Global Innovation and HRST

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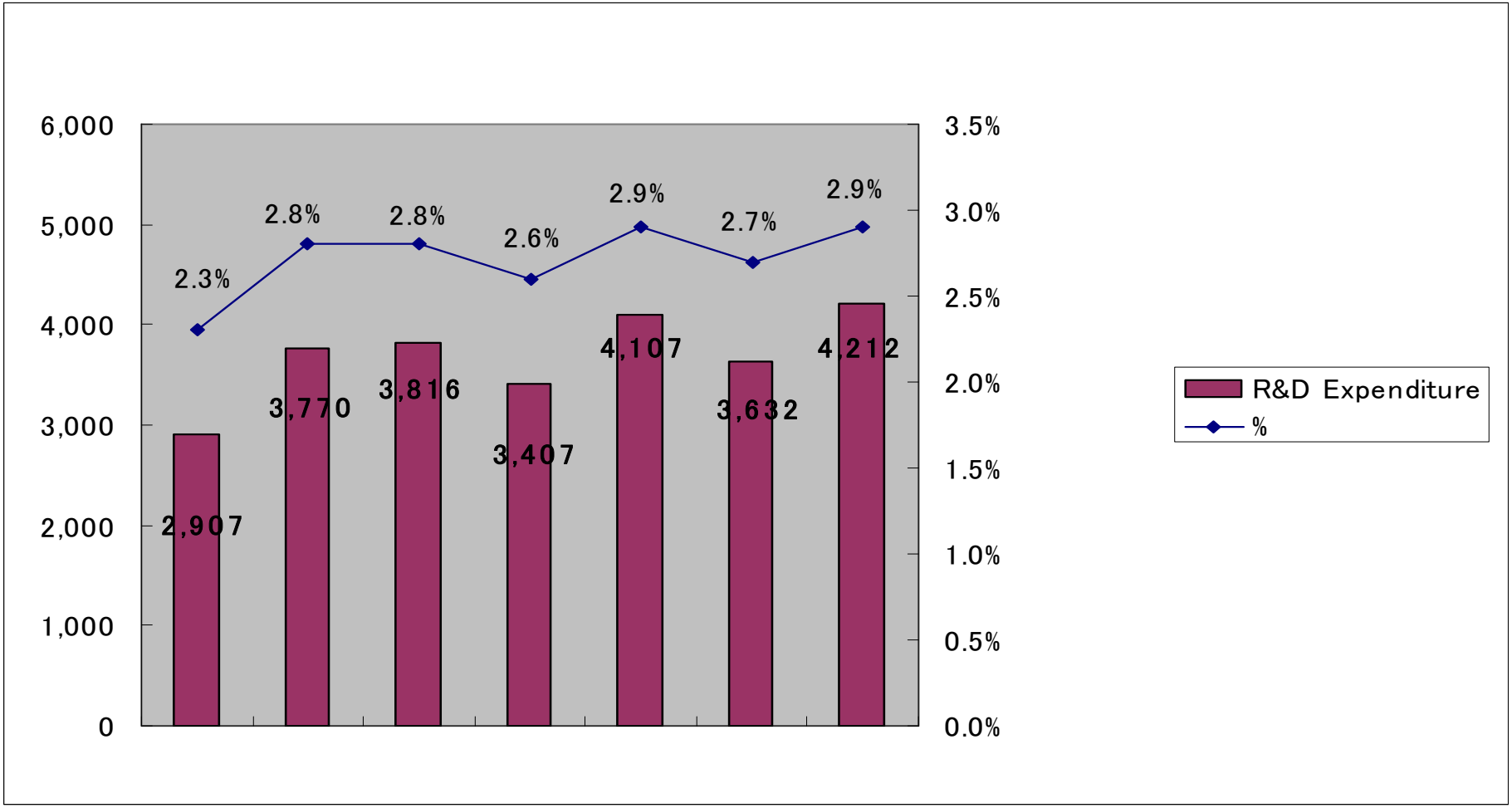
Is the world flat from the Japanese perspective?

Total Private R&D and the Share of Overseas R&D



METI

The future plan for Japanese firms' oversea operations

(unit:%)

		Expand	The status quo	Contract	Expansion of Production or thinking about the expansion
North America		12.9	36.8	2.0	1.7
ASIA	China	36.3	37.3	0.3	7.5
	ASEAN4	13.2	36.3	0.9	4.2
	NIEs3	6.8	30.8	1.5	2.0
	Others	12.6	12.6	0.3	3.7
Europe		10.8	25.5	1.0	2.7
Others		6.7	9.7	0.3	2.9

Outsourcing of Software Industry in Japan

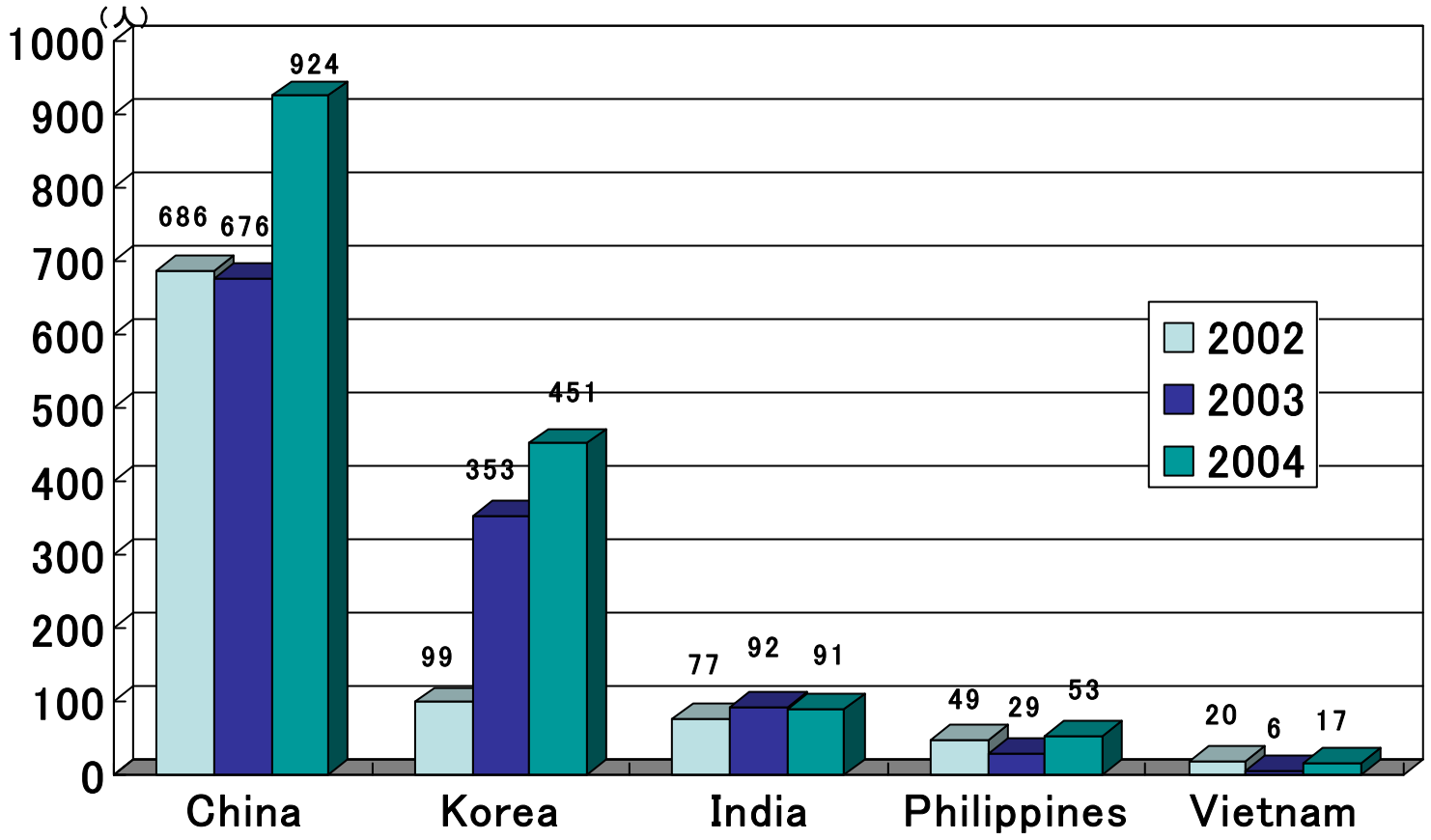
By Country and Region　　2002 n=58, 2003 n=58, 2004 n=77

(yen in million)

	Country	2002	2003	2004	comparison from the previous year
1	China	9,833	26,280	33,241	126%
2	U.S.	3,260	4,988	5,147	103%
3	India	1,908	6,312	4,255	67%
4	Australia	0	2,626	3,133	119%
5	U.K.	20	1,827	2,126	116%
6	Philippines	1,864	2,494	2,117	85%
7	Korea	1,952	1,871	1,415	76%
8	France	0	834	548	66%
9	Canada	496	616	262	43%
10	Vietnam	30	30	216	720%
Others		888	1,082	237	22%
Total		20,251	48,960	52,697	108%

JISA

Number of Foreign Engineers Employed in the Software Industry in Japan (including part-time)



出典：(社)電子情報技術産業協会、(社)日本パーソナルコンピュータソフトウェア協会、(社)情報サービス産業協会 「2005年コンピュータソフトウェア分野における海外取引および外国人就労等に関する実態調査」(回答318社、調査票発送件数953社、回収率33%)

Demand for IT Engineers in Japan

Based on the number of Visas with Category "Technology" by Entry

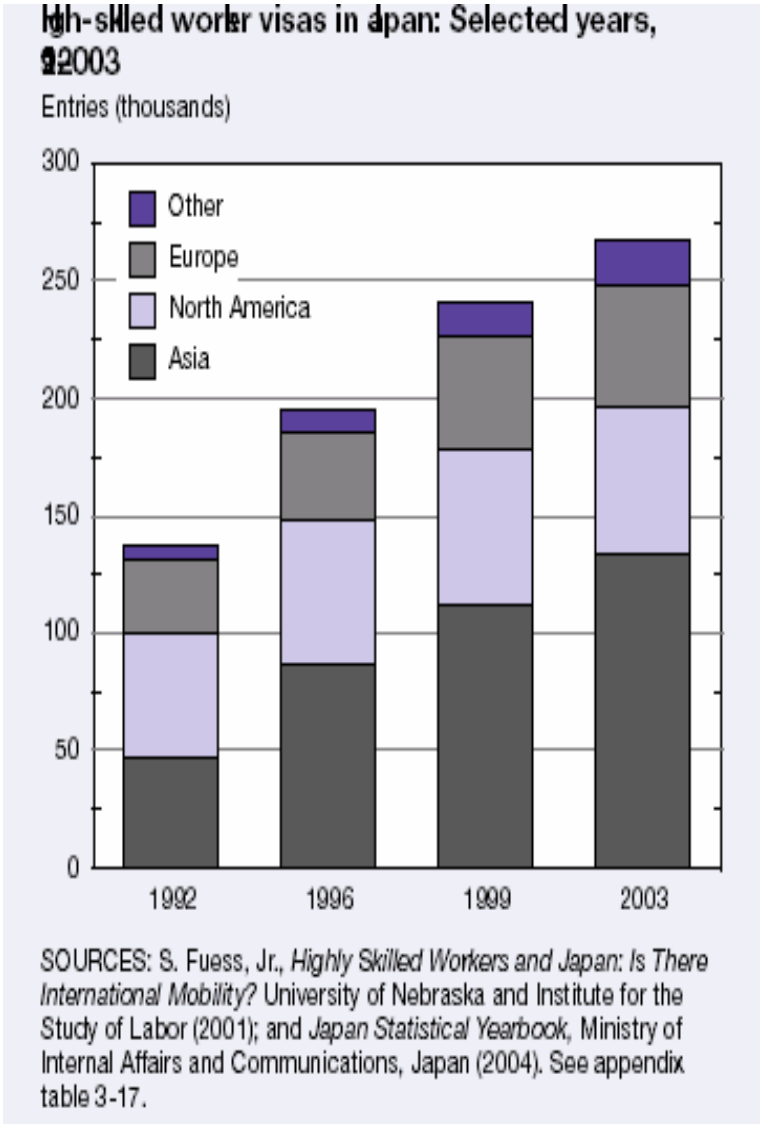
Nationality	2000	2001	2002	2003	2004
Total	3,396	3,308	2,759	2,643	3,506
China	942	1,192	880	1,016	1,398
Korea	314	592	596	472	645
India	191	260	277	312	339
Philippines	114	116	97	145	233
US	1,204	598	488	252	162
Thai	7	15	15	26	100
France	73	55	46	66	77
Vietnam	10	30	19	31	61
Australia	31	41	24	18	57
Taiwan	137	51	27	32	50
Others	373	358	290	273	384

Based on the number of resident permits issued with category "technology"

Nationality	2000	2001	2002	2003	2004
Total	16,531	19,439	20,717	20,807	23,210
China	10,334	11,382	11,433	11,079	11,981
Korea	1,537	2,175	2,682	3,019	3,623
India	841	1,286	1,750	2,001	2,298
Philippines	603	706	759	789	929
US	567	648	644	568	571
England	355	395	427	402	425
France	280	316	333	332	363
Malaysia	232	280	276	233	260
Canada	150	193	207	216	259
Australia	155	209	213	192	223
Others	1,477	1,849	1,993	1,976	2,278

MOJ

Inflow of High-skilled Labor Force



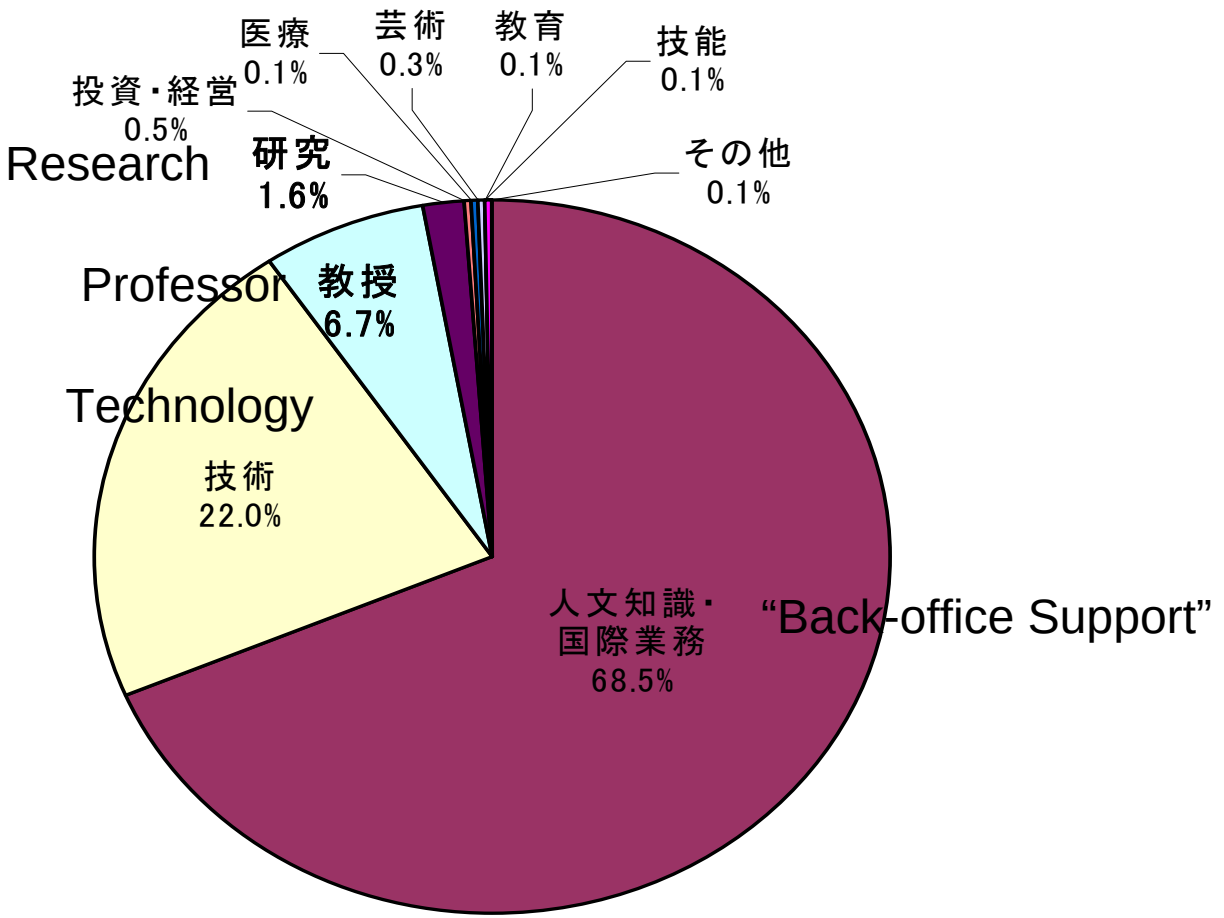
SOURCES: S. Fuess, Jr., *Highly Skilled Workers and Japan: Is There International Mobility?* University of Nebraska and Institute for the Study of Labor (2001); and *Japan Statistical Yearbook*, Ministry of Internal Affairs and Communications, Japan (2004). See appendix table 3-17.

# of Foreign Students in Japan by Nationality (2004)

Country	# of Students	%	Country	# of Students	%
China	80,592	66.20%	Russia	346	0.30%
Korea	15,606	12.80%	Brazil	338	0.30%
Taiwan	4,134	3.40%	Germany	336	0.30%
Malaysia	2,114	1.70%	England	326	0.30%
Vietnam	1,745	1.40%	Australia	300	0.20%
Thai	1,734	1.40%	Cambodia	298	0.20%
USA	1,646	1.40%	Canada	279	0.20%
Indonesia	1,488	1.20%	Laos	266	0.20%
Bangladesh	1,331	1.10%	Iran	235	0.20%
Mongol	924	0.80%	Egypt	219	0.20%
Sri Lanka	907	0.70%	Turkey	164	0.10%
Myanmar	651	0.50%	Bulgaria	145	0.10%
Nepal	617	0.50%	Uzbekistan	139	0.10%
Philippines	544	0.40%	Mexico	137	0.10%
India	410	0.30%	Others	3,461	2.80%
France	380	0.30%	Total	121,812	100.00 %

MOJ

Type of Work for Chinese students granted with working visa



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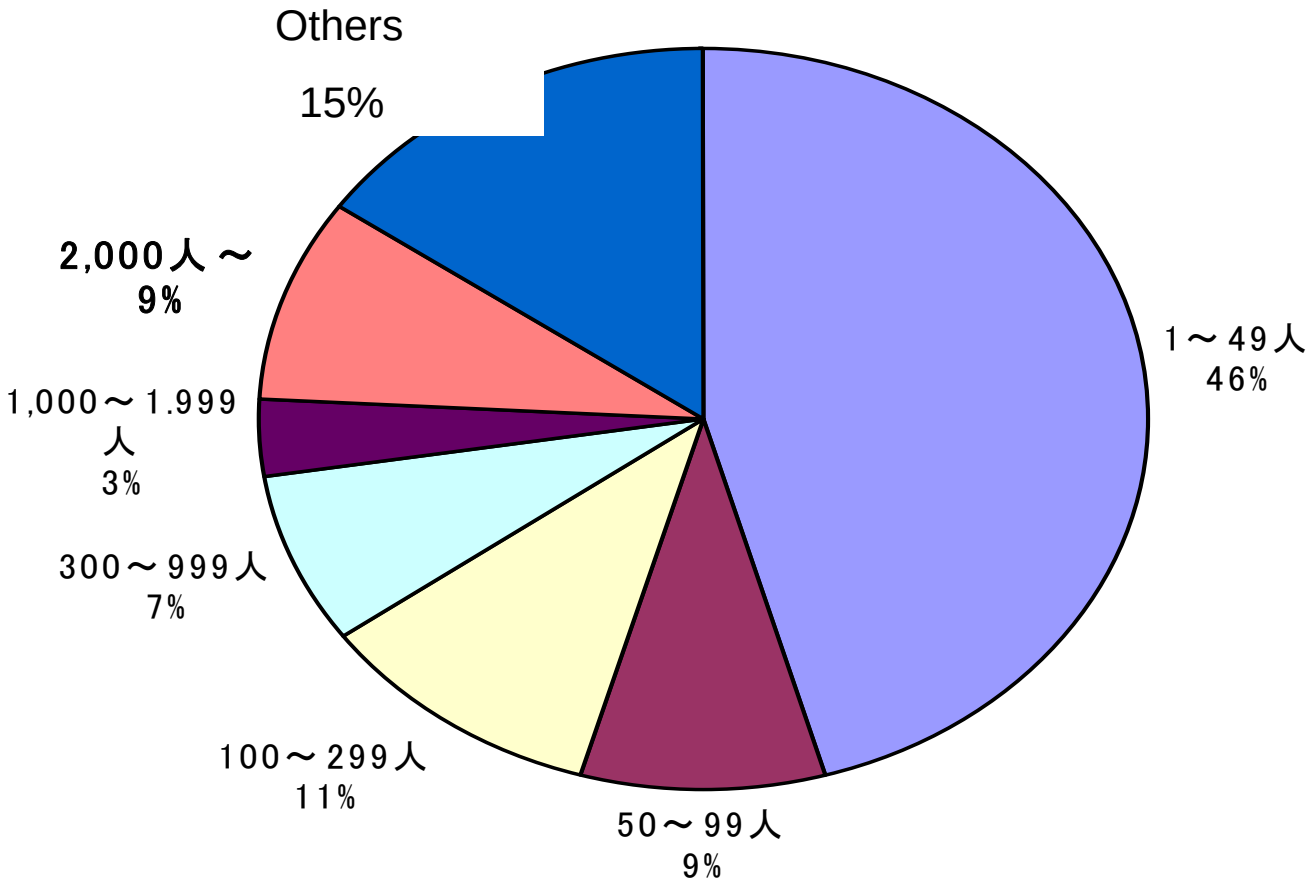
Size of the firms employed Foreign Students



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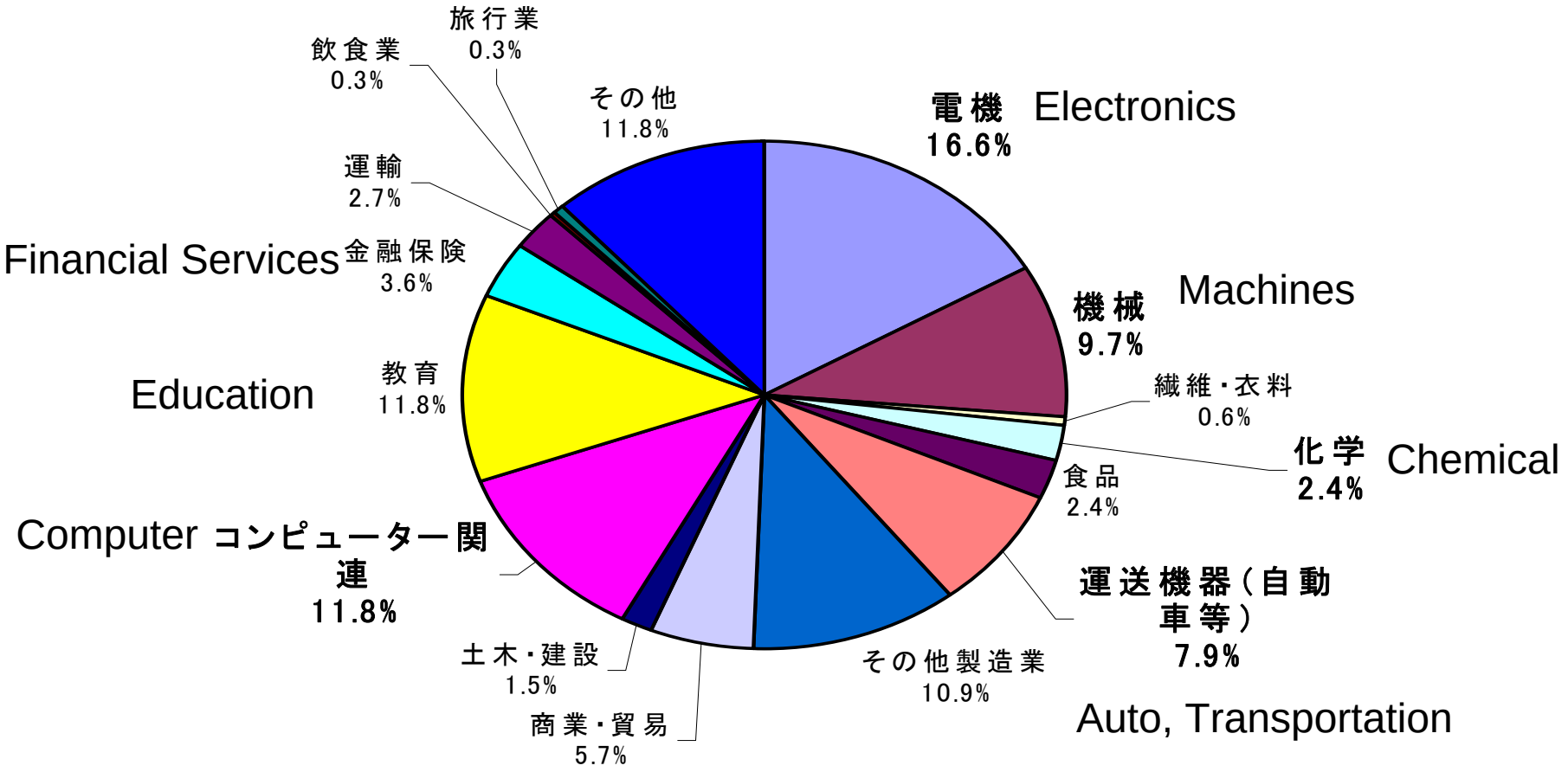
Large Firms (over 2000 workers) employed Foreign Students by type of industry



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Activities of Japanese Universities and PRI in China

- # of Offices established by Japanese universities increased in last few years: more than 20 offices
- Riken and AIST both active in searching for the joint projects
- Some are more active than others.
- U-R-R-U Model (Kyushu University and Shanghai Jiaotong)

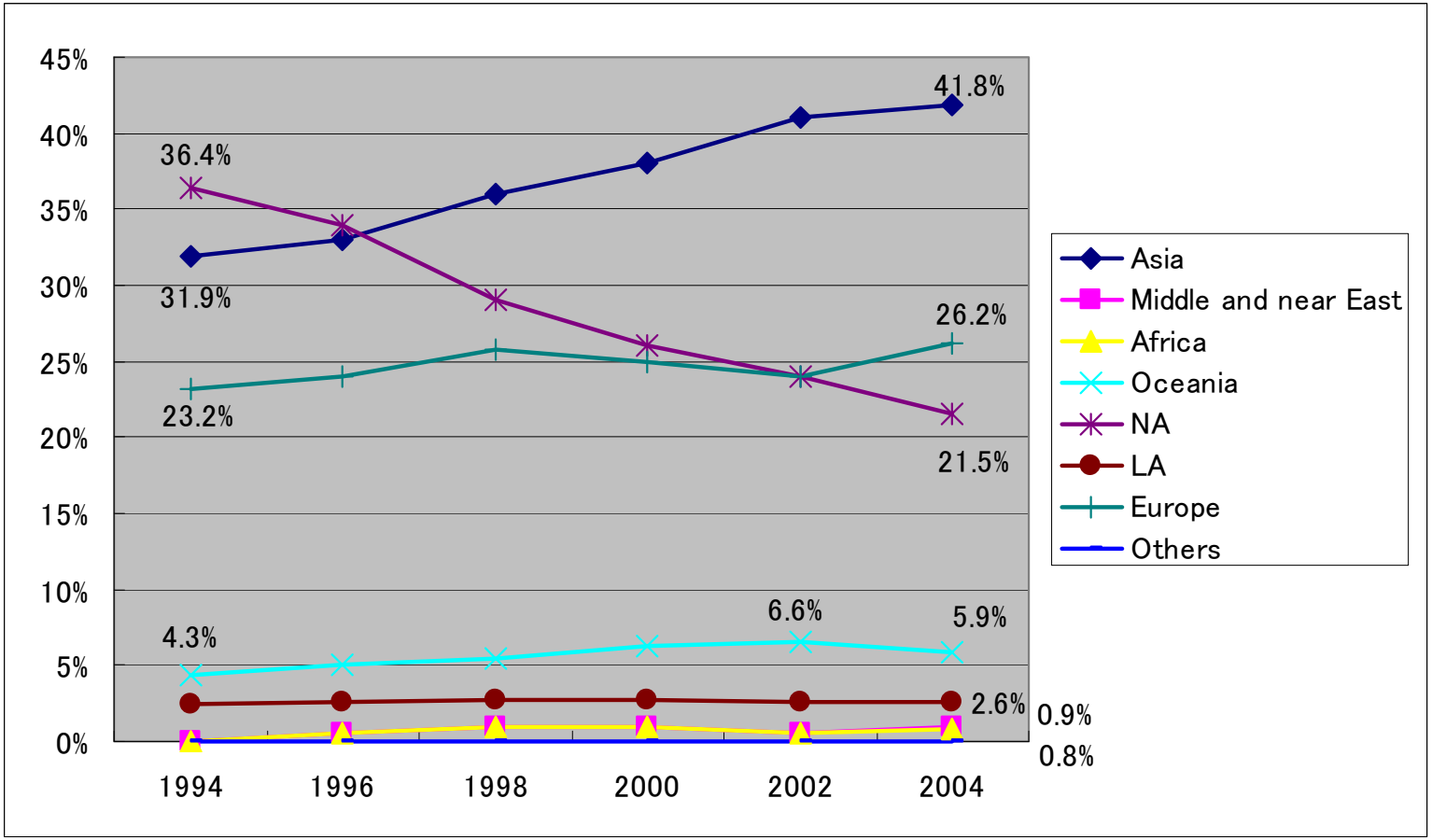
International Cooperation MOU's signed by Japanese Universities

(unit:nations)

	Asia	M&N East	Africa	Oceania	N. America	Latin America	Europe	Total
1994	16	6	12	4	2	11	28	79
1999	21	7	17	4	2	15	36	102
2004	22	12	19	12	2	17	39	123

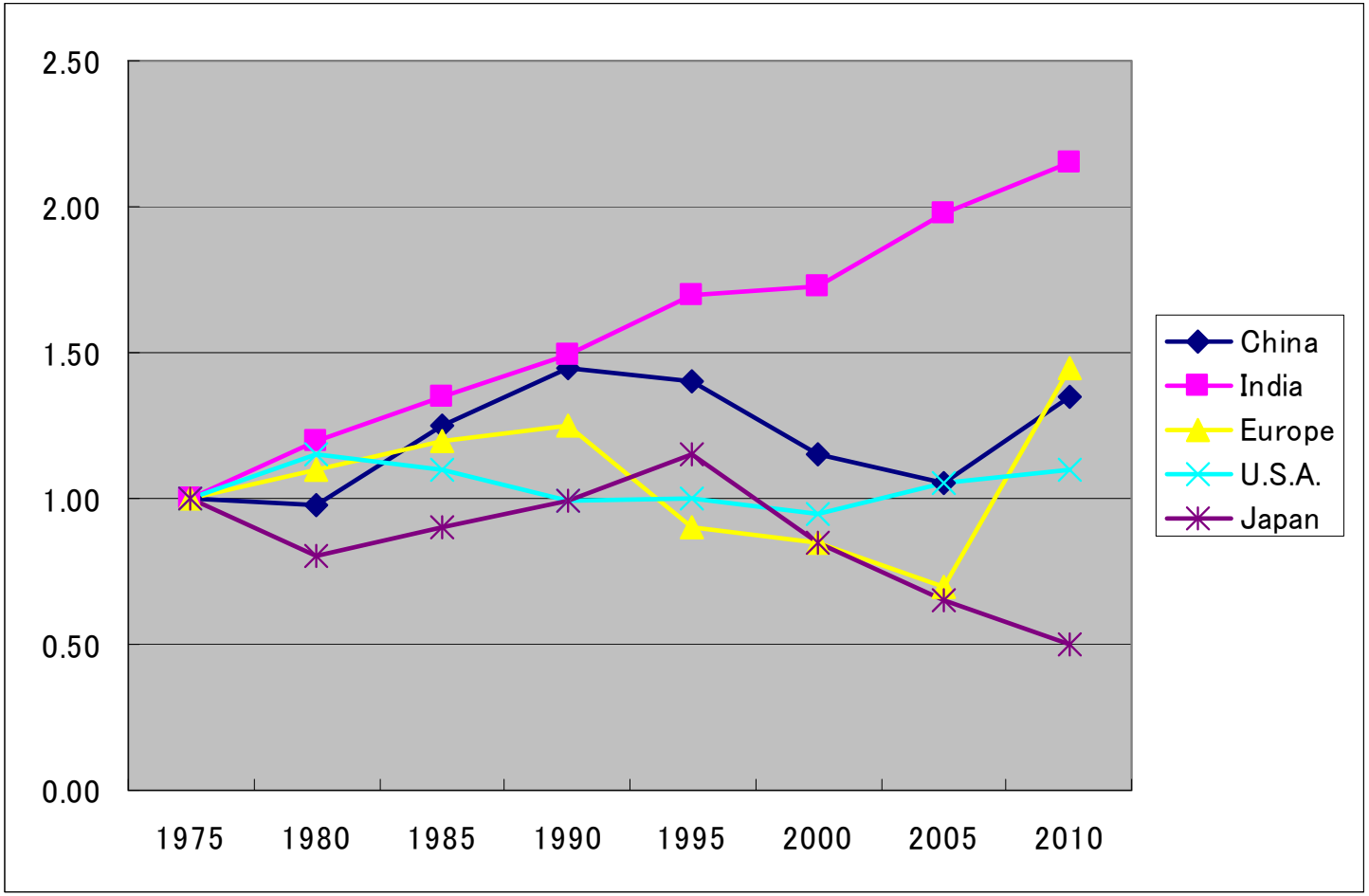
MEXT

By Region (Share)



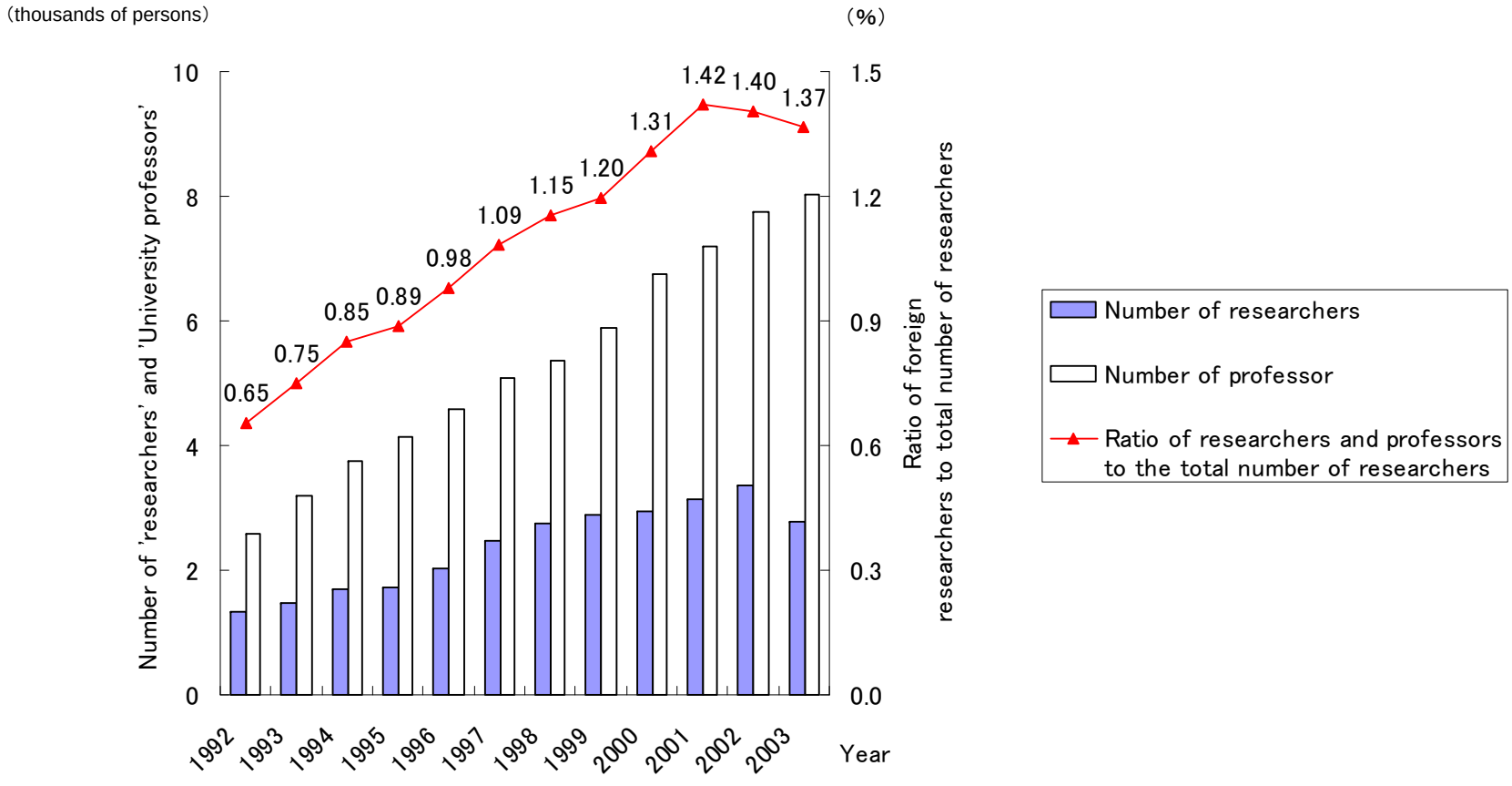
MEXT

Change of Youth population (20-24 years old)



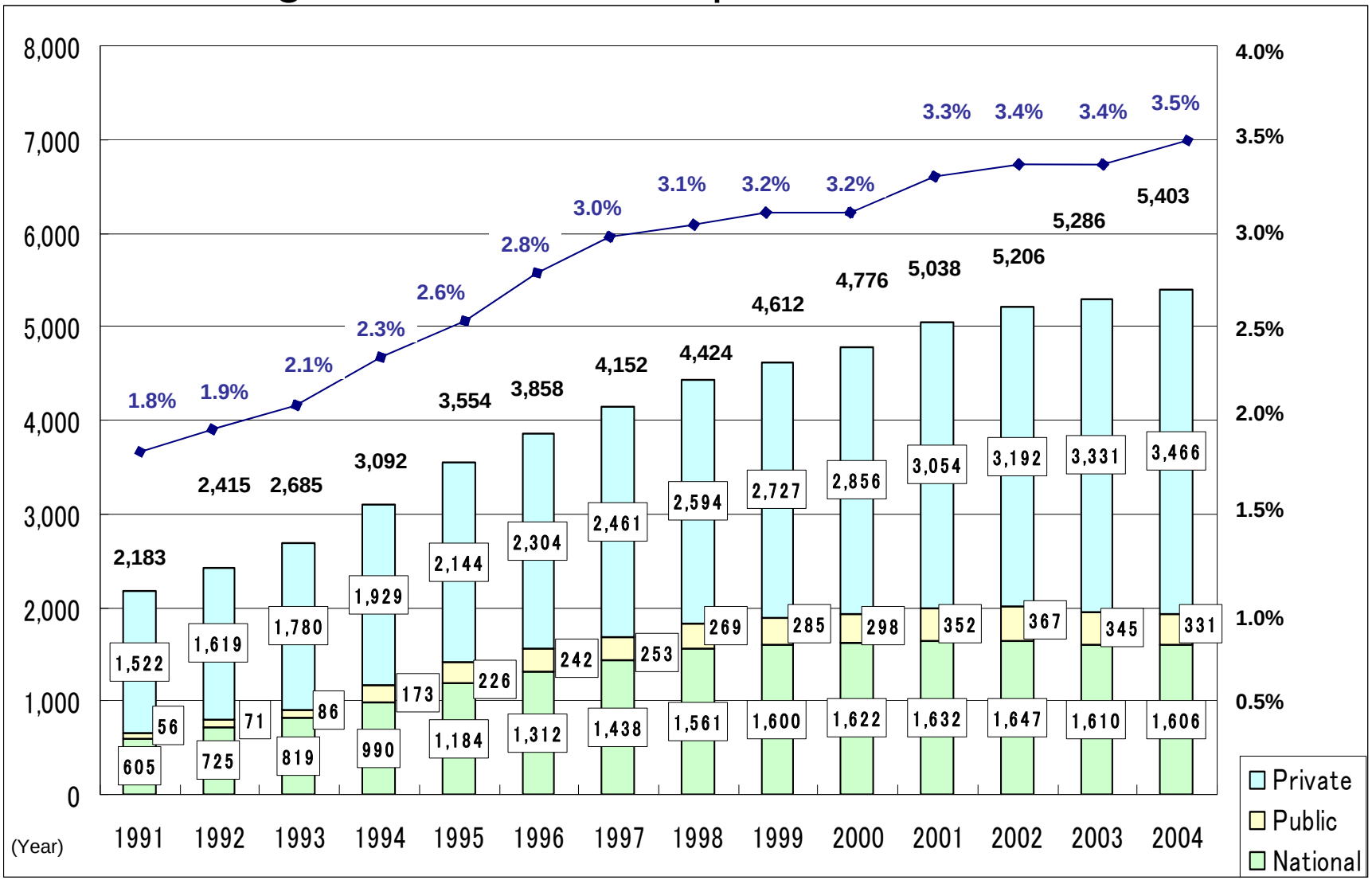
MEXT

Rise in the number of foreign researchers and ratio to total number of researchers



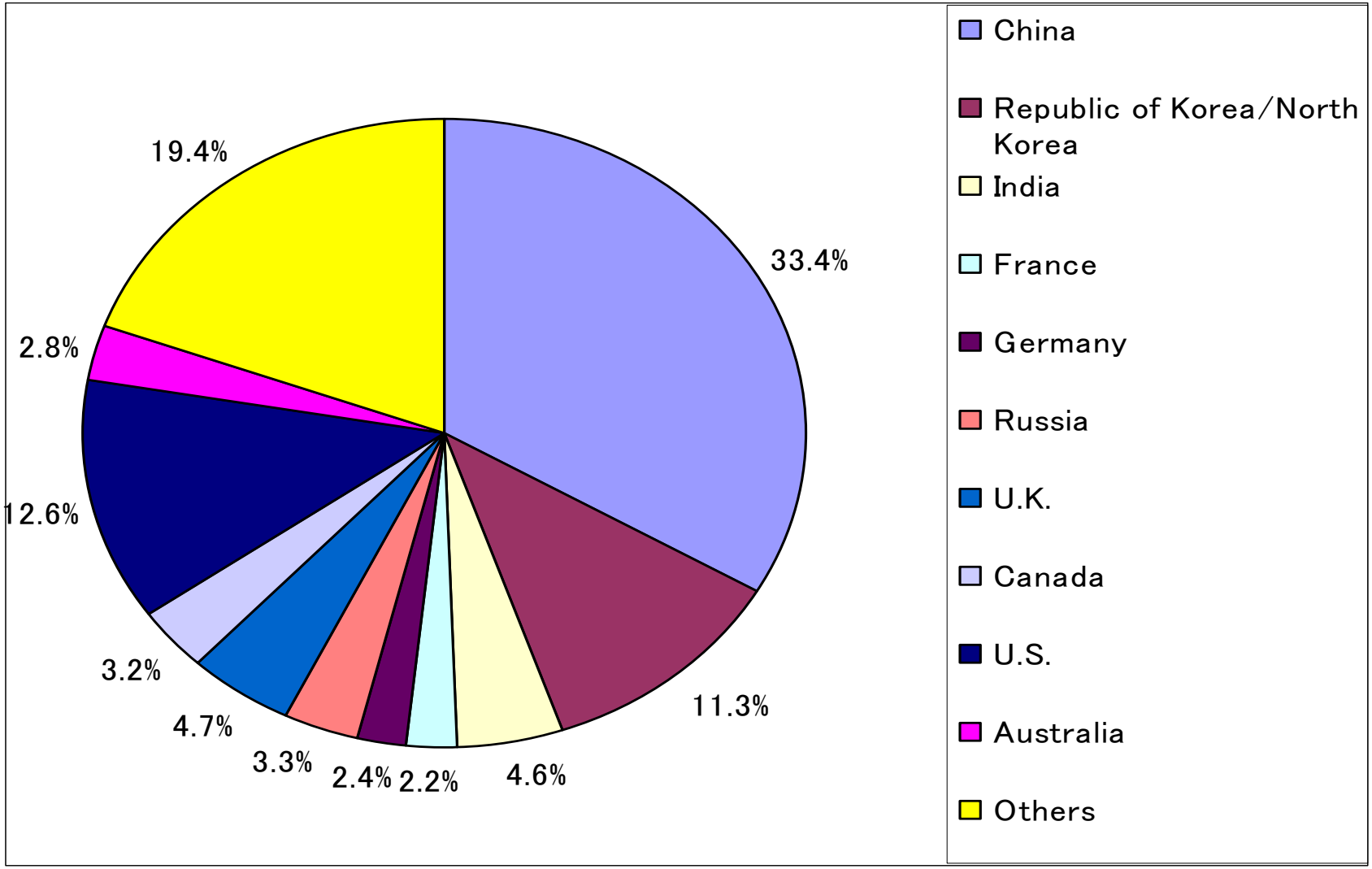
NISTEP

Foreign Professors in Japanese Universities



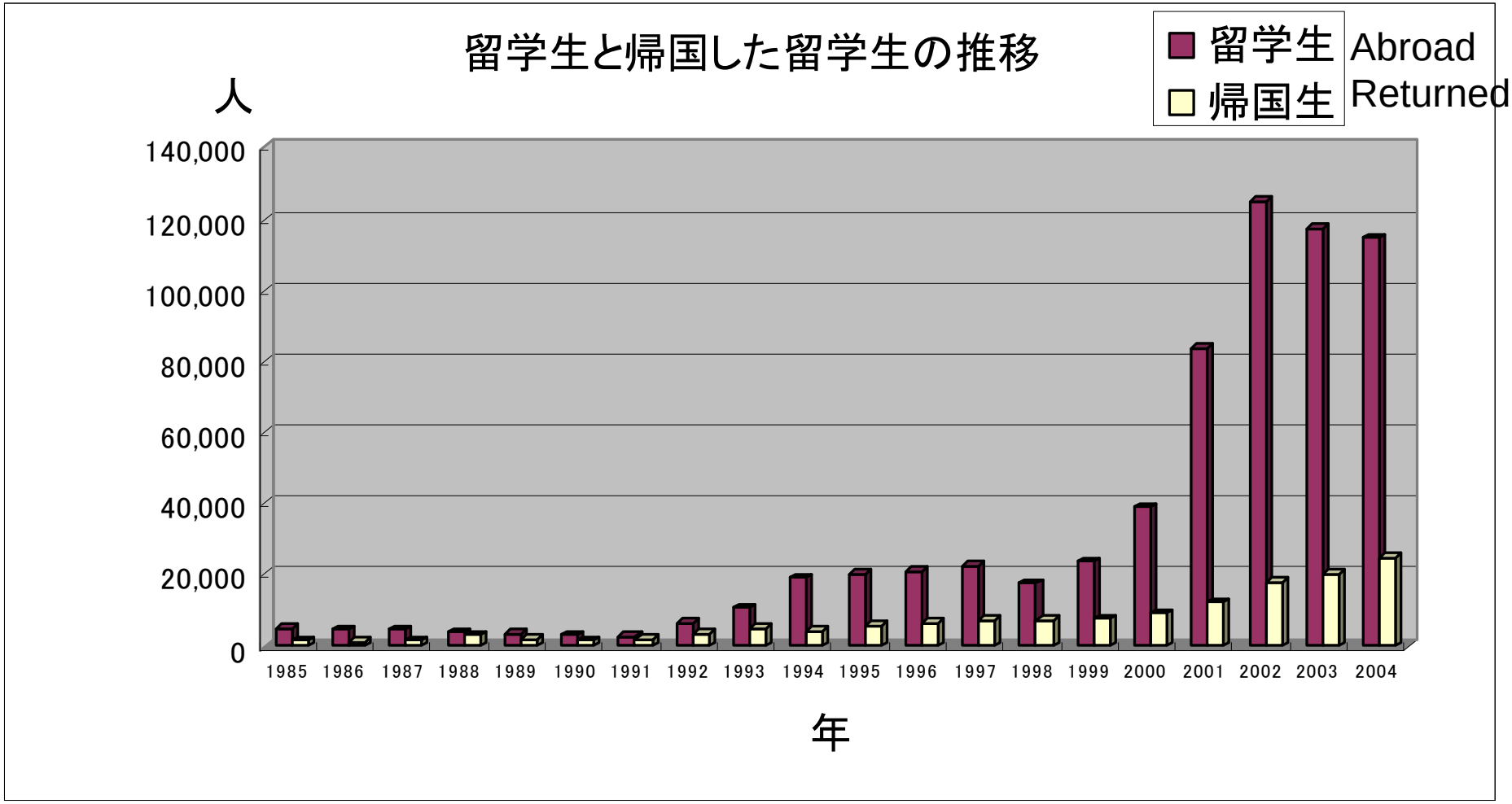
NISTEP

The breakdown of foreign researchers in Japan by nationality (as of end of 2003)



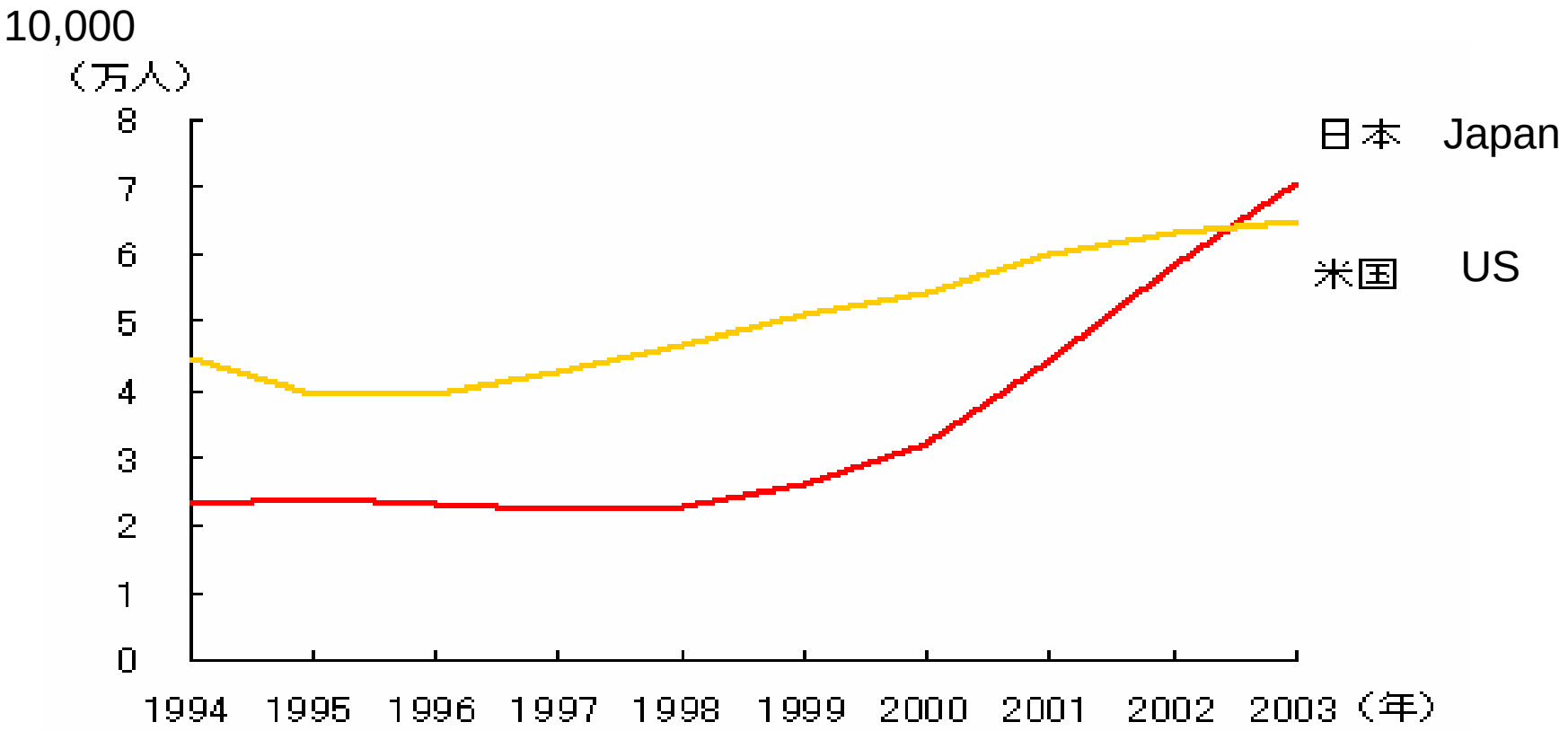
NISTEP

Chinese Students studying abroad and returning



China Statistical Yearbook 2005

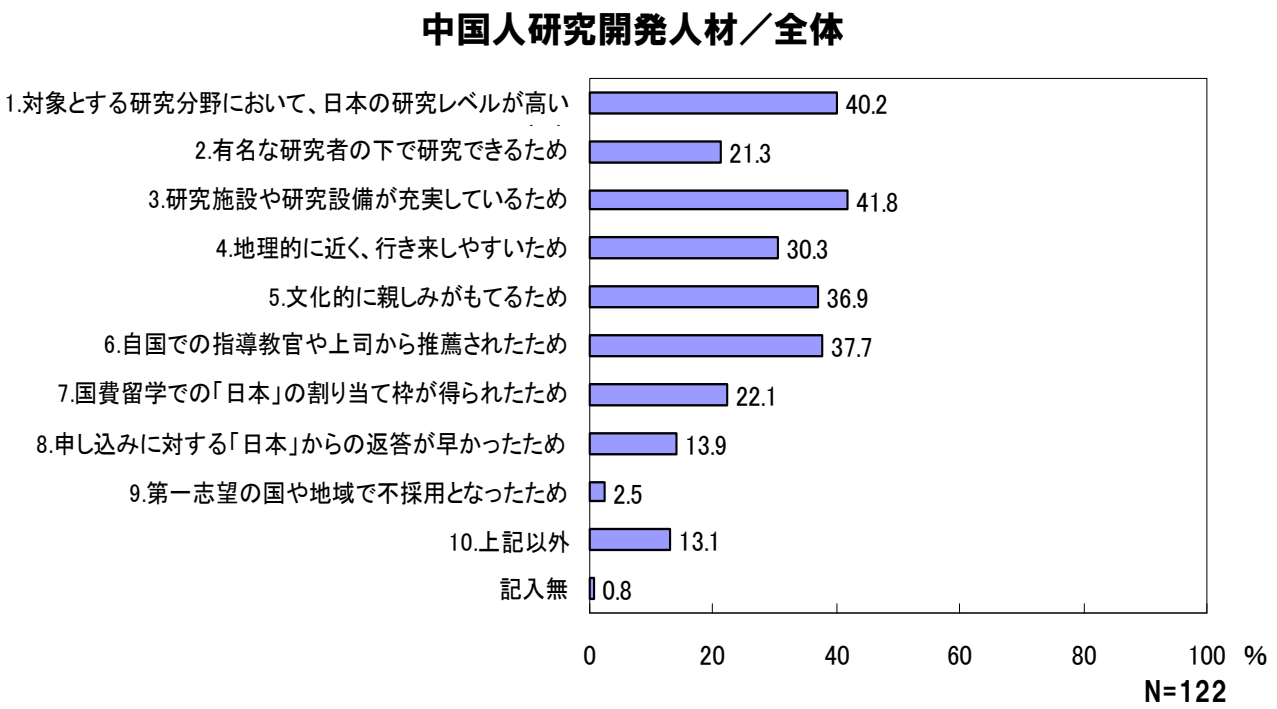
of Chinese Students in Japan and in the US



（注）日本は毎年5月1日現在、米国は年度
（原典）文部科学省サイト　http://www.mext.go.jp/a_menu/koutou/ryugaku/index.htm
Open Doors, http://www.iienetwork.org/, Institute of International Education
RIETI, Dr. Kwan's HP

5-1. アンケート②／海外での研究活動の場として日本を選択した理由

◆ **「研究施設や研究設備が充実している」「対象とする分野において、日本の研究レベルが高い」などの回答が多い。**

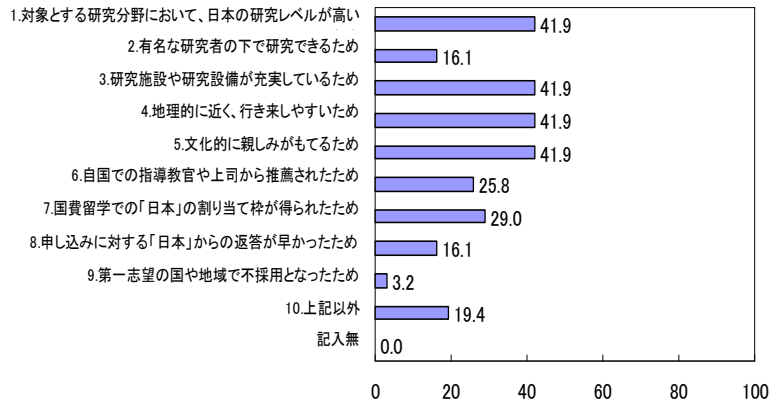


出典：政策研究大学院大学、「科学技術動向に関する評価・研究　科学技術動向等に関する評価分析
日本におけるアジア科学技術人材の活動実態に関する調査、2007年3月

5-2. アンケート②／海外での研究活動の場として日本を選択した理由

◆ **「教授、助教授、講師、助手」と比較し、「ポストドクター」の場合、「自国での指導教官や上司から推薦されたため」という回答の割合が高くなっている。**

中国人研究開発人材／教授、助教授、講師、助手



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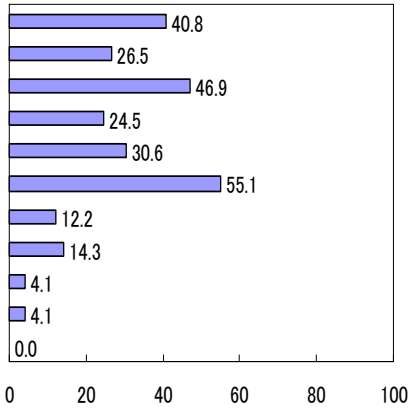
中国人研究開発人材／ポストドクター



N=49

出典：政策研究大学院大学、「科学技術動向に関する評価・研究　科学技術動向等に関する評価分析
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Government Policies Currently Considered

- Japan can cooperate with Asian countries in the same areas of technology where both of them have relative strength → The cooperation in the areas of energy and environment will be Japan's high priority.
- Encourage more scientists and engineers from Asia to work in Japan's industrial R&D sector → absorbing over-supply of university graduates and take advantage of brain circulation rather than protecting technology outflow from Japan
- Japan needs a comprehensive approach in creating a governance system for international mobility of HRST in the era of global innovation

Thank You