

**INTERNATIONAL SURVEY OF
ENGINEERING FACULTY &
ADMINISTRATION: VIEW OF UNIVERSITY
EFFORTS TO PROMOTE TECHNOLOGY
TRANSFER, PATENTS & SPONSORED
RESEARCH**

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THE QUESTIONNAIRE

1. Please give us the following contact information:

- A. Name: (last name not required)
- B. Organization:
- C. Title
- D. Country
- E. Email Address:

2. Academic role or title

- A. Dean, Provost, Department Chairman
- B. Professor
- C. Assistant Professor/Reader
- D. Associate Professor
- E. Lecturer/Instructor Emeritus
- F. Other (please specify)

3. Age of survey participant

- A. Under 30
- B. 30-39
- C. 40-49
- D. 50-59
- E. 60 or Over

4. Are you male or female?

- A. Male
- B. Female

5. Is your institution public or private?

- A. Public
- B. Private

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6. In the past semester how many courses did you teach?
- A. None
 - B. One
 - C. Two
 - D. More than Two
7. Which phrase best describes your academic field
- A. Electrical/Electronic Engineering
 - B. Computer Science/Robotics
 - C. Civil Engineering
 - D. Mechanical/Industrial Engineering
 - E. Materials/Chemicals/Agriculture Engineering
 - F. Other (please specify)
8. What is your tenure/professional status?
- A. Tenured
 - B. Non-Tenured but on a Tenure Track
 - C. Not Tenured and not on a Tenure Track
 - D. Part Time or Adjunct
 - E. Emeritus
 - F. Administrator
9. What is your approximate level of annual compensation? (specified in bands below of US dollars)
- A. Less than \$60,000
 - B. \$60,000 to \$80,000
 - C. \$80,000+ to \$95,000
 - D. \$95,000+ to \$125,000
 - E. 125,000+ to \$150,000
 - F. More than \$150,000

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10. How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university?

- A. Terrible
- B. Poor
- C. Acceptable
- D. Good
- E. Excellent
- F. Other (please specify)

11. Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology?

- A. Much less
- B. Less
- C. About the same
- D. More
- E. Much More

12. How well does your university perform in each of the following areas?

	A	B	C	D	N/A
managing university patents					
publicizing university research achievements					
Incentivizing Faculty and Staff to Create Intellectual Property and Patents for the University					
promoting university developed technology					
arranging sponsored research projects with the private sector					
in assisting faculty in obtaining research grants					

13. What areas of technology in your field do you feel hold the best prospects for licensing and eventual commercialization?

14. At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West -- such as China and Russia -- is which of the following?

- A. Too much access and controls are too lax
- B. About the right level of access and controls are about right
- C. Insufficient access and existing controls are too stringent

INSTITUTIONAL AFFILIATIONS OF THE SURVEY PARTICIPANTS

Brown University
Colorado State University
Cornell University
Curtin University
Duke University
Florida International University
Georgia Institute of Technology
Georgia Tech Research Institute
Harvard University
Imperial College London
Johns Hopkins University
Lehigh University
Massey University
McGill University
Milwaukee School of Engineering
Monash University
MSOE University
Northeastern University
Penn State University
Princeton University
Queen Mary University of London
Rice University
Rose-Hulman Institute of Technology
Saint Louis University
Staffs University
Swinburne University
Texas A&M University
The University of British Columbia
The University of Iowa
The University of Western Australia
Universidad de Jaén
University of Alabama
University of Alberta
University of Auckland
University of Calgary
University of California Davis
University of California Riverside
University of California Santa Barbara
University of California, Berkeley
University of Connecticut
University of Florida
University of Idaho
University of Illinois
University of Michigan
University of Missouri
University of Pennsylvania
University of Pittsburgh

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University of San Diego
University of South Carolina
University of South Florida
University of Texas at Austin
University of Toronto
University of Utah
University of Wisconsin–Madison
UT Southwestern Medical Center
Vanderbilt University
Yale University

Characteristics of the Sample

US News & World Report Engineering Program Rank

	#
Top 10	29
11-20	32
21-50	28
51-100	28
More than 100	11
Non-USA	39
Total	167

Note: Non US universities are not ranked

Country

	#
Non-USA*	37
USA	130
Total	167

*Primarily Australia, Canada, New Zealand and the UK

Academic role or title

	#
Dean, Department Chair	18
Professor	34
Assistant/Associate Professor/Reader	57
Lecturer/Fellow/Postdoc	34
Research Engineer	5
Staff/Admin	19
Total	167

Age of survey participant

	#
39 or under	37
40-49	31
50-59	37
60 or Over	62
Total	167

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Are you male or female?

	#
Male	124
Female	43
Total	167

Is your institution public or private?

	#
Public	121
Private	46
Total	167

In the past semester how many courses did you teach?

	#
None	67
One	45
Two	26
More than Two	29
Total	167

Which phrase best describes your academic field

	#
Electrical/Electronic Engineering	25
Computer Science/Robotics	32
Civil Engineering	19
Mechanical/Industrial Engineering	42
Materials/Chemicals/Agriculture Engineering	35
Biomedical	14
Total	167

What is your tenure/professional status?

	#
Tenured	65
Non-Tenured but on a Tenure Track	12
Not Tenured and not on a Tenure Track	40
Part Time or Adjunct	23
Emeritus	7
Administrator	20
Total	167

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What is your approximate level of annual compensation? (specified in bands below of US dollars)

	#
Less than \$60,000	34
\$60,000 to \$80,000	26
\$80,000+ to \$95,000	21
\$95,000+ to \$125,000	33
125,000+ to \$150,000	18
More than \$150,000	35
Total	167

SUMMARY OF MAIN FINDINGS

Assessment of General University Efforts in Promoting Technologies Developed by Faculty and Other University Personnel

We asked: How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? We gave five potential answers to this multiple choice question which were: Terrible, Poor, Acceptable, Good and Excellent. Overall, a plurality of 32.93% chose Good, while the second most common answer was Acceptable, chosen by 26.35% of survey participants, followed by Excellent, chosen by 20.36% of participants, then Poor, selected by 14.37% and Terrible, the choice of 2.4%: 3.59% did not answer the question. More than 43% chose Terrible, Poor or Acceptable and we deem these three choices as the Dissatisfied while dubbing those choosing Good or Excellent, more than 53% of the sample, as the Satisfied.

Satisfaction was much greater in US programs than in those from other countries and also generally were higher in more highly ranked universities. For those universities ranked in the top ten engineering programs, more than 65.5% were satisfied vs. only about 18.2% of those ranked beyond 100 and about 33% of non-US universities. Deans and department heads were much happier than full professors with the performance of the technology transfer and sponsored research offices. Two thirds of department heads and deans thought that the work of these departments was good or excellent and only 11.11% described the performance as poor or worse. For professors only about 39% thought the performance was this good and more than 23% called it poor or worse. Men were more enthusiastic than women as 22.58% of men thought the performance excellent vs. only 13.95% of women.

Against our expectations, public colleges outperformed private ones as more than 55% of survey participants at public colleges were quite satisfied, vs. less than 47% at private ones.

Faculty in computer science/robotics and materials/chemicals/agricultural engineering were the least satisfied while faculty working in biomedical engineering were the most satisfied.

In general administrators and non-tenured faculty were happier with the performance of the technology and sponsored research offices than were tenured faculty; only 43.8% of tenured faculty were satisfied vs. 55% of administrators and 67.5% of those not tenured and not on a tenure track.

Should the University Spend More, Less or About the Same on Departments and Programs to Foster Technology Transfer & Patent Revenues

We asked: Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? We gave five possible answers to this multiple

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choice question, which were: Much less, Less, About the Same, More and Much More. A plurality of 45.51% wanted to spend more while 42.51% wanted to spend about the same; 6.59% wanted to spend less and 1.2%, much less while 3.59% wanted to spend much more; 0.6% did not answer the question.

In top ten programs, more than 62% wanted to spend more or much more with 10.34% wanting to spend much more. This dwarfed spending level changed in lower ranked programs. Faculty and staff in electrical/electronic engineering were much more likely than others to want to spend more; 68% wanted to do so vs. only 42.86% in mechanical engineering. However, only 40% of individuals earning more than \$150,000 per year wanted to spend more and none of these wanted to spend much more.

Assessment of the University Effort in Managing Its Patents

We asked: How well does your university perform in managing university patents? We asked survey participants to assign a letter grade, A, B, C or D.

B was the most common grade awarded, by 26.95% of participants, followed by an A, given by 20.36%, but 14.37% awarded a C and 10.78%, a D; 27.54% did not answer the question. Non US engineering faculty and administration were much harsher in their grading, more than 43%, and a majority of those who awarded a grade. Gave a C or a D.

Professors were tougher in their grading than were assistant/associate professors and readers, or deans and department heads. More than 32% of professors awarded a C or a D and only 11.76% gave out the coveted A. Among deans and department chairs, on the other hand, only a shade more than 22% awarded a C or a D while 27.78% awarded an A.

Older faculty in the 50-59 age range were particularly harsh. Only 5.41% of them awarded an A and more than 35% gave a C or D.

Faculty and staff in electrical/electronic engineering and those in computer science and robotics were the least generous graders; 32% of the former and more than 34% of the latter gave out a C or D. Also, only 6.25% in computer science and robotics awarded an A grade.

Assessment of the University Effort in Publicizing University Research Achievements

We asked: How well does your university perform in publicizing university research achievements? Survey respondents were equally standoffish in their grading. For the entire sample 26.35% gave a C or a D. Survey respondents in top 10 programs were the quite dissatisfied as more than 31% awarded a C or a D. However, respondents from non-US programs and those rated over 100 were respectively about as and much more dissatisfied than were those from the top 10 programs. Nearly 45.5% of those from programs ranked past 100 were dissatisfied and awarded a C or D grade; this was also true for 30.76% of those from non-US programs.

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Once again dissatisfaction was greatest among professors, of whom more than 41% assigned a C or D grade to their university's efforts to publicize university research achievements.

Assessment of University Performance in Incentivizing Faculty to Create Intellectual Property and Patents for the University

We asked: How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university?

In general faculty and staff were not very happy in this area; only 11.98% awarded an A while 27.54% gave a B. Nearly 26% assigned a grade of C and an equally disturbing 21.56% gave out a D; 13.17% did not answer the question. An A grade was particularly unlikely outside of the USA where only 2.56% awarded it; but it was not too common among top 10 programs in the USA; only 13.79% of respondents from these schools awarded an A.

Deans and department chairs were much more likely than professors to award an A or a B in this area and more than 44% of the former but only a bit more than 26% of the latter awarded one of these two grades. Scepticism seemed to increase with the age of the survey participant, at least until the age of 60 when it receded somewhat. Women were even more sceptical than men; only 9.3% of women gave their university an A vs. 12.9% of men. Overwhelmingly, those in the biomedical category of engineering were much more satisfied than their counterparts in other engineering fields; 35.71% awarded an A and the same percentage awarded a B; only 7.14% gave a C and none assigned a D grade. In contrast, in electrical/electronic engineering, 32% gave a C and 36% a D.

For the most part satisfaction with the university incentives structure for incentivizing faculty to create patents and other intellectual property for the university tended to increase with the income of the survey participant. For example, the percentage giving a grade of A to the university effort and regime in this area rose from 4.76% for those earning \$80,000 to \$95,000 to 9.09% for those earning \$95,000 to \$125,000 and 11.11% of those earning \$125,000 to \$150,000 and finally, to 17.14% of those earning more than \$150,000.

It may be that universities are giving better deals to more renowned faculty at higher pay levels, or it could be that this reflects greater support from deans and other administrators usually in this pay range.

Assessment of University Performance in Promoting University-Developed Technology

We asked: How well does your university perform in promoting university developed technology?

While only 11.98% gave an A, a plurality of 36.53% awarded a B and only 11.98% gave a D with 26.35% assigning a C grade. Satisfaction in this area varied dramatically by program rank and US/Non-USA status. For top 10 programs, 24.14% gave an A and 31.03% a B

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while for programs ranked 51-100, only 7.14% assigned an A and 35.71% a B. For non-US programs, only 2.56% gave out an A in this area while more than 56.4% gave a C or a D.

Once again deans and department chairmen differed markedly in their views vis a vis faculty, particularly professors, of whom only 5.88% awarded an A vs 22.22% of deans and department chairmen.

Assessment of University Performance in Arranging Sponsored Research Projects with the Private Sector

We asked: How well does your university perform in arranging sponsored research projects with the private sector?

In the area of sponsored research with the private sector, 14.37% assigned an A and 30.54%, B while 25.75% gave a C and 17.37%, D. In general, with some exception, the higher ranked the program the greater the satisfaction in this sphere. A plurality of 27.59% of survey participants at top 10 programs awarded an A vs only 12.5% awarded by participants from programs ranked 11-20. USA programs significantly outperformed their non-USA counterparts with 16.28% of the former but only 7.89% of the latter awarding an A grade.

Assessment of University Performance in Assisting Faculty in Obtaining Research Grants

We asked: How well does your university perform in assisting faculty in obtaining research grants?

Performance perception was somewhat better here, with nearly half awarding an A or B. However, even in this area non-USA schools lagged those in the USA in terms of satisfaction, with only 5.69% of non-USA schools assigning an A vs. 17.83% of those in the USA.

Once again there is the now familiar large difference between department chairmen and deans and professors; 22.22% of the former but only 5.88% of the latter award an A. Possibly, deans and department chairmen overidentify with management, or possibly, professors impractically expect too much, but the persistent differences in perceptions are striking. A similar statistic approximating the same audience shows that 7.69% of the tenured gave out an A while 25% of administrators did the same.

Assessment of University Policies in Controlling Access to Sensitive Technology Research by Students and Researchers from China and Russia

As relations between the United States and other western nations with Russia and China show potential for significant deterioration pressure has built on universities to impede technology transfer to these nations, partially by restricting the access that students and researchers from these countries have to research from the United States, as well as from Canada, the UK, Australia, and New Zealand. In light of this, and the challenges to

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university technology transfer administration, we probed the attitude of faculty and staff to the issue.

We asked: At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following?

We gave three possible answers to this multiple choice question; they were: 1) Too much access and controls are too lax 2) About the right level of access and controls are about right 3) Insufficient access and existing controls are too stringent

15.57% felt that the researchers had too much access and 10.78% thought that they had insufficient access while 46.11% felt that existing controls got it about right. While most thought the status quo was best, the ratio of those who wanted more stringent to less stringent controls was about 3:2. However, for the top programs, this ratio was 2:1 for top 10 programs and more than 3:1 for those ranked 11-20.

Age was a factor. In general, older survey participants were warier of Russia and China than were younger ones; nearly 21% of those over age 60 felt that current controls are too lax. Nearly 43% of emeritus faculty felt that controls were insufficiently stringent.

Survey respondents in biomedical engineering were more likely than their peers in other areas of engineering to believe that controls were too lax and merited tightening – 28.57% felt this way.

Table 1.1 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university?

	Other	Terrible	Poor	Acceptable	Good	Excellent
Entire sample	3.59%	2.40%	14.37%	26.35%	32.93%	20.36%

Table 1.2 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	Other	Terrible	Poor	Acceptable	Good	Excellent
Top 10	3.45%	0.00%	10.34%	20.69%	37.93%	27.59%
11-20	0.00%	3.13%	3.13%	25.00%	43.75%	25.00%
21-50	3.57%	0.00%	21.43%	17.86%	39.29%	17.86%
51-100	3.57%	3.57%	7.14%	25.00%	28.57%	32.14%
More than 100	9.09%	0.00%	18.18%	54.55%	9.09%	9.09%
Non-USA	5.13%	5.13%	25.64%	30.77%	25.64%	7.69%

Table 1.3 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by country

Country	Other	Terrible	Poor	Acceptable	Good	Excellent
All other	2.70%	5.41%	27.03%	29.73%	27.03%	8.11%
USA	3.85%	1.54%	10.77%	25.38%	34.62%	23.85%

Table 1.4 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by academic role or title

Academic role or title	Other	Terrible	Poor	Acceptable	Good	Excellent
Dean, department chair	5.56%	0.00%	11.11%	16.67%	33.33%	33.33%
Professor	2.94%	5.88%	17.65%	35.29%	23.53%	14.71%
Assistant/associate professor/reader	1.75%	1.75%	19.30%	26.32%	31.58%	19.30%
Lecturer/fellow/postdoc	5.88%	2.94%	11.76%	23.53%	38.24%	17.65%
Research Engineer	0.00%	0.00%	0.00%	0.00%	80.00%	20.00%
Staff/Admin	5.26%	0.00%	5.26%	31.58%	31.58%	26.32%

Table 1.5 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by age of survey participant

Age of survey participant	Other	Terrible	Poor	Acceptable	Good	Excellent
39 or under	0.00%	5.41%	18.92%	21.62%	37.84%	16.22%
40-49	3.23%	0.00%	16.13%	19.35%	38.71%	22.58%
50-59	2.70%	2.70%	16.22%	29.73%	29.73%	18.92%
60 or Over	6.45%	1.61%	9.68%	30.65%	29.03%	22.58%

Table 1.6 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by gender of survey participant

Are you male or female?	Other	Terrible	Poor	Acceptable	Good	Excellent
Male	2.42%	2.42%	14.52%	25.81%	32.26%	22.58%
Female	6.98%	2.33%	13.95%	27.91%	34.88%	13.95%

Table 1.7 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by Is your institution public or private?

Is your institution public or private?	Other	Terrible	Poor	Acceptable	Good	Excellent
Public	4.13%	1.65%	14.88%	23.97%	34.71%	20.66%
Private	2.17%	4.35%	13.04%	32.61%	28.26%	19.57%

Table 1.8 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	Other	Terrible	Poor	Acceptable	Good	Excellent
None	1.49%	0.00%	8.96%	25.37%	37.31%	26.87%
One	6.67%	2.22%	22.22%	26.67%	31.11%	11.11%
Two	3.85%	0.00%	7.69%	30.77%	26.92%	30.77%
More than Two	3.45%	10.34%	20.69%	24.14%	31.03%	10.34%

Table 1.9 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by academic field or specialization

Which phrase best describes your academic field?	Other	Terrible	Poor	Acceptable	Good	Excellent
Electrical/Electronic Engineering	0.00%	4.00%	8.00%	32.00%	40.00%	16.00%
Computer Science/Robotics	9.38%	3.13%	25.00%	21.88%	25.00%	15.63%
Civil Engineering	5.26%	0.00%	10.53%	21.05%	42.11%	21.05%
Mechanical/Industrial Engineering	2.38%	0.00%	11.90%	28.57%	30.95%	26.19%
Materials/Chemicals/Agriculture Engineering	2.86%	5.71%	20.00%	31.43%	34.29%	5.71%
Biomedical	0.00%	0.00%	0.00%	14.29%	28.57%	57.14%

Table 1.10 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by tenure status

What is your tenure/professional status?	Other	Terrible	Poor	Acceptable	Good	Excellent
Tenured	3.08%	4.62%	18.46%	30.77%	23.08%	20.00%
Non Tenured but on a Tenure Track	0.00%	8.33%	16.67%	25.00%	25.00%	25.00%
Not Tenured and not on a Tenure Track	2.50%	0.00%	10.00%	20.00%	42.50%	25.00%
Part Time or Adjunct	4.35%	0.00%	17.39%	21.74%	47.83%	8.70%
Emeritus	14.29%	0.00%	14.29%	28.57%	28.57%	14.29%
Administrator	5.00%	0.00%	5.00%	30.00%	35.00%	25.00%

Table 1.11 How would you grade your university's efforts in promoting technologies developed by faculty and others connected to the university? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	Other	Terrible	Poor	Acceptable	Good	Excellent
Less than \$60,000	2.94%	0.00%	17.65%	35.29%	20.59%	23.53%
\$60,000 to \$80,000	0.00%	0.00%	11.54%	26.92%	42.31%	19.23%
\$80,000+ to \$95,000	4.76%	0.00%	14.29%	23.81%	47.62%	9.52%
\$95,000+ to \$125,000	3.03%	3.03%	18.18%	21.21%	33.33%	21.21%
125,000+ to \$150,000	0.00%	5.56%	5.56%	33.33%	27.78%	27.78%
More than \$150,000	8.57%	5.71%	14.29%	20.00%	31.43%	20.00%

Other:

1. no opinion
2. Unknown. None from out department
3. N/A
4. I don't know what you are asking
5. Don't Know
6. Not informed enough to answer

Table 2.1 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology?

	No Answer	Much less	Less	About the same	More	Much More
Entire sample	0.60%	1.20%	6.59%	42.51%	45.51%	3.59%

Table 2.2 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	Much less	Less	About the same	More	Much More
Top 10	0.00%	0.00%	3.45%	34.48%	51.72%	10.34%
11-20	0.00%	0.00%	6.25%	43.75%	50.00%	0.00%
21-50	3.57%	0.00%	3.57%	57.14%	35.71%	0.00%
51-100	0.00%	3.57%	10.71%	32.14%	50.00%	3.57%
More than 100	0.00%	0.00%	18.18%	36.36%	45.45%	0.00%
Non-USA	0.00%	2.56%	5.13%	46.15%	41.03%	5.13%

Table 2.3 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by country

Country	No Answer	Much less	Less	About the same	More	Much More
All other	0.00%	2.70%	5.41%	45.95%	40.54%	5.41%
USA	0.77%	0.77%	6.92%	41.54%	46.92%	3.08%

Table 2.4 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by academic role or title

Academic role or title	No Answer	Much less	Less	About the same	More	Much More
Dean, department chair	0.00%	0.00%	11.11%	38.89%	50.00%	0.00%
Professor	0.00%	0.00%	2.94%	50.00%	44.12%	2.94%
Assistant/associate professor/reader	0.00%	1.75%	12.28%	42.11%	40.35%	3.51%
Lecturer/fellow/postdoc	2.94%	2.94%	0.00%	41.18%	50.00%	2.94%
Research Engineer	0.00%	0.00%	20.00%	40.00%	40.00%	0.00%
Staff/Admin	0.00%	0.00%	0.00%	36.84%	52.63%	10.53%

Table 2.5 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by age of survey participant

Age of survey participant	No Answer	Much less	Less	About the same	More	Much More
39 or under	2.70%	5.41%	5.41%	43.24%	35.14%	8.11%
40-49	0.00%	0.00%	9.68%	32.26%	48.39%	9.68%
50-59	0.00%	0.00%	5.41%	43.24%	51.35%	0.00%
60 or Over	0.00%	0.00%	6.45%	46.77%	46.77%	0.00%

Table 2.6 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by gender of survey participant

Are you male or female?	No Answer	Much less	Less	About the same	More	Much More
Male	0.00%	0.81%	6.45%	44.35%	45.16%	3.23%
Female	2.33%	2.33%	6.98%	37.21%	46.51%	4.65%

Table 2.7 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	Much less	Less	About the same	More	Much More
Public	0.00%	0.83%	7.44%	42.15%	45.45%	4.13%
Private	2.17%	2.17%	4.35%	43.48%	45.65%	2.17%

Table 2.8 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	Much less	Less	About the same	More	Much More
None	0.00%	0.00%	4.48%	40.30%	49.25%	5.97%
One	0.00%	2.22%	11.11%	46.67%	37.78%	2.22%
Two	3.85%	0.00%	7.69%	42.31%	46.15%	0.00%
More than Two	0.00%	3.45%	3.45%	41.38%	48.28%	3.45%

Table 2.9 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	Much less	Less	About the same	More	Much More
Electrical/Electronic Engineering	0.00%	0.00%	4.00%	28.00%	64.00%	4.00%
Computer Science/Robotics	0.00%	6.25%	6.25%	46.88%	37.50%	3.13%
Civil Engineering	0.00%	0.00%	21.05%	26.32%	52.63%	0.00%
Mechanical/Industrial Engineering	0.00%	0.00%	2.38%	54.76%	42.86%	0.00%
Materials/Chemicals/Agriculture Engineering	0.00%	0.00%	2.86%	48.57%	45.71%	2.86%
Biomedical	7.14%	0.00%	14.29%	28.57%	28.57%	21.43%

Table 2.10 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by tenure status

What is your tenure/professional status?	No Answer	Much less	Less	About the same	More	Much More
Tenured	0.00%	1.54%	7.69%	43.08%	46.15%	1.54%
Non Tenured but on a Tenure Track	0.00%	8.33%	8.33%	41.67%	33.33%	8.33%
Not Tenured and not on a Tenure Track	2.50%	0.00%	5.00%	40.00%	47.50%	5.00%
Part Time or Adjunct	0.00%	0.00%	8.70%	60.87%	30.43%	0.00%
Emeritus	0.00%	0.00%	0.00%	42.86%	57.14%	0.00%
Administrator	0.00%	0.00%	5.00%	25.00%	60.00%	10.00%

Table 2.11 Imagine that your university budget is just about keeping pace with inflation, perhaps a little better, should your university spend more, spend less, or spend about the same on departments and programs to foster technology transfer and patent revenues from university developed technology? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	Much less	Less	About the same	More	Much More
Less than \$60,000	0.00%	0.00%	5.88%	44.12%	44.12%	5.88%
\$60,000 to \$80,000	0.00%	0.00%	7.69%	38.46%	50.00%	3.85%
\$80,000+ to \$95,000	4.76%	0.00%	0.00%	28.57%	61.90%	4.76%
\$95,000+ to \$125,000	0.00%	3.03%	9.09%	36.36%	45.45%	6.06%
125,000+ to \$150,000	0.00%	0.00%	5.56%	61.11%	33.33%	0.00%
More than \$150,000	0.00%	2.86%	8.57%	48.57%	40.00%	0.00%

Table 3 How well does your university perform in each of the following areas?

Table 3.1.1 How well does your university perform in managing university patents?

	No Answer	A	B	C	D
Entire sample	27.54%	20.36%	26.95%	14.37%	10.78%

**Table 3.1.2 How well does your university perform in managing university patents?
Broken out by US News & World Report ranking of doctoral level engineering programs**

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	31.03%	27.59%	24.14%	6.90%	10.34%
11-20	9.38%	28.13%	43.75%	15.63%	3.13%
21-50	35.71%	25.00%	21.43%	10.71%	7.14%
51-100	35.71%	25.00%	21.43%	10.71%	7.14%
More than 100	36.36%	9.09%	18.18%	18.18%	18.18%
Non-USA	25.64%	5.13%	25.64%	23.08%	20.51%

**Table 3.1.3 How well does your university perform in managing university patents?
Broken out by country**

Country	No Answer	A	B	C	D
All other	24.32%	5.41%	27.03%	21.62%	21.62%
USA	28.46%	24.62%	26.92%	12.31%	7.69%

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**Table 3.1.4 How well does your university perform in managing university patents?
Broken out by academic role or title**

Academic role or title	No Answer	A	B	C	D
Dean, department chair	16.67%	27.78%	33.33%	11.11%	11.11%
Professor	23.53%	11.76%	32.35%	14.71%	17.65%
Assistant/associate professor/reader	31.58%	17.54%	29.82%	15.79%	5.26%
Lecturer/fellow/postdoc	32.35%	20.59%	20.59%	14.71%	11.76%
Research Engineer	20.00%	60.00%	20.00%	0.00%	0.00%
Staff/Admin	26.32%	26.32%	15.79%	15.79%	15.79%

**Table 3.1.5 How well does your university perform in managing university patents?
Broken out by age of survey participant**

Age of survey participant	No Answer	A	B	C	D
39 or under	32.43%	29.73%	21.62%	10.81%	5.41%
40-49	32.26%	25.81%	9.68%	16.13%	16.13%
50-59	21.62%	5.41%	37.84%	18.92%	16.22%
60 or Over	25.81%	20.97%	32.26%	12.90%	8.06%

**Table 3.1.6 How well does your university perform in managing university patents?
Broken out by gender of survey participant**

Are you male or female?	No Answer	A	B	C	D
Male	25.81%	19.35%	30.65%	15.32%	8.87%
Female	32.56%	23.26%	16.28%	11.63%	16.28%

**Table 3.1.7 How well does your university perform in managing university patents?
Broken out by Is your institution public or private?**

Is your institution public or private?	No Answer	A	B	C	D
Public	28.10%	20.66%	24.79%	15.70%	10.74%
Private	26.09%	19.57%	32.61%	10.87%	10.87%

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**Table 3.1.8 How well does your university perform in managing university patents?
Broken out number of courses taught in the past semester by the survey participant**

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	26.87%	31.34%	22.39%	14.93%	4.48%
One	33.33%	8.89%	28.89%	17.78%	11.11%
Two	23.08%	15.38%	30.77%	19.23%	11.54%
More than Two	24.14%	17.24%	31.03%	3.45%	24.14%

**Table 3.1.9 How well does your university perform in managing university patents?
Broken out by academic field or specialization**

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	24.00%	20.00%	24.00%	16.00%	16.00%
Computer Science/Robotics	34.38%	6.25%	25.00%	15.63%	18.75%
Civil Engineering	47.37%	15.79%	15.79%	10.53%	10.53%
Mechanical/Industrial Engineering	19.05%	21.43%	35.71%	19.05%	4.76%
Materials/Chemicals/Agriculture Engineering	22.86%	22.86%	31.43%	11.43%	11.43%
Biomedical	28.57%	50.00%	14.29%	7.14%	0.00%

**Table 3.1.10 How well does your university perform in managing university patents?
Broken out by tenure status**

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	26.15%	12.31%	30.77%	13.85%	16.92%
Non Tenured but on a Tenure Track	41.67%	16.67%	25.00%	16.67%	0.00%
Not Tenured and not on a Tenure Track	25.00%	30.00%	30.00%	7.50%	7.50%
Part Time or Adjunct	34.78%	17.39%	17.39%	26.09%	4.35%
Emeritus	14.29%	28.57%	42.86%	14.29%	0.00%
Administrator	25.00%	30.00%	15.00%	15.00%	15.00%

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**Table 3.1.11 How well does your university perform in managing university patents?
Broken out by level of annual compensation in \$US**

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	29.41%	23.53%	17.65%	17.65%	11.76%
\$60,000 to \$80,000	30.77%	15.38%	26.92%	19.23%	7.69%
\$80,000+ to \$95,000	28.57%	28.57%	23.81%	9.52%	9.52%
\$95,000+ to \$125,000	27.27%	24.24%	24.24%	12.12%	12.12%
125,000+ to \$150,000	22.22%	11.11%	38.89%	22.22%	5.56%
More than \$150,000	25.71%	17.14%	34.29%	8.57%	14.29%

Table 3.2.1 How well does your university perform in publicizing university research achievements?

	No Answer	A	B	C	D
Entire sample	8.98%	28.74%	35.93%	19.16%	7.19%

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Table 3.2.2 How well does your university perform in publicizing university research achievements? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	10.34%	34.48%	24.14%	20.69%	10.34%
11-20	3.13%	37.50%	37.50%	21.88%	0.00%
21-50	17.86%	32.14%	35.71%	10.71%	3.57%
51-100	10.71%	28.57%	35.71%	21.43%	3.57%
More than 100	0.00%	0.00%	54.55%	36.36%	9.09%
Non-USA	7.69%	23.08%	38.46%	15.38%	15.38%

Table 3.2.3 How well does your university perform in publicizing university research achievements? Broken out by country

Country	No Answer	A	B	C	D
All other	8.11%	18.92%	40.54%	16.22%	16.22%
USA	9.23%	31.54%	34.62%	20.00%	4.62%

Table 3.2.4 How well does your university perform in publicizing university research achievements? Broken out by academic role or title

Academic role or title	No Answer	A	B	C	D
Dean, department chair	0.00%	33.33%	33.33%	22.22%	11.11%
Professor	5.88%	20.59%	32.35%	26.47%	14.71%
Assistant/associate professor/reader	8.77%	29.82%	42.11%	15.79%	3.51%
Lecturer/fellow/postdoc	14.71%	32.35%	35.29%	8.82%	8.82%
Research Engineer	0.00%	60.00%	0.00%	40.00%	0.00%
Staff/Admin	15.79%	21.05%	36.84%	26.32%	0.00%

Table 3.2.5 How well does your university perform in publicizing university research achievements? Broken out by age of survey participant

Age of survey participant	No Answer	A	B	C	D
39 or under	8.11%	32.43%	45.95%	8.11%	5.41%
40-49	12.90%	22.58%	32.26%	16.13%	16.13%
50-59	10.81%	16.22%	37.84%	27.03%	8.11%
60 or Over	6.45%	37.10%	30.65%	22.58%	3.23%

Table 3.2.6 How well does your university perform in publicizing university research achievements? Broken out by gender of survey participant

Are you male or female?	No Answer	A	B	C	D
Male	8.06%	30.65%	36.29%	19.35%	5.65%
Female	11.63%	23.26%	34.88%	18.60%	11.63%

Table 3.2.7 How well does your university perform in publicizing university research achievements? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	A	B	C	D
Public	8.26%	30.58%	34.71%	19.01%	7.44%
Private	10.87%	23.91%	39.13%	19.57%	6.52%

Table 3.2.8 How well does your university perform in publicizing university research achievements? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	8.96%	35.82%	37.31%	14.93%	2.99%
One	8.89%	24.44%	40.00%	17.78%	8.89%
Two	7.69%	30.77%	30.77%	23.08%	7.69%
More than Two	10.34%	17.24%	31.03%	27.59%	13.79%

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Table 3.2.9 How well does your university perform in publicizing university research achievements? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	4.00%	28.00%	20.00%	36.00%	12.00%
Computer Science/Robotics	9.38%	21.88%	37.50%	21.88%	9.38%
Civil Engineering	21.05%	21.05%	36.84%	21.05%	0.00%
Mechanical/Industrial Engineering	4.76%	28.57%	45.24%	11.90%	9.52%
Materials/Chemicals/Agriculture Engineering	8.57%	28.57%	42.86%	14.29%	5.71%
Biomedical	14.29%	57.14%	14.29%	14.29%	0.00%

Table 3.2.10 How well does your university perform in publicizing university research achievements? Broken out by tenure status

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	4.62%	23.08%	35.38%	26.15%	10.77%
Non Tenured but on a Tenure Track	8.33%	16.67%	66.67%	8.33%	0.00%
Not Tenured and not on a Tenure Track	10.00%	42.50%	30.00%	10.00%	7.50%
Part Time or Adjunct	17.39%	34.78%	21.74%	21.74%	4.35%
Emeritus	0.00%	14.29%	42.86%	28.57%	14.29%
Administrator	15.00%	25.00%	45.00%	15.00%	0.00%

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Table 3.2.11 How well does your university perform in publicizing university research achievements? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	8.82%	35.29%	35.29%	17.65%	2.94%
\$60,000 to \$80,000	11.54%	23.08%	50.00%	7.69%	7.69%
\$80,000+ to \$95,000	14.29%	28.57%	19.05%	28.57%	9.52%
\$95,000+ to \$125,000	9.09%	36.36%	33.33%	15.15%	6.06%
125,000+ to \$150,000	5.56%	22.22%	33.33%	27.78%	11.11%
More than \$150,000	5.71%	22.86%	40.00%	22.86%	8.57%

Table 3.3.1 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university?

	No Answer	A	B	C	D
Entire sample	13.17%	11.98%	27.54%	25.75%	21.56%

Table 3.3.2 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	6.90%	13.79%	20.69%	34.48%	24.14%
11-20	3.13%	18.75%	43.75%	28.13%	6.25%
21-50	17.86%	17.86%	28.57%	21.43%	14.29%
51-100	25.00%	14.29%	21.43%	25.00%	14.29%
More than 100	9.09%	0.00%	54.55%	9.09%	27.27%
Non-USA	15.38%	2.56%	15.38%	25.64%	41.03%

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Table 3.3.3 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by country

Country	No Answer	A	B	C	D
All other	16.22%	2.70%	16.22%	21.62%	43.24%
USA	12.31%	14.62%	30.77%	26.92%	15.38%

Table 3.3.4 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by academic role or title

Academic role or title	No Answer	A	B	C	D
Dean, department chair	5.56%	22.22%	22.22%	33.33%	16.67%
Professor	11.76%	8.82%	17.65%	35.29%	26.47%
Assistant/associate professor/reader	10.53%	7.02%	36.84%	24.56%	21.05%
Lecturer/fellow/postdoc	17.65%	20.59%	26.47%	17.65%	17.65%
Research Engineer	0.00%	0.00%	80.00%	20.00%	0.00%
Staff/Admin	26.32%	10.53%	10.53%	21.05%	31.58%

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Table 3.3.5 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by age of survey participant

Age of survey participant	No Answer	A	B	C	D
39 or under	13.51%	16.22%	32.43%	21.62%	16.22%
40-49	16.13%	12.90%	25.81%	22.58%	22.58%
50-59	10.81%	5.41%	24.32%	29.73%	29.73%
60 or Over	12.90%	12.90%	27.42%	27.42%	19.35%

Table 3.3.6 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by gender of survey participant

Are you male or female?	No Answer	A	B	C	D
Male	12.10%	12.90%	29.84%	24.19%	20.97%
Female	16.28%	9.30%	20.93%	30.23%	23.26%

Table 3.3.7 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	A	B	C	D
Public	13.22%	10.74%	28.93%	25.62%	21.49%
Private	13.04%	15.22%	23.91%	26.09%	21.74%

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Table 3.3.8 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	14.93%	19.40%	26.87%	23.88%	14.93%
One	17.78%	2.22%	28.89%	22.22%	28.89%
Two	3.85%	11.54%	26.92%	38.46%	19.23%
More than Two	10.34%	10.34%	27.59%	24.14%	27.59%

Table 3.3.9 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	0.00%	16.00%	16.00%	32.00%	36.00%
Computer Science/Robotics	15.63%	12.50%	18.75%	31.25%	21.88%
Civil Engineering	21.05%	0.00%	36.84%	15.79%	26.32%
Mechanical/Industrial Engineering	11.90%	11.90%	38.10%	26.19%	11.90%
Materials/Chemicals/Agriculture Engineering	14.29%	5.71%	22.86%	28.57%	28.57%
Biomedical	21.43%	35.71%	35.71%	7.14%	0.00%

Table 3.3.10 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by tenure status

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	10.77%	9.23%	21.54%	32.31%	26.15%
Non Tenured but on a Tenure Track	16.67%	8.33%	50.00%	16.67%	8.33%
Not Tenured and not on a Tenure Track	12.50%	20.00%	37.50%	17.50%	12.50%
Part Time or Adjunct	17.39%	8.70%	17.39%	26.09%	30.43%
Emeritus	0.00%	0.00%	28.57%	42.86%	28.57%
Administrator	20.00%	15.00%	25.00%	20.00%	20.00%

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Table 3.3.11 How well does your university perform in incentivizing faculty and staff to create intellectual property and patents for the university? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	14.71%	17.65%	17.65%	14.71%	35.29%
\$60,000 to \$80,000	23.08%	7.69%	38.46%	15.38%	15.38%
\$80,000+ to \$95,000	14.29%	4.76%	38.10%	33.33%	9.52%
\$95,000+ to \$125,000	9.09%	9.09%	30.30%	30.30%	21.21%
125,000+ to \$150,000	11.11%	11.11%	27.78%	33.33%	16.67%
More than \$150,000	8.57%	17.14%	20.00%	31.43%	22.86%

Table 3.4.1 How well does your university perform in promoting university developed technology?

	No Answer	A	B	C	D
Entire sample	13.17%	11.98%	36.53%	26.35%	11.98%

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Table 3.4.2 How well does your university perform in promoting university developed technology? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	6.90%	24.14%	31.03%	24.14%	13.79%
11-20	9.38%	12.50%	56.25%	15.63%	6.25%
21-50	14.29%	21.43%	35.71%	25.00%	3.57%
51-100	25.00%	7.14%	35.71%	28.57%	3.57%
More than 100	9.09%	0.00%	27.27%	36.36%	27.27%
Non-USA	12.82%	2.56%	28.21%	33.33%	23.08%

Table 3.4.3 How well does your university perform in promoting university developed technology? Broken out by country

Country	No Answer	A	B	C	D
All other	13.51%	2.70%	29.73%	29.73%	24.32%
USA	13.08%	14.62%	38.46%	25.38%	8.46%

Table 3.4.4 How well does your university perform in promoting university developed technology? Broken out by academic role or title

Academic role or title	No Answer	A	B	C	D
Dean, department chair	5.56%	22.22%	33.33%	27.78%	11.11%
Professor	11.76%	5.88%	35.29%	35.29%	11.76%
Assistant/associate professor/reader	12.28%	1.75%	47.37%	26.32%	12.28%
Lecturer/fellow/postdoc	17.65%	26.47%	26.47%	17.65%	11.76%
Research Engineer	0.00%	0.00%	60.00%	40.00%	0.00%
Staff/Admin	21.05%	21.05%	21.05%	21.05%	15.79%

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Table 3.4.5 How well does your university perform in promoting university developed technology? Broken out by age of survey participant

Age of survey participant	No Answer	A	B	C	D
39 or under	13.51%	16.22%	43.24%	18.92%	8.11%
40-49	12.90%	9.68%	38.71%	22.58%	16.13%
50-59	5.41%	5.41%	37.84%	37.84%	13.51%
60 or Over	17.74%	14.52%	30.65%	25.81%	11.29%

Table 3.4.6 How well does your university perform in promoting university developed technology? Broken out by gender of survey participant

Are you male or female?	No Answer	A	B	C	D
Male	12.10%	11.29%	39.52%	25.81%	11.29%
Female	16.28%	13.95%	27.91%	27.91%	13.95%

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Table 3.4.7 How well does your university perform in promoting university developed technology? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	A	B	C	D
Public	14.05%	12.40%	33.88%	28.93%	10.74%
Private	10.87%	10.87%	43.48%	19.57%	15.22%

Table 3.4.8 How well does your university perform in promoting university developed technology? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	16.42%	19.40%	34.33%	23.88%	5.97%
One	13.33%	4.44%	40.00%	31.11%	11.11%
Two	7.69%	7.69%	42.31%	34.62%	7.69%
More than Two	10.34%	10.34%	31.03%	17.24%	31.03%

Table 3.4.9 How well does your university perform in promoting university developed technology? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	4.00%	16.00%	32.00%	36.00%	12.00%
Computer Science/Robotics	15.63%	6.25%	28.13%	28.13%	21.88%
Civil Engineering	21.05%	0.00%	42.11%	21.05%	15.79%
Mechanical/Industrial Engineering	14.29%	16.67%	38.10%	21.43%	9.52%
Materials/Chemicals/Agriculture Engineering	11.43%	11.43%	37.14%	31.43%	8.57%
Biomedical	14.29%	21.43%	50.00%	14.29%	0.00%

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Table 3.4.10 How well does your university perform in promoting university developed technology? Broken out by tenure status

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	12.31%	6.15%	30.77%	35.38%	15.38%
Non Tenured but on a Tenure Track	16.67%	0.00%	58.33%	25.00%	0.00%
Not Tenured and not on a Tenure Track	10.00%	25.00%	45.00%	15.00%	5.00%
Part Time or Adjunct	13.04%	8.70%	34.78%	30.43%	13.04%
Emeritus	28.57%	14.29%	14.29%	14.29%	28.57%
Administrator	15.00%	15.00%	35.00%	20.00%	15.00%

Table 3.4.11 How well does your university perform in promoting university developed technology? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	14.71%	14.71%	32.35%	20.59%	17.65%
\$60,000 to \$80,000	15.38%	15.38%	38.46%	26.92%	3.85%
\$80,000+ to \$95,000	19.05%	4.76%	42.86%	19.05%	14.29%
\$95,000+ to \$125,000	9.09%	15.15%	30.30%	36.36%	9.09%
125,000+ to \$150,000	11.11%	5.56%	44.44%	27.78%	11.11%
More than \$150,000	11.43%	11.43%	37.14%	25.71%	14.29%

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Table 3.5.1 How well does your university perform in arranging sponsored research projects with the private sector?

	No Answer	A	B	C	D
Entire sample	11.98%	14.37%	30.54%	25.75%	17.37%

Table 3.5.2 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	6.90%	27.59%	20.69%	24.14%	20.69%
11-20	3.13%	12.50%	43.75%	34.38%	6.25%
21-50	14.29%	14.29%	35.71%	21.43%	14.29%
51-100	28.57%	10.71%	21.43%	17.86%	21.43%
More than 100	9.09%	18.18%	45.45%	18.18%	9.09%
Non-USA	10.26%	7.69%	25.64%	30.77%	25.64%

Table 3.5.3 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by country

Country	No Answer	A	B	C	D
All other	10.81%	8.11%	21.62%	32.43%	27.03%
USA	12.31%	16.15%	33.08%	23.85%	14.62%

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Table 3.5.4 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by academic role or title

Academic role or title	No Answer	A	B	C	D
Dean, department chair	0.00%	22.22%	50.00%	22.22%	5.56%
Professor	11.76%	11.76%	14.71%	35.29%	26.47%
Assistant/associate professor/reader	10.53%	8.77%	36.84%	22.81%	21.05%
Lecturer/fellow/postdoc	17.65%	26.47%	20.59%	23.53%	11.76%
Research Engineer	0.00%	0.00%	80.00%	20.00%	0.00%
Staff/Admin	21.05%	10.53%	26.32%	26.32%	15.79%

Table 3.5.5 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by age of survey participant

Age of survey participant	No Answer	A	B	C	D
39 or under	10.81%	21.62%	40.54%	16.22%	10.81%
40-49	16.13%	12.90%	29.03%	22.58%	19.35%
50-59	8.11%	5.41%	35.14%	27.03%	24.32%
60 or Over	12.90%	16.13%	22.58%	32.26%	16.13%

Table 3.5.6 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by gender of survey participant

Are you male or female?	No Answer	A	B	C	D
Male	11.29%	15.32%	31.45%	26.61%	15.32%
Female	13.95%	11.63%	27.91%	23.26%	23.26%

Table 3.5.7 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	A	B	C	D
Public	11.57%	14.88%	30.58%	24.79%	18.18%
Private	13.04%	13.04%	30.43%	28.26%	15.22%

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Table 3.5.8 How well does your university perform in arranging sponsored research projects with the private sector? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	13.43%	16.42%	29.85%	32.84%	7.46%
One	13.33%	8.89%	26.67%	22.22%	28.89%
Two	3.85%	23.08%	38.46%	23.08%	11.54%
More than Two	13.79%	10.34%	31.03%	17.24%	27.59%

Table 3.5.9 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	4.00%	4.00%	32.00%	36.00%	24.00%
Computer Science/Robotics	18.75%	12.50%	31.25%	18.75%	18.75%
Civil Engineering	15.79%	10.53%	42.11%	31.58%	0.00%
Mechanical/Industrial Engineering	9.52%	16.67%	33.33%	23.81%	16.67%
Materials/Chemicals/Agriculture Engineering	8.57%	17.14%	25.71%	20.00%	28.57%
Biomedical	21.43%	28.57%	14.29%	35.71%	0.00%

Table 3.5.10 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by tenure status

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	10.77%	12.31%	27.69%	26.15%	23.08%
Non Tenured but on a Tenure Track	16.67%	8.33%	58.33%	0.00%	16.67%
Not Tenured and not on a Tenure Track	15.00%	20.00%	27.50%	27.50%	10.00%
Part Time or Adjunct	8.70%	21.74%	26.09%	30.43%	13.04%
Emeritus	0.00%	0.00%	28.57%	28.57%	42.86%
Administrator	15.00%	10.00%	35.00%	30.00%	10.00%

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Table 3.5.11 How well does your university perform in arranging sponsored research projects with the private sector? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	11.76%	17.65%	20.59%	32.35%	17.65%
\$60,000 to \$80,000	19.23%	11.54%	26.92%	30.77%	11.54%
\$80,000+ to \$95,000	23.81%	9.52%	38.10%	9.52%	19.05%
\$95,000+ to \$125,000	6.06%	18.18%	39.39%	12.12%	24.24%
125,000+ to \$150,000	5.56%	0.00%	38.89%	50.00%	5.56%
More than \$150,000	8.57%	20.00%	25.71%	25.71%	20.00%

Table 3.6.1 How well does your university perform in assisting faculty in obtaining research grants?

	No Answer	A	B	C	D
Entire sample	10.78%	14.97%	32.93%	24.55%	16.77%

Table 3.6.2 How well does your university perform in assisting faculty in obtaining research grants? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	A	B	C	D
Top 10	13.79%	17.24%	31.03%	13.79%	24.14%
11-20	3.13%	21.88%	25.00%	43.75%	6.25%
21-50	17.86%	21.43%	35.71%	7.14%	17.86%
51-100	14.29%	14.29%	35.71%	32.14%	3.57%
More than 100	0.00%	0.00%	63.64%	18.18%	18.18%
Non-USA	10.26%	7.69%	28.21%	25.64%	28.21%

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Table 3.6.3 How well does your university perform in assisting faculty in obtaining research grants? Broken out by country

Country	No Answer	A	B	C	D
All other	10.81%	5.41%	29.73%	24.32%	29.73%
USA	10.77%	17.69%	33.85%	24.62%	13.08%

Table 3.6.4 How well does your university perform in assisting faculty in obtaining research grants? Broken out by academic role or title

Academic role or title	No Answer	A	B	C	D
Dean, department chair	5.56%	22.22%	38.89%	22.22%	11.11%
Professor	5.88%	5.88%	35.29%	29.41%	23.53%
Assistant/associate professor/reader	8.77%	14.04%	36.84%	21.05%	19.30%
Lecturer/fellow/postdoc	17.65%	14.71%	26.47%	32.35%	8.82%
Research Engineer	0.00%	60.00%	40.00%	0.00%	0.00%
Staff/Admin	21.05%	15.79%	21.05%	21.05%	21.05%

Table 3.6.5 How well does your university perform in assisting faculty in obtaining research grants? Broken out by age of survey participant

Age of survey participant	No Answer	A	B	C	D
39 or under	10.81%	16.22%	40.54%	21.62%	10.81%
40-49	16.13%	12.90%	38.71%	12.90%	19.35%
50-59	8.11%	13.51%	24.32%	29.73%	24.32%
60 or Over	9.68%	16.13%	30.65%	29.03%	14.52%

Table 3.6.6 How well does your university perform in assisting faculty in obtaining research grants? Broken out by gender of survey participant

Are you male or female?	No Answer	A	B	C	D
Male	9.68%	14.52%	34.68%	26.61%	14.52%
Female	13.95%	16.28%	27.91%	18.60%	23.26%

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Table 3.6.7 How well does your university perform in assisting faculty in obtaining research grants? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	A	B	C	D
Public	9.92%	16.53%	28.93%	28.10%	16.53%
Private	13.04%	10.87%	43.48%	15.22%	17.39%

Table 3.6.8 How well does your university perform in assisting faculty in obtaining research grants? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	A	B	C	D
None	10.45%	16.42%	34.33%	28.36%	10.45%
One	11.11%	17.78%	33.33%	22.22%	15.56%
Two	3.85%	15.38%	42.31%	23.08%	15.38%
More than Two	17.24%	6.90%	20.69%	20.69%	34.48%

Table 3.6.9 How well does your university perform in assisting faculty in obtaining research grants? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	A	B	C	D
Electrical/Electronic Engineering	12.00%	12.00%	28.00%	20.00%	28.00%
Computer Science/Robotics	9.38%	21.88%	31.25%	18.75%	18.75%
Civil Engineering	15.79%	15.79%	42.11%	15.79%	10.53%
Mechanical/Industrial Engineering	9.52%	11.90%	38.10%	30.95%	9.52%
Materials/Chemicals/Agriculture Engineering	5.71%	14.29%	28.57%	31.43%	20.00%
Biomedical	21.43%	14.29%	28.57%	21.43%	14.29%

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Table 3.6.10 How well does your university perform in assisting faculty in obtaining research grants? Broken out by tenure status

What is your tenure/professional status?	No Answer	A	B	C	D
Tenured	4.62%	7.69%	36.92%	29.23%	21.54%
Non Tenured but on a Tenure Track	8.33%	25.00%	50.00%	16.67%	0.00%
Not Tenured and not on a Tenure Track	12.50%	15.00%	32.50%	25.00%	15.00%
Part Time or Adjunct	26.09%	21.74%	26.09%	13.04%	13.04%
Emeritus	0.00%	14.29%	0.00%	57.14%	28.57%
Administrator	15.00%	25.00%	30.00%	15.00%	15.00%

Table 3.6.11 How well does your university perform in assisting faculty in obtaining research grants? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	A	B	C	D
Less than \$60,000	14.71%	14.71%	32.35%	17.65%	20.59%
\$60,000 to \$80,000	15.38%	19.23%	26.92%	30.77%	7.69%
\$80,000+ to \$95,000	19.05%	9.52%	28.57%	19.05%	23.81%
\$95,000+ to \$125,000	6.06%	18.18%	33.33%	21.21%	21.21%
125,000+ to \$150,000	0.00%	0.00%	55.56%	33.33%	11.11%
More than \$150,000	8.57%	20.00%	28.57%	28.57%	14.29%

What areas of technology in your field do you feel hold the best prospects for licensing and eventual commercialization? Broken out by academic field or specialization

Electrical/Electronic Engineering

- 1) nanotechnology
- 2) medical devices
- 3) healthcare applications
- 4) Medical devices
- 5) Piezoelectric sensors
- 6) Mechatronics / Bioengineering Data Science
- 7) Software systems
- 8) new materials
- 9) RF electronics, Embedded systems, Robotics,
- 10) IoT and medical sensors
- 11) Oncology
- 12) Communication protocol, IoT, healthcare system

Computer Science/Robotics

- 1) Wireless / mobile applications
- 2) Artificial Intelligence and Robotics
- 3) software-defined networking
- 4) Development of new and innovative interfaces that take genuine advantage of the capabilities of computers, instead of 'computerising' existing manual techniques.
- 5) Software, security, education and games
- 6) there are many
- 7) mixed reality simulation platforms
- 8) Do not know
- 9) Machine Learning and Computer Vision
- 10) Artificial Intelligence Robotics Blockchain Cloud Computing
- 11) Not a thing I've thought about/do
- 12) Security, Cryptography, Networking, Large Data Analysis
- 13) Surgical /medical robotics
- 14) Rocket Science
- 15) Computing Technology. Computing infrastructure services
- 16) digital technologies supporting education
- 17) Robotics

Civil Engineering

- 1) Antennas
- 2) Na
- 3) software

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- 4) machine learning
- 5) this is an inappropriate question. Why would I give you advice on the best prospects?
- 6) energy geomechanics
- 7) connected and autonomous vehicles

Mechanical/Industrial Engineering

- 1) Nanotechnology
- 2) Software development
- 3) Nano-sensors
- 4) Unsure
- 5) Bio
- 6) Build environment sensing technologies
- 7) oil and gas
- 8) energy generation
- 9) Nanotechnology
- 10) AV
- 11) Health Care
- 12) manufacturing/Fabrication processes, software algorithms
- 13) low emission combustion
- 14) Ionization-supported combustion devices Personalized particulate filtering using ionization
- 15) Mechatronics, sensors, additive manufacturing
- 16) Block chain applications.
- 17) robots
- 18) Electric vehicles
- 19) Computer Technology
- 20) computer vision, biomaterials, energy storage, nano and micro-devices, structural materials, biosensors, sustainable fuels
- 21) Integrated, multi-functional systems
- 22) Not applicable
- 23) AI

Materials/Chemicals/Agriculture Engineering

- 1) Materials
- 2) materials and biotech
- 3) Health care
- 4) development of patterned materials
- 5) new materials
- 6) New brazing technique that can replace welded joints on large projects that cannot be done in a brazing furnace because of their size. Braze joints can be used at far higher temperatures than is possible for welded joints.
- 7) Multichannel reactors and integrated gasification.

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- 8) new materials
- 9) apps and software
- 10) improved battery electrodes, hydrogen generation, general catalysis, efficient energetic materials
- 11) Sensors, controllers, robotics and decision support systems for precision or smart agriculture. Also technologies in alternate energy, food technology and biotechnology area.
- 12) materials processing
- 13) None that I know of.
- 14) reduced physics models, downhole catalysis, GHG emissions reduction
- 15) sustainable energy fluids
- 16) Bio medical
- 17) new materials
- 18) 3D Printing
- 19) Neutron Generators

Biomedical

- 1) Medical devices and tissue engineering
- 2) biomedical device, drug delivery systems, POC diagnostics, new pharmaceutical agents, imaging agents
- 3) Drug Delivery, Formulation Technologies
- 4) wish I knew!
- 5) Imaging, Genetics, Neural Devices
- 6) new small molecule dyes
- 7) software and hardware for delivering online (lab)courses
- 8) We have had projects in biofuels
- 9) biotech

Table 4.1 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following?

	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Entire sample	27.54%	15.57%	46.11%	10.78%

Table 4.2 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by US News & World Report ranking of doctoral level engineering programs

US News & World Report Ranking of Doctoral Level Engineering Programs	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Top 10	17.24%	13.79%	62.07%	6.90%
11-20	18.75%	21.88%	53.13%	6.25%
21-50	25.00%	17.86%	46.43%	10.71%
51-100	32.14%	10.71%	39.29%	17.86%
More than 100	45.45%	9.09%	27.27%	18.18%
Non-USA	35.90%	15.38%	38.46%	10.26%

Table 4.3 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by country

Country	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
All other	37.84%	13.51%	37.84%	10.81%
USA	24.62%	16.15%	48.46%	10.77%

Table 4.4 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by academic role or title

Academic role or title	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Academic role or title	16.67%	11.11%	72.22%	0.00%
Dean, department chair	8.82%	17.65%	61.76%	11.76%
Professor	28.07%	15.79%	38.60%	17.54%
Assistant/associate professor/reader	26.47%	17.65%	47.06%	8.82%
Lecturer/fellow/postdoc	60.00%	20.00%	20.00%	0.00%
Research Engineer	63.16%	10.53%	21.05%	5.26%

Table 4.5 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by age of survey participant

Age of survey participant	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
39 or under	43.24%	10.81%	37.84%	8.11%
40-49	29.03%	9.68%	51.61%	9.68%
50-59	21.62%	16.22%	45.95%	16.22%
60 or Over	20.97%	20.97%	48.39%	9.68%

Table 4.6 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by gender of survey participant

Are you male or female?	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Male	25.00%	16.94%	45.16%	12.90%
Female	34.88%	11.63%	48.84%	4.65%

Table 4.7 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by Is your institution public or private?

Is your institution public or private?	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Public	28.10%	16.53%	42.98%	12.40%
Private	26.09%	13.04%	54.35%	6.52%

Table 4.8 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out number of courses taught in the past semester by the survey participant

In the past semester how many courses did you teach?	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
None	34.33%	13.43%	44.78%	7.46%
One	24.44%	11.11%	53.33%	11.11%
Two	26.92%	23.08%	50.00%	0.00%
More than Two	17.24%	20.69%	34.48%	27.59%

Table 4.9 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by academic field or specialization

Which phrase best describes your academic field	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Electrical/Electronic Engineering	20.00%	16.00%	52.00%	12.00%
Computer Science/Robotics	25.00%	18.75%	40.63%	15.63%
Civil Engineering	47.37%	10.53%	36.84%	5.26%
Mechanical/Industrial Engineering	26.19%	11.90%	47.62%	14.29%
Materials/Chemicals/Agriculture Engineering	28.57%	14.29%	48.57%	8.57%
Biomedical	21.43%	28.57%	50.00%	0.00%

Table 4.10 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by tenure status

What is your tenure/professional status?	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Tenured	16.92%	15.38%	58.46%	9.23%
Non Tenured but on a Tenure Track	66.67%	0.00%	25.00%	8.33%
Not Tenured and not on a Tenure Track	22.50%	15.00%	47.50%	15.00%
Part Time or Adjunct	26.09%	21.74%	34.78%	17.39%
Emeritus	0.00%	42.86%	42.86%	14.29%
Administrator	60.00%	10.00%	30.00%	0.00%

Table 4.11 At your university do you feel that the access to new technologies for researchers from countries that are considered by some to be antagonistic to the West - such as China and Russia - is which of the following? Broken out by level of annual compensation in \$US

What is your approximate level of annual compensation? (specified in bands below of US dollars)	No Answer	Too much access and controls are too lax	About the right level of access and controls are about right	Insufficient access and existing controls are too stringent
Less than \$60,000	41.18%	17.65%	26.47%	14.71%
\$60,000 to \$80,000	42.31%	3.85%	46.15%	7.69%
\$80,000+ to \$95,000	19.05%	23.81%	52.38%	4.76%
\$95,000+ to \$125,000	27.27%	18.18%	39.39%	15.15%
125,000+ to \$150,000	16.67%	11.11%	50.00%	22.22%
More than \$150,000	14.29%	17.14%	65.71%	2.86%