutions are not included in OECD figures for other nations.

Using their corrected figures, Irvine shows that General University Funds remained at the same level in real terms between 1982 and 1986, and rose only slightly in 1987, suggesting that government claims to be spending more on basic research are exaggerated. The research funds also appear to be concentrated increasingly in areas relevant to technological development. An usually large and increasing proportion of the General University Funds (about 24 per cent) is spent on engineering. Outlays for physical sciences, which in other countries usually match or exceed that for engineering, are unusually low at 8 per cent. Irvine concludes that "domestic strategic considerations seem to have overridden the international pressures coming from the

United States and Western Europe [for Japan to increase spending on basic research]".

Researchers at Japan's National Institute of Science and Technology Policy (NISTEP) are trying to provide their own adjusted OECD figures for government and private sector spending on research and development. They agree that the figure for salary outlays for university researchers is too high, but they estimate the correction factor at 0.6 rather than the 0.5 used by Irvine's group. The NISTEP estimate may be too high, however. According to Fujio Niwa, a researcher at the institute, it is based largely on an analysis of staff at national universities who tend to carry out more research than their colleagues in private universities.

MESC officials refuse to comment on Irvine's book because they say the OECD statistics are the responsibility of the Management and Coordination Agency. But they and the ministry's academic advisers say that although MESC's overall spending on research has risen little in recent years, there have been fundamental changes in the way money is spent. In particular, the budget for competitive grants has increased significantly over the past decade. But Irvine's figures show that the budget for competitive grants is still small, only 6.2 per cent of MESC's 1989 science and technology budget, and the policy of increasing funds for these grants and an (unstated) policy of pumping more money into the new Inter-University Research Institutes, such as the High Energy Physics Laboratory in Tsukuba, has meant that university researchers have been starved of operating funds.

Academic research is not the only area where Japan may be painting an unrealistic picture of government spending. Niwa points out that government figures for outlays on energy research are "unusually large" at about 24 per cent of all government spending on research and development and are "probably too high". He says the figures include special account funds that are not entirely directed towards research. For example, a large proportion of funds from the 'Promotion of Electric Power Resources Development Special Account' are channelled to local governments to persuade local communities to accept nuclear power plants. Niwa is not yet prepared to place a figure on the overestimate. But the special accounts totalled about ¥220,000 million in 1987 and 1988, and if a large proportion of them do not qualify as research funds, this factor, combined with Irvine's corrections, will produce a significant downward revision of estimates of Japanese government spending on science.

David Swinbanks

Envious of ERATO

Tokyo

JAPAN'S Research and Development Corporation (JRDC) is pouring more money into its novel ERATO (Exploratory Research for Advanced Technology) programme, which won high praise in an assessment by foreign scientists last year (*Nature* 337, 196; 1989). Last week, JRDC announced four new projects for 1990, one more than in recent years. But as the budget for ERATO expands, Japanese scientists are beginning to question the methods by which JRDC selects recipients.

Each ERATO project provides a team of 15 to 20 young researchers (all under 35 except for the project leader) drawn from industry and academic institutions with what, in Japanese terms, is a huge grant — 1,500 to ¥2,000 million (\$10 to \$13 million) for five years.

The four newest projects are on semiconductor melts, interactions between proteins, factors underlying appetite, and mechanisms of molecular recognition. With these projects and others already under way, ERATO's budget for 1990 rises to ¥5,100 million (\$34 million), 12 per cent up on last year and about twice the level of the early to mid-1980s when ERATO's budget rose only a few per cent each year.

But university researchers are beginning to cast envious glances at the ERATO projects. Even the biggest grants from the Ministry of Education, Science, and Culture (MESC), which supports most university research, pale in size in comparison to ERATO.

But what irks some university researchers even more is the way in which recipients are selected. Unlike MESC grants, which any full-time university researcher can apply for, ERATO project leaders are selected and approached by JRDC.

JRDC officials say they select project leaders by attending symposia and conferences around Japan, by listening to what researchers have to say about people working in new areas, and by scanning the literature to see who is publishing in top international journals. The corporation then asks "several tens" of eminent university researchers to help them whittle down the short list.

Such a selection procedure, based on personal contacts, is popular in Japan because it avoids both the problem of having to choose between competing applications and the embarrassment of having to turn people down. But as the more open, competitive systems of grant selection in Western countries begin to penetrate Japan, pressure for adoption of the Western system is likely to increase.

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