Introduction

National Institute of Informatics conducts an "Academic Research Activities Survey" in order to collect information for the "Directory of Researchers," a database on the research activities of scholars. This survey was conducted from 1961 onward by the Ministry of Education, Science, Sports, and Culture, and in 1992 this function was taken over by NACSIS. And in 2000 it was taken over by NII with reorganization of NACSIS.

From the 2002 fiscal year, it was succeeded as part of the “Directory Database of Research and Development Activities” (ReaD) investigation which Japan Science and Technology Agency conducts. It is possible that it offers the survey result in the “Directory Database of Research and Development Activities” (ReaD) and knows detailed information on researchers such as the domestic university.

The survey for fiscal 2002 covers 1,462 institutions engaged in academic research, and some 174,000 scholars affiliated with 1,350 institutions engaged in academic research supplied most of the replies.

The present report is a statistical compilation of the survey data for fiscal 2002 prepared in order to provide a quantitative understanding of academic research activities in Japan. This is the eighth quantitative analysis of the "Academic Research Activities Survey." The seven previous reports covered as following:

- the survey for fiscal 1977 (published by the Ministry of Education, Science, Sports, and Culture in 1980)
- the survey for fiscal 1993 (published in 1996: "Statistical Survey on the State of Research Activities in 1993 --," Journal of Information Processing and Management 39 (7) (1996))
- the survey for fiscal 1995 (published in 1997: "Statistical Survey on the State of Research Activities in 1995 --," Journal of Information Processing and Management 40 (7) (1997))
- the survey for fiscal 1996 (published by NACSIS in 1998: "Academic Research Activities in Japan – A Report on the 1996 Academic Research Activities Survey --")
- the survey for fiscal 1997 (published by NACSIS in 1999: " Academic Research Activities in Japan – A Report on the 1997 Academic Research Activities Survey --")
- the survey for fiscal 1998 (published by NACSIS in 2000: " Academic Research Activities in Japan – A Report on the 1998 Academic Research Activities Survey --")
- the survey for fiscal 1999 (published by NACSIS in 2001: " Academic Research Activities in Japan – A Report on the 1999 Academic Research Activities Survey --").

- the survey for fiscal 2000 (published by NACSIS in 2002: " Academic Research Activities in Japan – A Report on the 2000 Academic Research Activities Survey --").
- the survey for fiscal 2001 (published by NACSIS in 2003: " Academic Research Activities in Japan – A Report on the 2000 Academic Research Activities Survey --").

Like its predecessors, this report is organized so as to make it as easy as possible to compare the data it contains with the data presented in the past reports prepared by the Ministry of Education, Science, Sports, and Culture.

It is our hope that this report will enable readers to gain an understanding of overall trends in academic research activities in Japan.

1. Overview of Survey Results

This survey covers the following researchers affiliated with the institutions listed below as of December, 2002: full-time faculty and researchers employed in positions equivalent to university associate professor or above, graduates enrolled in university doctorate (post-MA) programs, special researchers affiliated with the Japan Society for the Promotion of Science, research associates affiliated with the Japan Society for the Promotion of Science, and part-time researchers at universities, etc.

(1) National, municipal, and private universities
(2) National, municipal, and private junior colleges
(3) National, municipal, and private colleges of technology
(4) Inter-university research institutes, the National Center for University Entrance Examination, national institutions for academic degrees, the Center for National University Finance (referred to below as "inter-university research institutes, etc.")
(5) The Ministry of Education, Science, Sports, and Culture, the Agency of Cultural Affairs, and institutions and facilities affiliated with them (referred to below as "government research institutes of the Ministry of Education, Science, Sports, and Culture")
(6) Private scientific research institutes of the Ministry of Education, Science, Sports, and Culture (referred to below as "private scientific research institutes")

In total, there were 1,490 institutions subject to the survey, and valid responses were received from 1,350 institutions (90.6% response rate) and 174,171 persons (Table 1).

In the followings the situation on the research activities of the persons responding to the survey (referred to as "researchers" in the discussion below) are described.

Table 1　Persons Surveyed and Number of Responses

Professional Title	Persons Surveyed	Responses		Response rate
	Institutions	Institutions	Persons	Institutions
Universities	700	681	154,552	97.3%
Junior Colleges	533	488	12,178	91.6%
Colleges of Technology	63	63	4,321	100.0%
Inter-university Research Institutes	18	18	1,856	100.0%
Government Research Institutes	18	14	352	77.8%
Private Scientific Research Institutes	158	86	912	54.4%
Total	1,490	1,350	174,171	90.6%

2. Background of Academic Researchers

2.1 Number of Researchers by Field of Specialization

Table 2 shows the number of researchers broken down by field of specialization. The fields of specialization categories used in the survey are research field codes based on the "Classification Table for Scientific Research Subsidies". A view of the percentages of the total accounted for by the various fields of specialization (Figure 1) shows that medicine (13.6%) and arts (13.1%) have the largest shares, together accounting for 26.7% of the total. These fields are followed, in descending order, by engineering (8.8%), interdisciplinary area (8.4%), science (5.8%), economics (3.4%), agriculture (2.9%), law (1.8%), and wide area (1.4%). Also, the ratio of researchers in the humanities and social sciences (researchers in arts, law, and economics), total 31,827 persons, to researchers in the natural sciences (researchers in science, engineering, agriculture, and medicine), total 53,985 persons, is 37:63.

A breakdown of researchers by the governing authority of the institutions they are affiliated with shows that 46.9% (81,727 persons) are at national institutions, 6.5% (1,250 persons) are at municipal institutions, and 46.6% (81,194 persons) are at private institutions.

Figure 2 shows the composition of researchers broken down by field of specialization and by institution governing authority. The proportion of researchers in the natural sciences affiliated with national institutions is high, especially in the cases of science (67.4%), agriculture (63.0%) and engineering (62.3%). In contrast, a high proportion of researchers in the humanities and social sciences are affiliated with private institutions, such as economics (73.3%), wide area (65.7%), arts (66.9%), and law (66.5%).

Table 2　Number of Researchers by Institution Type / by Field of Specialization

Institution Type			Arts	Law	Economics	Science	Engineering	Agriculture	Medicine	Interdisciplinary Area	Wide Area	Unknown	Total	Institutions
Universities	National	Assistant and Above	4,800	762	996	4,799	6,335	2,386	8,015	5,128	496	16,120	49,837	
		Others	961	109	148	1,241	1,745	726	2,068	1,042	95	17,363	25,498	
		Total	5,761	871	1,144	6,040	8,080	3,112	10,083	6,170	591	33,483	75,335	100
	Municipal	Assistant and Above	972	147	339	477	606	264	1,872	659	126	2,327	7,789	
		Others	40	3	9	22	55	36	120	36	6	1,502	1,829	
		Total	1,012	150	348	499	661	300	1,992	695	132	3,829	9,618	74
	Private	Assistant and Above	11,628	1,863	3,721	2,400	4,346	1,034	9,576	4,931	1,091	16,956	57,546	
		Others	617	118	173	79	195	73	808	183	47	9,760	12,053	
		Total	12,245	1,981	3,894	2,479	4,541	1,107	10,384	5,114	1,138	26,716	69,599	493
	Total	Assistant and Above	17,400	2,772	5,056	7,676	11,287	3,684	19,463	10,718	1,713	35,403	115,172	
		Others	1,618	230	330	1,342	1,995	835	2,996	1,261	148	28,625	39,380	
		Total	19,018	3,002	5,386	9,018	13,282	4,519	22,459	11,979	1,861	64,028	154,552	667
Junior Colleges	National	Assistant and Above	28	3	6	5	18	1	97	41	18	53	270	
		Others	0	0	0	0	0	0	1	0	0	50	51	
		Total	28	3	6	5	18	1	98	41	18	103	321	18
	Municipal	Assistant and Above	198	10	40	19	24	87	270	126	23	364	1,161	
		Others	0	0	1	0	0	0	1	0	0	167	169	
		Total	198	10	41	19	24	87	271	126	23	531	1,330	51
	Private	Assistant and Above	2,948	107	368	181	336	290	674	1,666	386	3,031	9,987	
		Others	6	0	1	0	1	1	3	5	1	522	540	
		Total	2,954	107	369	181	337	291	677	1,671	387	3,553	10,527	471
	Total	Assistant and Above	3,174	120	414	205	378	378	1,041	1,833	427	3,448	11,418	
		Others	6	0	2	0	1	1	5	5	1	739	760	
		Total	3,180	120	416	205	379	379	1,046	1,838	428	4,187	12,178	540
Colleges of Technology	National	Assistant and Above	309	18	20	346	1,338	29	10	390	25	1,285	3,770	
		Others	1	0	0	1	3	0	0	1	0	87	93	
		Total	310	18	20	347	1,341	29	10	391	25	1,372	3,863	54
	Municipal	Assistant and Above	31	0	1	34	114	1	1	28	2	89	301	
		Others	0	0	0	0	0	0	0	0	0	1	1	
		Total	31	0	1	34	114	1	1	28	2	90	302	5
	Private	Assistant and Above	14	0	0	9	43	0	0	19	6	63	154	
		Others	0	0	0	0	0	0	0	0	0	2	2	
		Total	14	0	0	9	43	0	0	19	6	65	156	3
	Total	Assistant and Above	354	18	21	389	1,495	30	11	437	33	1,437	4,225	
		Others	1	0	0	1	3	0	0	1	0	90	96	
		Total	355	18	21	390	1,498	30	11	438	33	1,527	4,321	62
Inter-University Research Institutes		Assistant and Above	78	3	2	290	83	5	18	206	13	411	1,109	
		Others	5	0	0	34	5	0	0	22	0	681	747	
		Total	83	3	2	324	88	5	18	228	13	1,092	1,856	20
Government Research Institutes		Assistant and Above	129	1	0	41	8	4	4	39	5	98	329	
		Others	1	0	0	0	0	0	0	0	0	22	23	
		Total	130	1	0	41	8	4	4	39	5	120	352	18
Private Scientific Research Institutes		Assistant and Above	65	7	19	42	47	61	125	75	17	302	760	
		Others	1	0	0	2	0	0	0	4	0	145	152	
		Total	66	7	19	44	47	61	125	79	17	447	912	155
Total	National	Assistant and Above	5,344	787	1,024	5,481	7,782	2,425	8,144	5,804	557	17,967	55,315	
		Others	968	109	148	1,276	1,753	726	2,069	1,065	95	18,203	26,412	
		Total	6,312	896	1,172	6,757	9,535	3,151	10,213	6,869	652	36,170	81,727	210
	Municipal	Assistant and Above	1,201	157	380	530	744	352	2,143	813	151	2,780	9,251	
		Others	40	3	10	22	55	36	121	36	6	1,670	1,999	
		Total	1,241	160	390	552	799	388	2,264	849	157	4,450	11,250	130
	Private	Assistant and Above	14,655	1,977	4,108	2,632	4,772	1,385	10,375	6,691	1,500	20,352	68,447	
		Others	624	118	174	81	196	74	811	192	48	10,429	12,747	
		Total	15,279	2,095	4,282	2,713	4,968	1,459	11,186	6,883	1,548	30,781	81,194	1,122
	Total	Assistant and Above	21,200	2,921	5,512	8,643	13,298	4,162	20,662	13,308	2,208	41,099	133,013	
		Others	1,632	230	332	1,379	2,004	836	3,001	1,293	149	30,302	41,158	
		Total	22,832	3,151	5,844	10,022	15,302	4,998	23,663	14,601	2,357	71,401	174,171	1,462

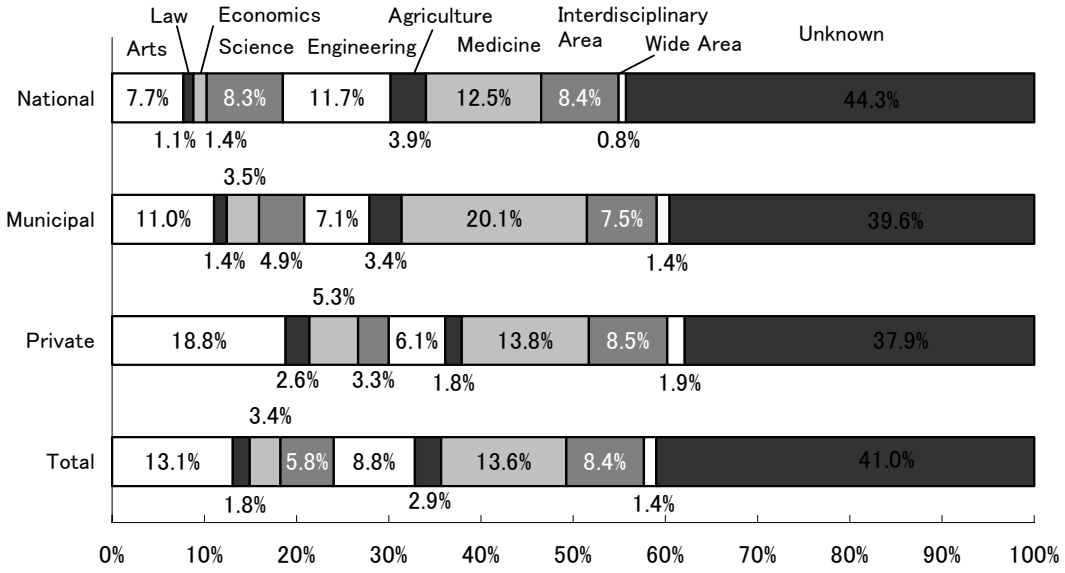

Figure 1　Composition of Researchers by Institution Governing Authority / by Field of Specialization

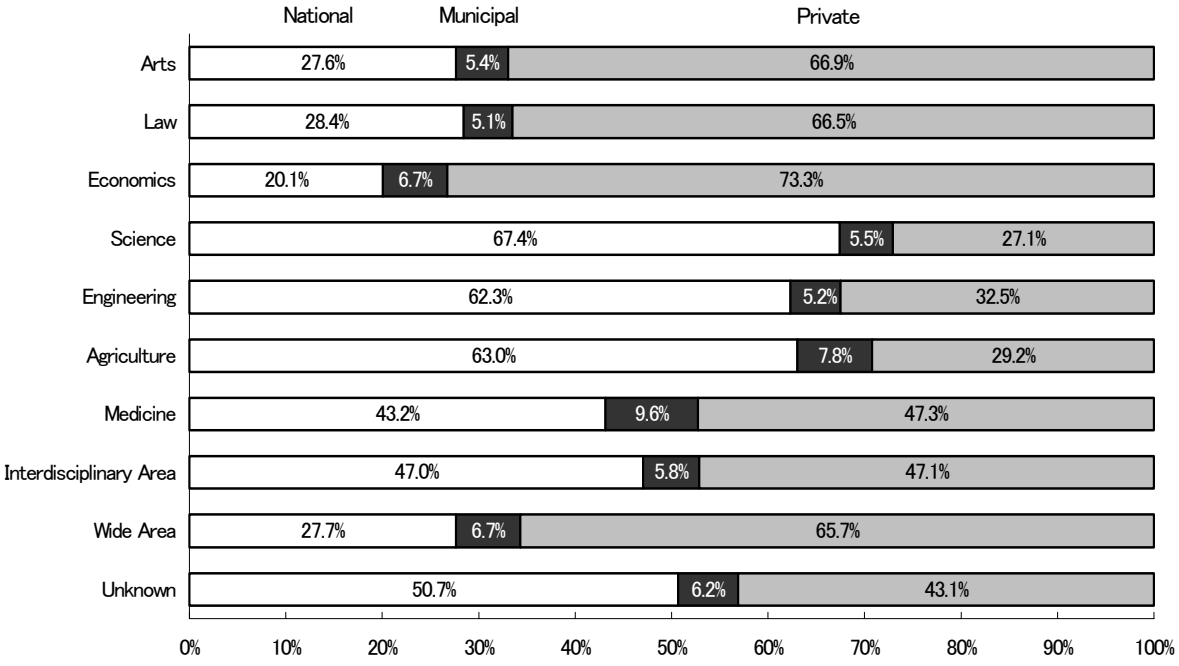

Figure 2　Composition of Researchers by Field of Specialization / by Institution Governing Authority

2.2 Number of Researchers by Institution Type

Broken down by institution type, the proportion of researchers affiliated with universities account for 88.7% of the total (154,552 persons), those affiliated with junior colleges for 7.0% (12,178 persons), those affiliated with colleges of technology for 2.5% (4,321 persons), those affiliated with inter-university research institutes for 1.1% (1,856 persons), those affiliated with private scientific research institutes for 0.5% (912 persons), and those affiliated with government research institutes of the Ministry of Education, Science, Sports, and Culture for 0.2% (352 persons).

The proportions of researchers at universities, junior colleges, and colleges of technology broken down by institution governing authority are shown in Table 2. The composition for universities is national 49.8%, municipal 6.2%, and private 45.0%; that for junior colleges is national 2.6%, municipal 10.9%, and private 86.5%; and that for colleges of technology is national 89.4%, municipal 7.0%, and private 3.6%.

Table 3 lists the composition of researchers by professional title at universities and junior colleges. The proportion of professors and lecturers at private institutions is higher than at national and municipal institutions, while the proportion of research assistants, and graduate students enrolled in university doctorate (post-MA) programs (referred to as "university graduate students" below) is higher at national and municipal institutions than at private institutions.

Table 3 Composition of Researchers by Professional Title at Universities and Junior Colleges

Professional Title		Total	National	Municipal	Private
Universities	President / Vice President	0.3%	0.2%	0.4%	0.4%
	Professor	30.3%	23.5%	27.7%	38.1%
	Associate Professor	18.9%	19.2%	21.3%	18.2%
	Lecturer	9.2%	5.4%	12.2%	13.0%
	Research Assistant	14.4%	16.9%	18.1%	11.2%
	Others	1.3%	1.0%	1.4%	1.7%
	Graduate Student	12.2%	19.0%	6.1%	5.7%
	Part-time Researcher	0.7%	1.3%	0.2%	0.1%
	Unknown	12.6%	13.5%	12.7%	11.5%
	Total	100.0%	100.0%	100.0%	100.0%
Junior Colleges	President / Vice President	1.4%	0.9%	1.1%	1.5%
	Professor	37.8%	34.3%	28.7%	39.0%
	Associate Professor	26.9%	24.0%	25.5%	27.2%
	Lecturer	20.2%	7.8%	19.2%	20.7%
	Research Assistant	6.4%	17.1%	12.4%	5.4%
	Others	1.0%	0.0%	0.3%	1.1%
	Graduate Student	0.0%	0.0%	0.0%	0.0%
	Part-time Researcher	0.0%	0.0%	0.0%	0.0%
	Unknown	6.2%	15.9%	12.7%	5.1%
	Total	100.0%	100.0%	100.0%	100.0%

2.3 Age

The average age of all the researchers is 46.1. Broken down by field of specialization, the average age is highest in wide area (51.0), followed in descending order by economics (50.9), arts (50.5), and law (49.5). Generally speaking, the average age was higher among researchers in the humanities and social sciences. The average age in other fields was as follows: interdisciplinary area (47.4), engineering (47.2), agriculture (46.8), and science (46.7). The field with the lowest average age was medicine, at 44.5. When the above are broken down by institution governing authority, in each case the average age of researchers at private institutions is higher that of researchers at national and municipal institutions (Figure 3). Also, the average age among men is 46.78 and that among women is 43.26 (Figure 4).

Broken down by institution type, the average age of researchers at inter-university research institutes is the lowest at 43.9. This was followed, in ascending order, by universities; government research institutes of the Ministry of Education, Science, Sports, and Culture; colleges of technology; and private scientific research institutes. The average age of researchers is highest (51.1) at junior colleges.

The average age of researchers broken down by professional title is as follows for research assistants and above: the average age among professors is 57.0, among whom that among professors at inter-university research institutes is the lowest, at 54.5, and that among professors at private scientific research institutes is the highest, at 68.9. Overall, the average age of assistant professors is 45.9, that of lecturers 42.1, and that of research associates 37.4. Among university professors, associate professors, and lecturers the highest average ages are found among those affiliated with private institutions, followed in descending order by municipal and national institutions. However, among research institutes the order is reversed, with those affiliated with private institutions being the youngest, on average. Incidentally, the average age of university presidents is 63.7 at national institutions, 65.7 at municipal institutions, and 67.1 at private institutions. Also, the average age among special researchers affiliated with the Japan Society for the Promotion of Science, research assistants affiliated with the Japan Society for the Promotion of Science, and part-time researchers at universities, etc. (referred to as "part-time researchers" below) is 31.6 (Table 4).

The age composition of researchers overall is as follows: those aged 51 to 60 are the largest group, at 25.4% of the total; they are followed by the 41 to 50 group (25.3%), the 31 to 40 group (24.8%), the 30 and the 61 to 70 group (12.4%), below group (11.1%), and the 71 and above group (0.7%).

The breakdown by field of specialization shows that 38.3% of researchers in medicine, 35.3% in agriculture, and 34.8% in science are 40 or younger. The proportion of younger researchers is high in these fields. In contrast, fields of specialization where the percentage of researchers who are 40 or younger is small include arts (20.5%) , wide area (20.7%), economics (22.3%) (Figure 5). Generally speaking this shows that the proportion of older researchers is higher in the humanities and social sciences than in the natural sciences.

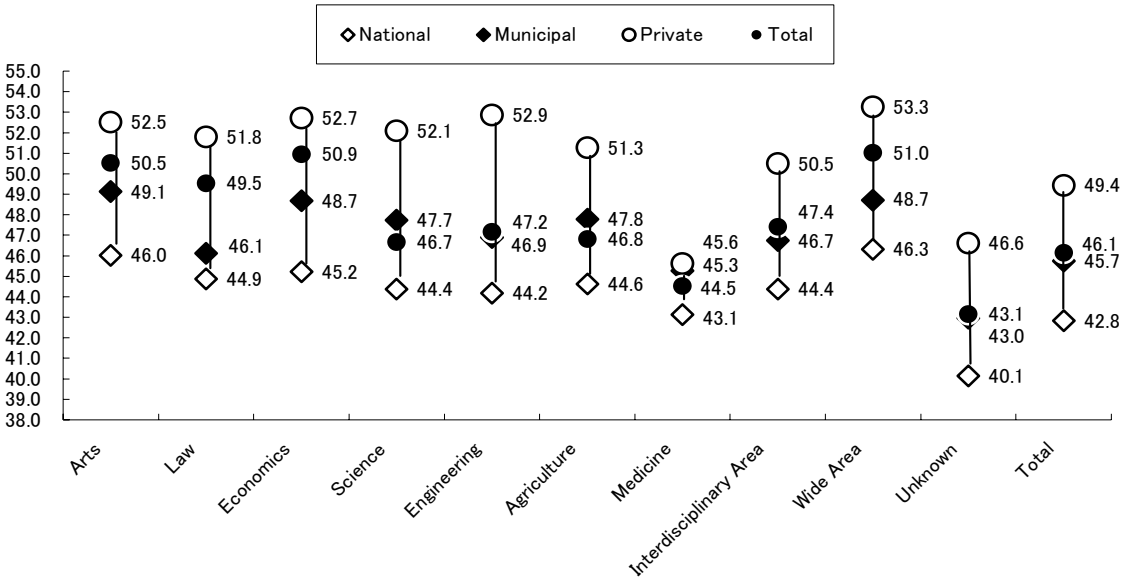

Figure 3　Average Age of Researchers by Field of Specialization

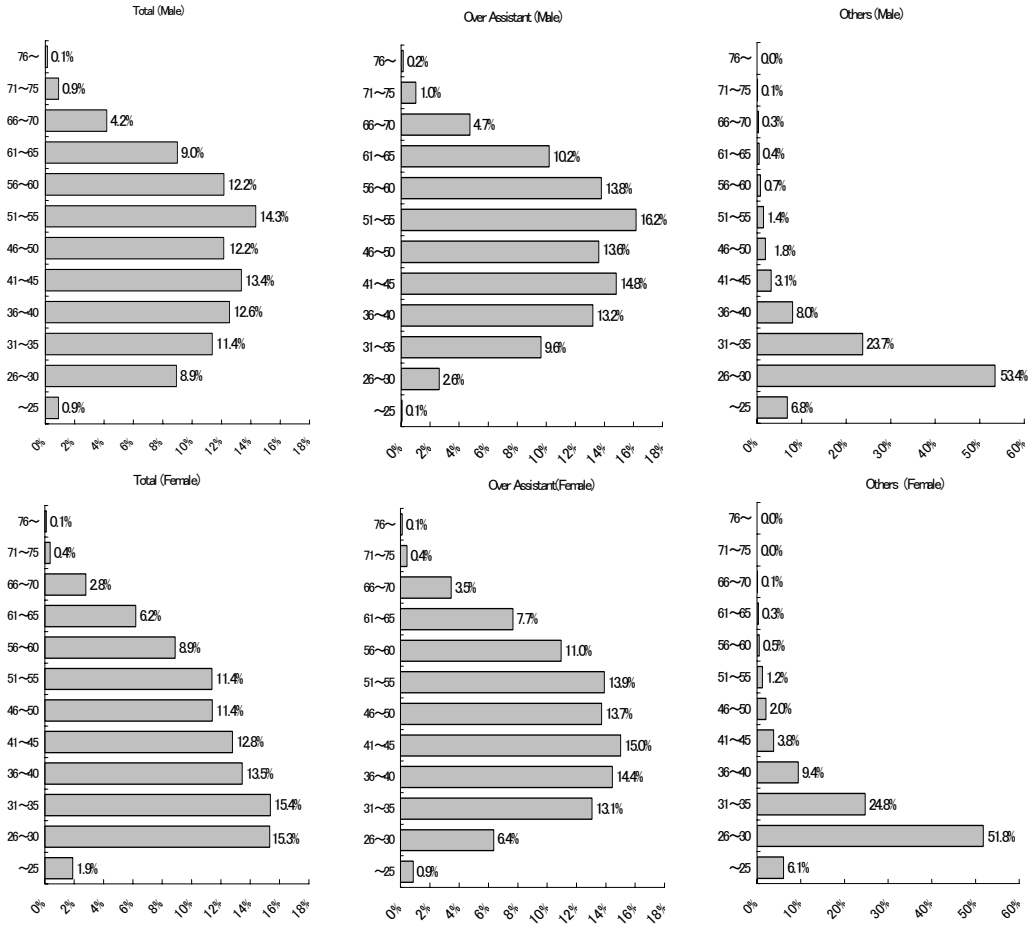

Figure 4　Age Composition of Researchers by Gender

Table 4　Average Age of Researchers by Institution Type / by Professional Title

Institution Type		Professional Title (in Universities)						Total
		Professor	Associate Professor	Lecturer	Research Assistant	President	Part-time Researcher	
Universities	National	55.0	44.3	41.6	37.9	63.7	31.1	42.5
	Municipal	55.7	45.5	41.9	37.2	64.8	35.4	45.5
	Private	58.3	47.3	42.5	37.0	66.9	36.8	49.1
	Total	56.9	45.7	42.2	37.5	65.9	31.6	45.7
Junior Colleges	National	56.3	48.0	43.7	36.9	60.0		48.9
	Municipal	56.4	47.0	40.8	36.4	67.7		47.5
	Private	59.0	49.4	43.3	34.8	67.6	53.0	51.6
	Total	58.7	49.1	43.1	35.3	67.5	53.0	51.1
Colleges of Technology	National	56.0	44.1	35.7	35.1	63.7	29.0	46.9
	Municipal	55.0	40.4	33.2	31.9			46.0
	Private	57.8	50.3	37.9	26.3	62.0		49.1
	Total	56.0	44.0	35.6	34.9	63.5	29.0	46.9
Inter-University Research Institutes		54.5	45.1	33.3	37.6	72.0	31.3	43.9
Government Research Institutes		56.0						46.3
Private Scientific Research Institutes		68.9	49.0	54.7	39.5		40.3	47.2
Total	National	55.1	44.3	41.0	37.8	63.7	31.2	42.8
	Municipal	55.7	45.5	41.4	37.1	65.7	35.4	45.7
	Private	58.4	47.7	42.7	36.8	67.1	37.4	49.4
	Total	57.0	45.9	42.1	37.4	66.3	31.6	46.1

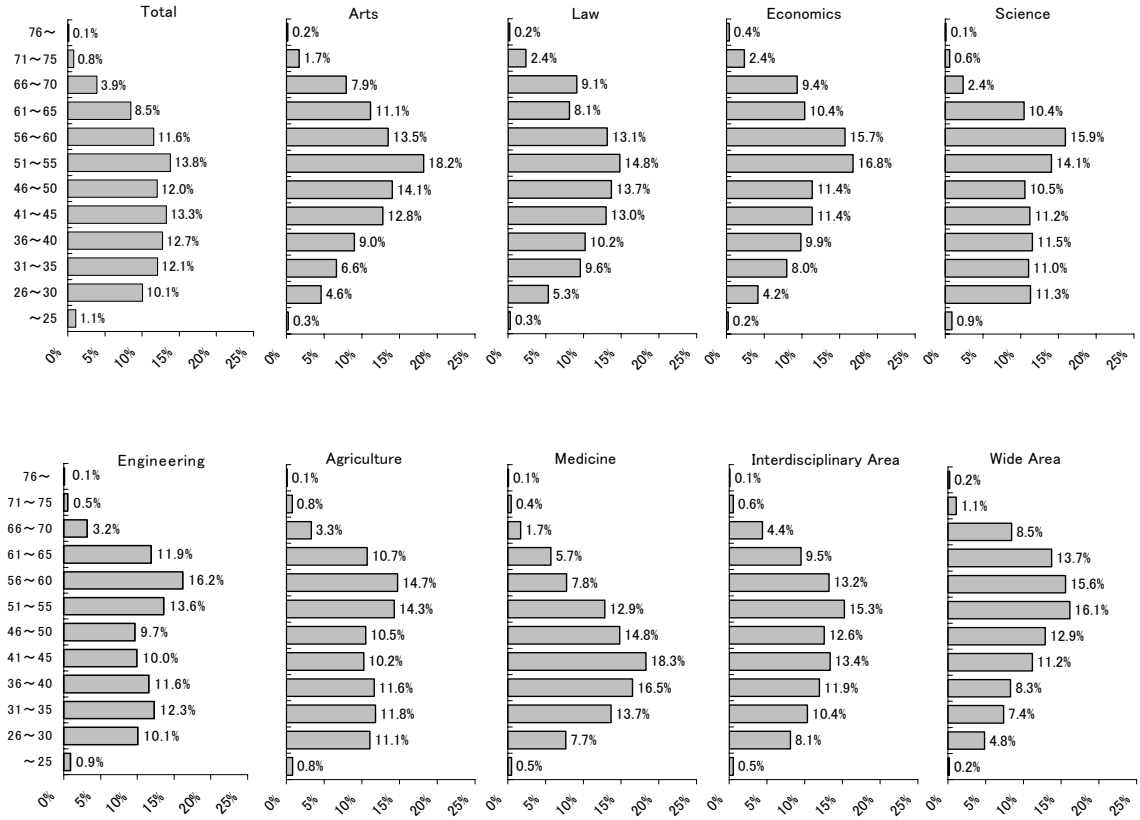

Figure 5　Age Composition of Researchers by Field of Specialization

2.4 Gender

Among all the researchers, 82.2% (126,229 persons) are men and 17.8% (27,348 persons) are women.

Broken down by field of specialization, the proportion of women is relatively high in three fields: wide area (27.5%), arts (26.7%), and interdisciplinary area (21.5%). In contrast, the proportion of women is low in the fields of engineering (3.7%), science (7.1%), economics (7.9%), law (12.2%), and agriculture (12.2%). The very low proportion of women in the field of engineering is particularly noteworthy (Figure 6).

Broken down by institution type, the proportion of women is notably high at junior colleges where they account for 45.0% of the total among all institution governing authority classifications. In contrast, the proportion of women is extremely low at colleges of technology, only accounting for 4.2% among all institution governing authority classifications. Also, broken down by institution governing authority, the proportion of women is low at national institutions, while it is slightly under 60% of municipal and private institutions (Figure 7).

Broken down by professional title, the proportion of women is higher among research assistants, lecturers, university graduates, and part-time researchers for all institution governing authority classifications (Figure 8). This is thought to be due to the fact that overall women tend to be proportionally more numerous at the lower age levels (Figure 4).

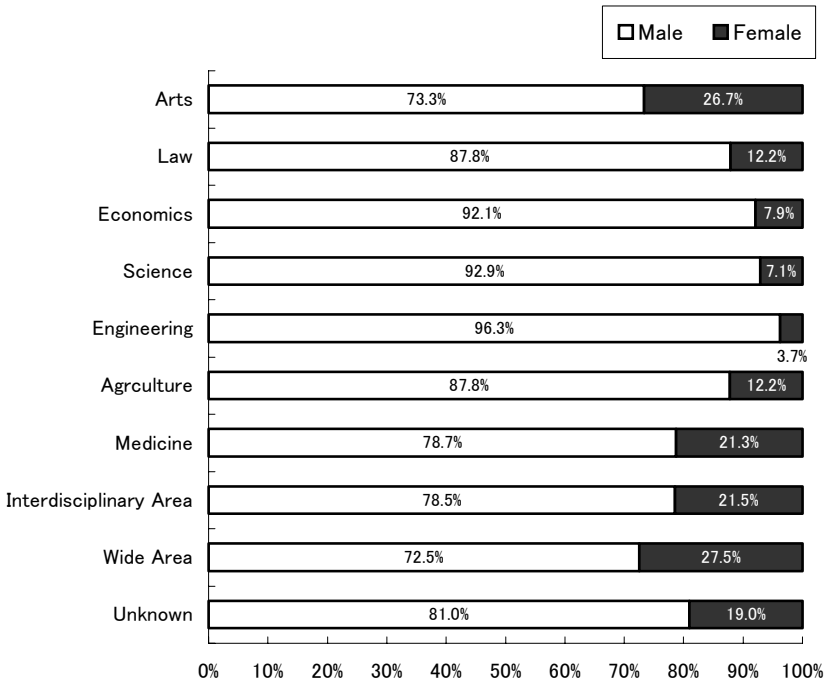

Figure 6　Gender Composition of Researchers by Field of Specialization

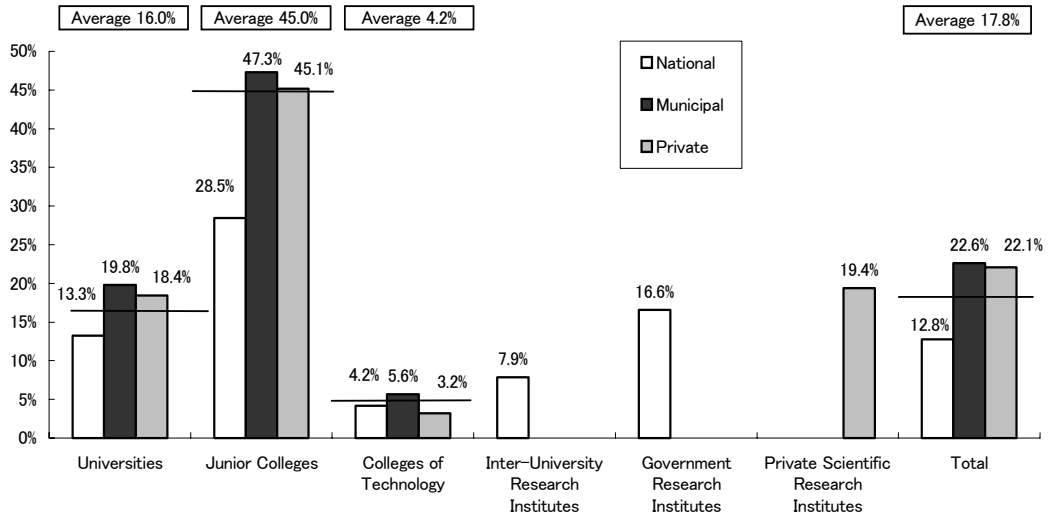

Figure 7　Ratio of Female Researchers by Institution Type

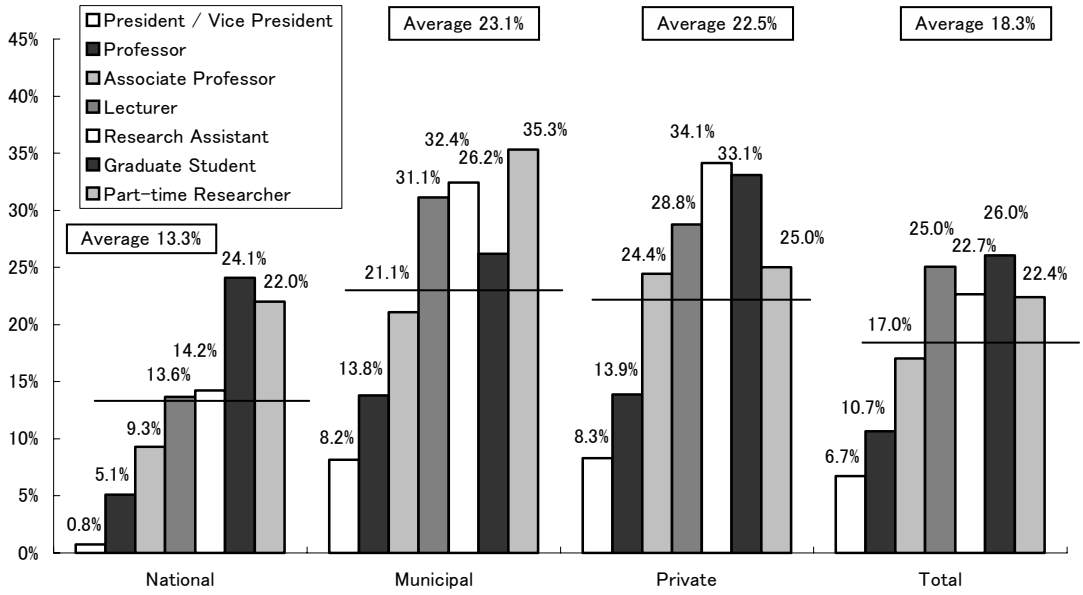

Figure 8　Ratio of Female Researchers by Professional Title

2.5 Non-Japanese Names

Of all the researchers, 4,239 or 2.4% have non-Japanese names.

An examination of the percentages of researchers with non-Japanese names in the various fields of specialization shows that their proportions are largest in the fields of arts (3.9%), agriculture (3.3%), and engineering (3.2%), followed by economics (2.9%), wide area (2.7%), and law (1.9%) (Figure 9). Note that the 900 researchers with non-Japanese names in the field of arts account for 21.2% of the total number of researchers with non-Japanese names.

The proportions of researchers with non-Japanese names broken down by institution type are highest at universities, followed by junior colleges and private scientific research institutes in descending order. (Figure 10).

Broken down by professional title and for institutions of all types, the proportion of researchers with non-Japanese names is highest among university graduates and part-time researchers. Together, these two categories account for 14.1% of the total for institutions of all types. Among research assistants and above, the proportion of researchers with non-Japanese names is lowest at private institutions and rises at municipal and national institutions, in that order. However, the order is reversed among research associates alone (Figure 11).

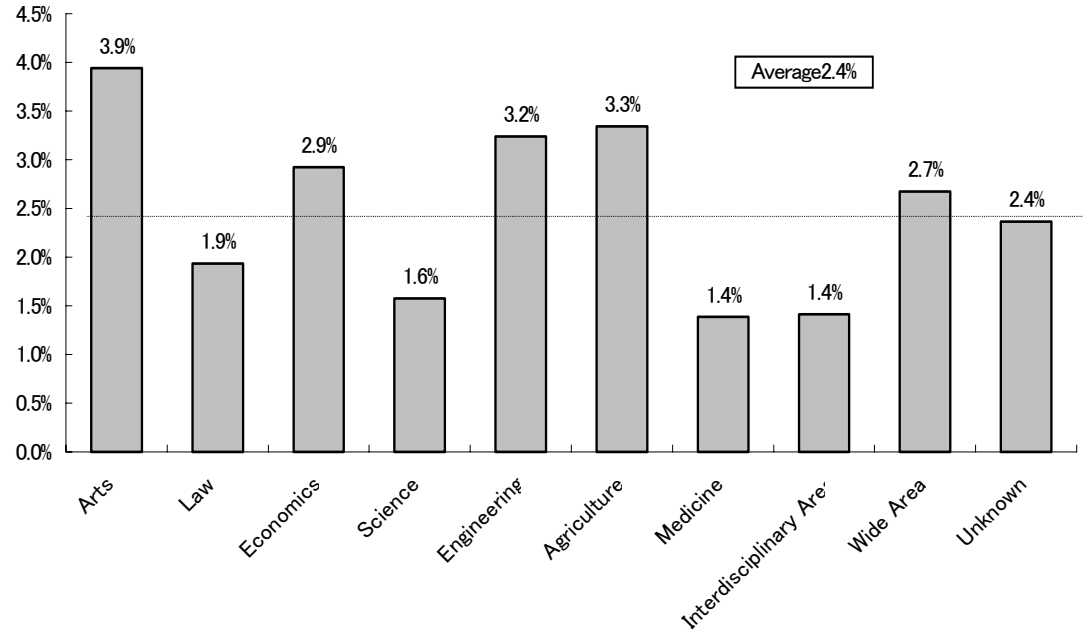

Figure 9　Ratio of Researchers with Non-Japanese Names by Field of Specialization

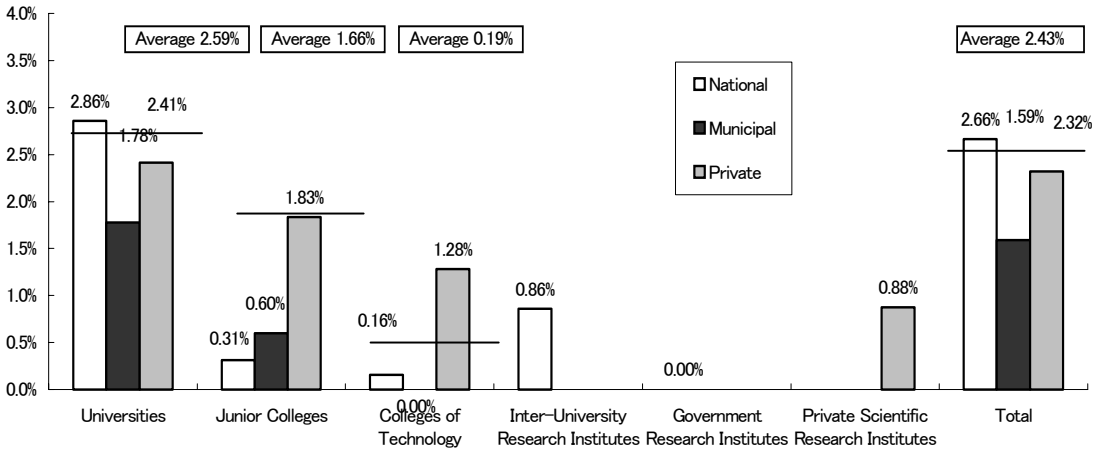

Figure 10　Ratio of Researchers with Non-Japanese Names by Institution Type

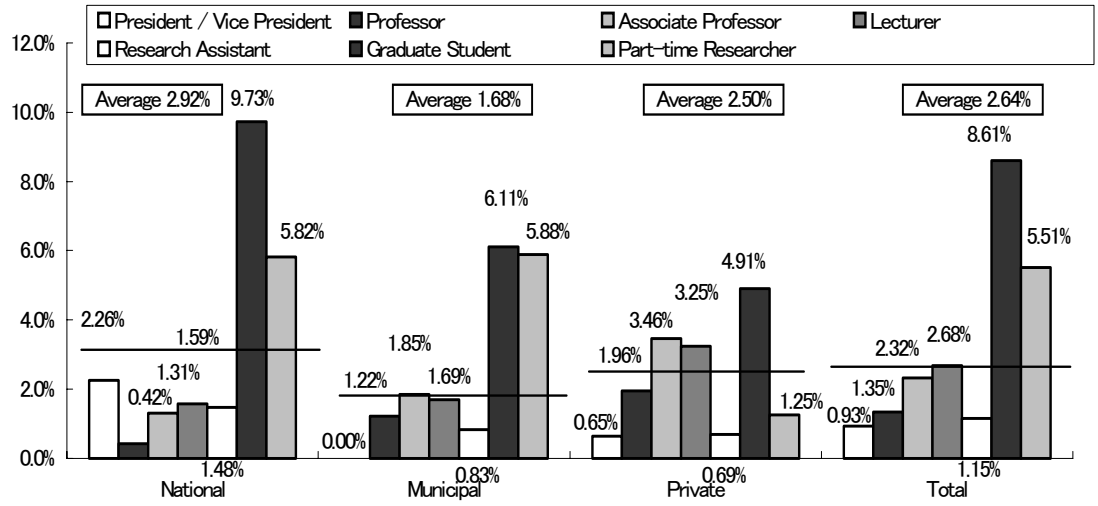

Figure 11　Ratio of Researchers with Non-Japanese Names by Professional Title

3. Academic Background

3.1 Last Degree Course Completed

Regarding the last degree course completed by the researchers, 113,279 persons (65.0%) hold a graduate degree. Of these, 65,243 (37.5% of the total) hold a doctorate degree and 45,902 (26.4% of the total) hold a master's degree. Also, 34,253 (19.7% of the total) have completed only an undergraduate degree and 26,639 (15.3% of the total) have completed only a junior college degree, or equivalent (Table 5).

The data on last degree course completed broken down by field of specialization shows that the field of science has the highest proportion of researchers with graduate degrees, at 89.7%, followed by economics, at 87.2%. Next come law and arts, at 87.1% and 84.4% respectively. These are followed in descending order by agriculture (80.3%), engineering (80.3%), interdisciplinary area (72.2%), and wide area (58.1%). Medicine is the lowest, at 48.5% (Figure 12).

An examination of the last degree course completed broken down by institution type shows that the percentage of researchers with graduate degrees is extremely high at government research institutes of the Ministry of Education, Science, Sports, and Culture, where the figures are 83.5% respectively. These are followed in descending order by colleges of technology (70.3%), universities (66.2%), inter-university research institutes (53.5%), junior colleges (50.8%), and private scientific research institutes (48.6%) (Figure 13).

A look at the ratio of researchers graduated from institutions in Japan and overseas institutions shows that 4,611 of the respondents, or 2.6% of the total, are graduates of overseas institutions (Table 5). By field of specialization, their proportions are largest in arts (7.3%), wide area (6.4%), economics (5.2%), law (5.0%), and agriculture (3.0%). By type of institution, graduates of overseas institutions are comparatively numerous at government research institutes of the Ministry of Education, Science, Sports, and Culture (2.8%) and universities (2.7%), exceeding the overall average.

Table 5　Last Degree Course Completed and Institution Location by Field of Specialization

Field of Specialization	Total	Graduate School				University	Junior College or Others	Country of School			
		Doctoral Course	Master's Course	Unknown	Total			Japan		Overseas	
								Persons	Percentage	Persons	Percentage
Arts	22,832	10,429	8,547	295	19,271	2,977	584	14,514	63.6%	1,664	7.3%
Law	3,151	1,877	826	41	2,744	363	44	2,168	68.8%	156	5.0%
Economics	5,844	3,764	1,264	70	5,098	684	62	3,860	66.1%	305	5.2%
Science	10,022	5,749	3,173	71	8,993	785	244	7,421	74.0%	196	2.0%
Engineering	15,302	6,125	6,044	123	12,292	2,406	604	11,212	73.3%	452	3.0%
Agriculture	4,998	2,026	1,933	56	4,015	875	108	3,573	71.5%	100	2.0%
Medicine	23,663	8,108	3,028	329	11,465	11,233	965	16,858	71.2%	328	1.4%
Interdisciplinary Area	14,601	5,436	4,922	178	10,536	3,540	525	10,315	70.6%	353	2.4%
Wide Area	2,357	565	759	46	1,370	793	194	1,511	64.1%	151	6.4%
Unknown	71,401	21,164	15,406	925	37,495	10,597	23,309	30,087	42.1%	906	1.3%
Total	174,171	65,243	45,902	2,134	113,279	34,253	26,639	101,519	58.3%	4,611	2.6%

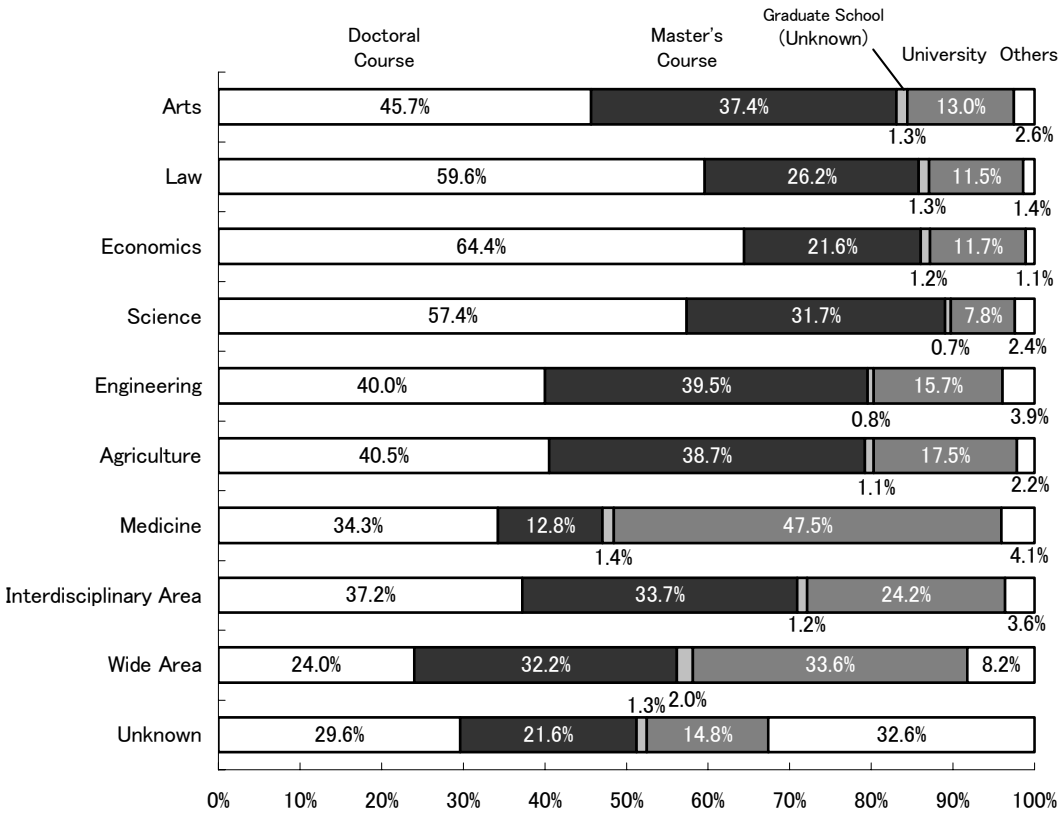

Figure 12　Last Degree Course Completed by Field of Specialization

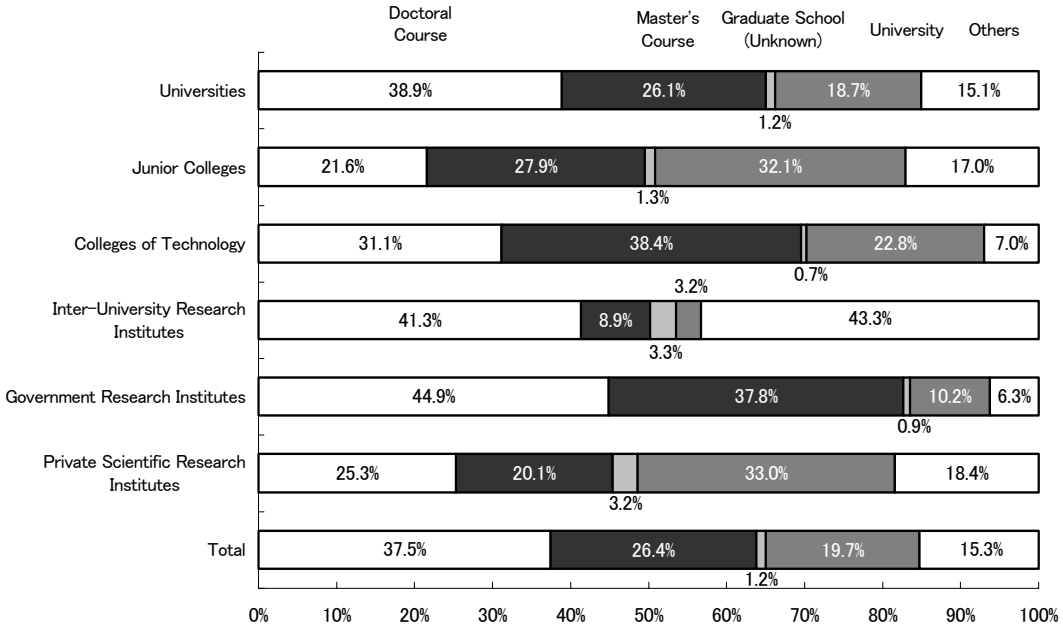

Figure 13　Last Degree Course Completed by Institution Type

3.2 Researchers with Doctorate Degrees

The number of the researchers with doctorate degrees is 77,928, which amounts to 44.7% of the total. Broken down by type degree, doctors of engineering are the most numerous, at 26.4%. Persons follow them in descending order with doctorates in medicine (24.3%), science (17.3%), and agriculture (6.9%). These figures are summarized in Figure 14 below.

Broken down by field of specialization, the proportion of researchers with doctorate degrees is relatively high in science (77.0%), agriculture (71.0%), engineering (70.2%), medicine (66.3%), and interdisciplinary area (49.2%). In contrast, the proportion of researchers with doctorate degrees is extremely low in the fields of arts, law, and economics, being 19.0%, 25.3%, and 31.5%, respectively (Figure 15).

Broken down by institution type, the proportion of researchers with doctorate degrees is highest at inter-university research institutes, at 54.6%. This is followed in descending order by colleges of technology (47.8%), universities (45.4%) and private scientific research institutes (41.3%). The proportion is comparatively low at government research institutes of the Ministry of Education, Science, Sports, and Culture (30.1%), and junior colleges (16.3%). Note that researchers with doctorate degrees account for the majority, 49.2%, of researchers at national institutions (Figure 16).

A breakdown by professional title of researchers with doctorate degrees shows that they form the highest proportion among the presidents and vice-presidents of institutions at 66.2%. These are followed in descending order by lecturers (61.1%), professors (60.2%), associate professors (60.2%), and research assistants (57.7%). Also, the proportion of researchers with doctorate degrees is highest of all among part-time researchers at 73.5% (Figure 17, Table 6).

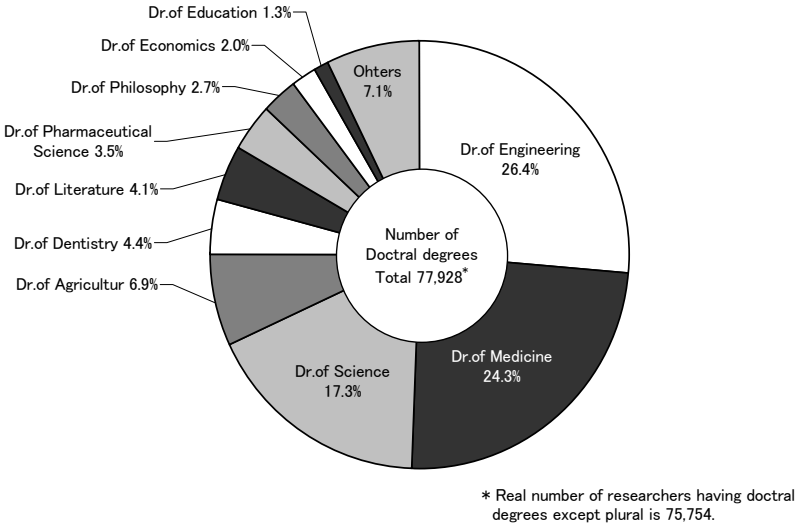

Figure 14　Researchers with Doctorate Degrees

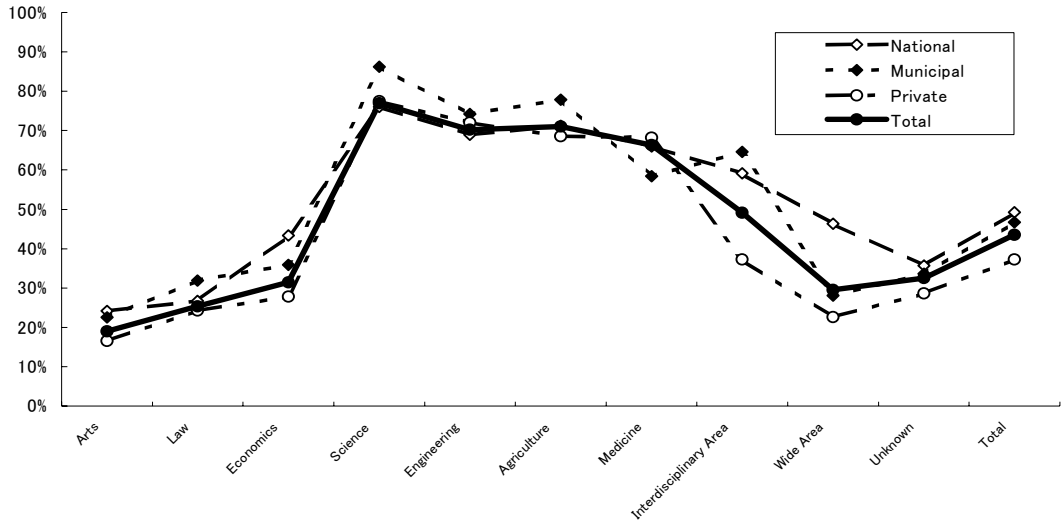

Figure 15　Ratio of Researchers with Doctorate Degrees by Field of Specialization / by Institution Governing Authority

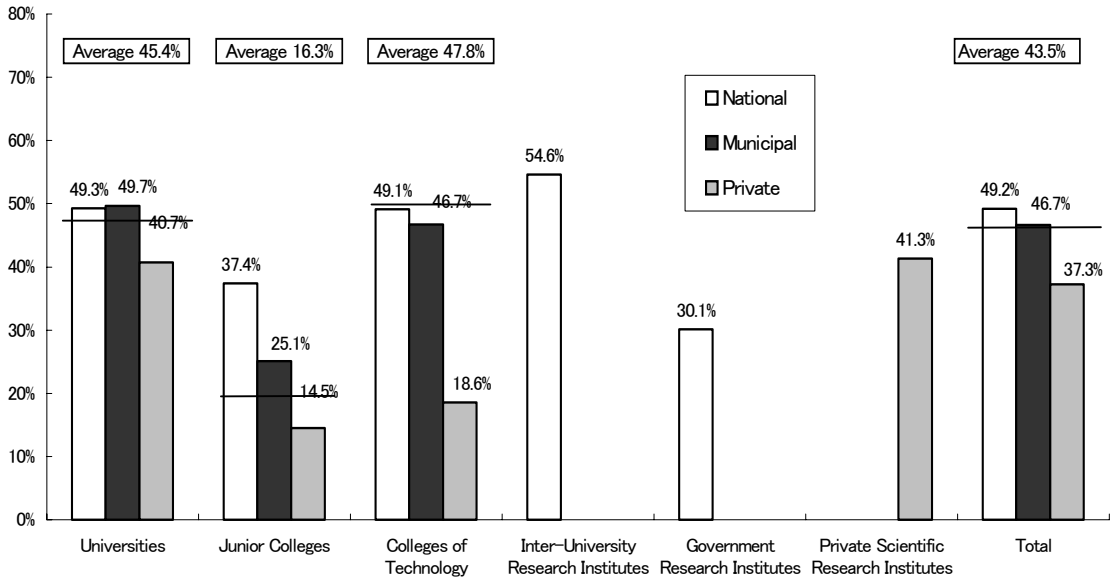

Figure 16　Ratio of Researchers with Doctorate Degrees by Institution Type　/ by Institution Governing Authority

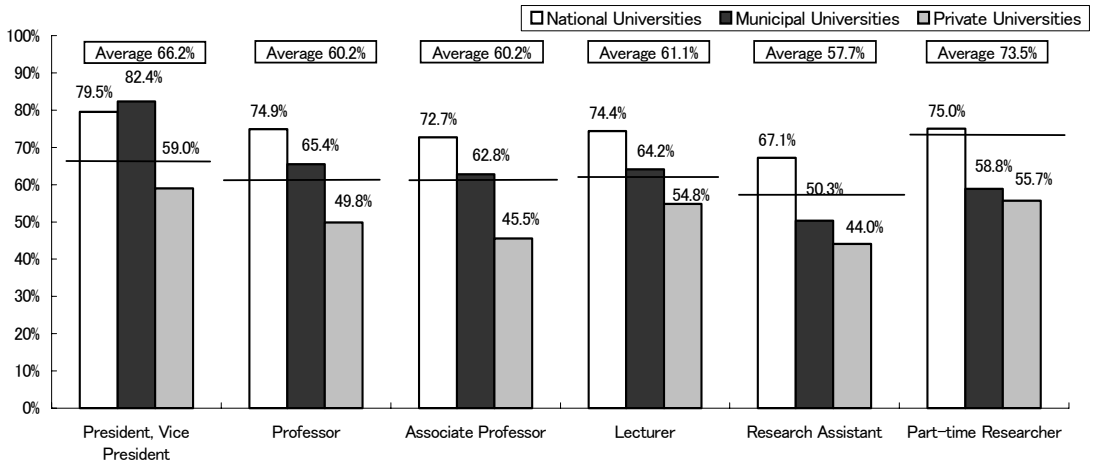

Figure 17　Ratio of University Researchers with Doctorate Degrees by Professional Title

Table 6　Ratio of University Researchers with Doctorate Degrees by Professional Title

Professional Title		Researcher	Doctor	Ratio of Doctorate Degrees
National Universities	President, Vice President	122	97	79.5%
	Professor	17,735	13,278	74.9%
	Associate Professor	14,459	10,510	72.7%
	Lecturer	4,033	2,999	74.4%
	Research Assistant	12,736	8,550	67.1%
	Part-time Researcher	1,012	759	75.0%
Municipal Universities	President, Vice President	34	28	82.4%
	Professor	2,662	1,741	65.4%
	Associate Professor	2,048	1,286	62.8%
	Lecturer	1,169	750	64.2%
	Research Assistant	1,744	878	50.3%
	Part-time Researcher	17	10	58.8%
Private Universities	President, Vice President	305	180	59.0%
	Professor	26,507	13,199	49.8%
	Associate Professor	12,678	5,767	45.5%
	Lecturer	9,057	4,965	54.8%
	Research Assistant	7,821	3,444	44.0%
	Part-time Researcher	70	39	55.7%
Total	President, Vice President	461	305	66.2%
	Professor	46,904	28,218	60.2%
	Associate Professor	29,185	17,563	60.2%
	Lecturer	14,259	8,714	61.1%
	Research Assistant	22,301	12,872	57.7%
	Part-time Researcher	1,099	808	73.5%

4. Current Research Topics

The survey subjects were asked what research topics they were currently working on, and a total of 258,524 responses were received. This works out to an average of 1.48 research topics per researcher. The averages per researcher at national, municipal, and private institutions were 1.50, 1.55, and 1.46 topics, respectively.

A look at the status of research broken down by field of research shows that the proportion of individual research is extremely high in the humanities and social sciences (arts, law, and economics), exceeding 75% in each of the fields named. On the other hand, the proportion of individual research is accounts for less than 50% of the total in the natural sciences (science, engineering, agriculture, and medicine) and interdisciplinary area. In these areas collaboration research is the norm. In particular, the share of topics entailing collaboration research involving partners from outside of the researcher's organization, both collaboration in Japan (24.4%) and international collaboration (11.3%) was higher in the field of science than in any other, accounting for 35.7% of the total for all collaborative research involving outside partners. In contrast, in medicine the proportion of collaboration research is high at 65.2%, but almost all of it involves collaboration in organization. In medicine the proportion of collaboration research involving outside partners is the lowest among all fields belonging to the natural sciences (Figure 18).

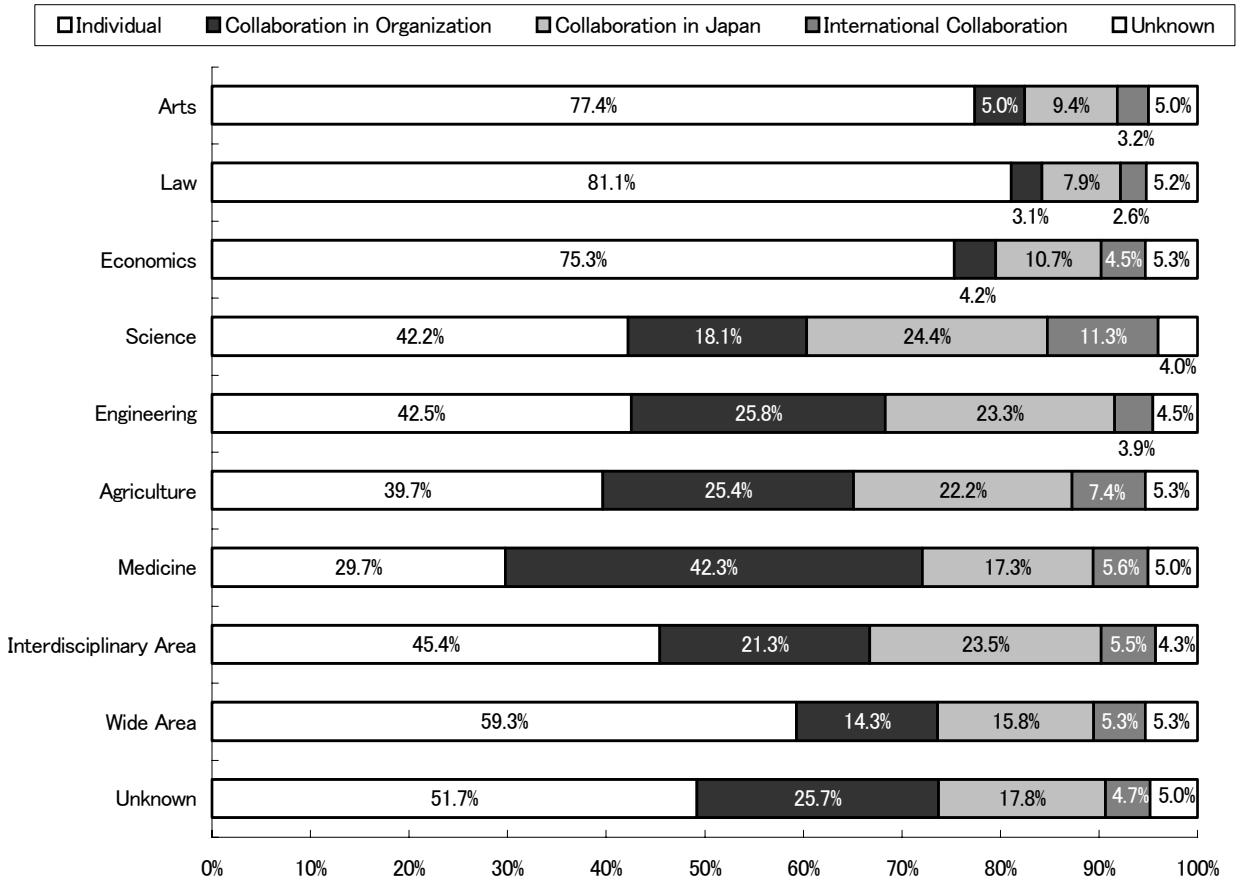

Figure 18　Research Topics and Status of Research by Field of Research

5. Overseas Research Activities

5.1 Traveling Abroad to Perform Research Activities

Of the entire group of researchers responding to the survey, the number who had engaged in two weeks or more of research work overseas during the one-year period preceding the survey was 7,757, or 4.5%. The figures broken down by institution governing authority were national institutions 5.0%, municipal institutions 4.3%, and private institutions 4.0% (Table 7).

Broken down by field of specialization, the figures were as follows, in descending order: agriculture (7.7%), science (7.0%), arts (6.4%), law (5.5%), Wide area (5.4%), economics (5.2%), interdisciplinary area (4.7%), and engineering (4.5%). Medicine had the lowest percentage at 2.9%. Also, an examination of the above categories broken down by institution governing authority indicates that in the humanities and social sciences the percentage of scholars traveling abroad to perform research activities was highest at national institutions, lower at municipal institutions, and lowest at private institutions. However, there was no particular trend of this sort among researchers in the natural sciences except agriculture, wide area (Table 7).

The breakdown by institution type shows that government research institutes of the Ministry of Education, Science, Sports, and Culture (7.4%) and inter-university research institutes (5.8%) have the highest percentages. These are followed in descending order by universities (4.6%), colleges of technology (3.0%), junior colleges (2.5%), and private scientific research institutes (2.2%). There are therefore significant differences between different types of institutions (Figure 19).

Broken down by age, there is a steady rise up to the 36 to 40 group in the percentage of scholars traveling abroad to perform research activities, as the age of the respondents increase. After that the percentage drops gradually as the age increases up to the 61 to 65 group. Also, up to the age of 60 the percentages are generally higher at national institutions, followed by municipal and private institutions, in that order (Figure 20).

Broken down by professional title, the percentages of professors, associate professors, and part-time researchers traveling abroad to perform research activities are higher than the general average, while the other professional title categories are below the average (Figure 21).

Table 7　Number of Researchers Who Have Traveled Abroad by Field of Specialization / by Institution Governing Authority

Field of Specialization		National	Municipal	Private	Total
Arts	No. of Researchers	474	87	906	1,467
	Ratio	7.5%	7.0%	5.9%	6.4%
Law	No. of Researchers	53	6	114	173
	Ratio	5.9%	3.8%	5.4%	5.5%
Economics	No. of Researchers	79	25	201	305
	Ratio	6.7%	6.4%	4.7%	5.2%
Science	No. of Researchers	500	51	150	701
	Ratio	7.4%	9.2%	5.5%	7.0%
Engineering	No. of Researchers	435	37	210	682
	Ratio	4.6%	4.6%	4.2%	4.5%
Agriculture	No. of Researchers	273	28	82	383
	Ratio	8.7%	7.2%	5.6%	7.7%
Medicine	No. of Researchers	378	53	265	696
	Ratio	3.7%	2.3%	2.4%	2.9%
Interdisciplinary Area	No. of Researchers	385	41	257	683
	Ratio	5.6%	4.8%	3.7%	4.7%
Wide Area	No. of Researchers	35	6	87	128
	Ratio	5.4%	3.8%	5.6%	5.4%
Unknown	No. of Researchers	1,448	155	936	2,539
	Ratio	4.0%	3.5%	3.0%	3.6%
Total	No. of Researchers	4,060	489	3,208	7,757
	Ratio	5.0%	4.3%	4.0%	4.5%

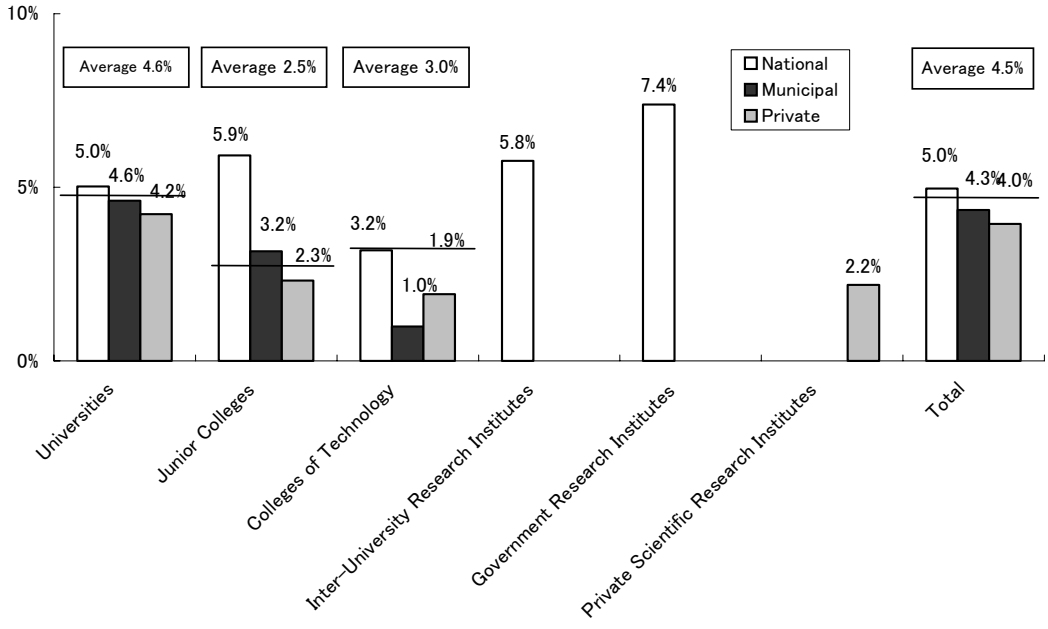

Figure 19　Ratio of Researchers Who Have Traveled Abroad by Institution Type / by Institution Governing Authority

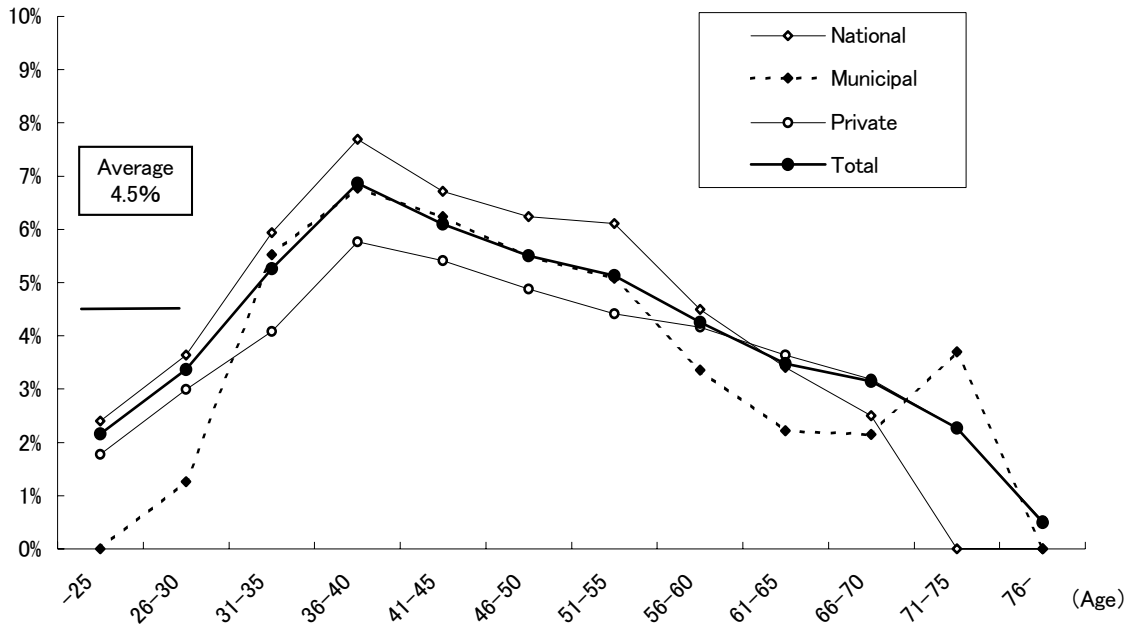

Figure 20　Ratio of Researchers Who Have Traveled Abroad by Age / by Institution Governing Authority

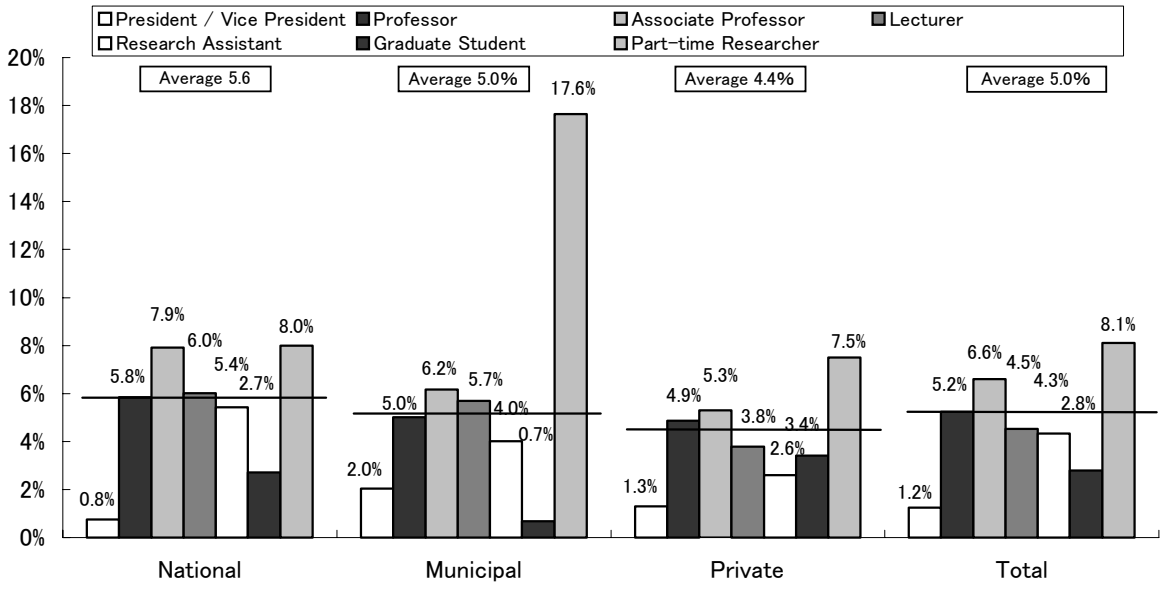

Figure 21　Ratio of Researchers Who Have Traveled Abroad by Professional Title / by Institution Governing Authority

5.2 Participation in International Conferences and Scientific Societies Overseas

Of the entire group of researchers responding to the survey, the number who had attended an international conference or scientific society meeting overseas during the one-year period preceding the survey was 19,001, or 10.9%. The figures broken down by institution governing authority were national institutions 12.8%, municipal institutions 11.0%, and private institutions 9.0%. In comparison with the percentages of researchers traveling abroad to perform research activities, there was a larger deviation associated with institution governing authority.

Broken down by field of specialization, the percentages were relatively high for fields in the natural sciences such as engineering (17.6%), science (15.7%), agriculture (14.5%), and medicine (13.9%), all of which were above the overall average. In contrast, the percentages tended to be low in fields in the humanities and social sciences, such as (in descending order) law (6.2%), economics (7.1%), and arts (7.2%). Also, an examination of the above categories broken down by institution governing authority indicates that the percentage of scholars attending international conferences, etc., overseas was highest in all fields other than law at national institutions (Table 8).

The breakdown by institution type shows that inter-university research institutes (13.4%) have the highest percentage, followed in descending order by universities (11.5%), colleges of technology (8.7%), and private scientific research institutes (6.9%). The lowest percentages are for government research institutes of the Ministry of Education, Science, Sports, and Culture and junior colleges, at 4.8% and 4.0%, respectively (Figure 22).

Broken down by professional title, the percentages of professors, associate professors, assistants and part-time researchers attending international conferences, etc., overseas are higher than the general average. For all professional title categories the percentages were generally higher at national institutions, followed by municipal and private institutions, in that order except a president and a vice president (Figure 23).

Broken down by age, there is a steady rise up to the 41 to 45 group in the percentage of scholars attending international conferences, etc., overseas as the age of the respondents increases. After that the percentages remain steady at around 12% up to the 56 to 60 group. Also, the percentages are generally higher at national institutions, followed by municipal and private institutions, in that order. This disparity is particularly large in the 46 to 50 age group (Figure 24).

Figure 25 plots the proportions of researchers traveling abroad to perform research activities together with the proportions attending international conferences or scientific society meetings overseas. It shows that the percentage of researchers with experience attending international conferences, etc., overseas is higher in all age groups than the percentage with experience traveling abroad to perform research activities. Also, the 36 to 40 group in the percentage with experience traveling abroad to perform research activities was highest in all age groups. On the other hand, the 41 to 45 group in the percentage with experience attending international conferences, etc.,

overseas was highest in all age groups.

A breakdown by institution governing authority of the party covering expenses for participation in international conferences, etc., overseas shows at national institutions a relatively high proportion (23.9%) for Ministry of Education, Science, Sports, and Culture or Japan Society for the Promotion of Science funding, with the proportions for foundations, etc. (including donations and proxy account funds)(23.6%) also higher than that for municipal or private institutions. On the other hand, at private institutions the proportion accounted for by affiliated institutions (37.3%) was much higher than that at national or municipal institutions. In the case of municipal institutions researchers covering their own expenses (32.4%) are the most prominent (Figure 30).

The breakdown by field of specialization of the party covering expenses for participation in international conferences, etc., overseas indicates that the proportion of researchers covering their own expenses is extremely high in medicine and arts (38.3% and 33.0%, respectively). Also, a high proportion (32.5%) of such participation is covered by foundations, etc. (including donations and proxy account funds) in the field of engineering, and the use of Ministry of Education, Science, Sports, and Culture or Japan Society for the Promotion of Science funding is high (32.0%) in the field of science (Figure 31).

Table 8　Number of Researchers Who Have Participated in International Conferences, Etc., Overseas by Field of Specialization / by Institution Governing Authority

Field of Specialization		National	Municipal	Private	Total
Arts	No. of Researchers	517	95	1,038	1,650
	Ratio	8.2%	7.7%	6.8%	7.2%
Law	No. of Researchers	53	7	135	195
	Ratio	5.9%	4.4%	6.4%	6.2%
Economics	No. of Researchers	97	27	291	415
	Ratio	8.3%	6.9%	6.8%	7.1%
Science	No. of Researchers	1,080	102	394	1,576
	Ratio	16.0%	18.5%	14.5%	15.7%
Engineering	No. of Researchers	1,723	152	824	2,699
	Ratio	18.1%	19.0%	16.6%	17.6%
Agriculture	No. of Researchers	503	43	177	723
	Ratio	16.0%	11.1%	12.1%	14.5%
Medicine	No. of Researchers	1,556	271	1,455	3,282
	Ratio	15.2%	12.0%	13.0%	13.9%
Interdisciplinary Area	No. of Researchers	1,073	146	720	1,939
	Ratio	15.6%	17.2%	10.5%	13.3%
Wide Area	No. of Researchers	84	15	109	208
	Ratio	12.9%	9.6%	7.0%	8.8%
Unknown	No. of Researchers	3,793	378	2,143	6,314
	Ratio	10.5%	8.5%	7.0%	8.8%
Total	No. of Researchers	10,479	1,236	7,286	19,001
	Ratio	12.8%	11.0%	9.0%	10.9%

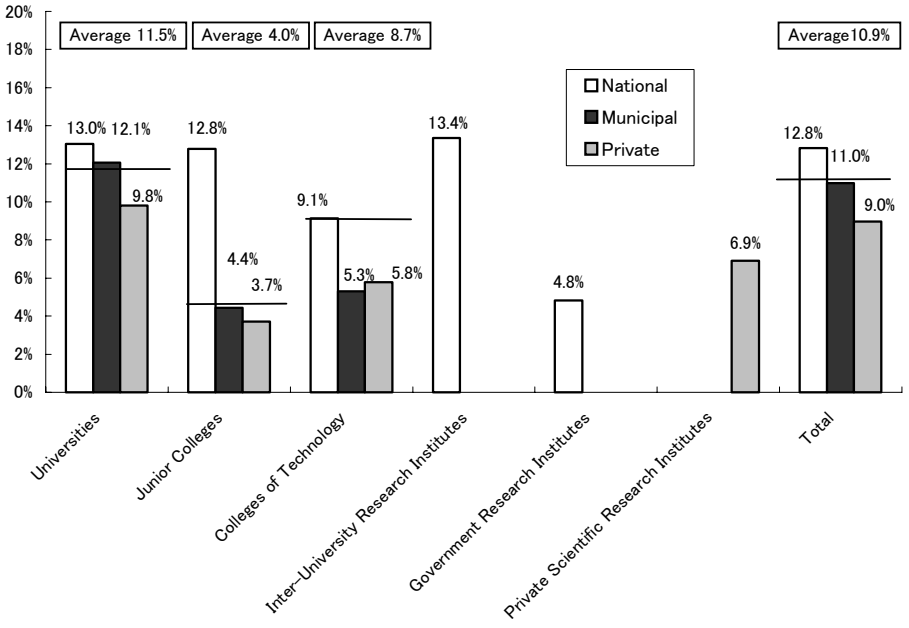

Figure 22　Ratio of Researchers Who Have Participated in International Conferences, Etc., Overseas by Institution Type / by Institution Governing Authority

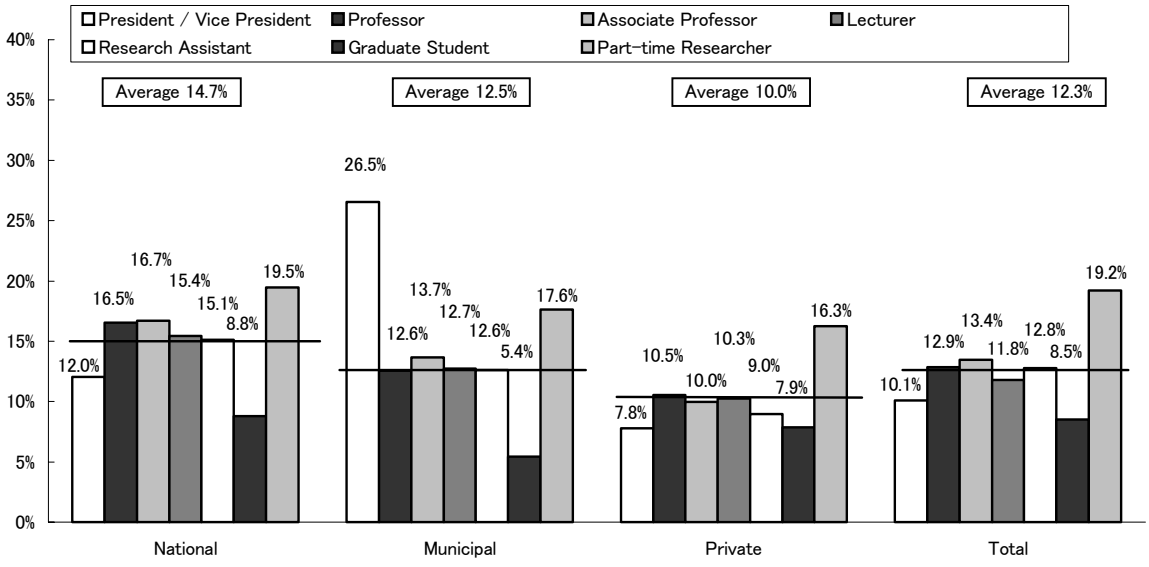

Figure 23　Ratio of Researchers Who Have Participated in International Conferences, Etc., Overseas by Professional Title

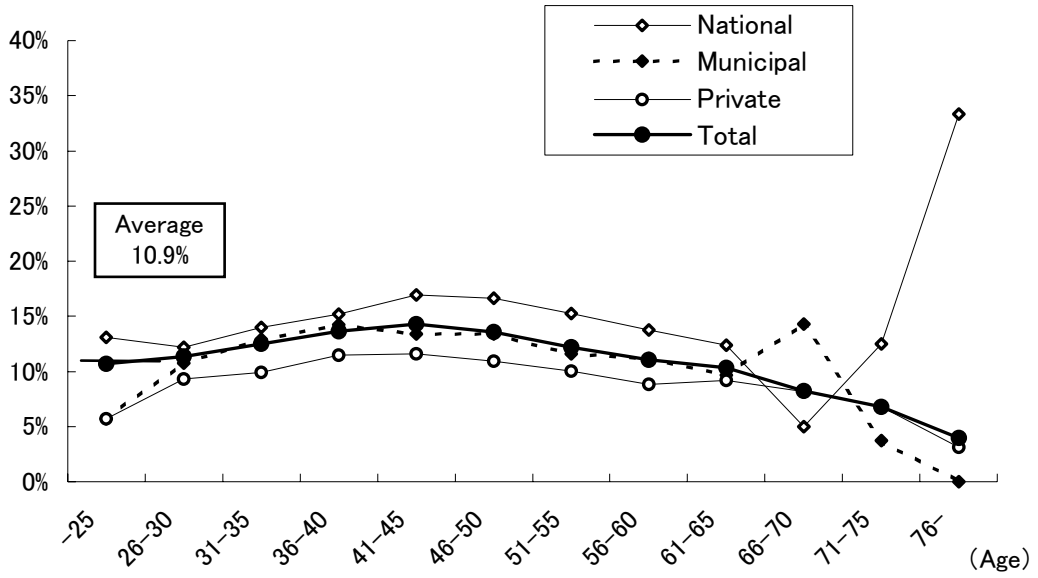

Figure 24　Ratio of Researchers Who Have Participated in International Conferences, Etc., Overseas by Age / by Institution Governing Authority

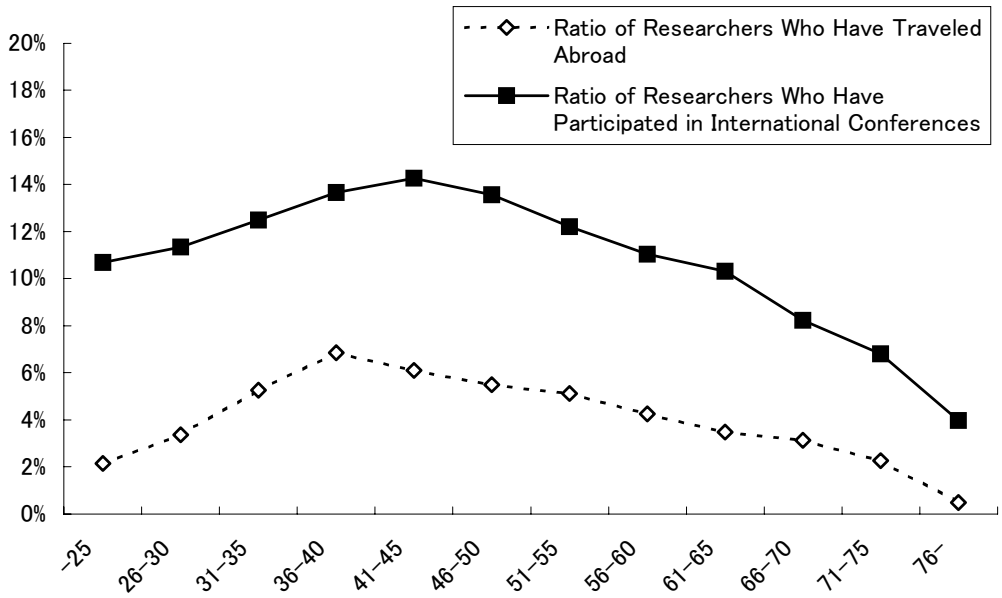

Figure 25　Ratio of Researchers Who Have Traveled Abroad and Ratio of Researchers Who Have Participated in International Conferences, Etc., Overseas by Age

5.3 Speech at International Conferences and Scientific Societies Overseas

Of the entire group of researchers responding to the survey, the number who had spoken at international conference or scientific society meeting overseas during the one-year period preceding the survey was 17,502, or 10.2%. The figures broken down by institution governing authority were national institutions 12.5%, municipal institutions 9.9%, and private institutions 7.8%. In comparison with the percentages of researchers traveling abroad to perform research activities, there was a larger deviation associated with institution governing authority.

Broken down by field of specialization, the percentages were relatively high for fields in the natural sciences such as engineering (17.9), science (15.4%), agriculture (14.1%), and medicine (12.9%), all of which were above the overall average. In contrast, the percentages tended to be low in fields in the humanities and social sciences, such as (in descending order) arts (5.2%), economics (5.1%), and law (4.3%). Also, an examination of the above categories broken down by institution governing authority indicates that the percentage of scholars speaking at international conferences, etc., overseas was highest in all fields other than law at national institutions (Table 9).

The breakdown by institution type shows that inter-university research institutes (13.0%) have the highest percentage, followed in descending order by universities (10.7%), colleges of technology (9.0%), and private scientific research institutes (6.3%). The lowest percentages are for government research institutes of the Ministry of Education, Science, Sports, and Culture and junior colleges, at 4.5% and 3.2, respectively (Figure 26).

Broken down by professional title, the percentages of associate professors, assistants and part-time researchers speaking at international conferences, etc., overseas are higher than the general average. For all professional title categories the percentages were generally higher at national institutions, followed by municipal and private institutions, in that order (Figure 27).

Broken down by age, there is a steady rise up to the 41 to 45 group in the percentage of scholars speaking at international conferences, etc., overseas as the age of the respondents increases. After that the percentages remain steady at around 12% up to the 56 to 60 group. Also, the percentages are generally higher at national institutions, followed by municipal and private institutions, in that order. This disparity is particularly large in the 46 to 50 age group (Figure 28).

Figure 29 plots the proportions of researchers traveling abroad to perform research activities together with the proportions speaking at international conferences or scientific society meetings overseas. It shows that the percentage of researchers with experience speaking at international conferences, etc., overseas is higher in all age groups than the percentage with experience traveling abroad to perform research activities. Also, the 36 to 40 group in the percentage with experience traveling abroad to perform research activities was highest in all age groups. On the other hand, the 41 to 45 group in the percentage with experience speaking at international conferences, etc., overseas was highest in all age groups.

Table 9　Number of Researchers Who Have Spoken at International Conferences, Etc., Overseas by Field of Specialization / by Institution Governing Authority

Field of Specialization		National	Municipal	Private	Total
Arts	No. of Researchers	414	67	713	1,194
	Ratio	6.6%	5.4%	4.7%	5.2%
Law	No. of Researchers	38	5	92	135
	Ratio	4.2%	3.1%	4.4%	4.3%
Economics	No. of Researchers	82	23	193	298
	Ratio	7.0%	5.9%	4.5%	5.1%
Science	No. of Researchers	1,069	98	377	1,544
	Ratio	15.8%	17.8%	13.9%	15.4%
Engineering	No. of Researchers	1,769	145	832	2,746
	Ratio	18.6%	18.1%	16.7%	17.9%
Agriculture	No. of Researchers	497	44	162	703
	Ratio	15.8%	11.3%	11.1%	14.1%
Medicine	No. of Researchers	1,489	245	1,329	3,063
	Ratio	14.6%	10.8%	11.9%	12.9%
Interdisciplinary Area	No. of Researchers	1,057	141	666	1,864
	Ratio	15.4%	16.6%	9.7%	12.8%
Wide Area	No. of Researchers	74	8	101	183
	Ratio	11.3%	5.1%	6.5%	7.8%
Unknown	No. of Researchers	3,746	342	1,884	5,972
	Ratio	10.4%	7.7%	6.1%	8.4%
Total	No. of Researchers	10,235	1,118	6,349	17,702
	Ratio	12.5%	9.9%	7.8%	10.2%

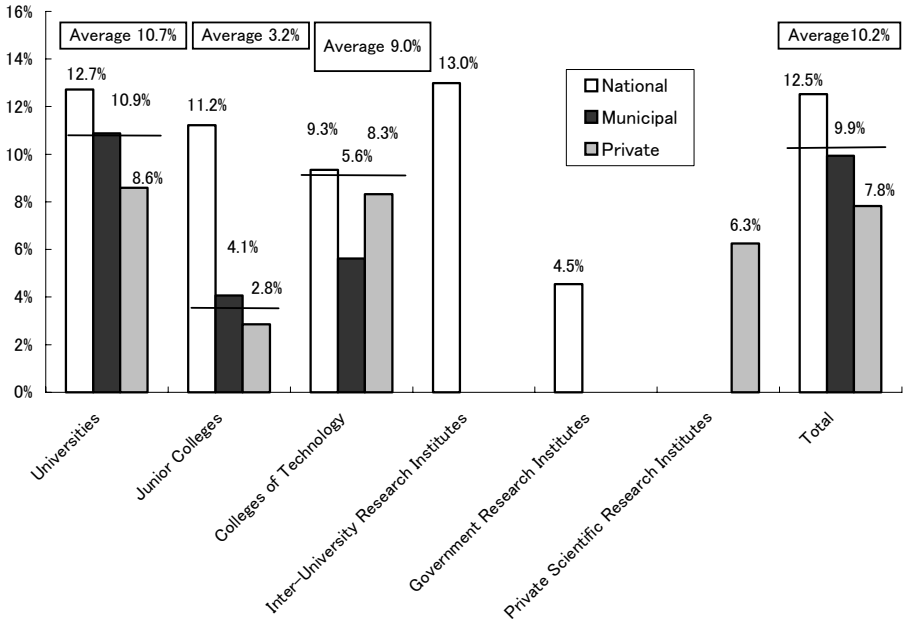

Figure 26　Ratio of Researchers Who Have Spoken at International Conferences, Etc., Overseas by Institution Type / by Institution Governing Authority

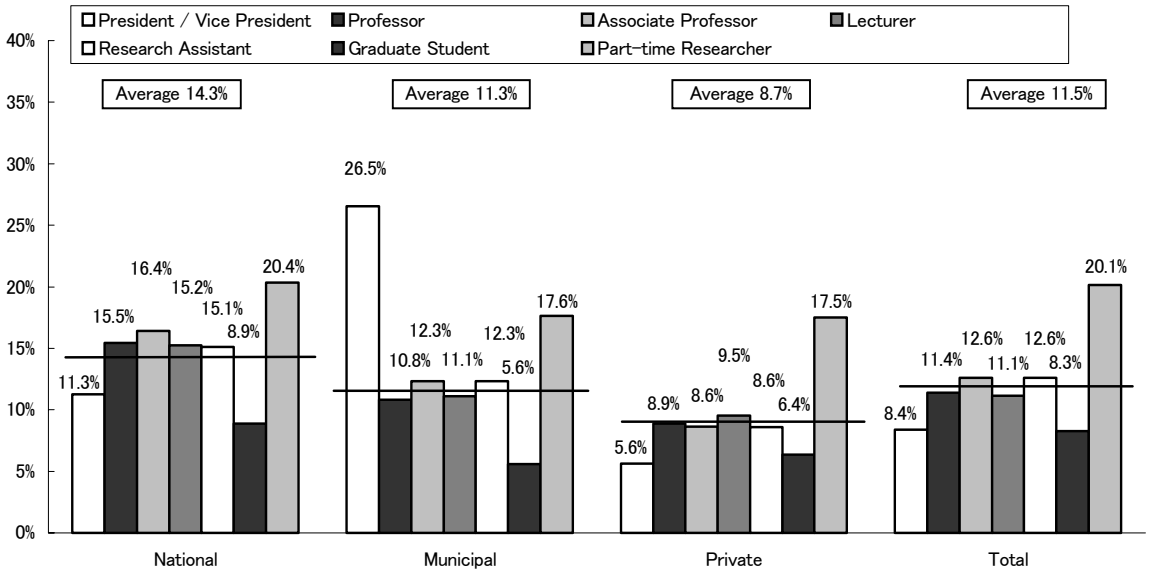

Figure 27　Ratio of Researchers Who Have Spoken at International Conferences, Etc., Overseas by Professional Title

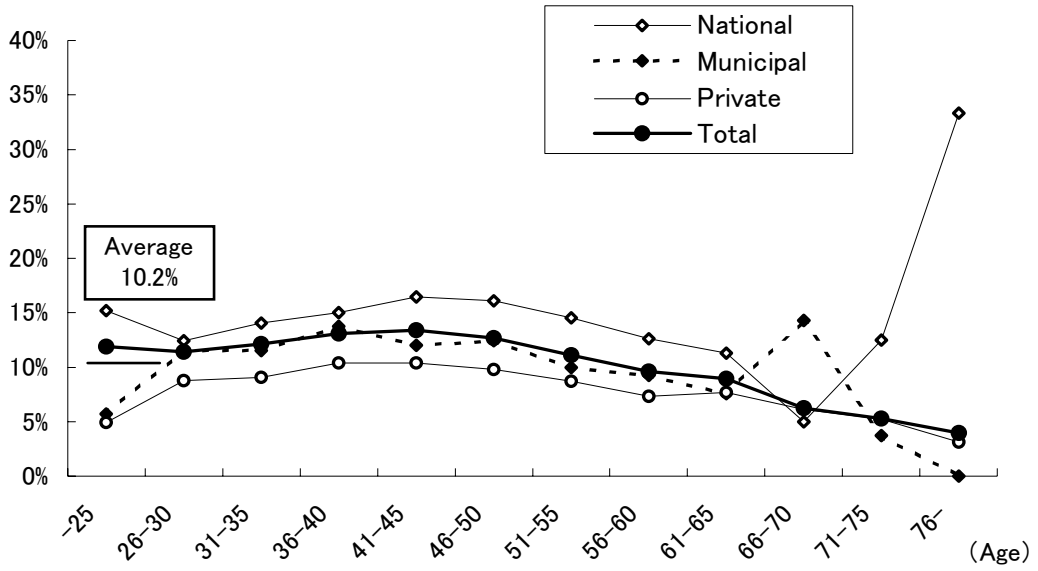

Figure 28　Ratio of Researchers Who Have Spoken at International Conferences, Etc., Overseas by Age / by Institution Governing Authority

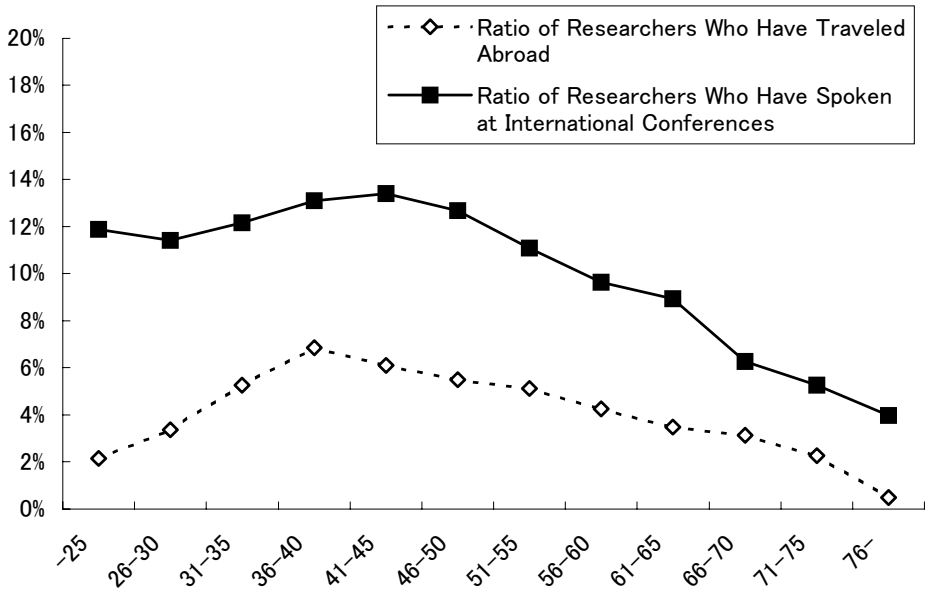

Figure 29　Ratio of Researchers Who Have Traveled Abroad and Ratio of Researchers Who Have Spoken at International Conferences, Etc., Overseas by Age

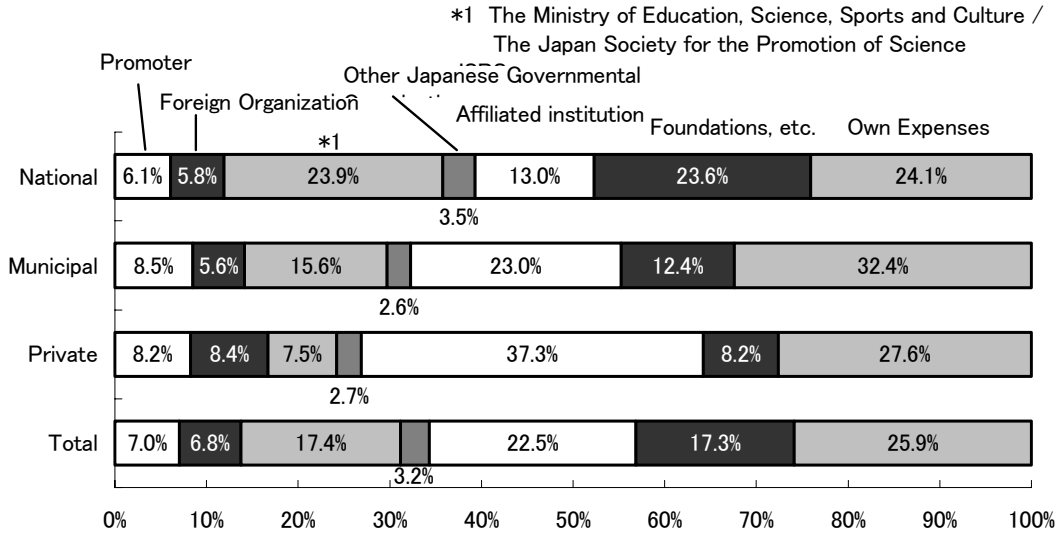

Figure 30　Party Covering Expenses for Participation in International Conferences, Etc., Overseas by Institution Governing Authority

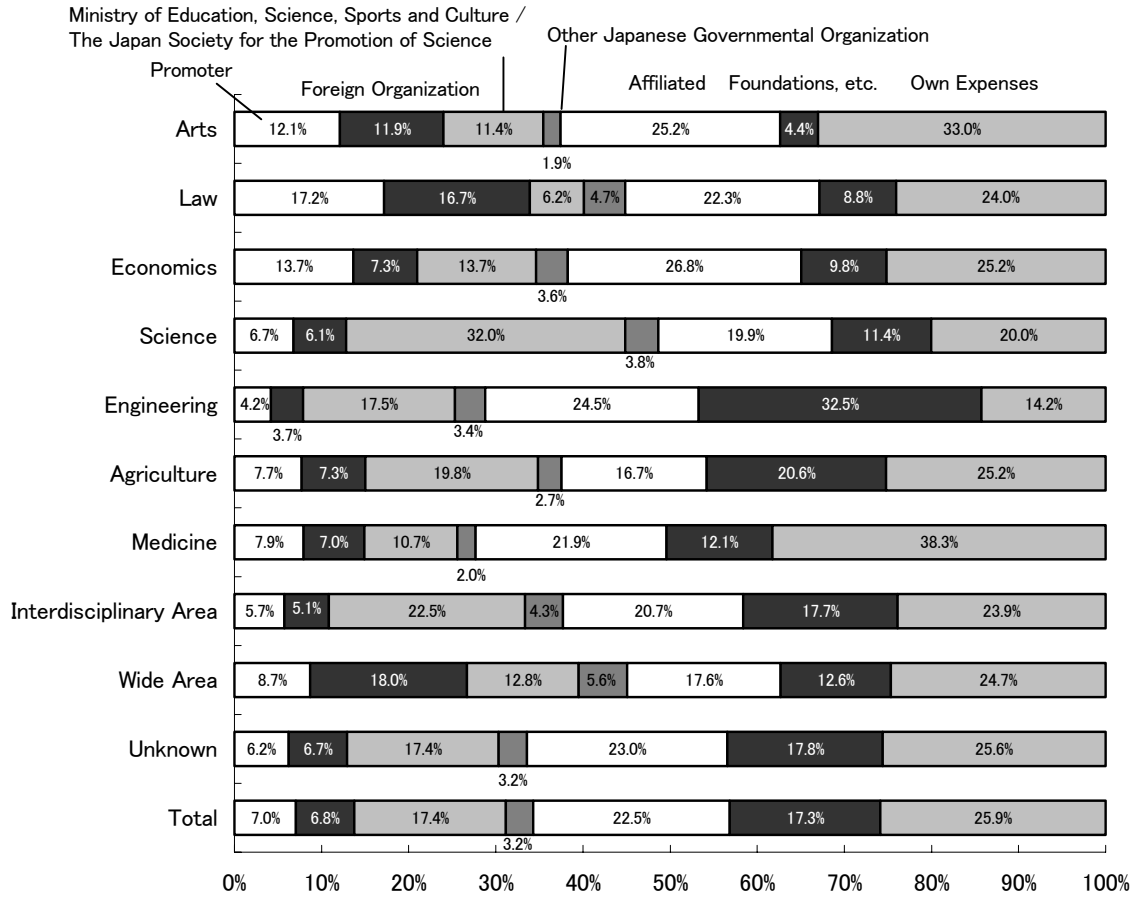

Figure 31　Party Covering Expenses for Participation in International Conferences, Etc., Overseas by Field of Specialization

6. Use of Languages Other Than Japanese by International Conferences and Scientific Societies

6.1 Principal Languages Other Than Japanese Used to Present Research Findings to Research Societies

An examination of the principal languages other than Japanese used to present research findings at the conferences of international academic societies, etc., shows an enormous gap between the most widely used language, English (110,533 respondents, 96.0%) and the second most widely used language, German (3,978 respondents, 3.5%).

Broken down by field of specialization, 99% or more of researchers presenting research findings in languages other than Japanese used English in fields in the natural sciences, such as science, engineering, agriculture, and medicine, and in interdisciplinary area. In contrast, fewer researchers used English in the fields of arts and law than was the case in the natural sciences, with the percentages being 84.7% and 86.2%, respectively. In these two fields the proportion of usage of German and French was relatively high. The percentages for arts were German 10.0% and French 7.1%, and those for law were German 19.5% and French 8.6% (Table 10).

The percentage of researchers using two or more languages other than Japanese to present research findings were highest in fields in the humanities and social sciences such as law, arts, and economics, and low in the natural sciences (Figure 32).

6.2 Principal Languages Other Than Japanese Used to Write Papers

An examination of the principal languages other than Japanese used to write papers for presentation at the conferences of international academic societies, etc., shows an enormous gap between the most widely used language, English (111,273 respondents, 96.4%) and the second most widely used language, German (4,700 respondents, 4.1%).

Broken down by field of specialization, 99% or more of researchers writing papers in languages other than Japanese used English in fields in the natural sciences, such as science, engineering, agriculture, and medicine, and in interdisciplinary area. In contrast, fewer researchers used English in the fields of arts and law than in the fields of natural sciences, with the percentages being 86.4% and 87.0%, respectively. In these two fields the proportion of usage of German and French was relatively high. The percentages for arts were German 11.3% and French 7.7%, and those for law were German 23.7% and French 9.8% (Table 11).

The percentage of researchers using two or more languages other than Japanese to write papers were highest in fields in the humanities and social sciences such as law, arts, and economics, and were low in the natural sciences (Figure 33).

Table 10　Number of Researchers by Field of Specialization / by Language Other Than Japanese Used to Present Research Findings, Etc.

Field of Specialization	Total	Language								Unknown
		Total of users other than Japanese	English	French	Spanish	Russian	German	Chinese	Others	
Arts	22,832	15,781	13,363	1,127	290	179	1,585	940	992	7,051
Law	3,151	2,337	2,015	200	30	29	455	102	101	814
Economics	5,844	4,372	4,218	113	39	42	219	137	172	1,472
Science	10,022	8,795	8,783	103	17	19	61	37	36	1,227
Engineering	15,302	13,067	13,038	54	27	16	80	139	131	2,235
Agriculture	4,998	4,086	4,062	18	17	2	31	47	71	912
Medicine	23,663	18,807	18,786	60	29	3	157	90	74	4,856
Interdisciplinary Area	14,601	10,885	10,781	88	30	14	163	89	102	3,716
Wide Area	2,357	1,409	1,297	46	10	11	90	28	63	948
Unknown	71,401	35,635	34,190	721	167	129	1,137	694	600	35,766
Total	174,171	115,174	110,533	2,530	656	444	3,978	2,303	2,342	58,997

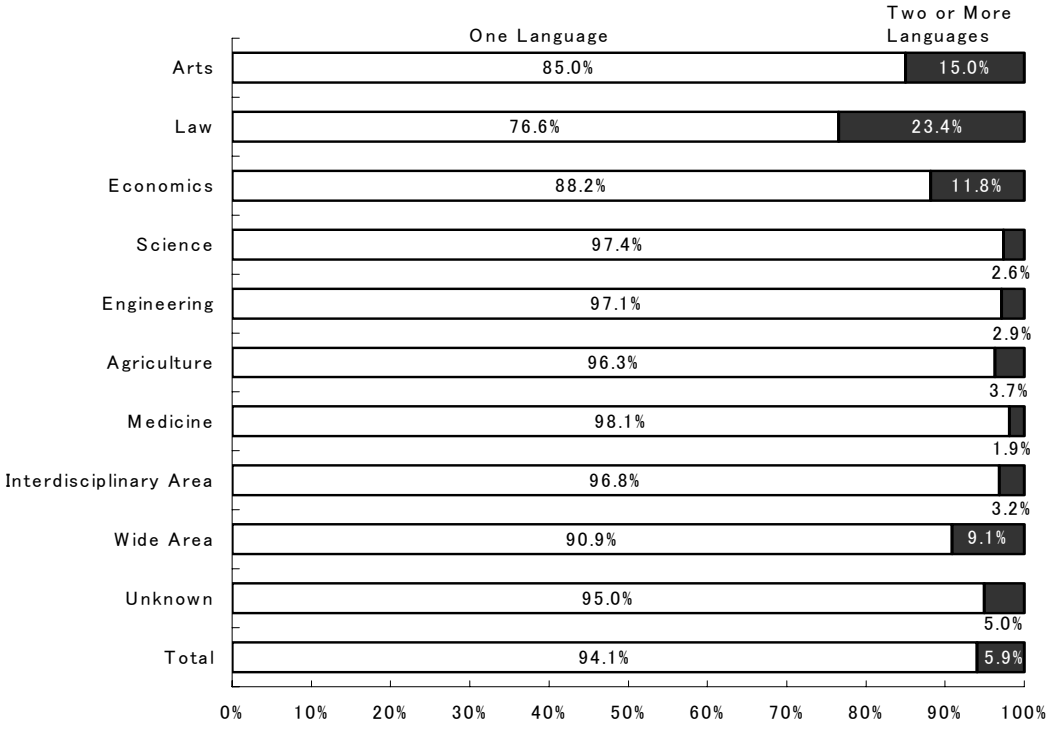

Figure 32　Proportion of Researchers by Field of Specialization / by Number of Languages Other Than Japanese Used to Present Research Findings, Etc.

Table 11　Number of Researchers by Field of Specialization / by Language Other Than Japanese Used to Write Papers

Field of Specialization	Total	Languages								Unknown
		Total of users other than Japanese	English	French	Spanish	Russian	German	Chinese	Others	
Arts	22,832	15,690	13,551	1,202	279	190	1,773	949	844	7,142
Law	3,151	2,357	2,051	231	25	25	558	89	93	794
Economics	5,844	4,448	4,320	155	26	53	306	118	151	1,396
Science	10,022	9,040	9,033	135	13	22	96	26	26	982
Engineering	15,302	13,229	13,204	68	22	18	147	111	98	2,073
Agriculture	4,998	4,141	4,128	16	13	3	55	35	41	857
Medicine	23,663	18,622	18,606	55	19	4	177	69	44	5,041
Interdisciplinary Area	14,601	10,956	10,883	89	20	12	214	80	73	3,645
Wide Area	2,357	1,344	1,253	41	10	14	77	30	46	1,013
Unknown	71,401	35,568	34,244	770	157	128	1,297	644	489	35,833
Total	174,171	115,395	111,273	2,762	584	469	4,700	2,151	1,905	58,776

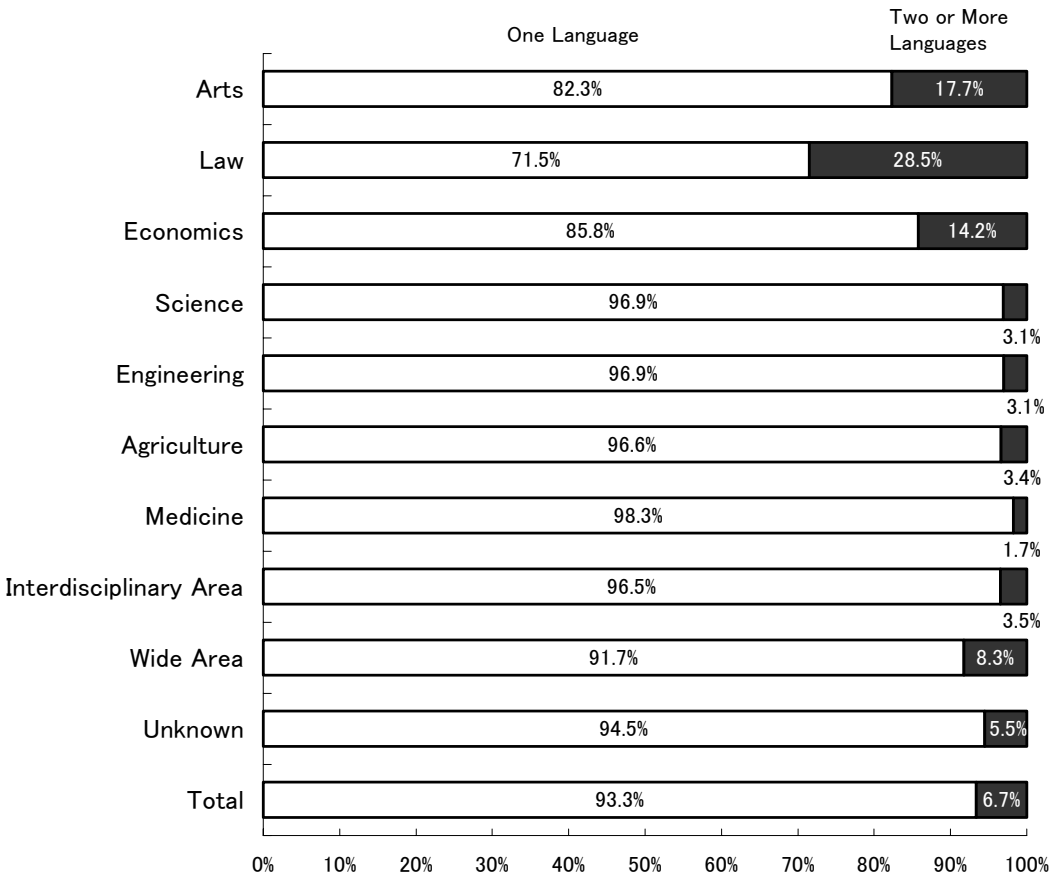

Figure 33　Proportion of Researchers by Field of Specialization/by Number of Languages Other Than Japanese Used to Write Papers

7. Academic Society Affiliations of Researchers

7.1 Japanese Academic Societies

Membership in Japanese academic societies was reported by 133,890, or 76.9%, of the researchers responding. Overall, the average number of such memberships per researcher (including in the total researchers not belonging to any academic societies) was 2.7.

Broken down by institution governing authority, the figures were national institutions 74.2%, municipal institutions 78.2 and private institutions 79.3%.

Broken down by number of academic society affiliations, researchers belonging to three academic societies were most numerous at national, municipal, and private institutions. The next largest group at municipal and private institutions (but not national ones) was researchers belonging to two academic societies, followed by researchers belonging to four (Figure 34).

The average number of memberships at municipal institutions was 3.3, at private institutions 3.8, and at national institutions 3.6 (Table 12).

Broken down by field of specialization, researchers not belonging to any academic societies were most numerous in wide area (17.5%), followed in descending order by science (10.6%), law (9.1%), medicine (9.9%), arts (9.0%), agriculture (8.8%), and interdisciplinary area (8.8%) (Figure 35).

The average number of academic society memberships was highest was medicine, where the number of memberships per individual averages 4.4. In the field of science the average number of memberships was low because 29.8% of the respondents in this field belonged to one academic society only(Table 12).

There were no significant differences correlating with institution governing authority.

The type of institution for which the average number of academic society memberships was highest was government research institutes of the Ministry of Education, Science, Sports, and Culture (3.1), followed in descending order by universities (2.7), junior colleges (2.6), private scientific research institutes (2.1), inter-university research institutes (1.3), and colleges of technology (2.4) (Figure 36). Note that the average number of memberships was high among researchers affiliated with national and municipal junior colleges because a high proportion of the researchers at these institutions are in the medical field.

Table 12　Average Number of Academic Society Affiliations (Japanese) by Field of Specialization

Field of Specialization	National	Municipal	Private	Total
Arts	3.6	3.7	3.6	3.6
Law	3.0	3.0	3.4	3.2
Economics	3.1	3.3	3.5	3.4
Science	2.5	2.8	2.7	2.6
Engineering	3.2	3.5	3.5	3.3
Agriculture	3.7	4.0	4.0	3.8
Medicine	4.4	4.6	4.5	4.4
Interdisciplinary Area	3.6	4.1	3.6	3.6
Wide Area	3.3	3.3	3.1	3.2
Unknown	3.0	3.4	3.3	3.1
Total	3.3	3.8	3.6	3.5

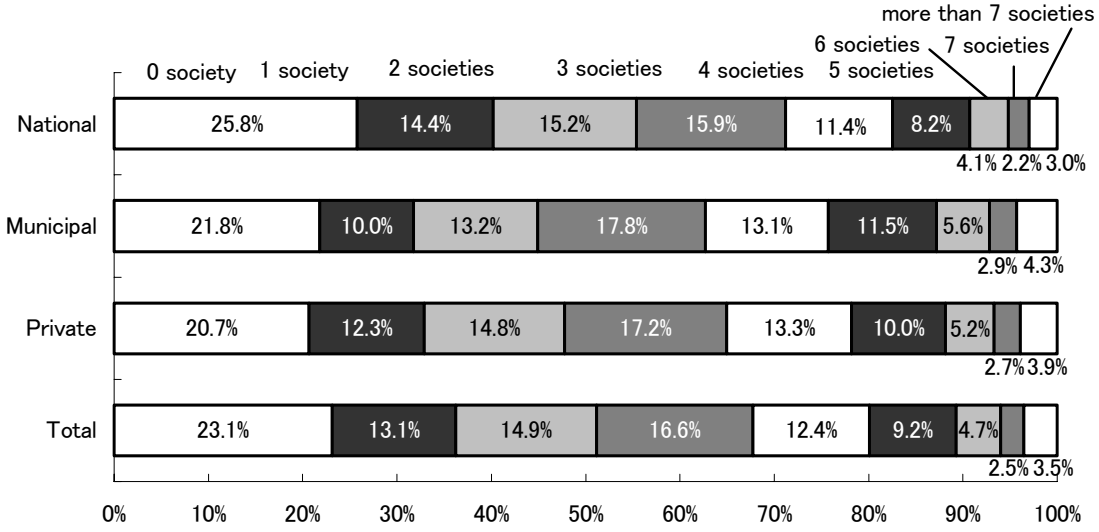

Figure 34　Ratio of Average Number of Academic Society Affiliations (Japanese) by Institution Governing Authority

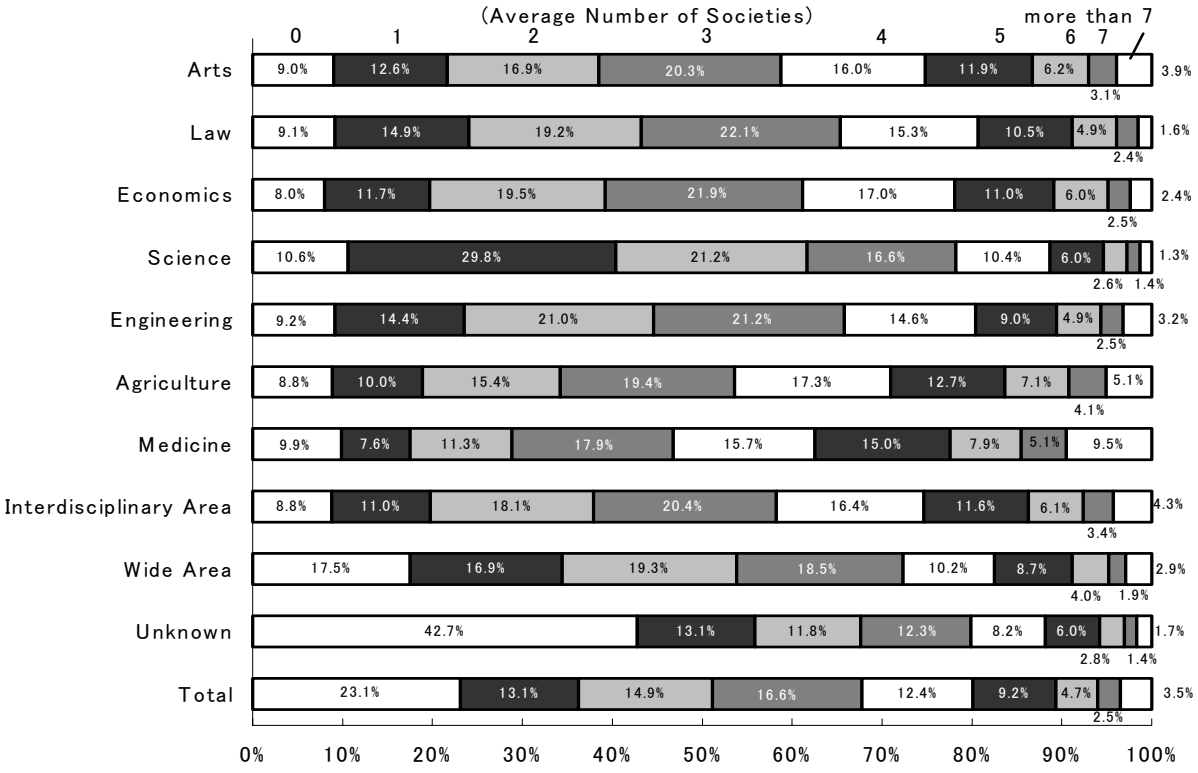

Figure 35　Ratio of Average Number of Academic Society Affiliations (Japanese) by Field of Specialization

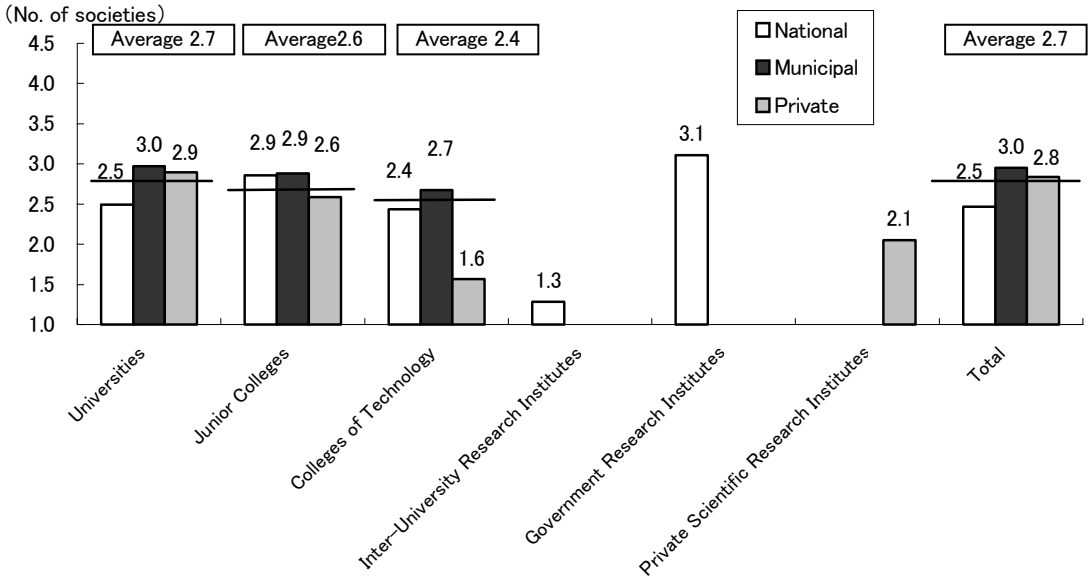

Figure 36　Average Number of Academic Society Affiliations (Japanese) by Institution Type/ by Institution Governing Authority

7.2 Overseas Academic Societies

Membership in one or more overseas academic societies was reported by 33,680, or 19.3%, of the researchers responding. Overall, the average number of such memberships per researcher (including in the total researchers not belonging to any overseas academic societies) was 0.3. Compared with the figures of 133,890 researchers (76.9%) for membership in Japanese academic societies, these figures are extremely low, although that is perhaps to be expected.

Broken down by institution governing authority, national institutions have the largest proportion of researchers belonging to overseas academic societies at 21.0% or 17,184 persons. The next is municipal institutions at 19.5% and private institutions at 17.6%. The average number of memberships at national, municipal, and private institutions was 1.5 (Table 13), with most researchers who belong to overseas academic societies having either one or two such memberships. There are also some researchers who belong to three or more overseas academic societies, though their numbers are small (Figure 37).

Broken down by field of specialization, the percentage of researchers belonging to overseas academic societies was high in fields in the natural sciences such as engineering (29.6%), science (29.4%), agriculture (27.6%), and medicine (27.0%). It was somewhat lower in fields in the humanities and social sciences such as economics (20.6%), arts (18.0%), and law (16.5%) (Figure 38).

The type of institution for which the average number of academic society memberships was highest was government research institutes of the Ministry of Education, Science, Sports, and Culture at 1.61, followed by universities in second place at 1.49 (Figure 39).

Table 13　Average Number of Academic Society Affiliations (Overseas) Among Respondents Affiliated with Overseas Academic Society, by Field of Specialization

Field of Specialization	National	Municipal	Private	Total
Arts	1.5	1.6	1.5	1.5
Law	1.4	1.5	1.5	1.4
Economics	1.5	1.4	1.4	1.4
Science	1.5	1.4	1.4	1.5
Engineering	1.4	1.4	1.4	1.4
Agriculture	1.5	1.3	1.4	1.5
Medicine	1.7	1.6	1.6	1.6
Interdisciplinary Area	1.5	1.4	1.5	1.5
Wide Area	1.6	1.4	1.6	1.6
Unknown	1.4	1.5	1.4	1.4
Total	1.5	1.5	1.5	1.5

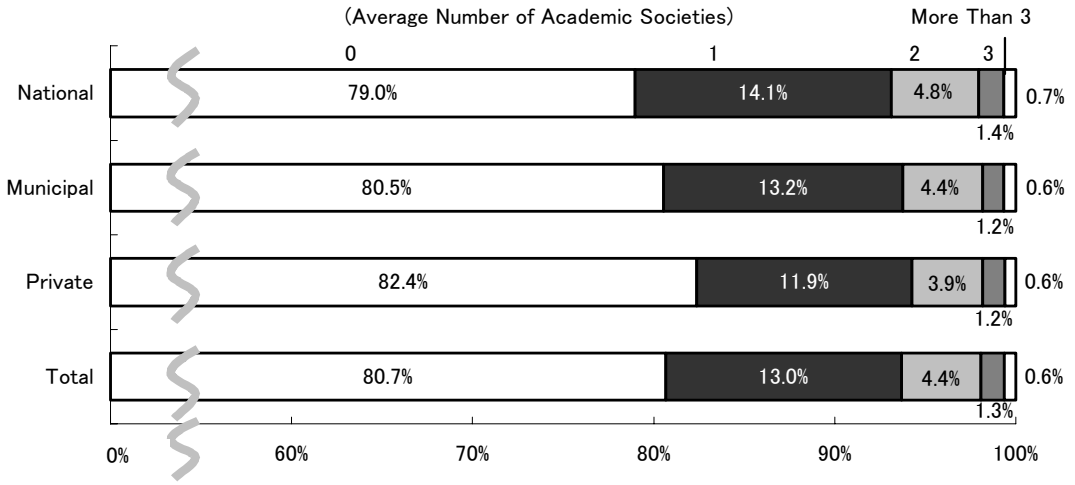

Figure 37　Ratio of Average Number of Academic Society Affiliations (Overseas) by Institution Governing Authority

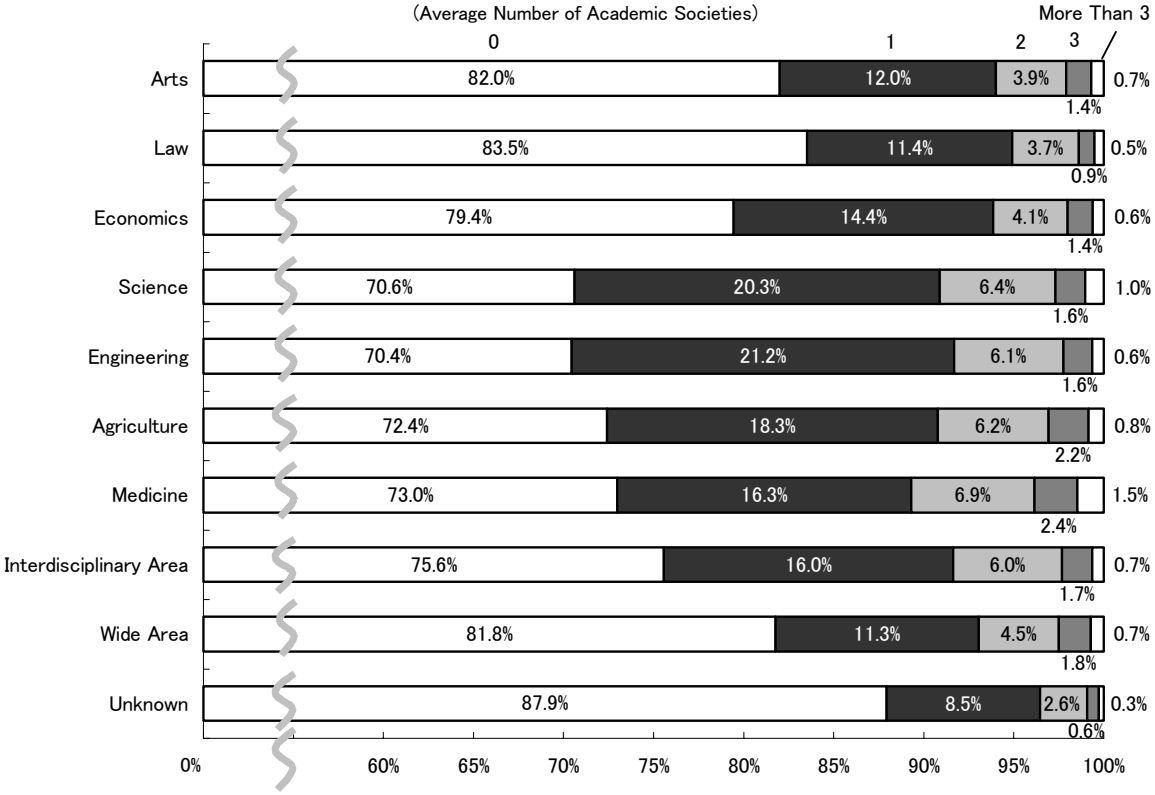

Figure 38　Ratio of Average Number of Academic Society Affiliations (Overseas) by Field of Specialization

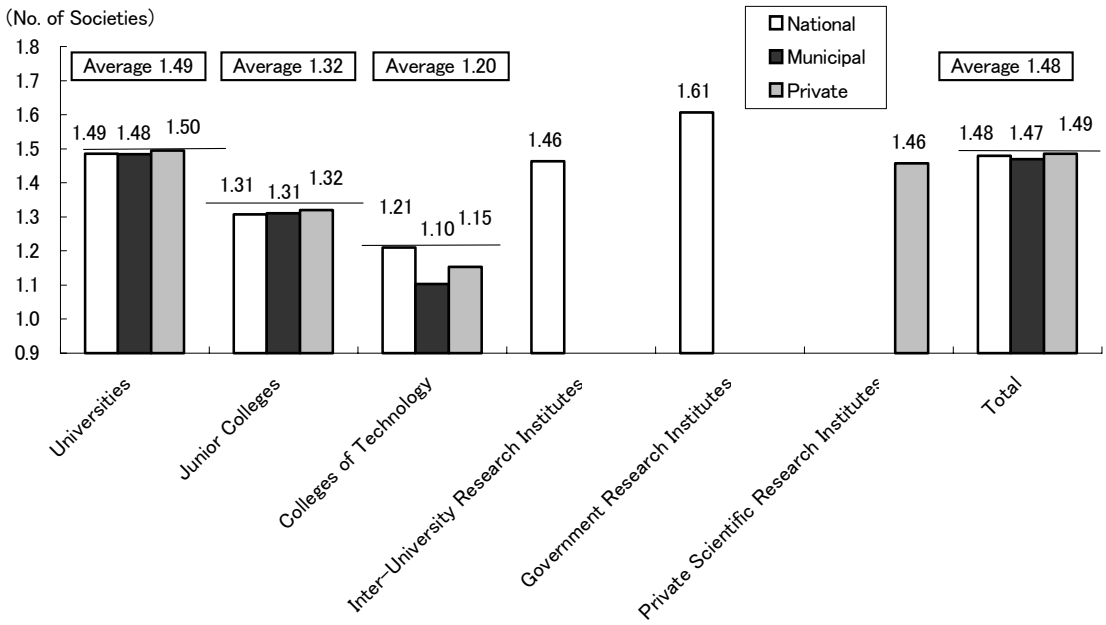

Figure 39　Average Number of Academic Society Affiliations (Overseas) Among Respondents Affiliated with Overseas Academic Society, by Institution Type / by Institution Governing Authority

8. Academic Awards Received

8.1 Japanese Awards Received

Of the total number of researchers, 15.2% have received some sort of Japanese academic award. The breakdown by institution governing authority is national institutions 18.1%, municipal institutions 14.6%, and private institutions 12.5%.
Broken down by field of specialization, the percentage of Japanese award holders was highest in engineering (35.2%), followed in descending order by agriculture (27.1%) and wide area (23.1%) (Figure 40).

The type of institution with the largest percentage of Japanese award holders was universities at 15.8%. This was followed in descending order by inter-university research institutes (15.1%), government research institutes of the Ministry of Education, Science, Sports, and Culture (14.2%), private scientific research institutes (14.0%), colleges of technology (12.9%), and junior colleges (9.1%) (Figure 41).

For all respondents overall, the average number of Japanese academic awards received was 0.27. The breakdown by institution governing authority is national institutions 0.31, municipal institutions 0.25, and private institutions 0.22. The breakdown by field of specialization puts engineering (0.75) in first place, followed by wide area (0.57) and agriculture (0.41) (Figure 42).

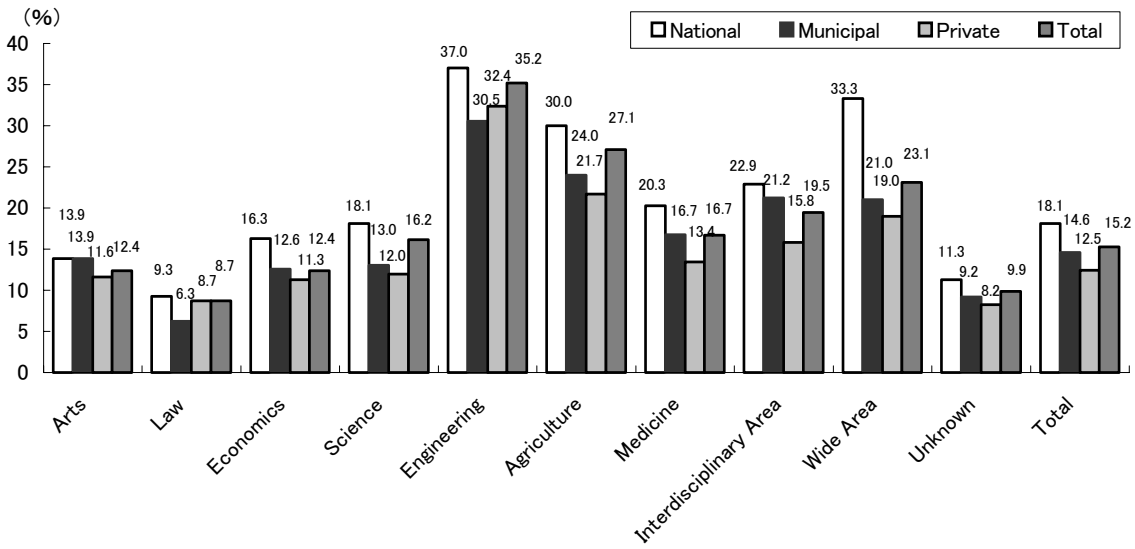

Figure 40　Ratio of Persons Who Have Received Awards (Japanese) by Field of Specialization

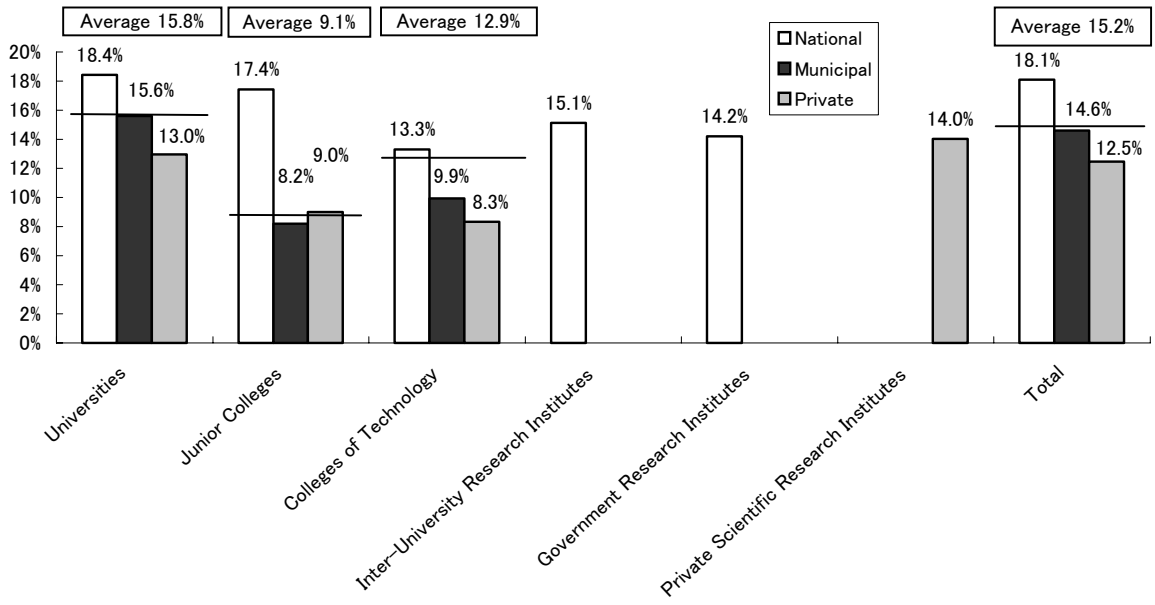

Figure 41　Ratio of Persons Who Have Received Awards (Japanese) by Institution Type

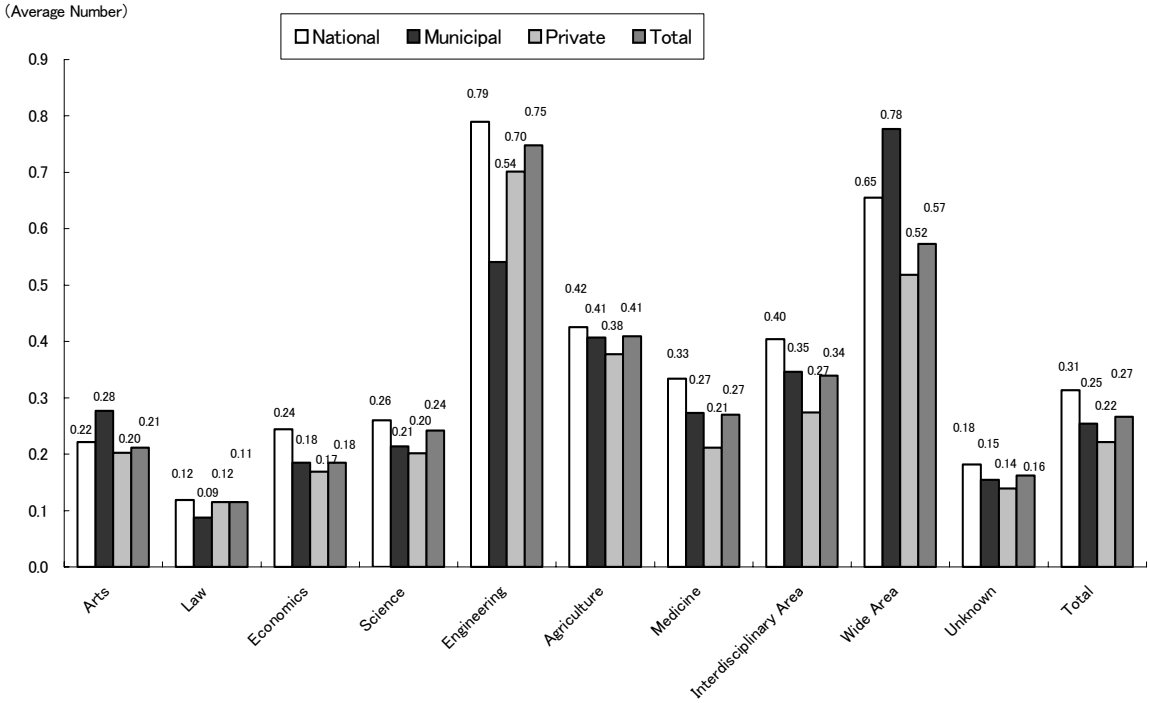

Figure 42　Average Number of Awards Received (Japanese) by Field of Specialization

8.2 Overseas Awards Received

Of the total number of researchers, 2.7% have received some sort of overseas academic award. The breakdown by institution governing authority is national institutions 3.1%, municipal institutions 2.5%, and private institutions 2.2%.

Broken down by field of specialization, the percentage of overseas award holders was highest in engineering (6.3%), followed in descending order by wide area (5.3%) and medicine (3.8%) (Figure 43).

The type of institution with the largest percentage of overseas award holders was inter-university research institutes at 2.6%. This was followed in descending order by universities (2.8%), private scientific research institutes (2.4%), government research institutes of the Ministry of Education, Science, Sports, and Culture (1.4%), junior colleges (1.2%), and colleges of technology (1.0%) (Figure 44).

The average number of overseas academic awards received by respondents overall was 0.039. The breakdown by institution governing authority is national institutions 0.044, municipal institutions 0.040, and private institutions 0.035. The breakdown by field of specialization puts engineering (0.094) in first place, followed by wide area (0.093), medicine (0.054) (Figure 45).

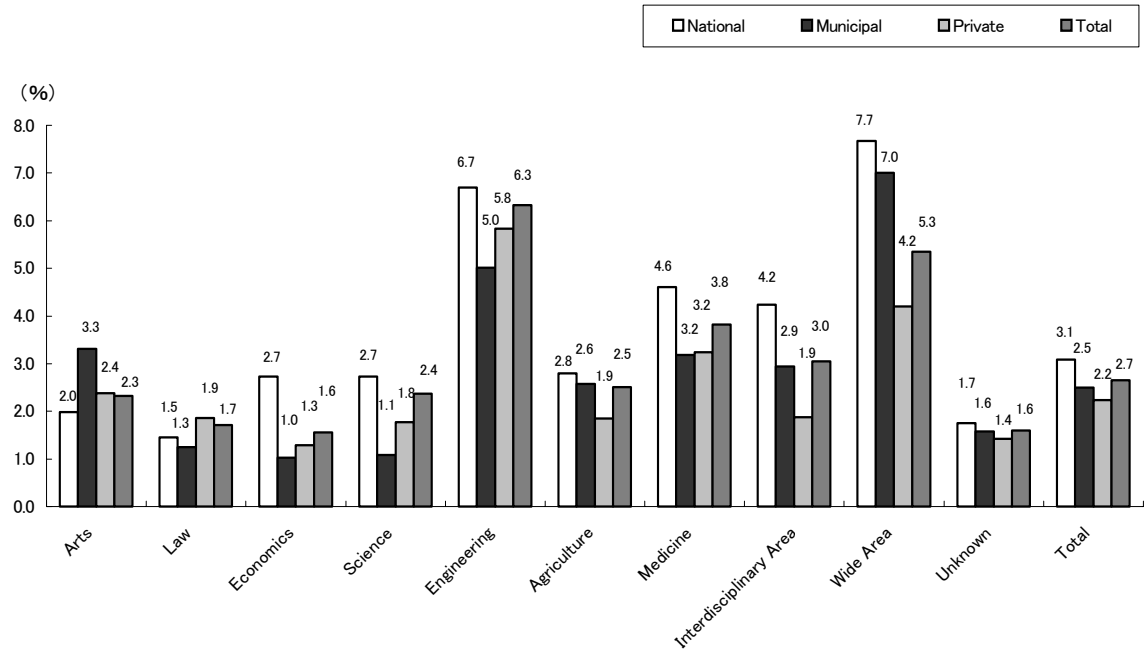

Figure 43　Ratio of Persons Who Have Received Awards (Overseas) by Field of Specialization

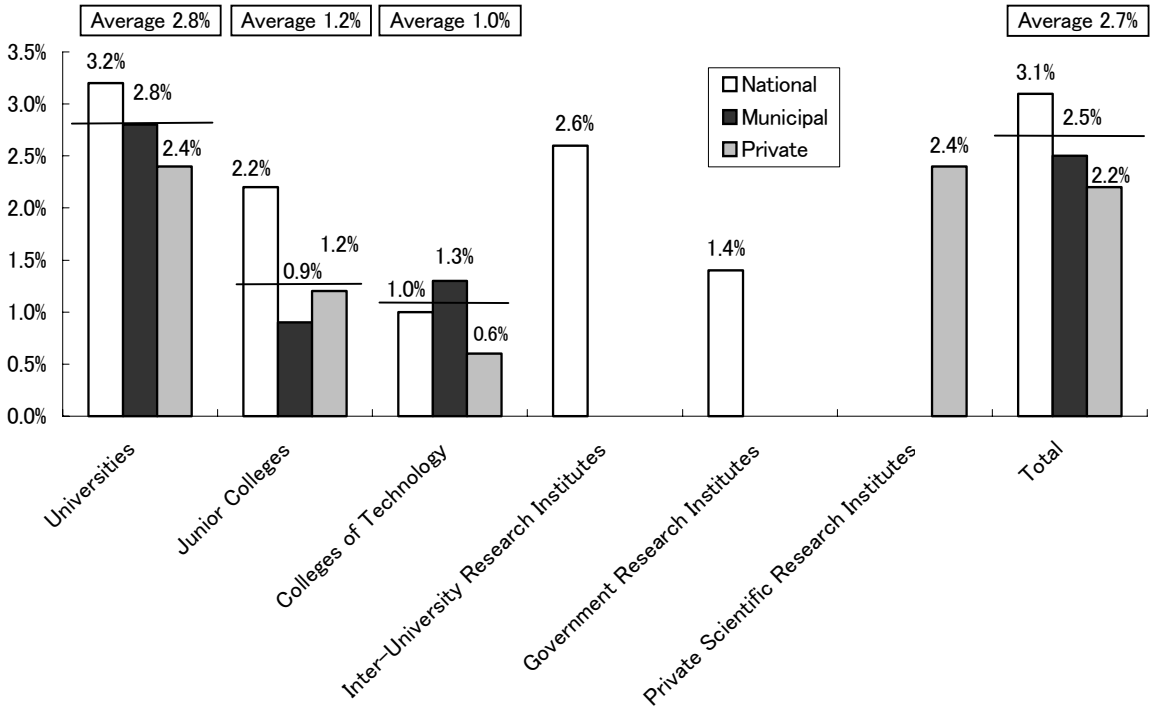

Figure 44　Ratio of Persons Who Have Received Awards (Overseas) by Institution Type

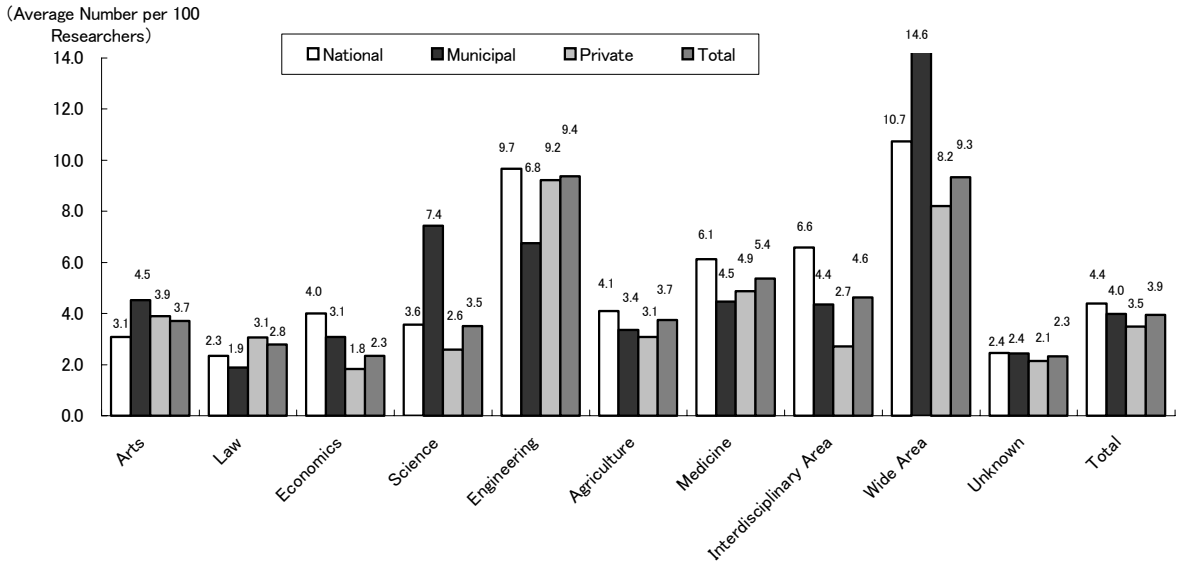

Figure 45　Average Number of Awards Received (Overseas) by Field of Specialization

Appendixes

2002 Directory Database of Research and Development Activities (ReaD) -- Survey Form

1. The guide book of Survey Form filling up
   : Researcher DDB

2. The new researcher DDB Survey Form

Academic Research Activities in Japan

- A Report on the 2002 Academic Research Activities Survey -

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31 March 2004

Edited & Published by

National Institute of Informatics

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