Updated November 2006

REPORT OF THE COMMITTEE ON THE FUNDING OF GRADUATE STUDENTS AT MIT (FOGS)

EXECUTIVE SUMMARY

The committee was asked to review current policies for funding graduate students at MIT and to recommend any policy or other changes necessary in order to continue to attract the very best graduate students to MIT and to maintain excellence in our graduate programs.

The following observations and recommendations are discussed in this report:

- Data were collected in order to understand the profiles of graduate student support across MIT's schools and departments, and these data show that there is considerable variation in the ways in which different disciplines at MIT support their graduate students, which to a large extent reflects differences in the types of resources available to these units.

- Grant-based support for Research Assistants (RAs) remains a pivotal component of MIT's graduate support structure. Recognizing the important income stream generated by the portion of RA tuition paid by grants, we believe the current tuition subsidy policy must be maintained, and that the Institute should continue to allow market forces to regulate the cost of an RA, while taking care to keep the cost of an RA to a research grant competitive with those of our peer universities.

- Fellowship support, especially in the first year of graduate study, is critically important to many of our graduate programs and must be strengthened in order for MIT to continue to compete for the best students.

- A general policy for reduced tuition for advanced graduate students would be difficult for MIT to absorb financially, but selective policies for particular areas of the Institute that could benefit the most from such modifications should be carefully explored.

- MIT should consider changes to the financial policies governing the Non-Resident Student status, to reduce the financial burden placed on such students.

- MIT should assert the importance of graduate student support, especially fellowship support, within its fundraising efforts. We should emphasize to our donors that excellent graduate education is a vital part of MIT's mission.

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BACKGROUND

In December, 2004, Provost Robert A. Brown convened a Committee on the Funding of Graduate Students at MIT (FOGS), composed primarily of senior MIT faculty, with a graduate student representative, and administrative staff providing support (See Appendix 1, list of Committee members.) The committee was charged with making recommendations to MIT's senior administration on Institute policies governing the financial support of its graduate students, with the underlying goals of maintaining a graduate population of the very highest quality, and of a size and distribution appropriate for MIT. (See Appendix 2, Robert A. Brown's charge to the committee.)

For historical perspective, MIT had last undertaken a study of graduate support policies in 1993 ("Committee on Indirect Costs and Graduate Student Tuition", a.k.a. the "Weinberg Committee"). At that time, MIT needed to react to the federal government's major changes in policy with regard to indirect cost reimbursements and the abolition of the use of the employee benefits cost pool to support graduate tuition costs. Thus this earlier committee's work focused primarily on the mechanisms for supporting sponsored research-based Graduate Research Assistants (RAs). The adopted recommendations of the 1993 committee form much of the underlying graduate support policy that MIT follows today, in 2005. By contrast, FOGS viewed its mandate to be a broader appraisal of MIT's graduate support policies, not necessarily driven by any imminent policy crisis or particular financial pressures from either external or internal sources, but at the same time alert to the fact that the priorities of graduate education change over time, funding sources and patterns do not remain static, and particular policies which may have served the Institute well in the past should be examined relative to MIT's current priorities. For example, in recent years, some areas of the Institute had questioned whether MIT might explore different tuition policies for advanced, dissertation-stage PhD students. In addition, those with local knowledge of graduate support mechanisms knew that fellowship support, particularly through the Institute's Presidential Graduate Fellowship

program, had been gaining critical importance at MIT. These were some of the issues that the committee knew had to be examined in further detail.

DATA COLLECTION AND ANALYSIS

In order to understand in some detail the different ways in which graduate students are supported across the wide range of academic areas at MIT, the committee began its work by collecting data on the sources of student support in our schools and departments. While variation in departmental support profiles certainly exists within Schools themselves, the aggregate School-level data are sufficient in order to appreciate the differences among these major MIT divisions. **Figures 1 through 5** provide an overview of the ways in which each MIT school supports graduate students at the doctoral level, either through a research assistantship, teaching assistantship, instructor, fellowship, or no support through MIT. (Whitaker College is an exception because most of its students are affiliated with Harvard University and pay tuition to Harvard. Therefore, their funding is not examined in this report.) **Figure 6a** shows the aggregate data for all doctoral students across MIT. Data is shown for fiscal years 2004 through 2006 (taken from the Fall count of students of the previous year, so that FY 2004 corresponds to Fall 2003). **Figure 6b** shows a three year average (FY 2004 through FY2006) for doctoral student support broken down by School. **Figure 7** shows the primary form of support (none, partial, or full) broken down by School. In some cases the level of "partial support" is quite small. Outside fellowships (for example, through an international student's home country) are captured as "no support from MIT".

Figure 1.

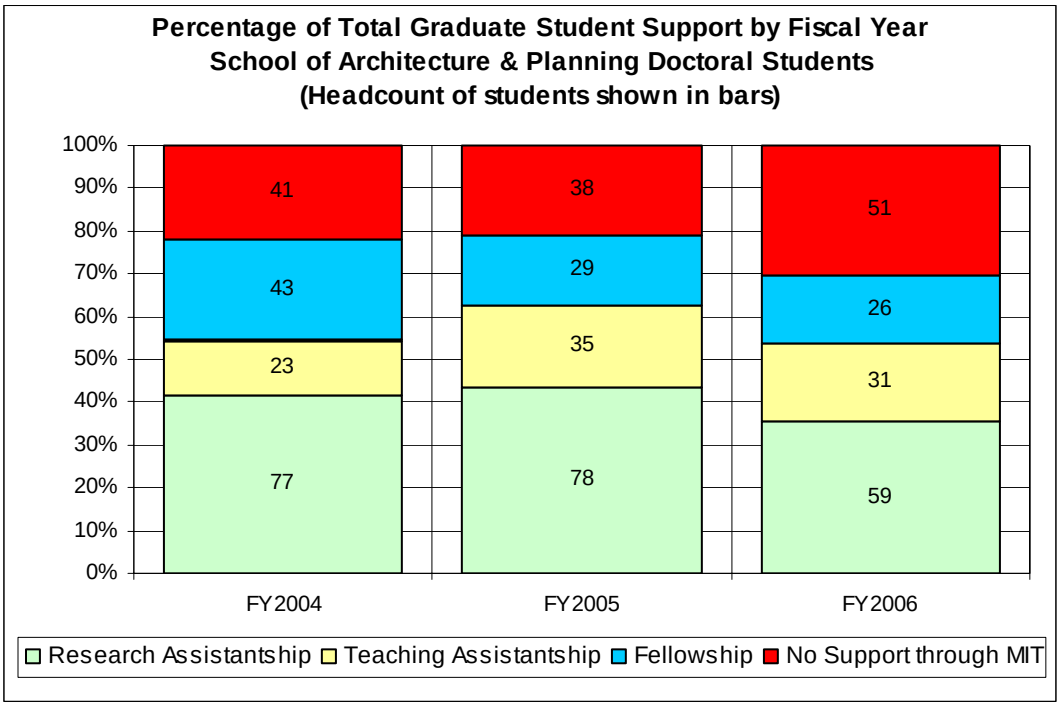
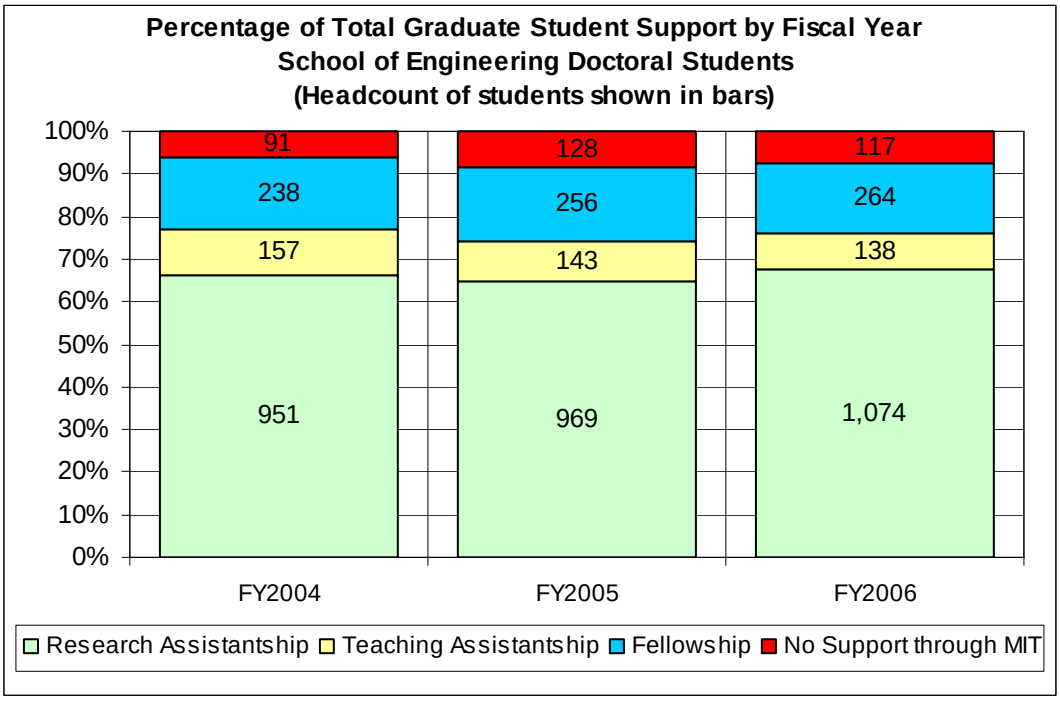


Figure 2.



*Note: There was 1 instructor in 2004 and 2 in both 2005 and 2006.

Figure 3.

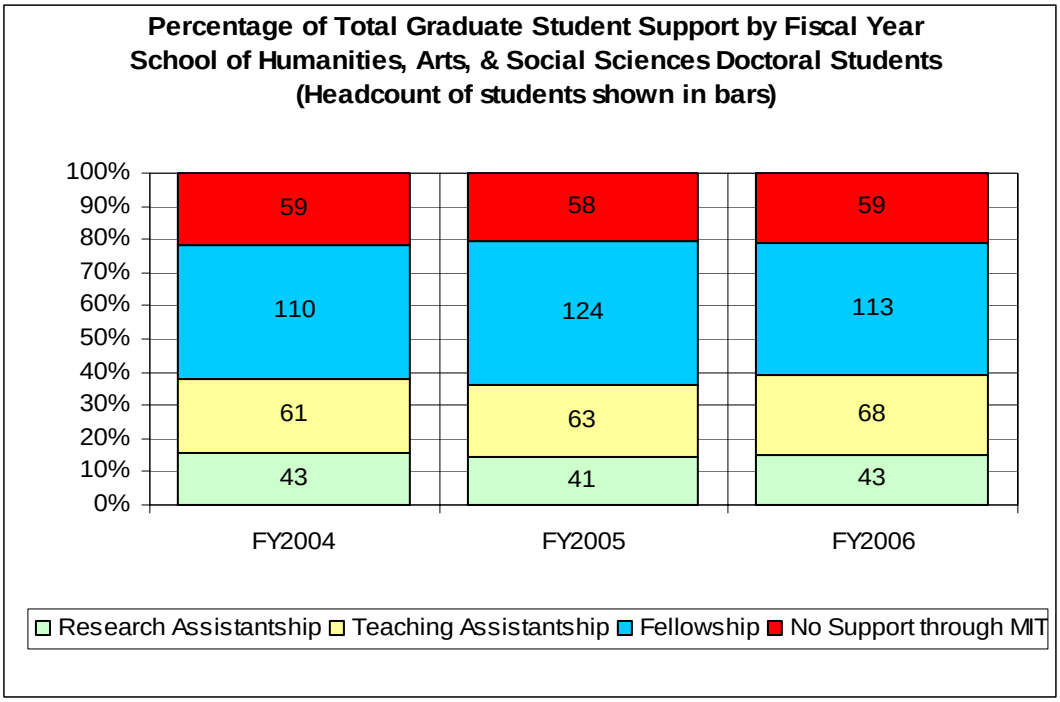


Figure 4.

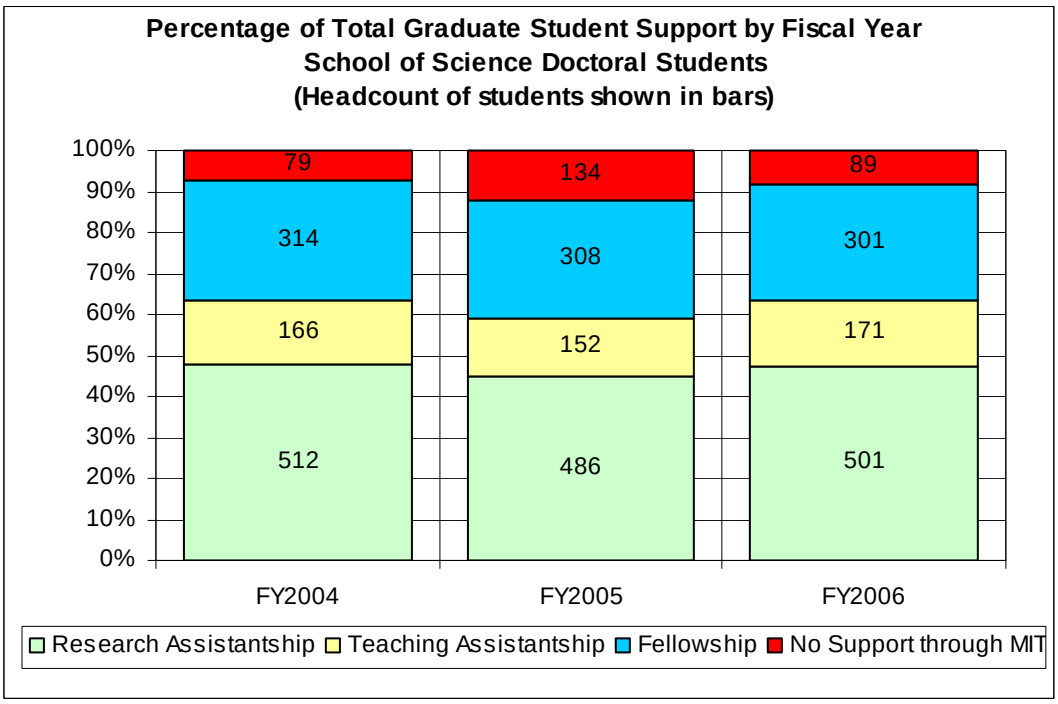


Figure 5.

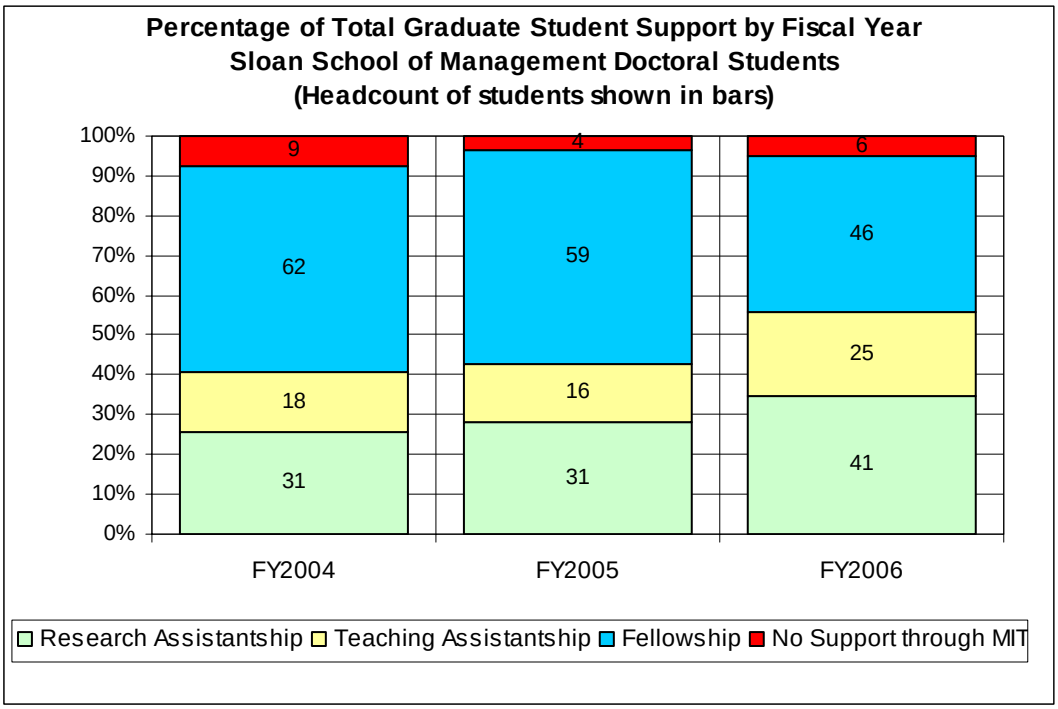


Figure 6a.

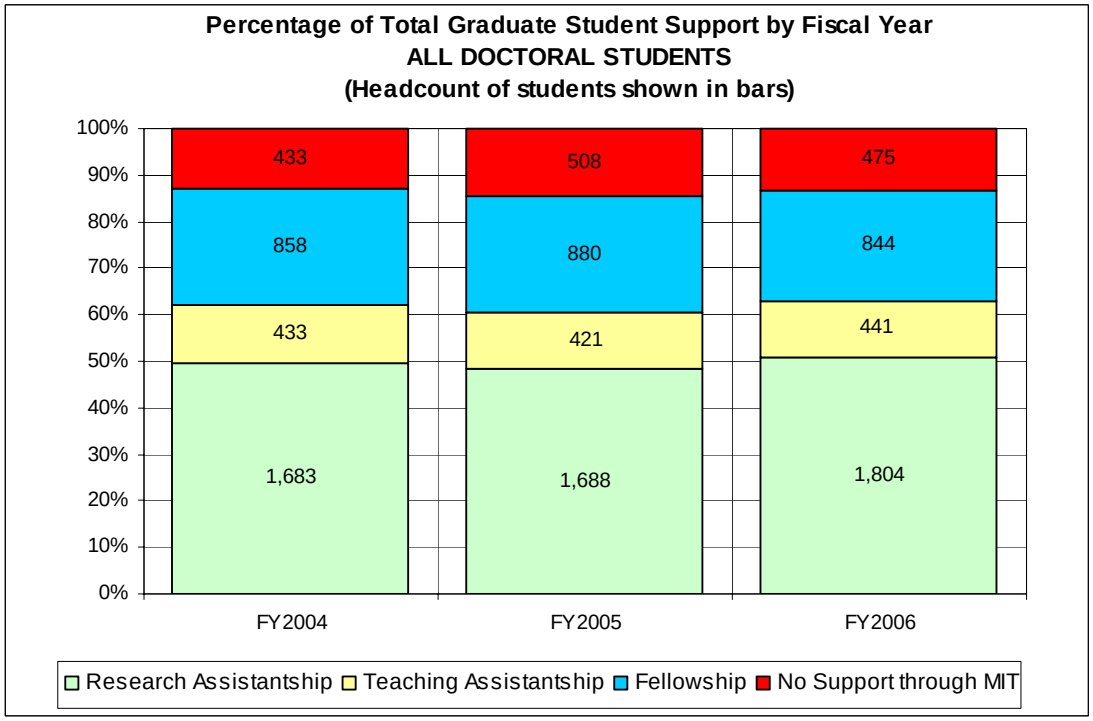


Figure 6b.

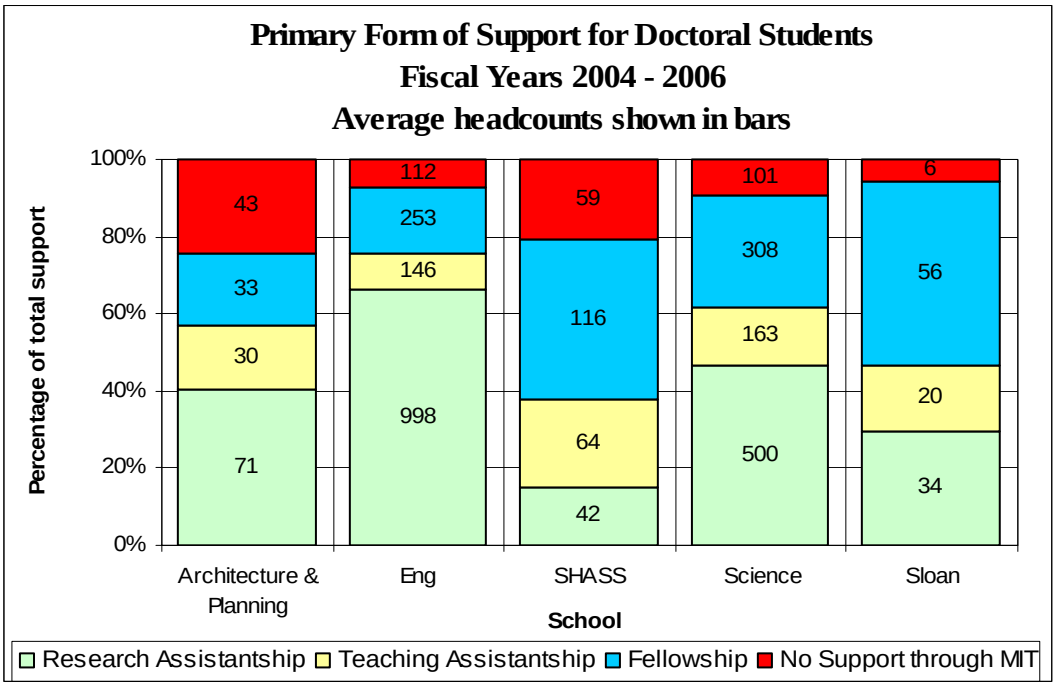
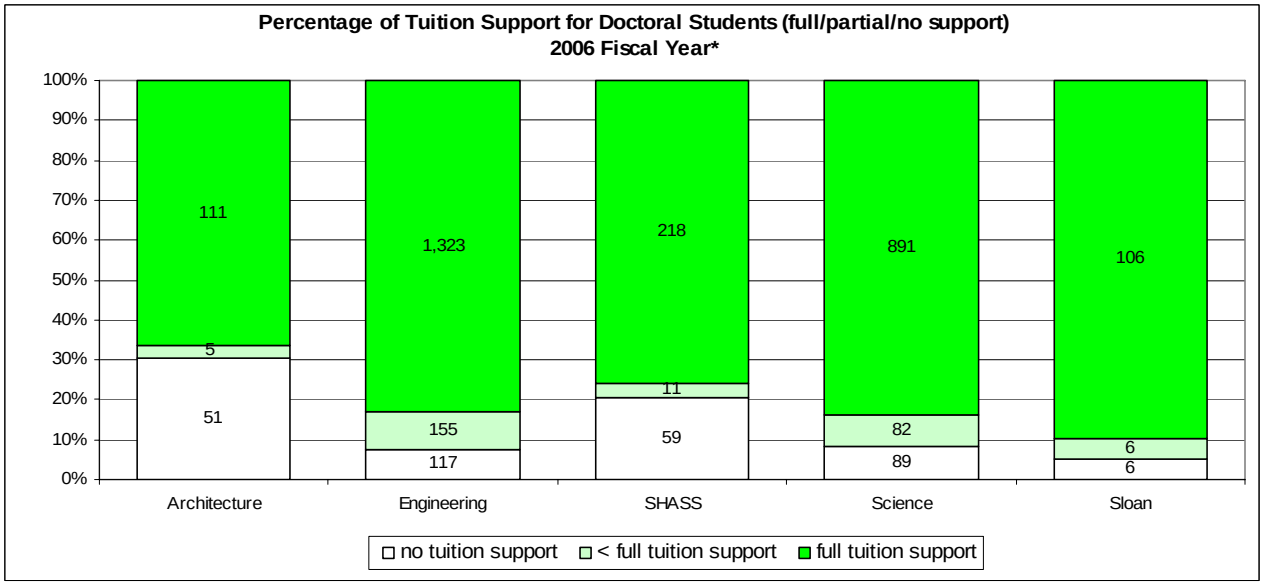


Figure 7.



*As of Fall count, 2005

It is clear from the preceding charts that there is a continuum of support profiles across MIT that ranges from support structures based heavily on external funding of RAs

to those which are much more dependent on internal MIT funds for graduate support. In the School of Engineering and the School of Science, in which the greatest numbers of graduate students reside, the majority of graduate support is provided in the form of research assistantships (RAs) supported by sponsored grants and contracts. By contrast, in the School of Humanities, Arts, and Social Sciences (SHASS), and the Sloan School of Management, the majority of graduate support is provided by MIT internal funds in the form of fellowships and teaching assistantships (TAs). With the exception of the Media Lab, which relies heavily on research-supported RAs, the School of Architecture and Planning closely resembles SHASS and Sloan. This is not surprising, because of the considerable variation in the extent to which external sources of research support have traditionally been available to the science and engineering disciplines compared with the social sciences, including management, and with the humanities and the arts. While science and engineering fields have traditionally had access to a wide range of federal and corporate sponsorship, the other areas of MIT have limited access to these outside sources. Furthermore, our data show that the School of Architecture and Planning and the School of Humanities, Arts, and Social Sciences have considerably higher proportions of students receiving no support from MIT relative to the other schools. Figure 6 also indicates that the breakdown of the type of support for all PhD students has remained fairly constant in the last three years.

Figures 8 and 9 show the differences in stipend amounts, broken down by School, for both doctoral students with full tuition support and without support.

Figure 8.

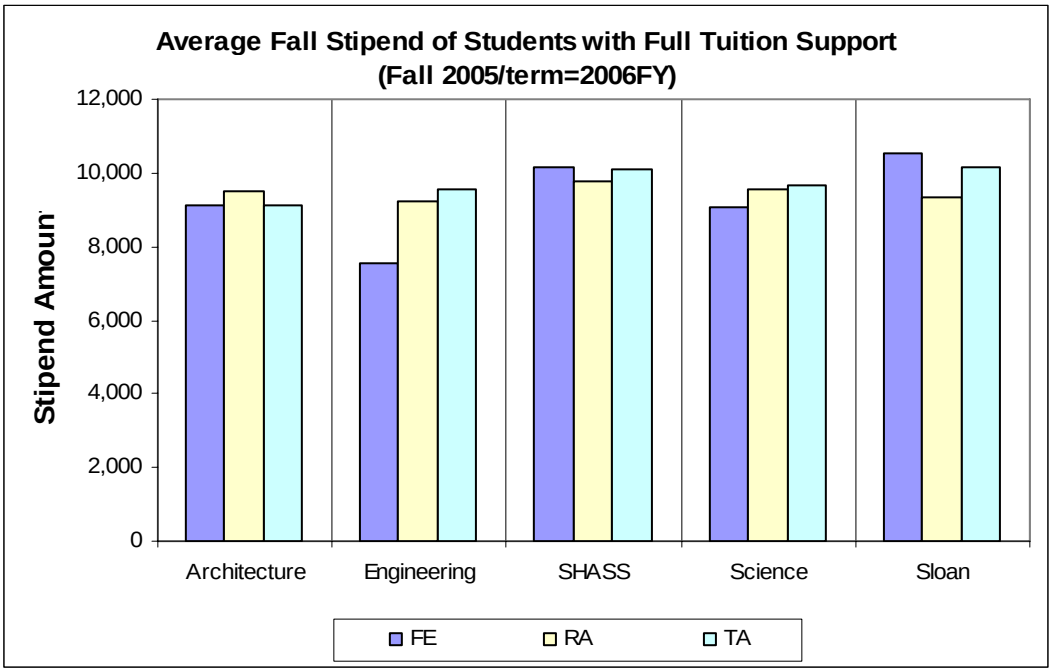
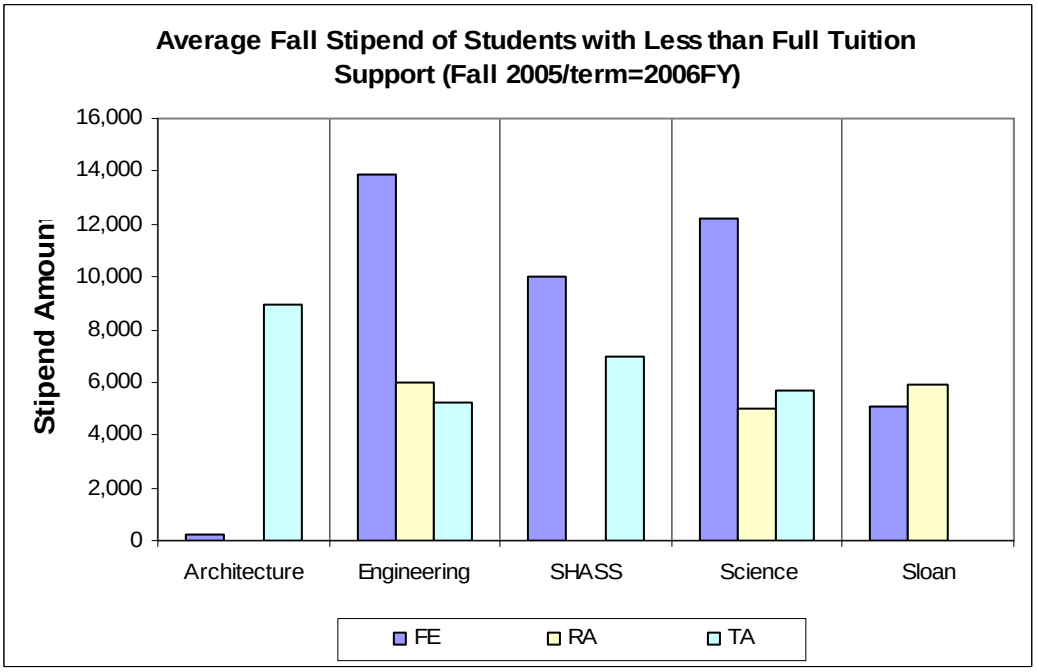
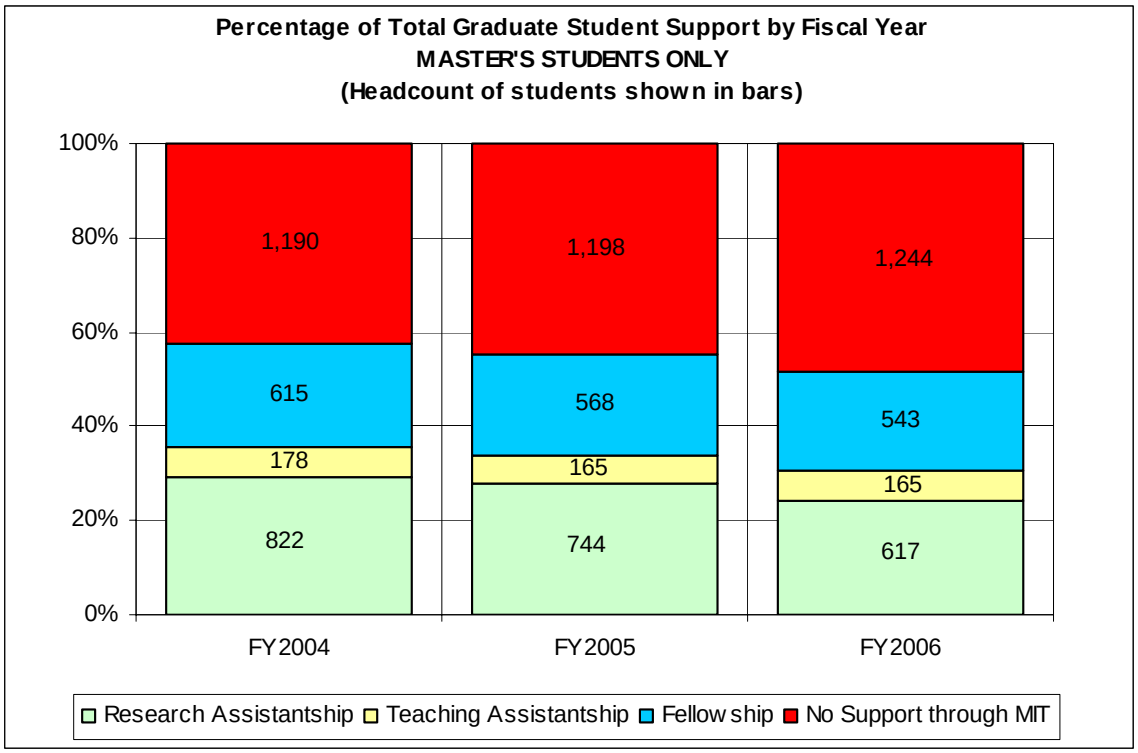


Figure 9.



Of course, a third distinct culture involves master's degree programs, which can generally be divided into professional master's programs and research master's programs. In the professional master's degree programs, students normally are self-supporting, although there are some programs that offer partial support to their students. In research master's programs, primarily concentrated in engineering, students are more likely to obtain support through RAs than those in professional programs, and many of the research master's cohorts continue into PhD studies. **Figure 10** shows the distribution of funding sources for master's students. As can be seen from this chart, the majority of funding comes from RAs and fellowships, but a large proportion - over 40% - of all master's students receive no support from MIT.

Figure 10.



CHANGING PATTERNS OF SUPPORT

The ways in which MIT graduate students are supported may be changing. While MIT-based fellowship support for first-year PhD students has been the normal mode of support for several years in the areas of Management, SAP and SHASS (in large part because research funds that enable RAs are so scarce in these areas), there is an expressed, increasing need in Science and Engineering departments to make fellowship support available to their doctoral graduate students, for the first year in particular.

The reasons are related both to educational and research goals and to market forces. Potential graduate students generally find fellowships more attractive than other forms of support because of the flexibility they offer. Also, fellowships allow first-year students to begin their graduate study with minds open to the options of specialization, rather than immediately focusing on a specific program of research, as they would with an RA. First-year graduate students are not considered to be as productive in research as advanced students. The rapidly increasing cost of an RA to a research grant makes faculty members less willing to use scarce research funds for these less productive students. Furthermore, some funding agencies have expressed reluctance to have research funds support students in their first year, students who may be spending more time taking courses than doing research. Reflecting this trend, some of MIT's closest competitors reportedly have moved in the direction of offering fellowships to all first-year PhD students, regardless of field. In some fields, our competitors are offering students 100% fellowship support over their entire stay in the program - something MIT can not afford to do. For example, the Sloan School of Management typically provides a mix of 50% fellowship and 50% RA/TA support, but is competing with other management doctoral programs that offer 100% fellowship support. The specific type of support, as well as the financial level of support, is thus an important factor in the competition for the best graduate students, and the graduate fellowship, as opposed to an RA (or TA), appears increasingly to be the appointment of choice for first-year PhD students at MIT.

To attract the best graduate students and to satisfy the needs of faculty and funding agencies, fellowship support, especially in the first year, is increasingly important.

COST OF AN RA TO RESEARCH GRANTS

Because Research Assistants (RAs) comprise the dominant cohort of MIT doctoral graduate students who receive support through MIT (56% in FY04, 56% in FY05, and 58% in FY06), it is critical to understand the impact of RA appointments on research grants and on the MIT budget. It is also important to continually compare the cost of supporting an RA on a research grant at MIT with the cost at our peer universities, because this is a key factor in calibrating the Institute's ability to compete for research funds.

MIT currently subsidizes 45% of the academic year tuition of RAs and 100% of the summer tuition of RAs supported by research grants. The cost of an RA supported by a research grant at MIT in 2005-06 is structured as follows:

	Monthly	9 months	12 months
Stipend (doctoral level)	$2,049	$18,441	$24,592
Tuition and Fees (55% of $32,300)		$17,765	$17,765
Indirect Cost (62% of stipend only)		$11,433	$15,247
Total cost		**$47,529**	**$57,604**
Tuition subsidized by MIT: (45% of $32,300)		$14,445	$14,535

The subsidy was decreased from 65% in FY04 to 45% in FY05, causing the cost to a grant of a 12-month RA to increase by approximately $7,000 (nearly 15%) between FY04 and FY05. This subsidy reduction came first as a response to general MIT budget constraints (which reduced the subsidy to 50%) and later to the decision to centrally fund

the cost of health insurance for RAs and TAs (requiring an additional 5% reduction).

It is important to note that the decision to fund the cost of paying for student health insurance centrally by reducing the tuition subsidy was made because this strategy minimized the overall cost to the Institute. The alternative would have been to increase the stipend by an equivalent amount, thus helping students to pay for sharply rising health care costs. However, doing so would have increased the cost to a grant by 160% as much, because an overhead of 60% (at that time) would have been charged on the stipend. By avoiding the overhead charge on the health insurance subsidy, the Institute was able to provide a greater service to more students at a lower price. Health insurance provided a singularly unique opportunity to utilize this method of savings because it was a cost borne by essentially all RAs and TAs (and hence posed no issues of social engineering), required central collection of funds, and posed no legal obstacles. This policy resulted in an increase in the cost of an RA to a research grant between FY04 and FY05.

Figure 11a shows a recent history of the cost of an RA charged to a research grant at MIT, indicating that this cost has increased by 45% from FY00 to FY06, an increase that is likely much greater than that of the average grant size.

Figure 11a.

Academic year	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	% increase
Doctoral Stipend 12 mos	$ 18,900	$ 20,040	$ 21,600	$ 22,680	$ 23,760	$ 23,760	$ 24,592	30%
Academic Year Tuition	$ 25,000	$ 26,050	$ 26,960	$ 28,230	$ 29,600	$ 30,800	$ 32,300	29%
Medical Fee	$ 636	$ 696	$ 768	$ 900	$ 1,440	$ 1,440	$ 1,440	126%
Cost of Attendance	$ 44,536	$ 46,786	$ 49,328	$ 51,810	$ 54,800	$ 56,000	$ 58,332	31%
Indirect Cost Rate	63.5%	63.5%	65.5%	63.0%	60%	62%	62%	
% Tuition Charged to Grants	35%	35%	35%	35%	35%	55%	55%	
Cost to Grant	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	% increase
Stipend	$ 18,900	$ 20,040	$ 21,600	$ 22,680	$ 23,760	$ 23,760	$ 24,592	30%
Tuition	$ 8,750	$ 9,118	$ 9,436	$ 9,881	$ 10,360	$ 16,940	$ 17,765	103%
Medical Fee								
Indirect costs	$ 12,002	$ 12,725	$ 14,148	$ 14,288	$ 14,256	$ 14,731	$ 15,247	27%
Total Cost of RA to Grant	$ 39,652	$ 41,883	$ 45,184	$ 46,849	$ 48,376	$ 55,431	$ 57,604	45%
% increase from previous year		5.6%	7.9%	3.7%	3.3%	14.6%	3.9%	

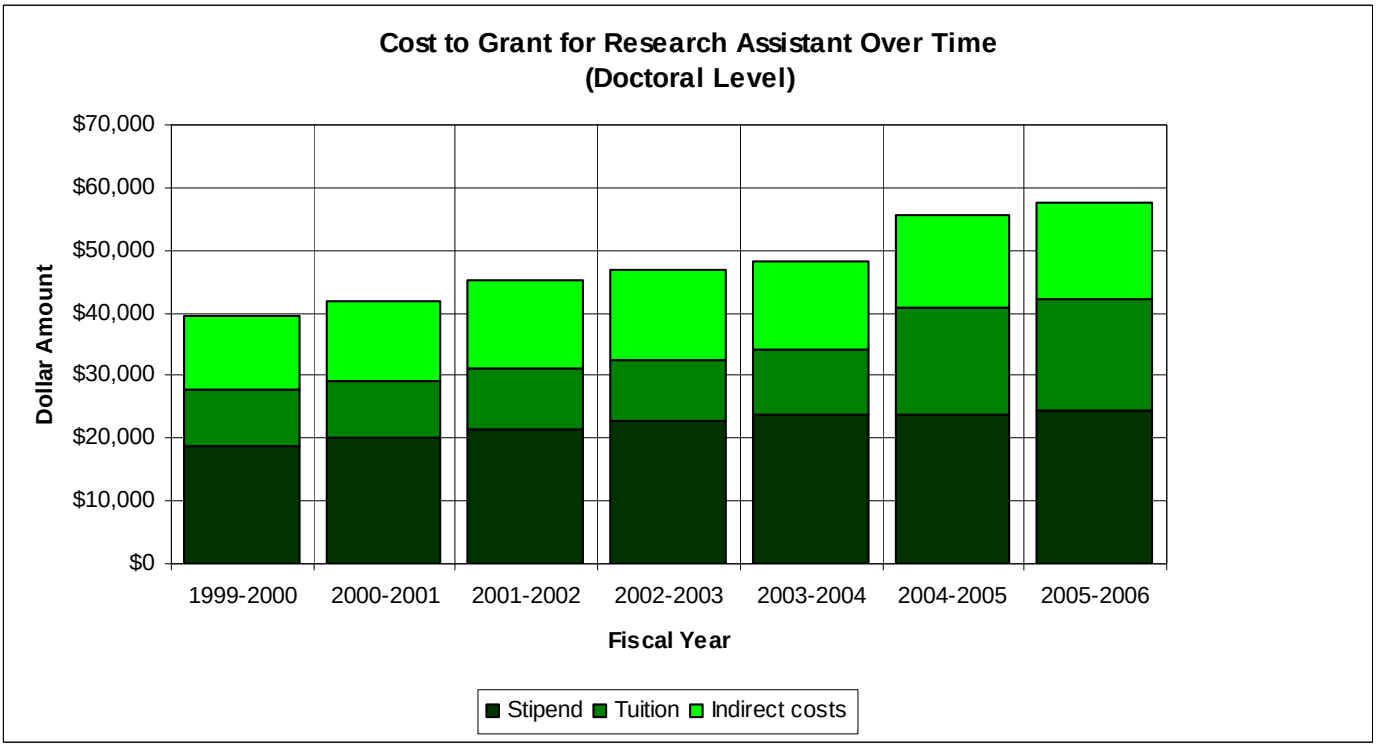
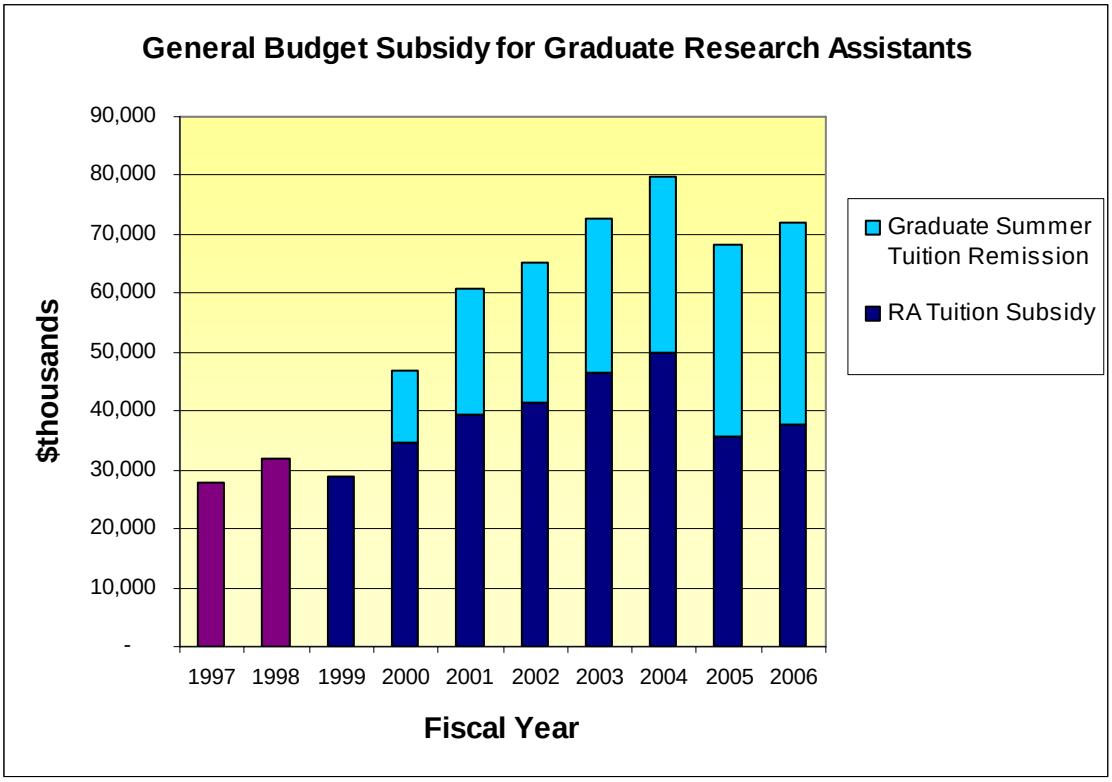


Figure 11b shows a history of MIT subsidy levels for RA tuitions leading up to the present year.

Figure 11b.



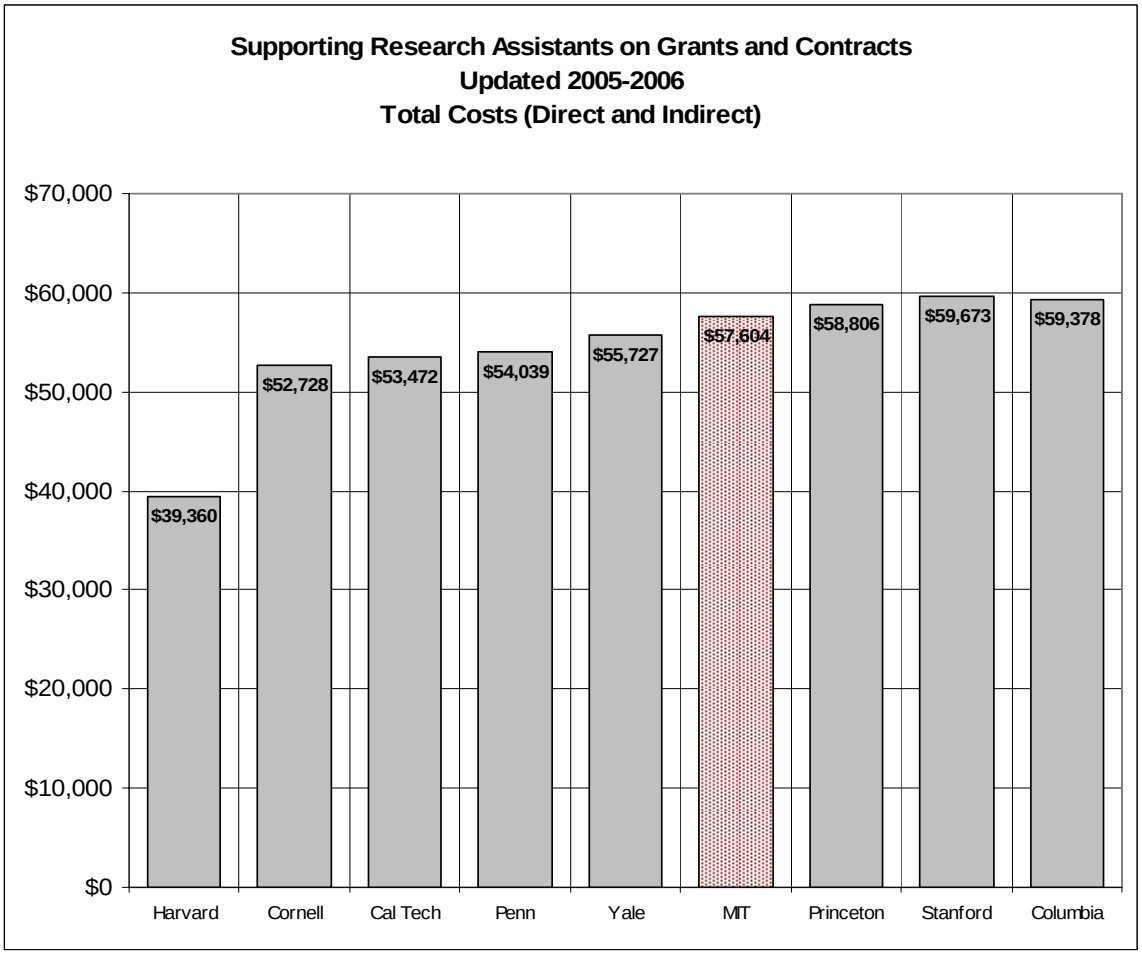
Notes:
1. Before FY 1999, Research Assistant Tuition was charged to the Employee Budget Pool. The General Institute Budget bore 40% of RA tuition in this period.
2. In FY 1999, the General Institute Budget subsidized 30% of both RA tuition and stipend. Stipend subsidy is included in this chart.
3. From FY 2000 to 2004, the General Institute Budget subsidy of RA tuition was 65% and stipend was no longer subsidized. In FY 2005, the subsidy was cut to 45%.
4. Beginning in FY 2000, the General Institute Budget remitted summer tuition for graduate students not enrolled in courses. (FY 2000 figure represents partial summer subsidy).
5. RA count is taken as of mid-October each year. Actual count fluctuates over the year. The 2006 figure is the budgeted amount.

Source: Office of Finance, MIT

The level of the tuition subsidy paid by MIT can be used to vary the cost of an RA to a research grant. The tuition and stipend rates themselves, as well as the indirect cost rate, are not easily manipulated because they depend on a number of factors, including market forces (for tuitions and stipends) and sponsored research accounting policies (for

indirect costs). As **Figure 12** shows, MIT's rate is lower than that of Princeton and Stanford, and higher than Harvard, Cal Tech, and Yale.

Figure 12.



It is important to emphasize that the tuition paid by research grants, currently at the rate of 55%, is a major source of income to MIT. At current levels of RA appointments, every 5% change in the academic year tuition subsidy causes a $4M variance in the tuition revenue that MIT receives from grants. It is clear that varying the tuition subsidy is one way for MIT to directly influence the number of RAs our grants can afford to support and therefore influence the size of the graduate population.

As the comparative RA costs shown above indicate, MIT's cost is currently close to the most expensive among top research universities, and therefore any further reduction in the subsidy would threaten to price MIT above the market.

The level of the tuition subsidy can also influence the mix between graduate RA's and post-doctoral staff chosen by Principal Investigators (PIs). In particular, tuition subsidies below 100% will bias PIs' preferences in favor of post-docs, as no tuition has to be paid for them. This is doubly unfortunate since the latter group typically contributes less to our long term research reputation. These concerns suggest that the tuition subsidy, in an ideal world, should be well above 100%. On the other hand, the committee realizes that higher subsidy rates have negative implications for MIT's budget as well as for the competitiveness of our grant proposals.

Moreover, even though the short-term research output of a post-doc generally exceeds that of a graduate RA, we believe most faculty recognize that training graduate students is a central part of MIT's educational mission. MIT-trained PhDs and Master's students bring enormous prestige and recognition to the Institute in the course of their careers, and graduate students are more likely than post-docs to form lasting bonds with the Institute.

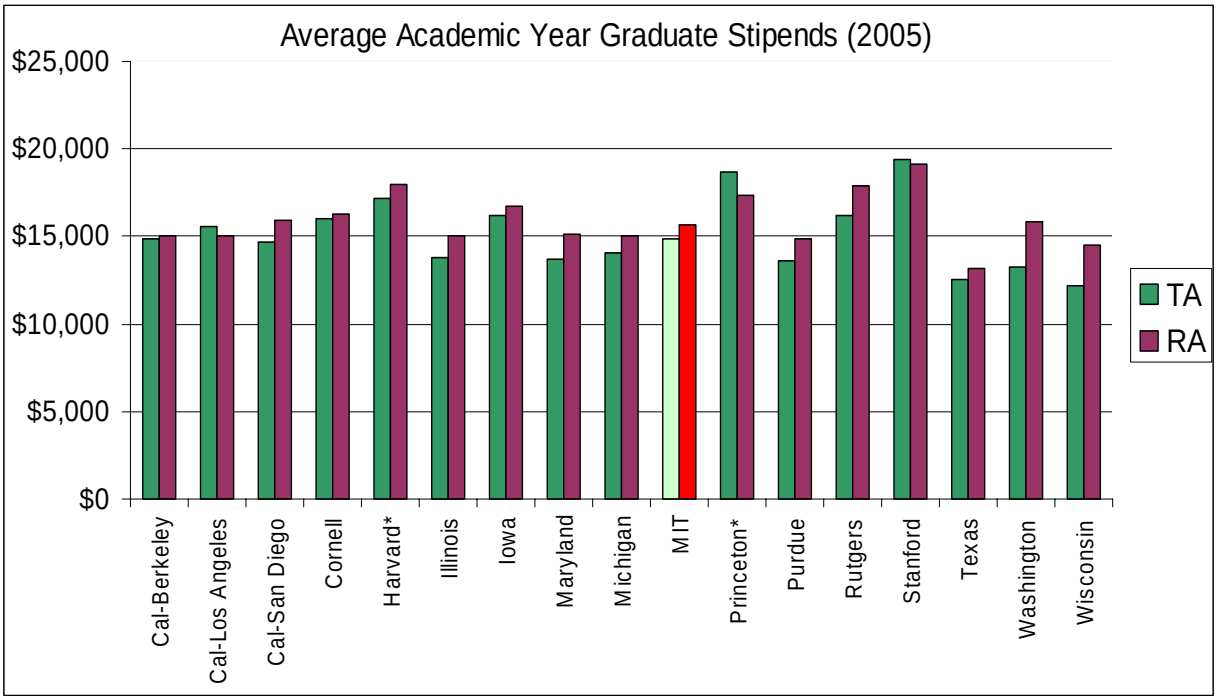
While our sense is that current RA costs do not appear to threaten a decrease in RA funding on grants in favor of post-docs, it is still important to monitor these costs to ensure that RA costs remain reasonable, and not rise to a level that will induce faculty to become overly biased toward hiring post-docs.

A NOTE ABOUT GRADUATE STIPEND LEVELS

Because the cost of living in the Boston area is at the highest level in the nation, it is critical for MIT to monitor these costs on a regular basis and adjust its recommended RA and TA stipend rates accordingly. While we need to support our graduate students with levels of income that are competitive with our peer institutions (see **Figure 13** for

comparative stipend rates for a TA and an RA), we need to be acutely aware of the financial challenges faced by students living in the Boston area and make sure that our stipend rates provide our students with the ability to meet reasonable living standards. We defer to the Graduate Student office in making these recommendations.

Figure 13.



*Note: Harvard's and Princeton's figures are based on the reported stipend amount rather than the cash value average.

RECOMMENDATIONS

As mentioned at the beginning of this report, while our committee does not see a general crisis at MIT with regard to graduate student support, we see evidence of trends that are changing the ways our graduate students are being supported, and we believe there are some particular policies related to supporting graduate students in their dissertation-writing stage that should be re-examined. Our recommendations below address the following topics:

- Research Assistant tuition subsidy
- Teaching Assistant issue
- Regulating the number of grad students at MIT
- All-But-Dissertation (ABD) status
- Non-resident student status
- Fundraising and development for graduate support
- Graduate Alumni giving

RESEARCH ASSISTANT TUITION SUBSIDY

The committee believes it is appropriate to let "market forces" determine the cost of an RA to a research grant at MIT. In other words, MIT's RA costs should remain in close range with those at our competing universities. Our outside sponsors must continue to view MIT as a cost-effective place in which to train graduate students. It is critical that MIT not become the most expensive university at which to support graduate RAs on grants, or the most expensive university for conducting research in general, particularly as we enter a time when the availability of outside research funding may be diminishing, and sponsors will weigh price and value more carefully. On the one hand, the RA tuition subsidy ought to be set as low as the competitive market will bear, in order to maximize the extremely valuable income stream that MIT gains from RA tuitions paid by grants. (It is important to note that the Institute cannot expect to maintain current levels of RA tuition income from grants if overall sponsored research income levels begin to decline.) On the other hand, the subsidy should be maintained at a sufficiently high level that keeps

our proposals competitive. Thus, a balance between these two interests needs to be maintained.

This committee believes that the level of RA tuition subsidy that MIT currently provides to a research grant - 45% of the total tuition - is appropriate, and should be maintained as long as the resulting RA cost to a grant does not appreciably exceed the costs at our closest peer institutions.

At the same time, it is important to keep in mind that the RA tuition subsidy benefits mainly those areas of MIT that derive significant graduate support from sponsored research income, not those that depend heavily on internal MIT funding. **We recommend that MIT maximize its efforts to channel some of the income realized from grant-based RA tuitions to the provision of internal graduate fellowships to our graduate programs.**

TEACHING ASSISTANT ISSUE

We should consider allowing a reduced tuition rate specifically for dissertation writers who serve as Teaching Assistants (TAs). Departments are often financially constrained from hiring the all of the TAs needed to meet their teaching demands. This problem is prominent in Architecture and Planning and in SHASS, and perhaps exists elsewhere. Departments have sometimes turned to hiring graduate students from neighboring institutions instead of MIT students simply because they cannot afford the full tuition payment that an MIT TA requires. One possible approach would be to allow a limited number of students each year to receive TA appointments that carry a normal TA stipend but require a substantially reduced tuition. This would enable departments to stretch their resources, help meet their undergraduate teaching needs, and at the same time provide their graduate students with valuable teaching experience (that otherwise may not be realized). If a reduced tuition policy for certain TAs were enacted, it would need to be regulated carefully to ensure that such appointments did not serve to impede the completion of students' dissertations.

REGULATING THE NUMBER OF GRADUATE STUDENTS AT MIT?

As **Figures 14** and **15** show, the number of graduate students has risen in recent years, leading FOGS to consider whether there is a need to change our cost structures or introduce other policies that would effectively limit the numbers of graduate students at MIT. **Figure 16** shows, not surprisingly, that recent increases in the graduate and postdocs populations correlate highly with increases in overall research volume at MIT, as the number of faculty have remained level.

Figure 14.

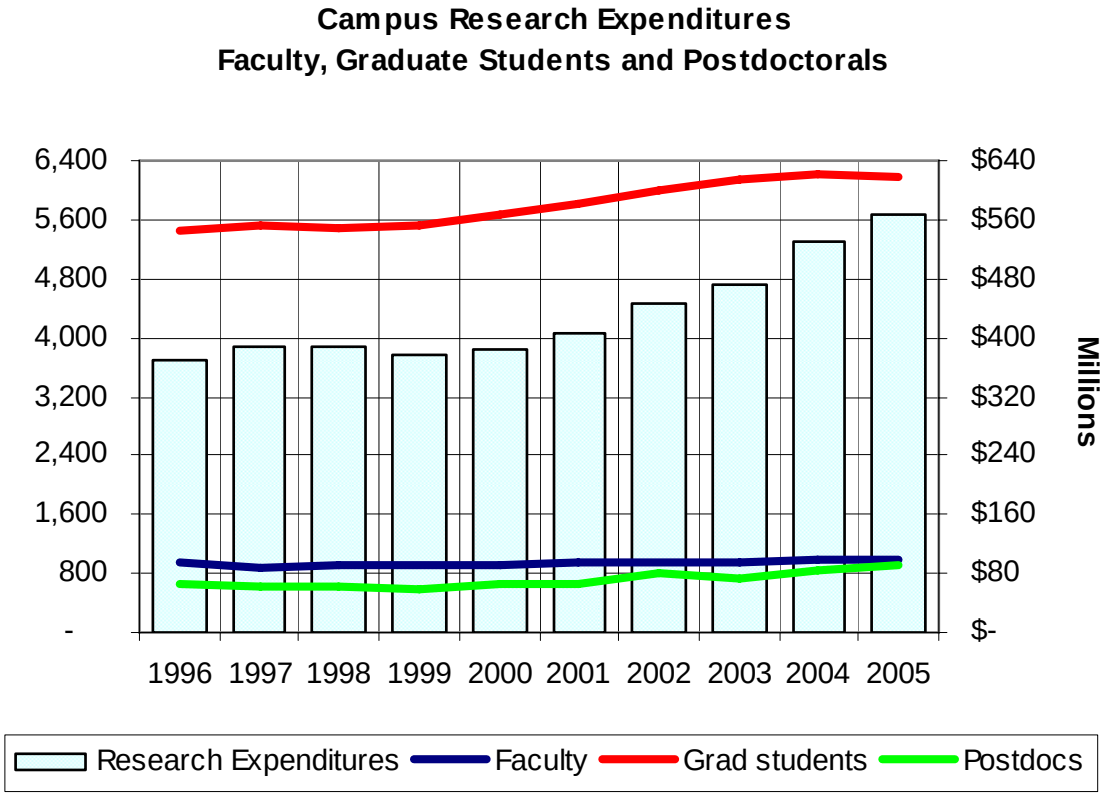
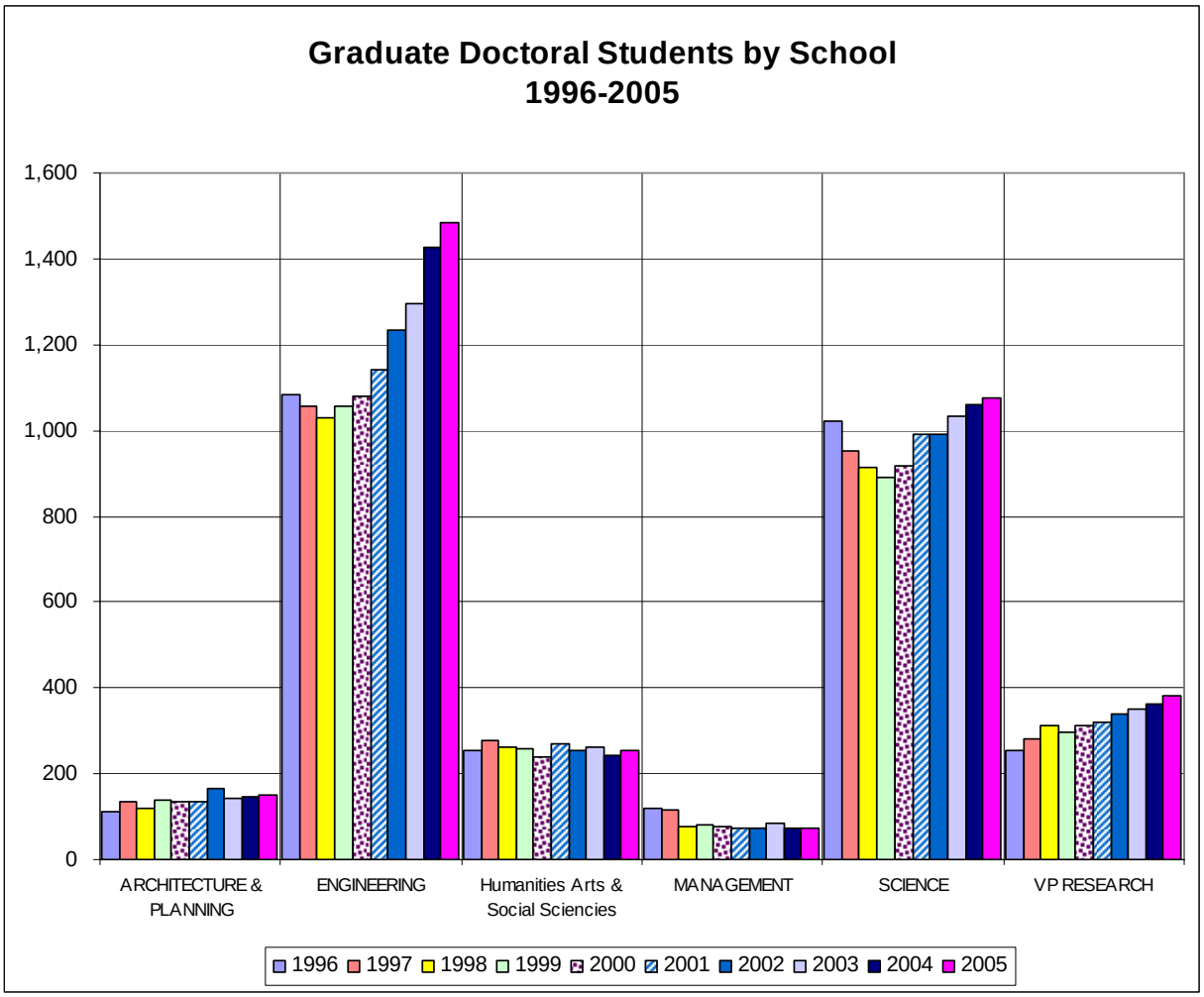
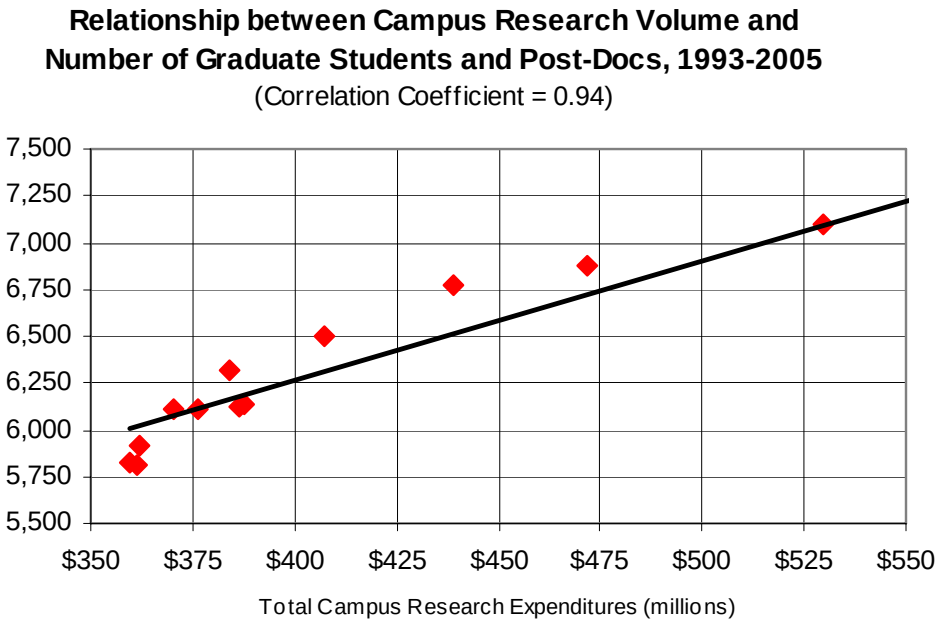


Figure 15.



The clearest growth trends in graduate enrollment have been in the School of Engineering (see **Figure 15**). SAP, Sloan and SHASS have remained relatively static. However, there is evidence to suggest, based on research volume data for FY05 and year-to-date FY06, and on government research spending projections that the Institute's sponsored research volume (on campus) may be entering a period of no-growth or even modest decline, suggesting a scaling back of the overall numbers of graduate students.

Figure 16.



Regardless of the direction that sponsored research volume takes in the coming years, we do not believe there is a strong need to actively limit the numbers of RAs that can be supported at the Institute. We believe in general that the number of RAs should generally be allowed to increase (or decrease) with the availability of research funds, in order to let "market forces" decide which areas of research ought to supporting more (or fewer) students. In the ideal case, there would be natural constraints, such as the availability of space to accommodate students and the capacity of faculty to advise students, which effectively serve as barriers against undesirably high levels of graduate students across the Institute. However, MIT does not make a calculation of the marginal cost of housing for each increase in enrollment, nor do we attempt to assess the quality of the academic experience of our graduate students in terms of ideal numbers of students per advisor, for example. We recommend further study in these areas.

It is important to note, however, that those areas of MIT that depend most heavily on internal support for graduate students and are less affected by fluctuations in sponsored funding have a different perspective. These areas - primarily within Architecture and Planning; Humanities, Arts, and Social Sciences; and Sloan School of

Management - are willing to limit enrollments over time, and in many cases already effectively do so because of their internal funding constraints. In some cases these units often find it difficult to enroll a critical mass of PhD students because of scarce financial resources. Securing a predictable graduate funding base is the main priority of such units, and pre-determined limits on graduate enrollments would be a generally acceptable condition to many of them.

ABD STATUS

One of the specific areas that the committee has considered is the question of whether MIT ought to have a special tuition rate for graduate students who are in the dissertation-writing stage of their graduate careers. **Table 1** (on page 27) shows a sampling of "all but dissertation" (ABD) policies at some of our peer universities as taken from their websites and from direct communication with the institutional researchers at their schools. With the exception of Cornell and Princeton, MIT is apparently unique among this group in lacking a reduced tuition policy, whereby the tuition charge is substantially reduced once students reach a certain stage of progress toward the PhD or time in the program. (After the fourth or fifth year at Princeton, tuition is no longer paid and the enrollment is discontinued. Students become employees of the university in many cases). One of the barriers to having such a policy at MIT has been the potential that it would erode the income stream that the Institute realizes from RA tuition charged to grants. In addition, some believe that an ABD policy may have a counterproductive impact for some students on the time taken to complete a degree, if it were to become financially easier to remain enrolled in the latter stages of the dissertation.

At the same time, a reduced tuition policy for advanced graduate students could bring some financial relief to areas which cannot afford to support their students in the later stages of the dissertation, particularly in the School of Architecture and Planning and the School of Humanities, Arts, and Social Sciences. (Each year, some students in these areas appear to choose non-resident status as an ABD surrogate, in order to maintain their registered status. But these students, as discussed in the next section, cannot receive any support through MIT or receive federal student loans.)

To illustrate the possible financial impact of an ABD tuition policy, a hypothetical example of what would happen if an ABD tuition were established at a rate equal to 15% of total tuition and required fees is shown below.

For simplicity we are using an MIT subsidy level of 50% and assuming a total tuition and required fees assessment of $100,000 for the period, so that current costs break down as follows:

Total tuition and required fees	$100,000
Total charged to sponsor/restricted account	$50,000
Total cost sharing /waiver from MIT	$50,000

If the tuition charge were reduced to 15% of the total, a primary assumption is that the entire tuition and fee amount would be picked up by the sponsor or restricted fund. Establishing a tuition and fee charge of 15% is much different from increasing the waiver to 85%. Assuming this tuition charge would apply to anyone who qualified, regardless of funding source and field of study, the effect on tuition income is illustrated as follows:

Total tuition and required fees	$15,000
Total charged to sponsor/restricted account	$15,000
Total cost sharing /waiver from MIT	$0
Tuition not collected and not available to fund the operating budget:	$85,000
Tuition not charged to sponsor / restricted account	$35,000
Tuition not cost shared or waived by MIT	$50,000

Table 2 (page 28) provides an analysis of how tuition income would be affected by allowing a reduced, 15% tuition for advanced graduate students. This analysis uses the 1997 cohort (the group of students who started their doctoral studies in 1997) as an example. This data captures the trajectory of a graduate student cohort, some of whom have completed their degrees and some of whom have not completed their degrees, as of Spring 2005. This analysis uses registration data for spring and fall semesters, for students who were still registered at any semester from seven semesters and beyond. Seven semesters was chosen because this is the beginning of the fourth year, and the assumption was made that this could be an average starting time for attaining ABD

status. The table shows that a total of $21,489,464 in tuition revenue would have been lost for this cohort. This amount is obviously too large for MIT to afford, and indicates that an across-the-board tuition reduction for advanced graduate students would not be financially realistic. Naturally, the financial outcome could be manipulated by varying the extent of a tuition reduction or by varying the year of study in which students become eligible for a reduced tuition. But it seems to us unlikely that MIT's budget would be able to accommodate a generalized, across-the-board ABD policy for students in all areas of the Institute and regardless of the type of support they receive.

The committee therefore recommends that MIT explore the possibility of negotiating reduced tuition policies that are tailored to the areas of the Institute that have limited sources of graduate support (especially for later-year students) and could benefit the most from and ABD tuition strategy, and that would have limited impact on the overall MIT budget. For example:

- We should explore the possibility of dissertation writers in selected areas of MIT registering for a minimum number of credit units, targeted at a reduced tuition rate. If such options are adopted, we need to consider limiting them to a specific number of terms per student (4 terms? 6 terms?), and design policies that do not act as disincentives for students to complete their degrees. For example, the thesis acceptance is a possible requirement that could be an incentive for receiving the reduced tuition rate. Alternatively, a special dissertation year fellowship could be established for qualified candidates who have reached the dissertation writing stage who would like to devote full-time to writing. A dissertation fellowship for a limited amount of time might ameliorate the issue of increased time to degree due to teaching responsibilities that can impede progress in the humanities and social science fields.

- The administration should negotiate with individual schools or departments on the best strategies for exploring reduced tuition policies. We do not imagine a single policy being applicable to all schools or even necessarily to all departments within a school.

Table 1. Sampling of Non-Resident and All-But-Dissertation Policies at MIT Peer Institutions

		Cal Tech	**Carnegie Mellon**	**Cornell**	**Harvard**	**Princeton**	**Stanford**	**Yale**	**MIT**
Non-resident Policies	Non-resident or *in absentia*?	Y ("sabbatical")	Y	Y	Y	Y	N (but can register as TGR if off-campus)	Y	Y
	Fee amount	--	**$4,170** ($2,085/ semester)	**$400** ($200/semester)	**$300**/year	$3,500 (Tuition plus fee)	**$7830**/year ($2,610/Autumn, Winter, and Spring quarters)	**$560** ($280/semester)	**$4,815**/year (15% of tuition)
	Is there a time limit?	--	--	can count towards no more than two registration units (Ph.D.) or one (master's degree)	--	Up to 2 years	--	--	N
All but dissertation (ABD) Policies	ABD status per se?	N	Y	N	N	N	Y	Y	N
	Terminology used (what is it called?)	--	ABD	--	--	--	Terminal Graduate Registration (TGR)	Continuous Registration Fee	--
	Reduced Tuition?	Y (by petition)	Y	N	Y	--	Y	Y	N
	Tuition fee detail	$759 minimum ($253/unit)	**$4,170** ($2,085/ Semester)	--	**$7,474** (3rd & 4th years); **$1,902** post-fourth year	--	**$7830**/year ($2,610/Autumn, Winter, and Spring quarters)	**$560** ($280/semester)	--
	When are they eligible? Is there a time limit?	Limit: No registration allowed after 6 yrs. without a petition	Limit: 7 years from ABD time	--	--	--	Eligible: 135 units OR 10.5 residency quarters	--	--
	More detail					Enrollment after 4 or 5 years (depending on dept.) is discontinued; Tuition is not paid, some students are hired as employees by the university	Also have Graduate Quarter fee ($100)		

Table 2. 1997 Cohort showing foregone tuition for 7 semesters and beyond if 15% tuition were charged

Awarding School	Appointment	Total tuition collected	If tuition were charged 15%...			Forgone tuition (85% of total tuition)		
			charged to sponsor	charged to MIT	Total	not charged to sponsor	not charged to MIT accounts	Total (not going to general funds)
Architecture	FE	257,119	38,568	0	38,568	218,551	0	218,551
	RA	571,860	85,779	0	85,779	200,151	285,930	486,081
	TA	176,880	0	26,532	26,532	0	150,348	150,348
Architecture Total		1,005,859	124,347	26,532	150,879	418,702	436,278	854,980
Engineering	FE	1,144,318	171,648	0	171,648	972,670	0	972,670
	RA	10,030,437	1,504,566	0	1,504,566	3,510,653	5,015,218	8,525,871
	TA	946,354	0	141,953	141,953	0	804,401	804,401
Engineering Total		12,121,108	1,676,213	141,953	1,818,166	4,483,323	5,819,619	10,302,942
SHASS	FE	623,153	93,473	0	93,473	529,680	0	529,680
	RA	805,806	120,871	0	120,871	282,032	402,903	684,935
	TA	703,063	0	105,459	105,459	0	597,603	597,603
SHASS Total		2,132,021	214,344	105,459	319,803	811,712	1,000,506	1,812,218
Academic (GSO)	FE	812,941	121,941	0	121,941	690,999	0	690,999
	RA	21,093	3,164	0	3,164	7,383	10,547	17,929
Academic (GSO) Total		834,034	125,105	0	125,105	698,382	10,547	708,928
Science	FE	1,135,322	170,298	0	170,298	965,024	0	965,024
	RA	4,389,262	658,389	0	658,389	1,536,242	2,194,631	3,730,873
	TA	873,312	0	130,997	130,997	0	742,315	742,315
Science Total		6,397,896	828,688	130,997	959,684	2,501,266	2,936,946	5,438,212
Sloan	FE	312,310	46,846	0	46,846	265,463	0	265,463
	RA	502,222	75,333	0	75,333	175,778	251,111	426,889
	TA	167,204	0	25,081	25,081	0	142,124	142,124
Sloan Total		981,736	122,180	25,081	147,260	441,241	393,234	834,475
Whitaker	FE	760,917	114,138	0	114,138	646,780	0	646,780
	RA	997,360	149,604	0	149,604	349,076	498,680	847,756
	TA	50,792	0	7,619	7,619	0	43,173	43,173
Whitaker Total		1,809,069	263,742	7,619	271,360	995,856	541,853	1,537,709
	FE total	5,046,079	756,912	0	756,912	4,289,167	0	4,289,167
	RA total	17,318,039	2,597,706	0	2,597,706	6,061,314	8,659,020	14,720,333
	TA total	2,917,604	0	437,641	437,641	0	2,479,964	2,479,964
Total		25,281,723	3,354,618	437,641	3,792,258	10,350,481	11,138,983	21,489,464

NON-RESIDENT STUDENT STATUS

Closely related to the ABD question is the MIT policy which allows for a "Non-Resident Tuition" policy (see **Figure 17** for the numbers of students claiming non-resident status in the past few years). There is evidence to suggest that the non-resident tuition policy has in practice strayed from its original intent and has become a shadow ABD policy. As the data in **Figure 18a** and **Figure 18b** show, the non-resident tuition option is exercised by students primarily in SHASS and SAP.

Figure 17.

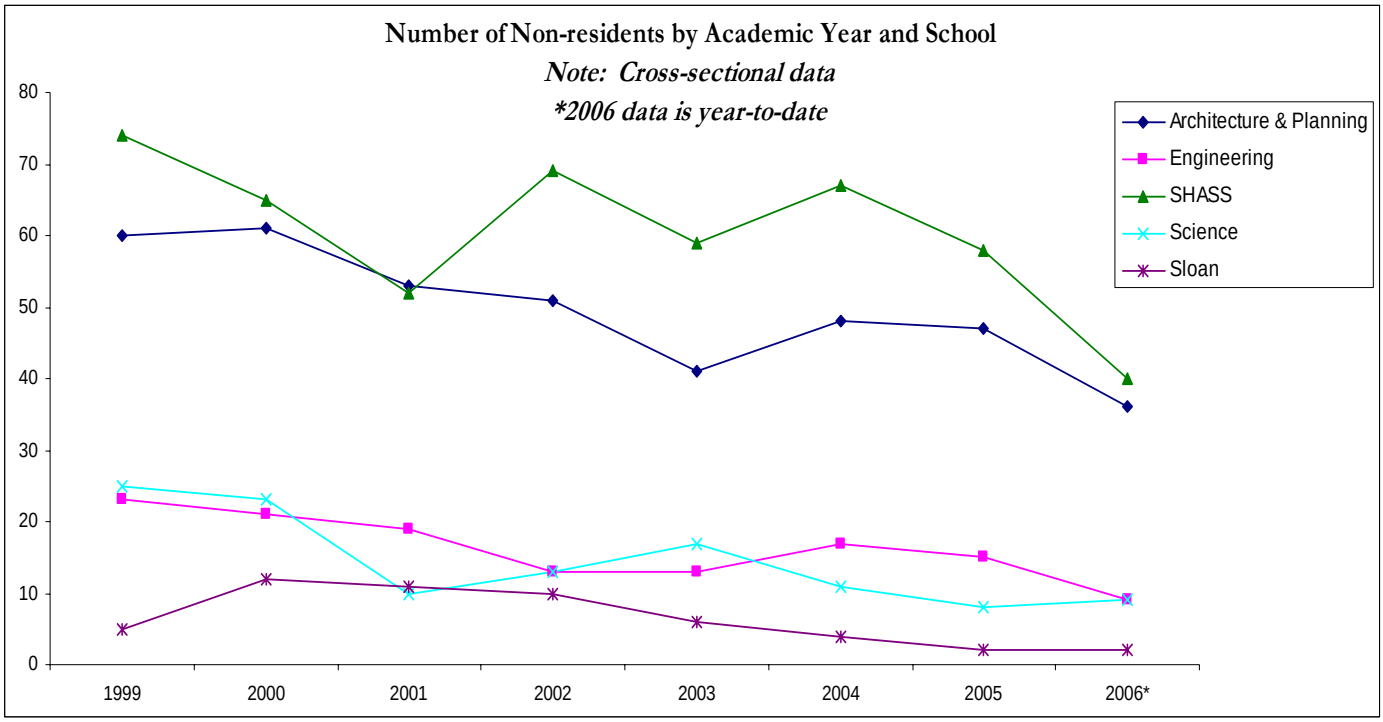
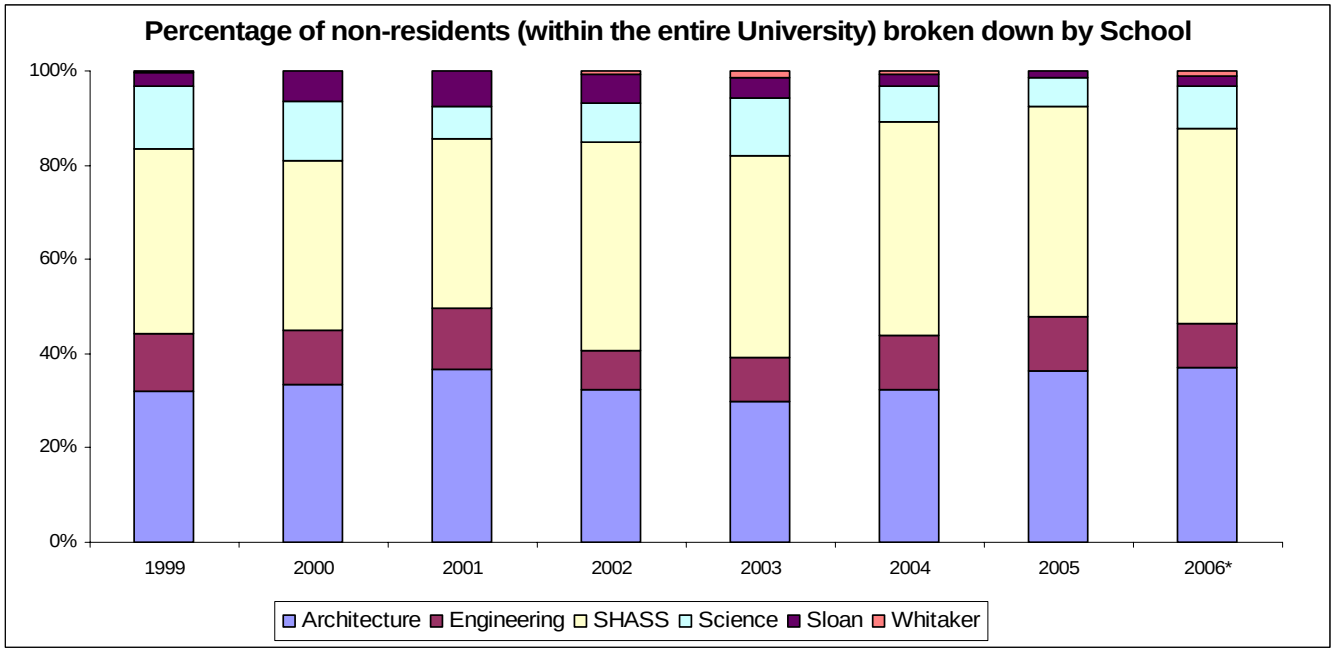
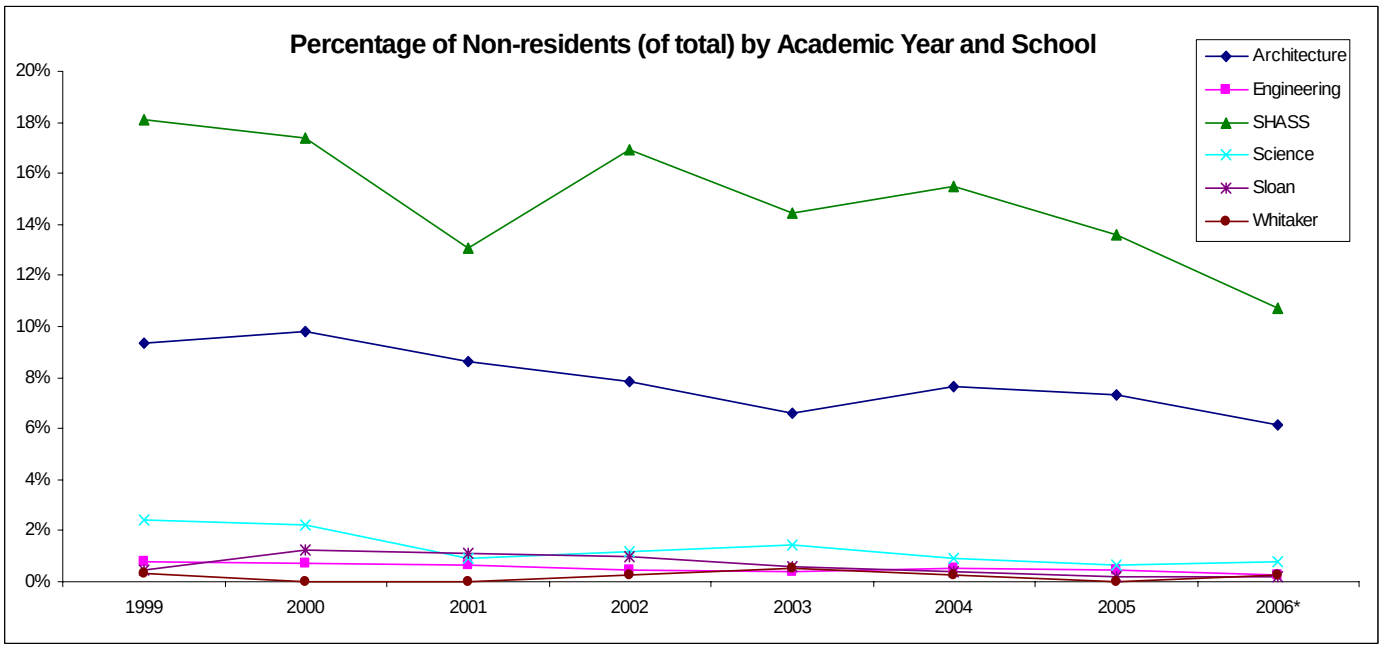


Figure 18a.



*Note: 2006, as of the Fall 2005 count

Figure 18b.



*Note: 2006, as of the Fall 2005 count

The non-resident status was designed for graduate students who have completed all requirements except the thesis and who need to be away from campus to conduct research or field work, utilize facilities at another institution, or perhaps follow an advisor who leaves MIT. However, as a practical matter, a significant number of students choose non-resident status because their departments can no longer afford to support them, yet they must remain registered at MIT for purposes of retaining international visas, remaining eligible for outside foundation support, or to avoid the need to repay educational loans before they have begun employment. Thus the non-resident status sometimes serves as a surrogate ABD status. (However, see **Figure 17**, which demonstrates that the number of students claiming non-resident status has not significantly increased in recent years).

MIT policy stipulates that non-resident students may not receive any financial support through MIT, and the policy sets tuition at 15% of regular tuition, which translates to $4,815 for FY06. Health care premiums costing roughly $1,500 must often be added to this cost. If a student receives an outside fellowship for dissertation support, the need to pay the non-resident tuition erodes the fellowship income and the student may be left with very limited income. In some cases this constrained financial situation can be counter-productive to the completion of the thesis, because the student is sometimes forced to find additional paid work. Using record-level data of doctoral students who have received the PhD, **Figure 19** shows the distribution of time to a doctoral degree by School. As the figure shows, SAP and SHASS have larger proportions of students who took eight or more years to complete their degrees. Perhaps by reducing the non-resident fee the financial hardships for these students can be reduced, and the time to degree shortened as a result.

Figure 19.

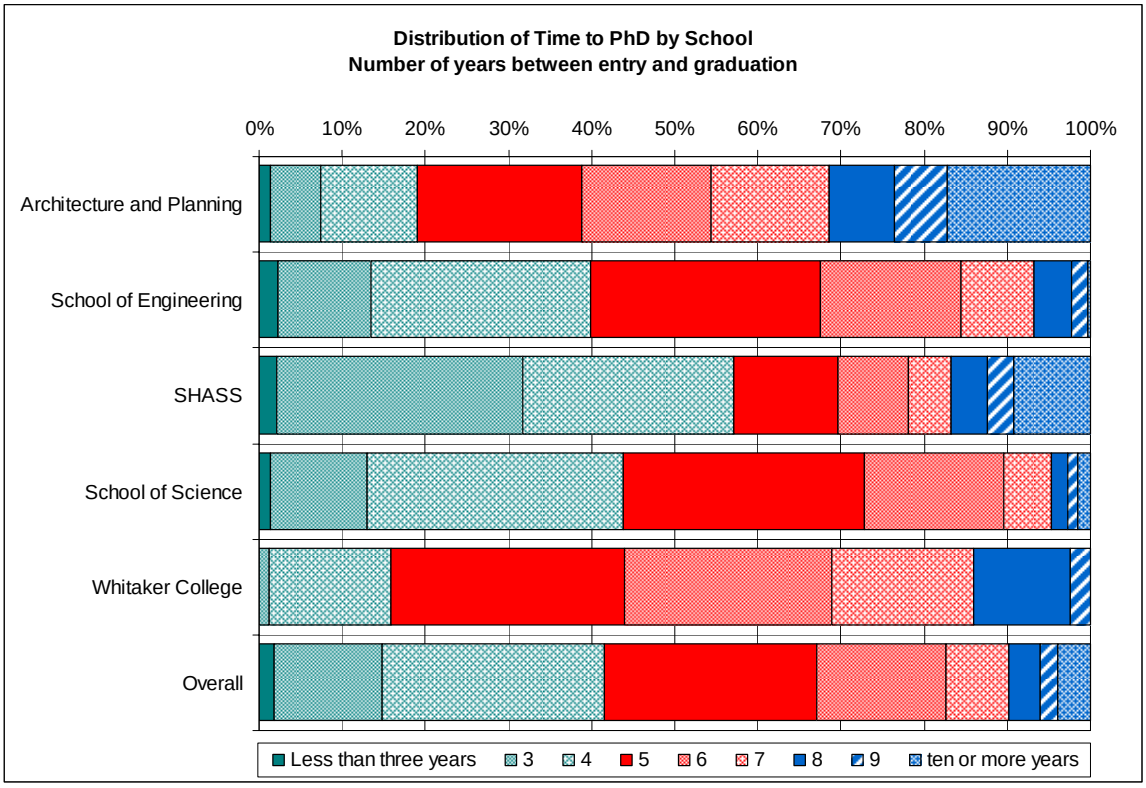


Table 3 shows that the total revenue realized by MIT from all non-resident students has averaged $466,404 over the last three years. It seems to the committee that this level of income is small relative to the financial hardship it seems to impose on these students. We recommend that MIT consider reducing the non-resident tuition to 5% of normal tuition (translating to a cost of $1,605 per year in FY06) which we believe represents a manageable cost to students taking this option. As the table shows, this would result in a loss in annual income to MIT of about $310,000, based on the average revenue for the last three years. We propose that MIT explore ways to absorb this loss within the general Institute budget.

Table 3. Tuition amount collected for non-residency claims

	Tuition amount collected for non-residency claims					
	15%			**5%**		
	2004	2005	2006	2004	2005	2006
Architecture	$183,015	$167,535	$166,118	$61,005	$55,845	$55,373
Engineering	$61,740	$50,490	$43,335	$20,580	$16,830	$14,445
SHASS	$205,065	$185,895	$190,193	$68,355	$61,965	$63,398
Science	$35,280	$27,540	$43,335	$11,760	$9,180	$14,445
Sloan	$12,968	$5,528	$11,953	$4,323	$1,843	$3,984
Whitaker	$4,410	$0	$4,815	$1,470	$0	$1,605
Total	$502,478	$436,988	$459,748	$167,493	$145,663	$153,249
AVERAGE	$466,404			$155,468		
Lost revenue per year (average)= $310,936						

FUNDRAISING AND DEVELOPMENT FOR GRADUATE SUPPORT

The committee recognizes the importance of a balanced Institute budget, especially in times of financial uncertainty. We therefore understand that strengthening the internal support of our graduate programs may necessarily put constraints on other areas of MIT's budget. These constraints must be weighed against the risk of our graduate programs losing their ability to attract the best graduate students. In order to balance the demand for additional MIT-based graduate funding, our Schools may need to consider trade-offs. For example, some areas of MIT may decide that limiting graduate enrollments or accepting modest reductions in faculty size might be necessary to compensate for increases in graduate funding.

In this connection, the committee wishes to impress upon the MIT administration in the strongest possible terms the importance of identifying graduate student support as a first-tier priority of our resource development efforts in the coming decade. Our discussions with development staff at MIT as well as some of the committee members' own personal experience with fundraising activities have made us aware of the challenges associated with securing gifts for graduate support. Nevertheless, by positioning graduate support as an Institutional fundraising priority, we believe that MIT could send a very strong message to potential donors for this purpose. This message should emphasize the importance of our graduate students to the core educational and research missions of MIT, and the critical need to

continue to attract the very best graduate students to MIT, regardless of field. We should be clear that the presence of the best graduate students on our campus is closely interconnected with our ability to attract and retain the best possible faculty. We should remind donors that the accomplishments of our graduate alumni have a wide ranging, international impact, and bring incalculable recognition and prestige to the Institute.

As discussed above there are strong educational arguments for providing fellowships, especially for first year graduate students. In addition, with research volume flat or declining and the cost of living growing more rapidly than general inflation, requiring higher stipends, it seems unlikely that the income to the Institute from graduate tuition will grow. Furthermore, there are insufficient funds to support graduate students in some important areas of research, and the flat research volume is making this situation worse. For these reasons it is especially important for the Institute to obtain gifts to support graduate fellowships. (These pay tuition and therefore provide additional unrestricted income to the Institute.)

We recommend that the Institute create incentives for departments and schools to raise funds targeted for this purpose. At present, a donor is asked to provide $800K for a fully endowed fellowship. However, the cost of supporting a student for 12 months would require an endowment of approximately $1.2M. We cannot ask donors for the full amount, especially when a career development chair is offered for only a little more. This means that a department must find the balance from other sources, which are scarce for departments that need the fellowships most. We propose that for any new gift of $800K for endowing a fellowship the Institute commit to augment the income to pay for a full year's stipend and tuition, for a fixed period of time. The hope would be that the pool A income would grow more rapidly than the cost of a stipend and tuition, so that the fellowship would eventually pay the full cost.

Large-scale donors to MIT might well be more likely to contribute to the cost of endowing a graduate fellowship than to that of a professorship, given that the cost of an endowed professorship has become prohibitively high in recent years (now $3M). It is essential that these potential donors be impressed with the importance of fellowship support as a way of ensuring

MIT's strength, and as a way of honoring donors in the same way that is achieved by named chairs.

Currently, the Institute has a policy of sharing with departments the new income that is generated when an additional professorship is raised. While we recognize that the portion of this income that reverts to MIT is helping to balance the Institute's budget, we ask the administration to consider a different policy: With any new endowed chair, permit the department to effectively retain 100% of the income generated by the additional endowment, with the condition that the savings to the department's general budget that accrue because of the increased availability of endowment must be converted to graduate fellowship support. The department, in turn, must not be allowed to use the new professorship to increase faculty size or graduate enrollment.

Consider the case where new chair income = $100,000

Currently:	Department keeps $60,000	Institute keeps **$40,000**
Proposal:	Department keeps $100,000, uses 100% for fellowships	Institute receives approx**. $56,000***, representing the tuition portion of the $100,000 used for fellowships

* assumes tuition of $32,100 and 12-month stipend of $25,000

This suggests that the Institute might potentially increase its revenues from new endowed chairs, in the form of tuition remissions, by adopting this different policy. Such a policy could also strengthen the incentives for new chairs, from both the faculty's and the donor's standpoint.

Finally, the committee recommends that special attention be given to raising funds for additional fellowships specifically for the support of minority and women graduate students. This is a goal that we believe should have a special appeal to many of our potential donors.

GRADUATE ALUMNI GIVING

We also recommend that MIT focus more attention on ways to improve graduate alumni gifts to MIT, an area which has traditionally been far overshadowed by undergraduate alumni giving, not only at MIT but nationwide. We need to be reminded that MIT annually grants more graduate than undergraduate degrees. Currently, there are 59,806 undergraduate living alumni, and 57,151 graduate alumni (17,315 of those holding doctorate degrees), thus MIT's living graduate alumni will soon outnumber undergraduate alumni. Part of the key to increasing the level of gifts realized from graduate alumni will be the improvement of the quality of life perceived by our graduate students during the time they are in residence at MIT. Providing all first-year students with fellowship support, as discussed above, would be a major step in this direction.

Other factors affecting the quality of a graduate student's life that should be pursued include:

- Access to affordable housing, including adequate on-campus housing.
- Maintaining an effective and supportive academic and research advisory system, which in turn requires ensuring that faculty have sufficient time and resources.
- Maintaining an active and supportive range of graduate student services on campus, which can contribute to a strong sense of graduate community.

CONCLUSION: MIT HAS DIVERSE NEEDS RELATED TO GRADUATE SUPPORT

MIT's strength as an educational institution derives in large part from the great diversity of its academic and research programs, and this diversity is reflected in the different financial needs of our graduate programs. While some graduate funding policies are appropriately applied to all areas of MIT, we encourage the Institute to tailor certain policy modifications to the particular needs of individual departments or schools. Because some of these modifications may require new resources or re-allocations of resources, a strong fundraising effort focused on graduate support will be vital to MIT's continued strength.

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Appendix 1

Committee on the Funding of Graduate Students at MIT (FOGS)

Name	***Title***
Rohan Abeyaratne	Department Head, Mechanical Engineering.
Ike Colbert	Dean for Graduate Students
Diane Davis	Associate Dean, School of Architecture and Planning
Alice Gast	Vice President for Research and Associate Provost
Lorna Gibson	Chair of the Faculty, Professor Materials Science and Engineering
Marc Kastner	Department Head, Physics
Philip Khoury (Chair)	Dean, School of Humanities, Arts, and Social Sciences
Doug Pfeiffer (staff to committee)	Asst. Dean, School of Humanities, Arts, and Social Sciences
Barun Singh	Graduate Student, Electrical Engineering and Computer Science
Mandy Smith (staff to committee)	Research Analyst for Institutional Research
Lydia Snover (staff to committee)	Assistant to the Provost for Institutional Research
Mriganka Sur	Department Head, Brain and Cognitive Sciences
Subra Suresh	Professor, Materials Science and Engineering
Birger Wernerfelt	Professor, Sloan School of Management

Robert A. Brown's charge to the committee

The Committee on the Funding of Graduate Students at MIT is asked to address the following questions:

1. Recommend a financial structure for support of graduate students in our graduate programs. Your recommendations should distinguish approaches for programs that have different funding models, such as professional programs where the students are primarily self-supported, masters and doctoral programs where external support from contracts and grants is typically available and programs where external support is difficult to obtain.
2. Recommend approaches to providing the proper incentives for maintaining appropriately-sized graduate student bodies in individual programs. Most importantly, how can the Institute deploy support for graduate education and programs in a way that does not lead to undesirable growth in the size of graduate programs?
3. Recommend how best the Institute can continue to attract the very best and most diverse graduate students to MIT for the continued excellence of our programs. Suggestions about how to best assess the progress of each graduate program towards this goal will be especially welcome.
4. Consider the Institute Policies for setting graduate student stipends for teaching assistants, research assistant and fellows in the context of attracting the very best students to our graduate programs.

Your recommendations should take into account several important issues:

   a. The diversity of academic cultures, competitive pressures and opportunities for external support of graduate students that are available in the graduate programs in the Institute.
   b. The importance of graduate student tuition as a revenue to fund the costs associated with operating MIT as a research-intensive university. In parallel, the recommendations should account for the implicit costs of graduate students to the

Institute in terms of housing and other infrastructure and the deployment of faculty resources.

c. The importance of maintaining the balance of research and undergraduate and graduate education at MIT.