

**Memorandum**

Date OCT 26 1994
From June Gibbs Brown
Inspector General *June G Brown*
Subject Audit of Graduate Student Compensation at Selected Universities
(A-01-94-04002)
To Kenneth S. Apfel
Assistant Secretary for
Management and Budget

The attached final report presents the results of our audit, "Graduate Student Compensation at Selected Universities" (Yale University; Rutgers, The State University of New Jersey; Duke University; and University of Michigan). The objectives of this audit were to determine whether graduate student compensation charged to federally sponsored research was reasonable and whether the Office of Management and Budget (OMB) Circular A-21, Cost Principles for Educational Institutions, should be modified. For the most recently completed fiscal year for which data was available, three of the four universities charged federally sponsored research about \$5.7 million for what we believe to be unreasonable compensation. We believe that the three universities, in light of the unclear guidance provided by OMB Circular A-21, used a liberal interpretation of reasonableness which did not meet the "prudent person" requirement for such charges.

Graduate students play a central role in research, working on sponsored research projects, under the direction of a faculty member. As such, they are compensated for effort devoted to a specific research grant. That compensation can include salary, health benefits, and tuition remission.

The OMB Circular A-21 requires tuition remission and other forms of compensation charged to federally sponsored research to be reasonable. Further, OMB Circular A-21 defines reasonableness to include:

- the restraints or requirements imposed by such factors as arm's length bargaining, Federal and State laws and regulations, and sponsored agreement terms and conditions;
- whether or not the persons involved acted with due prudence in the circumstances, considering their responsibilities to the institution, employees, students, the Government, and the public at large;

- whether or not the cost is a type generally recognized as necessary for the operation of the institution or the performance of the sponsored agreement; and
- the extent to which the actions taken with respect to the incurrence of the cost are consistent with established institutional policies and practices applicable to the work of the institution generally, including sponsored agreements.

Both Government and university officials provided differing opinions on reasonable compensation for graduate students. In light of the absence of clear guidance on reasonable compensation to graduate students, we utilized the starting salary of an entry-level research professional at each university as a measure of reasonableness for that university. Based on a statistical sample, we estimate that three of the four universities charged federally sponsored research projects \$5.7 million in unreasonable graduate student compensation. One of the four universities, Duke, charged federally sponsored research what we believe to be a reasonable amount for graduate student compensation.

Universities are in the position of having to consider competing factors relative to graduate student compensation. In this regard, the university must balance: (1) its own interest of attracting and retaining the best students; (2) the students' interest for a quality education at an affordable cost; and (3) the Federal Government's interest for quality research at a reasonable cost. These conflicting objectives make it difficult for the university to always make decisions that ensure graduate students are compensated at a reasonable level. We believe it would be helpful if OMB Circular A-21 provided specific guidance on graduate student compensation. Accordingly, we are recommending that the Assistant Secretary for Management and Budget (ASMB) work with OMB to provide guidance on the standard of reasonableness for graduate student compensation.

In its response to our draft report, the ASMB agreed with our recommendation. The complete ASMB comments are included as an Appendix to the report.

Please provide us with the status of any further action taken or contemplated on our recommendations, within the next 60 days. If you or your staff wish to further discuss the issues raised by our final report, please call me or have your staff contact Michael R. Hill, Assistant Inspector General for Public Health Service Audits, at (301)443-3582.

To facilitate identification, please refer to Common Identification Number A-01-94-04002 in all correspondence relating to this report.

Attachment

Department of Health and Human Services

**OFFICE OF
INSPECTOR GENERAL**

**AUDIT OF GRADUATE STUDENT
COMPENSATION AT SELECTED
UNIVERSITIES**



**JUNE GIBBS BROWN
Inspector General**

**OCTOBER 1994
A-01-94-04002**

**Memorandum**

OCT 26 1994

Date

June Gibbs Brown

From

Inspector General *June G Brown*

Subject

Audit of Graduate Student Compensation at Selected Universities
(A-01-94-04002)

To

Kenneth S. Apfel
Assistant Secretary for
Management and Budget

This final report presents the results of our audit, "Graduate Student Compensation at Selected Universities" (Yale University; Rutgers, The State University of New Jersey; Duke University; and University of Michigan). The objectives of this audit were to determine whether graduate student compensation charged to federally sponsored research was reasonable and whether the Office of Management and Budget (OMB) Circular A-21, Cost Principles for Educational Institutions, should be modified. For the most recently completed fiscal year (FY) for which data was available, three of the four universities charged federally sponsored research about \$5.7 million for what we believe to be unreasonable compensation. We believe that the three universities, in light of the unclear guidance provided by OMB Circular A-21, used a liberal interpretation of reasonableness which did not meet the "prudent person" requirement for graduate student compensation.

Graduate students play a central role in research, working on sponsored research projects, under the direction of a faculty member. As such, they are compensated for effort devoted to a specific research grant. That compensation can include salary, health benefits, and tuition remission. Tuition remission represents the forgiveness by the institution of all or a portion of the tuition costs of the graduate student.

The OMB Circular A-21 requires tuition remission and other forms of compensation charged to federally sponsored research to be reasonable. Further, OMB Circular A-21 defines reasonableness to include:

- the restraints or requirements imposed by such factors as arm's length bargaining, Federal and State laws and regulations, and sponsored agreement terms and conditions;

- whether or not the persons involved acted with due prudence in the circumstances, considering their responsibilities to the institution, employees, students, the Government, and the public at large;
- whether or not the cost is a type generally recognized as necessary for the operation of the institution or the performance of the sponsored agreement; and
- the extent to which the actions taken with respect to the incurrence of the cost are consistent with established institutional policies and practices applicable to the work of the institution generally, including sponsored agreements.

Both Government and university officials provided differing opinions on reasonable compensation for graduate students. In light of the absence of clear guidance regarding reasonable compensation for graduate students, we utilized the starting salary of an entry-level research professional at each university as a measure of reasonableness for that university. Based on a statistical sample, we estimate that three of the four universities charged federally sponsored research projects \$5.7 million in unreasonable graduate student compensation. One of the four universities, Duke, charged federally sponsored research what we believe to be a reasonable amount for graduate student compensation.

Universities are in the position of having to consider competing factors relative to graduate student compensation. In this regard, the university must balance: (1) its own interest in attracting and retaining the best students; (2) the students' interest for a quality education at an affordable cost; and (3) the Federal Government's interest in quality research at a reasonable cost. These conflicting objectives make it difficult for the university to always make decisions that meet the prudent person requirement of reasonableness in OMB Circular A-21. Also, we are concerned that such arrangements appear not to involve arm's length transactions. We believe it would be helpful if OMB Circular A-21 provided more specific guidance in this area. Accordingly, we are recommending that the Assistant Secretary for Management and Budget (ASMB) work with OMB to provide guidance on the standard of reasonableness for graduate student compensation.

In its response to our draft report, ASMB agreed with our recommendation. The complete ASMB comments are included as an Appendix to the report.

INTRODUCTION

BACKGROUND

The Federal Government continues to provide the majority of funds for academic research and development (R&D). Academic R&D is concentrated at the research (basic & applied) end of the R&D spectrum. The objective of basic research is to gain additional knowledge of the subject under study, without specific applications toward processes or products in mind (pursuit and acquisition of new knowledge). Applied research is aimed at gaining knowledge to determine the means by which a specific, recognized need may be met (specific commercial objectives with respect to products, processes, or services). Graduate students play a central role in research. A graduate student is an individual who has completed a baccalaureate degree and is pursuing either a master or a doctoral degree. Graduate students can work in research as either trainees or research assistants. A trainee usually receives support from fellowships and traineeships, not as compensation for work performed, but as subsistence support to satisfy the requirements for obtaining an advanced degree. A research assistant (RA) generally is considered a part-time employee of the institution. The RA, under the direction of a faculty member, works on a sponsored research project. As such, he or she is compensated for effort devoted to a specific research grant. That compensation can include salary, health benefits, and tuition remission.

The OMB Circular A-21 states that the compensation for personal services covers all amounts paid currently or accrued by the institution for services of employees rendered during the period of performance under sponsored agreements. Tuition remission and other forms of compensation paid as, or in lieu of, wages to students must be reasonable and conditioned explicitly upon the performance of necessary work.

Research assistantships have over the last 12 years begun to displace fellowships and traineeships as the major graduate support mechanism. The number of full-time science and engineering graduate students supported by research assistantships has risen from about 49,000 in 1979, to almost 85,000 in 1991, the last year for which this data was available.

SCOPE

We conducted our audit in accordance with generally accepted government auditing standards. The objectives of this review were to determine whether graduate student compensation (salaries, tuition remission, fringe benefits, and other compensation) charged to federally sponsored research was reasonable, and whether OMB Circular A-21 should be modified.

We performed survey work at three universities in New England and reviewed grant and contract proposals at the National Institutes of Health (NIH). We also contacted Grants Management Officers at selected NIH Institutes to determine the policies and procedures utilized for establishing the reasonableness of graduate student compensation proposed in

Federal research grants and contracts. Based on our survey work, initially, we judgmentally selected five universities (Yale, Rutgers, Michigan, University of California, Los Angeles (U.C.L.A), and Duke) at which to perform this review. Because of certain technical difficulties and other demands on that university's resources, we excluded U.C.L.A. from this review.

At each of the remaining four universities, we reviewed policies and procedures pertaining to the selection of graduate students for participation on grants and contracts and identified all federally funded research projects to which the university charged graduate student compensation. Further, we developed a standard of reasonableness based on each university's compensation for postdoctoral research assistants. We then selected a random sample of 50 graduate students charged to federally sponsored research during the most recent FY for which data was available. Each university represented a separate strata, and we used a variable appraisal program to estimate the dollar impact of unreasonable compensation for graduate students charged to federally sponsored research at the four universities.

For each sample item, we determined the reasonableness of graduate student compensation charged to Federal research grants and contracts by comparing the compensation (salaries, tuition remission, fringe benefits, and other compensation) at an equivalent level of effort to the standard for reasonableness which we established at each university.

For the purpose of this audit, we did not review the internal control structure of the universities. The objectives of this limited scope review did not require an understanding or assessment of the internal control structure.

The results of our tests are included in the FINDINGS AND RECOMMENDATION section below. With respect to items not tested, nothing came to our attention to cause us to believe that the untested items would produce different results.

We conducted field work from November 1993, to May 1994, at the NIH headquarters in Bethesda, Maryland; Yale University in New Haven, Connecticut; Rutgers; The State University of New Jersey in Piscataway, and New Brunswick, New Jersey; Duke University in Durham, North Carolina; and the University of Michigan in Ann Arbor, Michigan. Further, we conducted work at four Regional Offices of Audit Services (Boston, New York, Atlanta, and Chicago). We held an exit conference with officials from ASMB, Division of Cost Allocation, and NIH on July 21, 1994. We issued a draft report on August 22, 1994, and received comments from ASMB on October 3, 1994 (see Appendix).

FINDINGS AND RECOMMENDATION

Based on a statistical sample, we estimate that, during the most recently completed FY for which data was available, three of the four universities charged federally sponsored research \$5.7 million for what we believe to be unreasonable compensation. Universities are in the position of having to balance the needs of students, the Federal Government, and the university regarding the reasonableness of graduate student compensation charged to sponsored research. In such an environment, it is necessary for OMB Circular A-21 to provide clear guidance on the reasonableness of graduate student compensation. The OMB Circular A-21, however, relies on the prudent person concept operating under arm's length bargaining. In view of the imprecision provided by OMB Circular A-21, we believe that the universities used a liberal interpretation of reasonableness which did not result in the application of the prudent person and arm's length bargaining concepts.

According to OMB Circular A-21, section J.41.a:

...tuition remission and other forms of compensation paid as, or in lieu of, wages to students performing necessary work are allowable provided that (1) there is a bona fide employer-employee relationship between the student and the institution for the work performed, and (2) the tuition or other payments are reasonable compensation for the work performed....

The OMB Circular A-21, section C3, defines reasonableness to include:

- the restraints or requirements imposed by such factors as arm's length bargaining, Federal and State laws and regulations, and sponsored agreement terms and conditions;
- whether or not the persons involved acted with due prudence in the circumstances, considering their responsibilities to the institution, employees, students, the Government, and the public at large;
- whether or not the cost is a type generally recognized as necessary for the operation of the institution or the performance of the sponsored agreement; and

- the extent to which the actions taken with respect to the incurrence of the cost are consistent with established institutional policies and practices applicable to the work of the institution generally, including sponsored agreements.

Since OMB Circular A-21 provided no specific guidance on what is reasonable compensation for graduate students, we contacted NIH grants officers to determine how they measure the reasonableness of graduate student compensation charged to Federal research grants and contracts. Grants officers generally applied varying measures of reasonableness.

Examples of practices provided by grants officers included:

1) comparing graduate student compensation to other proposed positions on the specific grant regardless of experience; 2) accepting the proposed graduate student compensation based on the overall quality of the proposal; 3) using *gut reaction*; 4) omitting tuition remission from graduate student compensation; and 5) comparing graduate student salaries to postdoctoral RAs.

In the absence of a consistent standard of reasonableness for graduate student compensation, we utilized the salaries of postdoctoral RAs or equivalent positions as a measure of reasonableness. The postdoctoral RA is the first step in a progression of full-time research appointments available to individuals holding a Ph.D. degree or its experience equivalent. This position is normally the next sequence for an individual who has completed graduate studies and attained a Ph.D. We believe it is a fair and conservative benchmark to use for measuring the reasonableness of compensation packages provided to graduate students.

SAMPLE RESULTS

Based on our work at the four universities, we estimate that three of the four universities charged federally sponsored research approximately \$5.7 million in unreasonable compensation (see EXHIBIT I) for the most recently completed FY. The precision of this estimate at the 90 percent confidence level is plus or minus 18.09 percent. For 129 of the 200 graduate students reviewed, the universities charged federally sponsored research \$540,026 more for graduate students than they would have charged for postdoctoral RAs or equivalent positions to perform the same work. One university, Duke, charged federally sponsored research what we believe to be a reasonable amount for graduate student compensation in 49 of the 50 sample cases. The following are the results at each university.

YALE UNIVERSITY

For the 14-month period ending August 31, 1992, the compensation charged to federally sponsored projects for 37 of the 50 randomly selected graduate students exceeded the compensation paid an entry-level postdoctoral associate for comparable work by \$156,345 (see EXHIBIT II for sample results). During this period, Yale University charged federally sponsored research about \$5 million of compensation (\$1.2 million salary and \$3.8 million other compensation) for 247 graduate students.

Yale University Graduate School provides a 6-year program for graduate students leading to a Ph.D. Graduate students appointed as assistant researchers (AR) participate in sponsored research activities under the direction of a faculty member (Principal Investigator) who is conducting sponsored research. The ARs contribute simultaneously to the completion of their degree requirements and to meeting the research objectives of the grant or contract. The standard level of effort for each graduate student working as an AR on a research project is 50 percent. At Yale University, the post-doctoral associate is the first step in the progression of research appointments available to individuals holding a Ph.D. degree or its experience level. This position is normally filled by someone who has already completed 6 years of graduate study and obtained a Ph.D. Both the graduate student and the postdoctoral associate perform similar services under the direction of a faculty member (Principal Investigator). Compensation for graduate students include salary, health benefits, and tuition remission while compensation for the postdoctoral associate includes salary and fringe benefits.

RUTGERS UNIVERSITY

For FY ended June 30, 1993, the compensation charged federally sponsored research for 49 of the 50 randomly selected graduate students exceeded the average professional compensation paid to postdoctoral associates for similar efforts by \$252,056 (see EXHIBIT III for sample results). During the same period, Rutgers University charged federally sponsored research \$1,686,988 of compensation (salary and other compensation) for 212 graduate students.

Graduate student assistants at Rutgers University are considered employees of the university, are paid according to established salary scales, and receive employee benefits. Graduate students also receive tuition remission. A graduate student with a standard appointment normally works an average of 15 hours per week. A postdoctoral associate at Rutgers is an individual who has completed doctoral studies. Postdoctoral associates receive stipends to engage in postdoctoral studies and research at Rutgers. At Rutgers, postdoctoral associates have the status of students and are not provided

fringe benefits, only health insurance coverage. Nevertheless, the postdoctoral associates have attained the Ph.D. and are more experienced than the graduate student assistants. Both the graduate student and the postdoctoral associate perform similar services under the direction of a faculty member (Principal Investigator).

UNIVERSITY OF MICHIGAN

For the FY ended June 30, 1993, the compensation charged federally sponsored research for 42 of the 50 randomly selected graduate students exceeded the professional compensation paid to postdoctoral research fellows (PRF) or other professionals for similar efforts by \$130,381 (See EXHIBIT IV for sample results). During the same period, the University of Michigan charged federally sponsored research \$18,968,219 of compensation (\$13,529,585 in salary, \$3,003,309 in tuition remission, and \$2,435,325 in fringe benefits) for 1,496 graduate students.

Graduate students who work as RAs participate in sponsored research activities under the direction of a faculty member (Principal Investigator) who is conducting sponsored research. The RA's work on sponsored projects is not part of the curriculum, and the students do not receive educational credit for the work performed. However, the students receive thesis course credit with respect to gathering of information, and in many instances, their dissertations will relate to research work. The level of effort generally varies for each graduate student working as an RA on research projects from 25 to 100 percent. At the University of Michigan, the PRFs are individuals holding a Ph.D. degree who have already completed at least 6 years of graduate study. Compensation for graduate students include salary, tuition remission, health insurance, and other fringe benefits while compensation for the PRF includes salary, health insurance, and other fringe benefits. The PRF was generally found to be most comparable to a graduate student RA, but 3 of 21 departments having RAs in our sample did not have a PRF. For these departments, the RAs' compensation was compared to a full-time appointed research assistant, a senior research associate, and an assistant professor.

DUKE UNIVERSITY

For FY ended June 30, 1993, the compensation charged federally sponsored research for 49 of the 50 randomly selected graduate students **did not** exceed the compensation paid to the entry level professional for similar efforts. Compensation for the remaining graduate student exceeded compensation paid to the lowest entry-level professional by \$1,244. Duke University did not provide tuition remission to graduate students working on federally sponsored research. During the same period, Duke University charged federally sponsored research \$3,550,461 of salaries for 501 graduate students.

Duke University Graduate School offers a number of graduate programs leading to a Ph.D. degree. Graduate students participate in sponsored research activities under the direction of a faculty member (Principal Investigator) who conducts sponsored research. The graduate students contribute simultaneously to the completion of their degree requirements and to meeting the research objectives of the grant or contract. The level of effort varies for each graduate student working on a research project from 50 to 100 percent, or 20 to 40 hours per week. At Duke University, the Research Associate is the first step in the progression of research appointments available to individuals holding a Ph.D. degree. This position is normally filled by someone who has already completed graduate school and obtained a Ph.D. Both the graduate student and the Research Associate perform similar services under the direction of a Principal Investigator. Compensation for graduate students includes only salary while compensation for the Research Associate includes salary and fringe benefits.

The amount the three universities charged sponsored research for graduate students which exceeded the amount paid to postdoctoral associates for comparable work (estimated to be approximately \$5.7 million) is unreasonable. For determining reasonableness, OMB Circular A-21 relies on the prudent person concept operating under arm's length bargaining, as explained previously on page 5. We do not believe the three universities acted prudently when compensating graduate students, and it raises doubt as to whether the universities were involved in an arm's length transaction.

The universities must consider several competing factors when graduate students are included in a research grant or contract proposal. The university must balance: (1) its own interest in attracting and retaining the best students and obtaining research funding; (2) the students' ability to pay for a quality education; and (3) the Federal Government's interest in obtaining quality research at a reasonable cost. The more the university pays graduate students for work performed, the more it has enhanced both its ability to attract quality students and the student's ability to pay the university for a quality education. We believe this at least raises doubt as to whether the universities were involved in an arm's length transaction when dealing with graduate student compensation.

We do not believe that the universities acted prudently considering their responsibilities to the Government and the public at large. In this respect, three of the four universities we visited paid graduate students more than postdoctoral associates who had already completed graduate studies and obtained a Ph.D. We believe it is unreasonable to pay a less experienced individual more to perform similar services. One of the four universities, Duke, acted in a prudent manner, in our opinion, by charging federally sponsored research less for the graduate student than the more experienced postdoctoral associate.

In the absence of clear and specific guidance in OMB Circular A-21 on what constitutes reasonable compensation for graduate students, we believe that the universities used a liberal interpretation of reasonableness. We question whether the universities met the requirements

of OMB Circular A-21 for arm's length bargaining and acting with due prudence. In summary, we do not believe the costs charged federally sponsored research for graduate students, which exceed those of more qualified researchers, are reasonable.

UNIVERSITY COMMENTS AND ADDITIONAL OFFICE OF INSPECTOR GENERAL COMMENTS

University officials at the schools we visited offered comments to explain why they believe graduate student compensation was reasonable. Relevant comments included: (1) graduate student compensation levels were similar to graduate student compensation at other universities; (2) postdoctoral RA salaries are market driven; (3) training is a legitimate and intended purpose of research grants; the higher cost of training graduate assistants is therefore legitimate; and (4) graduate students are students and must be compensated in a way sufficient to allow them to continue as students while participating in sponsored research. The OMB Circular A-21, section A, specifies that *"The dual role of students engaged in research and the resulting benefits to sponsored research agreements are fundamental to the research effort and shall be recognized in the application of these principles."*

The above comments provide rationale as to why the universities offer generous compensation packages to graduate students. These comments, however, do not change our conclusion that the amounts charged sponsored research for graduate student compensation which exceeded the amounts paid to postdoctoral associates for comparable work is unreasonable.

Graduate student compensation being comparable to some other universities does not negate the prudent person concept. The OMB Circular A-21 indicates that the use of due prudence in determining reasonableness must include consideration of the university's responsibilities to the Government and the public at large. We believe that the actions of a prudent person would not include providing greater compensation to individuals who are less qualified by education and practical experience than others performing similar work.

The comment that postdoctoral salaries are market driven further supports our conclusion. In this regard, a prudent person certainly would not pay graduate student compensation in excess of market driven salaries.

University comments that training is a legitimate and intended purpose of research grants and that graduate students are, by definition, students and must be compensated in a way sufficient to allow them to continue as students while participating in sponsored research are not supported by OMB Circular A-21. In this respect, section A of OMB Circular A-21 cited above by university officials is general and only states that the dual role of the student must be recognized in applying these principles. We believe this section is to remind the university of the dual role of students, and that the university has a responsibility to assign related costs accordingly. Further, section J.41 of OMB Circular A-21 is specific and states that *"...programs of student aid are allowable only (emphasis added) when the*

purpose of the sponsored agreement is to provide training ... and the charge is approved by the sponsoring agency." This section of OMB Circular A-21 (J.41) further requires that compensation to students are allowable provided there is a bona fide employer-employee relationship between the student and the institution and the payments are reasonable compensation for the work performed. We applied the only definition of reasonableness provided by OMB Circular A-21.

CONCLUSIONS AND RECOMMENDATION

Both university and Government officials provided differing opinions as to what constitutes reasonable compensation for graduate students conducting federally sponsored research. The OMB Circular A-21 does not provide clear guidance, rather it relies on the prudent person concept operating under arm's length bargaining. In light of the inexact guidance provided by OMB Circular A-21, the selected universities used a liberal interpretation of reasonableness which, in our opinion, resulted in less than prudent actions. The conflicting interests within the university environment (the university's need to attract and retain the best students, the students' need for a quality education at an affordable cost and the Federal Government's need for quality research at a reasonable cost) raise doubt as to whether the universities are involved in an arm's length transaction.

We are recommending that ASMB work with OMB to revise OMB Circular A-21 and establish a standard of reasonableness for graduate student compensation. In this respect, we believe the Federal policy should establish that graduate student compensation be based on assigned responsibilities and not exceed the compensation of other individuals of similar experience performing similar work at the university.

Auditee Comments

In response to our draft report, the ASMB agreed (see Appendix) that OMB should revise its Circular A-21 to stipulate a reasonableness standard for graduate student compensation. This proposed standard would provide that graduate student compensation: (1) be based on assigned responsibilities; and (2) not exceed compensation of other individuals of similar work at the university.

The ASMB will forward this report to OMB with its strong endorsement that this subject be addressed in the next revision to Circular A-21. The ASMB will also suggest that its representatives work with OMB to develop the necessary changes to the Circular (see Appendix).

Page 12 - Kenneth S. Apfel

Please provide us with the status of any further action taken or contemplated on our recommendations, within the next 60 days. If you or your staff wish to further discuss the issues raised by our final report, please call me or have your staff contact Michael R. Hill, Assistant Inspector General for Public Health Service Audits, at (301)443-3582.

To facilitate identification, please refer to Common Identification Number A-01-94-04002 in all correspondence relating to this report.

SAMPLE APPRAISAL

(1) <u>Strata</u>	(2) <u>Sample Size</u>	(3) <u>Total Unreasonable Compensation</u>	(4) <u>Unreasonable Compensation Per Sample Unit (3)/(2)</u>	(5) <u>Number of Graduate Students Charged to Federally Sponsored Research</u>	(6) <u>Point Estimate (4) * (5)</u>
Yale	50	\$156,345	\$3,127	247	\$ 772,369
Rutgers	50	252,056	5,041	212	1,068,692
Michigan	50	130,381	2,608	1,496	3,901,568
Duke	50	<u>1,244</u>		501	<u> </u>
		<u>\$540,026</u>			<u>\$5,742,629</u>

Each university represented a separate strata and we used a variable appraisal program to estimate the dollar impact of unreasonable compensation for graduate students charged to federally sponsored research. Considering that Duke had one sample error we did not project unreasonable compensation for Duke. The precision of this estimate at the 90 percent confidence level is plus or minus 18.09 percent.

Yale University

Sample Results

<u>Sample Number</u>	<u>Total Graduate Student Compensation Charged Federal Grant</u>	<u>Entry-level Postdoctoral's Salary at Equivalent Level of Effort</u>	<u>Difference or Unreasonable Compensation Charged to Federal Grant</u>
1	\$ 12,671	\$ 12,276	\$ 395
2	9,370	12,276	0
3	6,119	8,184	0
4	3,450	3,069	381
5	21,320	12,276	9,044
6	5,473	5,115	358
7	9,078	5,115	3,963
8	20,780	12,276	8,504
9	13,940	12,276	1,664
10	14,287	12,276	2,011
11	21,320	12,276	9,044
12	21,320	12,276	9,044
13	10,040	12,276	0
14	3,450	3,069	381
15	2,198	1,964	234
16	1,067	2,046	0
17	22,370	12,276	10,094
18	6,186	8,184	0
19	5,700	3,069	2,631
20	20,780	12,276	8,504
21	3,800	4,092	0
22	9,292	6,752	2,540
23	12,740	12,276	464
24	20,120	12,276	7,844
25	21,320	12,276	9,044
26	5,700	3,069	2,631
27	6,615	7,761	0
28	1,200	2,046	0
29	13,741	11,417	2,324
30	15,019	10,189	4,830
31	10,269	9,207	1,062
32	12,740	12,276	464
33	7,050	4,010	3,040
34	21,320	12,276	9,044
35	11,407	11,253	154
36	12,740	12,276	464
37	20,380	12,276	8,104

Yale University

Sample Results

Sample Number	Total Graduate Student Compensation Charged <u>Federal Grant</u>	Entry-level Postdoctoral's Salary at Equivalent <u>Level of Effort</u>	Difference or Unreasonable Compensation Charged to <u>Federal Grant</u>
38	\$ 12,975	\$ 7,120	\$ 5,855
39	20,920	12,276	8,644
40	14,921	12,276	2,645
41	8,000	12,276	0
42	12,015	12,276	0
43	11,988	12,276	0
44	13,940	12,276	1,664
45	20,380	12,276	8,104
46	12,740	12,276	464
47	6,286	8,184	0
48	21,320	12,276	9,044
49	2,325	3,069	0
50	<u>13,940</u>	<u>12,276</u>	<u>1,664</u>
	<u>\$608,122</u>	<u>\$471,712</u>	<u>\$156,345</u>

Note: Column totals do not add across when the entry-level postdoctoral's salary exceeds the graduate student compensation. In those circumstances, we calculated the difference to be zero rather than include a negative difference.

Rutgers University

Sample Results

<u>Sample Number</u>	<u>Total Graduate Student Compensation Charged Federal Grant</u>	<u>Entry-level Postdoctoral's Salary at Equivalent Level of Effort</u>	<u>Difference or Unreasonable Compensation Charged to Federal Grant</u>
1	\$ 17,081	\$ 10,179	\$ 6,902
2	9,450	4,749	4,701
3	7,023	4,749	2,274
4	14,137	7,915	6,222
5	8,897	5,418	3,479
6	18,113	7,915	10,198
7	5,312	3,955	1,357
8	12,757	7,915	4,842
9	6,427	3,955	2,472
10	14,745	10,554	4,191
11	14,696	8,584	6,112
12	14,696	10,554	4,142
13	14,158	9,394	4,764
14	19,640	10,554	9,086
15	7,004	3,955	3,049
16	10,549	7,915	2,634
17	10,708	7,915	2,793
18	6,727	3,955	2,772
19	15,995	10,554	5,441
20	18,372	9,357	9,015
21	8,706	3,955	4,751
22	15,930	7,915	8,015
23	16,075	7,915	8,160
24	19,792	10,553	9,239
25	7,023	2,928	4,095
26	12,991	7,915	5,076
27	7,222	3,164	4,058
28	10,816	8,866	1,950
29	18,340	9,358	8,982
30	12,884	10,555	2,329
31	15,832	10,554	5,278
32	0	0	0
33	9,983	7,916	2,067
34	17,092	10,554	6,538
35	6,902	4,749	2,153
36	18,791	7,123	11,668
37	13,533	7,915	5,618

Rutgers University

Sample Results

<u>Sample Number</u>	<u>Total Graduate Student Compensation Charged Federal Grant</u>	<u>Entry-level Postdoctoral's Salary at Equivalent Level of Effort</u>	<u>Difference or Unreasonable Compensation Charged to Federal Grant</u>
38	\$ 16,106	\$ 10,554	\$ 5,552
39	1,904	791	1,113
40	16,388	10,554	5,834
41	14,181	10,554	3,627
42	7,248	3,164	4,084
43	15,715	10,543	5,172
44	11,164	5,936	5,228
45	15,265	7,915	7,350
46	15,511	7,915	7,596
47	15,005	7,915	7,090
48	7,484	4,354	3,130
49	5,843	3,955	1,888
50	<u>18,523</u>	<u>10,554</u>	<u>7,969</u>
	<u>\$618,736</u>	<u>\$366,680</u>	<u>\$252,056</u>

University of Michigan

Sample Results

<u>Sample Number</u>	<u>Total Graduate Student Compensation Charged Federal Grant</u>	<u>Entry-level Postdoctoral's Salary at Equivalent Level of Effort</u>	<u>Difference or Unreasonable Compensation Charged to Federal Grant</u>
1	\$ 7,484	\$ 7,964	\$ 0
2	15,746	14,760	986
3	12,844	10,618	2,226
4	18,972	14,235	4,737
5	2,153	1,671	482
6	7,701	7,380	321
7	14,766	13,704	1,062
8	20,511	10,829	9,682
9	7,608	3,744	3,864
10	21,343	13,776	7,567
11	5,404	3,931	1,473
12	16,117	15,200	917
13	4,283	4,182	101
14	6,527	4,919	1,608
15	16,162	10,109	6,053
16	13,892	12,876	1,016
17	7,949	6,902	1,047
18	14,653	9,777	4,876
19	13,888	4,732	9,156
20	6,384	7,964	0
21	13,365	13,744	0
22	16,951	13,776	3,175
23	6,037	4,592	1,445
24	11,265	10,007	1,258
25	18,204	9,233	8,971
26	2,400	2,296	104
27	8,311	8,022	289
28	16,063	11,794	4,269
29	9,851	10,274	0
30	7,386	6,636	750
31	20,368	11,714	8,654
32	6,357	4,592	1,765
33	4,047	3,444	603
34	7,996	8,246	0
35	952	3,515	0
36	18,777	17,592	1,185
37	17,841	17,041	800

University of Michigan

Sample Results

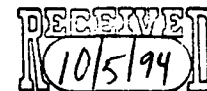
Sample Number	Total Graduate Student Compensation Charged <u>Federal Grant</u>	Entry-level Postdoctoral's Salary at Equivalent <u>Level of Effort</u>	Difference or Unreasonable Compensation Charged to <u>Federal Grant</u>
38	\$ 16,201	\$ 11,021	\$ 5,180
39	2,584	2,296	288
40	18,224	13,776	4,448
41	11,442	6,071	5,371
42	1,732	931	801
43	4,981	2,949	2,032
44	19,135	9,633	9,502
45	16,498	26,221	0
46	7,001	4,253	2,748
47	8,327	6,888	1,439
48	13,760	6,745	7,015
49	2,299	2,655	0
50	<u>5,368</u>	<u>4,253</u>	<u>1,115</u>
	<u>\$548,110</u>	<u>\$433,483</u>	<u>\$130,381</u>

Note: Column totals do not add across when the entry-level postdoctoral's salary exceeds the graduate student compensation. In those circumstances, we calculated the difference to be zero rather than include a negative difference.

APPENDIX



October 3, 1994



FROM: Deputy Assistant Secretary
for Grants and Acquisition Management

SUBJECT: Draft Audit Report - Graduate Student Compensation
Common Identification Number A-01-94-04002

TO: June Gibbs Brown
Inspector General

This responds to your request for comment on the draft audit report entitled *Audit of Graduate Student Compensation at Selected Universities* dated August 22, 1994.

We agree with the draft report's recommendation that OMB revise its Circular A-21 to stipulate a reasonableness standard for graduate student compensation. This proposed standard would provide that graduate student compensation: (i) be based on assigned responsibilities and; (ii) not exceed compensation of other individuals of similar experience performing similar work at the university.

We will forward your final audit report to OMB with our strong endorsement that this subject be addressed in the next revision to Circular A-21. We will also suggest that ASMB representatives work with OMB to develop necessary changes to the Circular.

Thank you for the opportunity of commenting on this draft report. If you have any questions about this reply or, if you wish to discuss this matter in detail, please call me [690-6901] or Dick Sullivan [401-2749].


Terrence J. Tychan

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