

FAS Senate

AN ELECTED BODY OF THE FACULTY OF ARTS AND SCIENCES
YALE UNIVERSITY

FAS Senate Research and Scholarly Excellence Report

Approved by the Senate

November 15, 2018 Committee on

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FAS Senate Research and Scholarly Excellence Report¹

For more than 250 years, up to at least the middle of the 20th century, Yale was arguably the number two university and the number one college in America. But the landscape has become more competitive since World War II. The number of serious rivals has risen with the recovery of European universities, the rise of Asian universities, and the steady progress of American public universities like UC Berkeley and the University of Michigan. And almost every university—small or large, public or private—has sharply increased its expenditures. No world-class Faculty of Arts and Sciences can be sustained nowadays without an extraordinary investment of resources.

Harvard, Stanford, MIT, and Princeton have invested heavily in their faculty and in support of research. The University of Chicago has dramatically improved the reputation of its undergraduate education, moving (in *U.S. News and World Report*) from a rank of 15 in 2006 to a tie for 3-4 with Yale College in 2017 and 2018.

A number of factors have emerged over the past 50 years that put Yale at a competitive disadvantage. The two-career family, the agglomeration of talent in super-cities, and the slowdown of transportation to New York have made it more difficult to recruit scholars to New Haven. And the shift in national attention from the Humanities to the Sciences has played against Yale's historical strengths.

Given the extraordinary quality of its Humanities, Social Sciences, Sciences, professional schools, and Arts, given the jewel of its college amidst a research university, and given the magnitude of its endowment, Yale claims a special place among American institutions of higher learning. Maintaining that position, however, will take the wise allocation of capital, the intelligent leveraging of human resources across departments and schools, and a frank recognition that this is a crucial moment for faculty excellence.

The administration has recently recognized and responded to the current state of affairs. In the spring of 2017, President Salovey declared to the Senate that faculty excellence is his number one priority. In the summer of 2018, the administration announced a Science initiative that

¹ The Faculty Advancement Committee of 2017-2018 included John Geanakoplos (Co-Chair); Maria Doerfler (Co-Chair), *Religious Studies*; Marijeta Bozovic; Alexandre Debs; Brad Inwood, *Classics and Philosophy*; Maureen Long; Rajit Manohar; Karen Wynn, *Psychology and Cognitive Science*.

The committee of 2016-2017 included Yair Minsky (Chair), *Mathematics*; David Bercovici, Geophysics; John Geanakoplos; Shiri Goren, *Near Eastern Languages and Civilizations and the Modern Hebrew Program*; Reina Maruyama, *Physics*; Bill Rankin, *History of Science*; Katie Trumpener, *Comparative Literature and English*; Karen Wynn.

aims to provide \$100 million per year once it begins. A new excellence initiative announced in September 2018 provides for \$5 million per year for five years.

Two years prior to the creation of these initiatives the FAS Senate requested that its Faculty Advancement Committee provide a faculty-led report on the state of FAS Research and Scholarly Excellence. This report is the result of work by members of Faculty Advancement Committees in the three years since that charge. In 2016-17, the survey was designed. In 2017-18, survey responses were collected and analyzed, and a report was drafted and approved by the Senate for communication to university leaders and to members of the Yale Corporation. This report was approved by the Senate and delivered to the President in the spring of 2018. The President passed it on to the Trustees in September 2018. In November 2018, the report was revised and submitted to the Senate for wider circulation.

Our report is based on a large-scale survey of the ladder and non-ladder faculty that was administered during January 2018, on publicly available statistics, and on interviews with the chairs of 12 of the biggest FAS departments, spanning all three divisions. The survey elicited 261 tenured faculty responses, 96 untenured ladder faculty responses, 40 non-ladder research faculty responses, and 98 non-ladder teaching faculty responses, for a total of 495 responses.² We summarize here our analysis of the survey and the public data and make some recommendations.

As this report suggests, many faculty are concerned that, in the face of the aforementioned increasing headwinds, Yale reduced rather than increased the competitiveness of its salaries, reduced rather than increased the size of its faculty relative to its peers, and reduced many sources of central support for scholarship. Over the past twenty years, the Yale endowment has steadily outperformed its rivals, making these trends all the more difficult to understand. It will take enormous resources and effort from an energized faculty and administration to enhance the academic quality of the FAS. Delays in addressing this issue will make it more difficult to recover lost ground.

A striking aspect of the survey is the respect and admiration with which the faculty describe their undergraduates. Given the centrality of Yale College to the Yale mission, it is incumbent on the university to maintain a top-notch faculty.

What follows is a juxtaposition of survey results, listed numerically, and public information, listed with lower case letters, together with some general observations.

A. Departmental Rank and Faculty Morale

Results from the Survey:

² Out of a total 461 tenured professors and 182 non-tenured ladder faculty; we do not have access to the exact numbers of non-ladder research and teaching faculty at Yale University.

- 1) At present, 69% of tenured faculty said their department is not in the top 5; 32% said their department is not in the top 10. Just 1.8% said their department is the clear leader in its field. The results for untenured ladder faculty are very similar to that of tenured faculty (2 out of 96 tenure-track faculty said their Yale department is the clear leader).
- 2) On average, the faculty think their departmental ranking has stayed the same over the last 15 years. However, the longer faculty members have been at Yale, the stronger their sense that the quality has declined. The averaged response of tenured faculty who have been at Yale less than 15 years is that their ranking has slightly increased; however, those who have been here 15 or more years judge that it has decreased. Amongst all tenured faculty who have been here 20 years or more, 48% judge that their ranking has fallen in the last 15 years, compared to only 27% who judge that it has improved. This pattern suggests a several-decades trend of gradual decline in Yale's departmental rankings.³
- 3) 50% of untenured ladder faculty said there were at least five schools for which they would leave Yale. The senior faculty on average would leave for any of 4 competing universities.
- 4) 57% of tenured faculty disagreed or strongly disagreed with the statement that they are "energized by the administration's vision for my department." Only 14% agreed or strongly agreed (28% were neutral). Similarly, only 15% of tenured faculty agreed or strongly agreed with the statement "I agree with the administration's approach and priorities for improving faculty excellence." Almost three times as many faculty - 42% - disagreed or strongly disagreed.
- 5) Less than 1/3 of tenured faculty (30%) agreed or strongly agreed with the statement "I have confidence that my department's priorities can be incorporated into an overall university plan." 45% disagreed or strongly disagreed with this statement (25% were neutral).

Other observations:

This self-assessment is surprising, given Yale's history, ambition, and resources. In the next Section, we shall find that the faculty feel they have been receiving dwindling resources. The faculty and the Senate are concerned that diminishing support may be putting the excellence of the faculty in jeopardy.

- (a) Reports solicited and received from the twelve departmental chairs suggest frustration with the administration's lack of urgency in addressing the issues of faculty excellence.
- (b) It would be interesting to check the faculty's self-assessment with public rankings, but we are skeptical that the rankings accurately measure the kind of excellence Yale seeks. Nevertheless, we note that all the rankings of which we are aware show that

³ Ideally we would like to compare similar surveys at different universities.

Yale has lost some of its preeminence and that Yale's trend is unmistakably downward, just as the faculty survey results suggest.⁴ For example, consider the *U.S. News and World Report Best Colleges* rankings displayed in Chart 1. It shows a downward trend for the crown jewel of Yale, namely Yale College, starting in the 1980s when Yale oscillated between 1, 2, and 3, and then stabilized for a time at 3, and recently fell to a tie with the University of Chicago for 3 and 4, with Stanford, MIT, and Columbia closing fast.

For two centuries Yale and Harvard were considered the two greatest American universities. In our view, Yale should continue to aspire to maintain a faculty that is the best or the second best in America. But the public rankings and the responses from the faculty and the chairs suggest that there are signs of a decline that has not been sufficiently resisted, much less reversed.

Yale does not regularly undertake external departmental reviews or internal self-reviews. In the free-form questions, a number of faculty said things like "It is imperative that an external review of the department be regularly conducted, as they are at peer institutions." "Arts and sciences and the university administration should evaluate my department, compare us to other similar departments in the university, and give us feedback on the outcome."

B. Resources

Results from the Survey:

- 6) Faculty members feel Yale is becoming excessively thrifty, despite the size and health of the endowment and compared to peer institutions.⁵ This refers to scholarly resources (e.g., library resources), student activities (e.g., funding for archaeological digs that used to be supported), communications (e.g., departmental seminars), and so on.
- 7) If given extra funds to improve their department, faculty members' stated priorities would be (in order)
 - a. to hire more untenured ladder faculty,
 - b. to hire more high-profile senior faculty,
 - c. to increase funding for research, increase graduate student numbers, then construction, then staff. The biological sciences put increased research funding above new faculty.

⁴ This is true of the ARWU/Shanghai Academic Ranking of World Universities, the CWTS Leiden Rankings, the Quacquarelli Symonds Rankings, and the Times Higher Education World University Rankings, all of which rank Yale University as opposed to Yale College. The downward trajectory in these rankings is more pronounced than the decline of the Yale College ranking in the *U.S. News and World Report*.

⁵ In some of these areas, like the library, Yale has truly extraordinary resources. But even there the downward trend, for example in library staff, is disturbing to some faculty.

- 8) The faculty say in their comments that salaries are falling behind the competition and that the faculty is too small.

Other observations:

The feeling that faculty salaries are falling behind the competition and that the faculty is too small is consistent with the data.

(a) Chart 2 gives the history of Yale full professor salaries from 1970 to 2017 relative to our peers, culled from 48 separate annual reports from the American Association of University Professors or AAUP.⁶ The public AAUP data show that Yale salaries declined 24% relative to our peer average between 1970 and 2017. Yale faculty salaries were 11% higher than our peers in early 1970 when the Yale faculty quality was at its zenith and now are 13% below those same peers.⁷ Since the financial crisis of 2008-09, Yale has lost 8% relative to its peers, according to the AAUP numbers, a loss of 1% per year, more than double the rate of loss between 1970 and 2008-09. While we cannot be sure this quantitative decline is fully reflected in pure FAS salaries (since it includes all professional school salaries except medical schools), we feel confident in the qualitative conclusion that in 1970 Yale paid substantially higher than its peers, and now pays substantially less, and that a lot of ground has been lost after the crisis. An imperfect assessment of the reliability of these public numbers can be gleaned from the recently released CESOF report, which contains (confidential) pure FAS numbers, but over a much shorter period of time. Comparing the public AAUP numbers with the confidential CESOF numbers over the short interval where they both exist, and extrapolating the difference over the whole horizon, we estimate that since 1970, Yale salaries declined by 15% relative to its peers, rather than 24%, and Yale salaries would require 6-7% raises to be on par with our peers, rather than 13%.

- a. For the years 2008-9 to 2015-16 we can compare the public AAUP data on all non-medical faculty in Chart 2 to the confidential AAUDE and COFHE data on FAS faculty provided in the recently released report from the Committee on the Economic Status of the Faculty (CESOF). In those years Yale lost 8% in the AAUP data, and about 6% in the AAUDE data (as a percentage of Yale salaries). For the preceding decade 1998-2008, CESOF reports that the AAUP and the COFHE data run in parallel, and that over all those years the public

⁶ The AAUP data have a strong reputation for integrity and consistency of measurement methodology across time. The data on full professors is the most comparable across universities. It is not available before 1970.

⁷ We measure the disparity between the peer group (Harvard, Princeton, Stanford, Chicago, and Columbia) and Yale as a percentage of contemporaneous Yale salaries. The recently released CESOF report sometimes describes the disparity in terms of the percentage of the peer group average salary. Thus in its Figure 10 the graph of AAUP data ends in 2017 with Yale salaries at 88% of peer salaries. We find it more convenient to say that the Yale faculty pay disparity is $12/88 = 13\%$ because it would take raises of 13% to bring Yale salaries up to the peer average.

AAUP levels were about 6% lower than the confidential data. To a first approximation we might simply shift up the AAUP data shown in Chart 2 by 6%, meaning that Yale was even further ahead of its peers in 1970, but only 6-7% behind today. The evidence also suggests that as a second approximation, the slope from 1970 to today might only be about 2/3 what the AAUP data show. Thus we come to the conclusion stated above that Yale's FAS salaries currently lag its peers by 6-7% (measured as a percentage of Yale salaries) and that since 1970 Yale lost about 15% relative to its peers (measured as a percentage of contemporaneous Yale salaries).

- b. This striking decline in Yale salaries since 1970 might be connected to the three budget crises Yale faced: in the mid-70s, when Yale froze faculty hiring and faculty salaries; during the early 90s, when Benno Schmidt attempted to reduce the FAS numbers by 15%; and in the aftermath of the 2007-09 crisis, when hiring also came close to a standstill.
- (b) As can be seen from the attached Chart 3, FAS ladder faculty size has declined quite dramatically relative to its peers, and especially rapidly in the last seven years.⁸ As the student body grows, as new courses are added to match the interests of a more diverse student body, as specialization intensifies, and as entirely new fields are created, faculty growth becomes essential. Yet from 2010-2011 to 2017-18 the size of the Yale FAS ladder faculty *declined* from 688 to 658, or 5%, while at Harvard FAS faculty size increased from 725 to 738, or 2%, at Princeton it increased from 738 to 773, or 5%, and at Stanford it increased from 733 to 806, or 10%. As a percentage of concurrent Yale faculty size, Yale lost 7% to Harvard, 10% to Princeton, and 16% to Stanford in just seven years. Over longer horizons, the relative decline in Yale faculty size is even bigger, though the rate of relative decline was not always as great as in recent years. The Yale FAS ladder faculty is now almost exactly the same size it was in 1990-91. Harvard's FAS is now 26% bigger than it was in 1998 (the first year for which we have data), and Stanford's FAS is 27% bigger than it was in 1995 (the first year for which we have data). Our Princeton data only goes back to 2007-08; since then its FAS has grown 7%. The upshot is that as of 2017-18, the Harvard FAS is 12% bigger than Yale's FAS, Princeton's FAS is 17% bigger, and Stanford's FAS is 22% bigger.⁹

⁸ There are at least 5 different places on the Yale web site that claim to give a history of FAS ladder faculty size by year. All of them differ. For example, two of them give the size in 2015-16 as 642 and 655. We have chosen the site that gives the highest Yale total, so it is possible we have underestimated the shrinkage of the Yale faculty.

⁹ The composition of the FAS at different institutions has changed over time. Part of Stanford's growth in FAS might be due to their engineering school. On the other hand, that may faithfully reflect the shift in majors of Stanford undergraduates and graduate students. Indeed, it may be that the number of Stanford faculty per concentrator in the fields making up the bulk of Yale FAS has grown even faster than Chart 3 suggests.

- (c) The share of the FAS budget in the university has declined in the period in which the Senate has data (2014-2018), as can be seen in Chart 4. Over this period, in inflation-corrected terms:
- a. The FAS budget grew at 1.2% per year while the overall university budget grew at 3.2% per year.¹⁰
 - b. Faculty salaries in the central university (of which FAS are 83%) grew at 1.7% per year, while the overall university grew at 3.2 % per year.

C. Time, Administrative Duties, Administrative Staff

Results from the Survey:

- 9) The number one impediment to research is lack of time. All faculty, whether ladder or non-ladder, feel that their teaching and service workloads are not supportive of their research.
- 10) Women faculty feel especially burdened by administrative work.
- 11) 73% of all tenured faculty think their administrative duties increased somewhat (42%) or significantly (31%) since they arrived at Yale. Less than 2% thought they had gone down.
- 12) 56% of tenured faculty reported that their departmental administrative support staff decreased, against only 9% who reported that their support staff had increased.
- 13) 80% of tenured faculty think university administrators have increased in number (56% say significantly).
- 14) Untenured faculty do a lot of administrative work. 21 out of 96 untenured faculty responders had done serious service like DGS or DUS.

Other observations:

It is important to understand why the faculty feel increasingly overburdened with administrative work. One hypothesis is the decline in faculty support staff. The problem is likely to get even worse as the college enrollment expands.

The fact that women feel especially overburdened is not compatible with Yale's goals of supporting women faculty and increasing gender parity amongst the ranks.

There is much variation in the way that service is measured and rewarded, with no standardized way to complete and assess the Faculty Activities Reports.

D. Promotions, Recruitment, Retention

Results from the Survey:

¹⁰ To be sure, a substantial part of the growth in university expenditures is connected to the rise in clinical revenue from the medical school, which might be earmarked for the medical school. But common sense suggests that on the margin the administration always has the flexibility to make choices between competing needs across the University.

- 15) The two most important impediments to recruiting new faculty are
 - a. The offer process is too slow.
 - b. The salary offers are too low.
- 16) The faculty surveyed believe that the next two most serious impediments for hiring are the absence of jobs for spouses, and facilities.
- 17) 44% of tenured faculty think FASTAP I and II have made it easier to get tenure, while only 5% think it got harder. 40% think it has stayed the same.
- 18) 49% of tenured faculty think FASTAP made the tenure criteria clearer, while 15% thought FASTAP made them more ambiguous. 36% thought there had been no change in clarity.
- 19) 55% of tenured faculty think the new standard is about right. 15% think it is too easy, 6% think it is too hard. But 24% think that tenure criteria are inconsistently applied.
- 20) The untenured ladder faculty think that FASTAP made it a little easier to get tenure, but 35% of them think the standard is still too hard. 24% think the standard is inconsistent.
- 21) 79% of tenured faculty think that mentoring of untenured faculty is adequate, but only 64% of untenured ladder faculty think so; 36% of untenured ladder faculty do not think they are getting adequate mentoring.

Other observations:

The discontent with administrative inefficiencies is consistent with results from the FAS Senate's 2018 survey of department chairs, which similarly raised concerns. The main problem with recruitment, expressed very clearly by the chairs, is that Yale must make stronger offers. The primary component of any offer is salary, but the chairs also reported frustration in shaking loose resources for even modest complementary inducements like space, equipment, and library resources. The fact that New Haven is a cheaper place to live than those of most of our peers should be recognized as a sign that it is less desirable to live here and therefore that salaries must be super-competitive, rather than the reverse. The chairs said that if Yale is serious about bringing top talent to New Haven, Yale must be willing to beat the market, not just meet it.

- (d) Survey results are confirmed by the data, which suggest that tenure has been granted more frequently after FASTAP than before. See Table 1 on promotions before and after FASTAP.

On the other hand, the tenured faculty do not think FASTAP tenure standards are too loose. One consequence of the increased tenuring of untenured ladder faculty is that unless there is some offsetting policy, there will be a lower and lower fraction of untenured faculty at Yale. All things equal, the faculty would prefer a higher ratio of younger untenured ladder faculty. This is a problem at all the leading universities, but that is no reason not to address it at Yale.

FASTAP was motivated partly from a desire to improve the mentoring of untenured ladder faculty. Though the majority of untenured ladder faculty feel well-mentored,

there remains room for improvement. 36% of the untenured ladder faculty do not think they get adequate mentoring.

It is perhaps problematic that 24% of faculty think the FASTAP tenure standards are being applied inconsistently across cases, though of course, one would hardly expect unanimity in every tenure decision.

E. Students

Results from the Survey:

- 22) The faculty report great admiration and respect for the undergraduate students.
- 23) Faculty estimate that the intellectual abilities of Yale undergraduates remain the same or have slightly increased over the last 15 years.
- 24) Undergraduate Admissions:
 - a. 41% of tenured faculty said they had no idea how admissions are done; another 44% said they were somewhat familiar.
 - b. 57% thought faculty should be more involved in setting admission priorities.
- 25) Likewise, the faculty estimate that the intellectual abilities of Yale graduate students remain the same or have slightly increased over the last 15 years.
- 26) Many faculty, primarily but not only in the sciences, ask for increased institutional support for graduate students.

Other observations:

Yale undergraduate admissions puts weight on social skills as well as metrics of academic achievement and potential. There are some among the faculty who think that increased emphasis might be placed upon creative and innovative thinking alongside social skills and proven academic achievement.

There is an impression amongst some faculty that the composition of the undergraduate class has shifted in the last 10 years (e.g., with higher priority given to intended STEM majors, extracurricular achievements, etc.). Has Yale changed its admissions targets, or has the class naturally evolved that way? Faculty ask for more information about admissions and class composition.

Some faculty suspect that many STEM students that go to Harvard, MIT, Stanford, and Princeton do not even apply to Yale. The admissions department should investigate and quantify this—and should keep faculty informed of these findings.

In keeping with the results reported in section B, many faculty believe that graduate student education and training is excellent at Yale, but ask for greater financial support (centralized funding) and/or larger graduate student program sizes.

F. Recent Administrative Initiatives for Excellence and the Faculty Compensation Deficit

After this Senate report was delivered to the President and Dean of FAS, the administration announced the two initiatives mentioned earlier, for the Sciences and for Faculty Excellence generally. Though the faculty survey was taken before these initiatives came to light, the delay in the release of this report gives the Senate an opportunity to provide some feedback to the administration about its recent initiatives.

The Science initiative is bold and extremely ambitious. As a point of comparison, Yale is planning to raise \$2 billion to sustain the initiative, about three-quarters of the current value of Caltech's endowment of \$2.6 billion. Much can be accomplished with such an aggressive target, and we appreciate the university's engagement with the faculty in laying out its priorities for the initiative and encourage the continuation of this productive dialogue. While the Science initiative is most welcome, it is for now still a gleam in the eye, some years from beginning.

The Senate also salutes the administration for taking an immediate first step with the Faculty Excellence initiative. While we look forward to learning about the priorities that the university intends to achieve with these funds, we worry that these advances do not come close to adequately addressing the problem. At a minimum, we think that the university should reach its target size for the FAS and offer salaries that allow Yale to compete with its peers.¹¹

In order to achieve this goal, or to redress what we call the "FAS ladder faculty compensation deficit," Yale would need to spend about \$40 million more per year in perpetuity.¹² As it stands now in the Faculty Excellence initiative, the university plans to

¹¹ Certainly Yale should make up for the losses in relative salaries and faculty size over the last ten years since the crisis.

¹² We advocate increasing faculty salaries by 15%, to reach the competitive levels relative to our peers that Yale enjoyed in the 1970s. We also advocate increasing FAS size by 15%, which would bring Yale to parity with Harvard and Princeton but still below Stanford. (Recall that Harvard, Princeton, and Stanford are now 12%, 17%, and 22% bigger than Yale, respectively.) Assuming current Yale FAS ladder salaries and benefits are about \$165 million per year, the total cost of this would be an extra \$53.3 million per year. (The increase in salaries for the current faculty would come to \$24.75 million per year, and the extra funds needed for the new faculty would be \$28.5 million per year.)

spend an additional \$3 million per year for five years on FAS, with possibly \$1 million of this in perpetuity.¹³

Where will Yale get the money to eradicate the FAS faculty compensation deficit of \$40 million per year? This sounds like a lot of money, but it amounts to about 1% of the university's annual budget. Just last year's excess returns on the Yale endowment could cover such expenses.¹⁴ The centuries-old excellence of the core of the university, particularly Yale College, is at stake. Our peers have managed their budget priorities in ways that allow for precisely this expenditure on their FAS faculty. Yale must make the choices that will enable it to compete on an equal footing.

Major Recommendations:

- 1) The President and Provost should affirm, with resources and attention, that the excellence of the FAS and Yale College are central priorities, on which there will be no compromise. The President or Provost's annual address to the Faculty Senate should be very explicit about how much progress has been made each year in improving FAS excellence.
- 2) Departments should set goals for themselves and accurately assess their own progress. They should be subject to periodic external reviews, and regular internal self-assessments.
- 3) Yale should set budget targets for the FAS that are sufficient to permit the excellence for which we strive, and commit to allocating or raising resources accordingly. We suggest a target of an additional \$40 million per year to cover the Yale ladder faculty compensation deficit.
- 4) Yale should increase the number of untenured ladder faculty and high profile senior faculty in the FAS. This is necessary for improving the scholarly excellence of the faculty. It would also help address the faculty's concerns over rising administrative burdens.

More modest increases in salaries and size give a more modest number. The \$40 million comes from scaling the goal back. For example, the administration's current target of 703 ladder faculty is an increase of 7.3% over its current size. A 7.3% increase in size together with a 15% increase in pay comes to \$38.6 million per year. If Yale were content to raise salaries by just 6.4% to make up for the losses since 2008-09, and grow the faculty by 15%, the cost would be \$36.9 million per year. The most minimal target, of raising salaries by 6.4% to make up for the losses of the last 9 years, and increasing faculty size by 7.3% to reach 703, still comes to \$23.4 million per year in perpetuity.

¹³ Since the \$5 million Faculty Excellence initiative covers the whole university, not just the FAS, it is likely that the sums allocated to the FAS would be less than \$5 million; \$3 million is a reasonable guess.

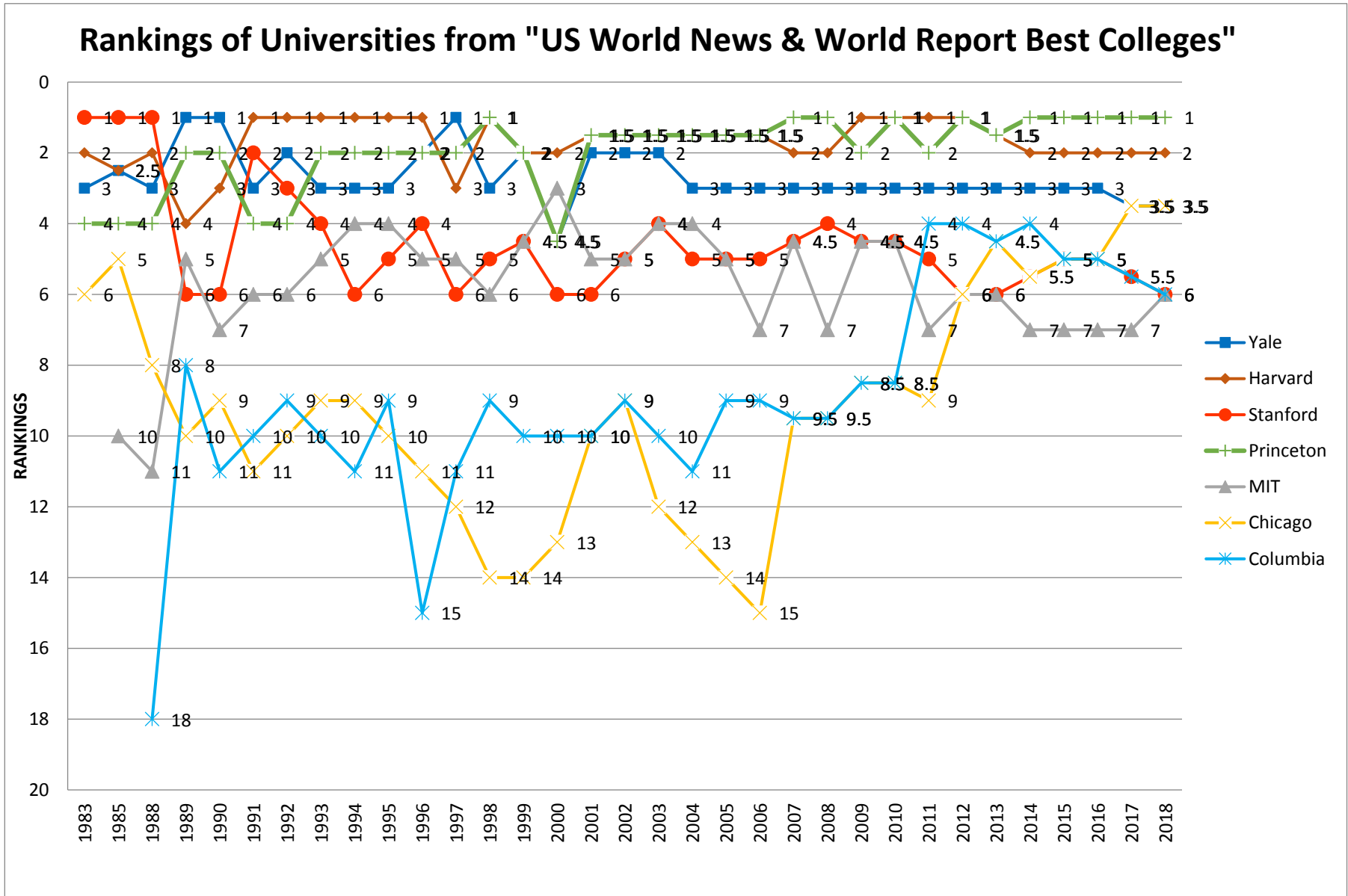
¹⁴ The Yale endowment grew by 12.3% last year. The Yale endowment manager David Swensen, the Provost Ben Polak, and President Salovey, all declared beforehand that Yale was planning on 8% endowment returns, and organizing its budget accordingly. The windfall profit from just this one year of excess returns of 4.3% = 12.3% - 8%, or about \$1.1 billion, will provide about \$55 million annually in perpetuity, more than enough to eradicate the FAS faculty compensation deficit.

- 5) In order to recruit and retain an improving faculty, Yale should offer competitive salaries and provide faculty support that permits faculty to focus on research and teaching. Yale must beat the market to attract the best scholars.
- 6) We recommend that the FAS appoint a committee to evaluate why service is becoming more burdensome. The committee should be charged with finding a way of quantifying service. The committee should determine how Yale can prevent disproportionately high service loads from impeding scholarly careers. This is essential to fulfilling Yale's commitment to excellence and equity. The committee should evaluate the effects of the reduced administrative support for faculty.

Secondary Recommendations

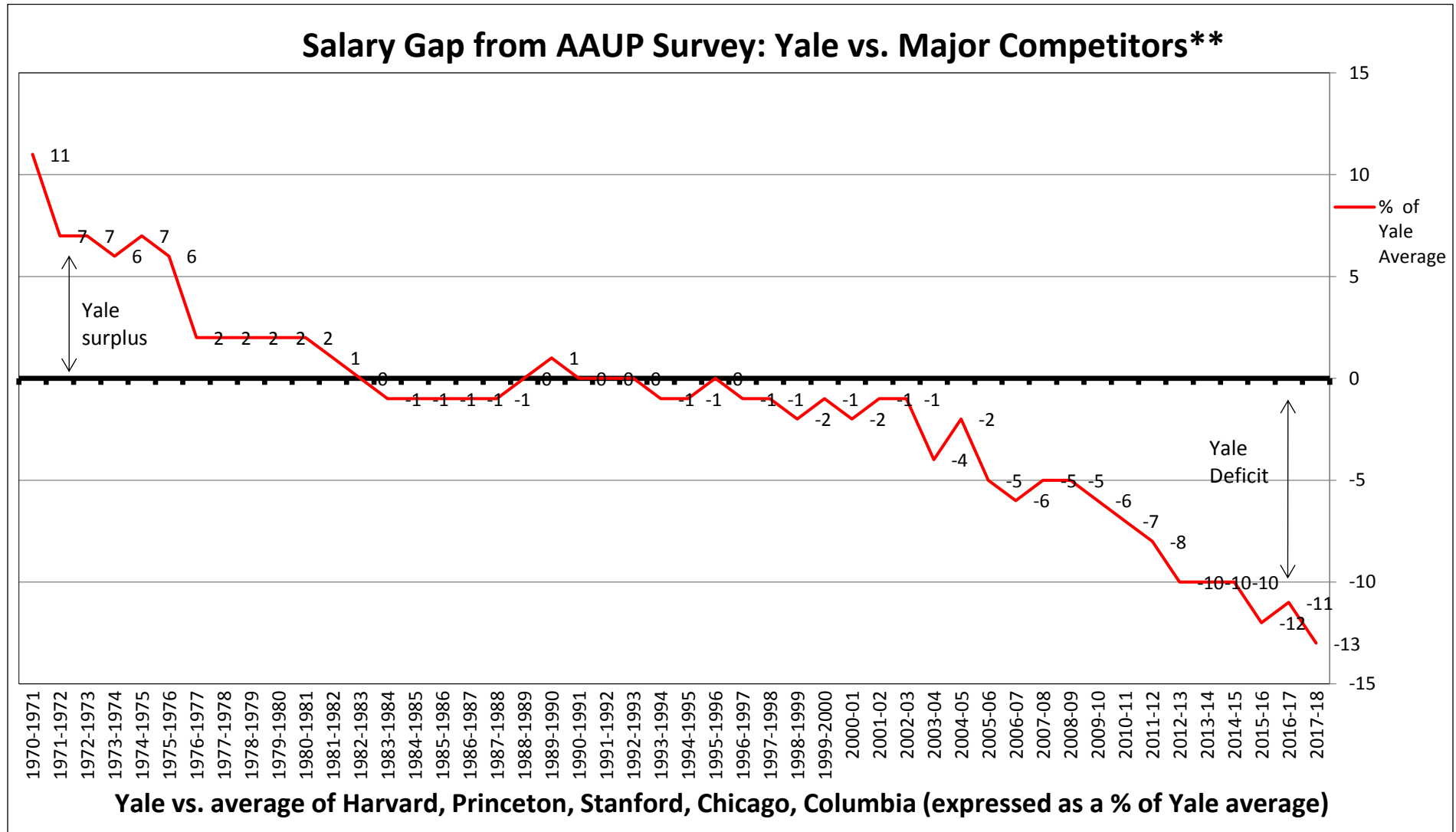
- 7) As at our peer institutions, Yale must face the problem that if the promotion to tenure of untenured ladder faculty is more frequent, and if there is no countervailing shortening of the time tenured faculty remain at Yale, then the fraction of untenured ladder faculty will go down. Given that young scholars are essential to the vitality of the faculty, the university should think of creative strategies to maintain generational balance (perhaps by giving incentives for senior faculty to retire, or by bringing more young scholars to Yale, for example as post-docs).
- 8) New Haven's small number of employers and the deteriorating transportation to New York means that Yale will often have to find employment for spouses. We recommend that the university think systematically about how best to accommodate this additional cost in its budget models, keeping in mind the incentives of both spouses' departments (in cases of academic couples).
- 9) We recommend that the university simplify the hiring process and move more aggressively in initial offers. These changes would increase our success rate in recruiting faculty, and it would reduce the administrative burden on existing staff. The university should also invest more resources in increasing the staff reviewing and approving offers, for example by empowering the divisional deans to share some of the burdens of the FAS dean's office.
- 10) We recommend that the university redouble its efforts to hire and retain faculty that improve diversity and excellence.
- 11) While acknowledging with gratitude the generosity of donors and the creativity of donors in galvanizing new activities, we recommend that donors and administrators remain aware that new activities that are not fully funded can sometimes diminish resources for core priorities. We also suggest that by promoting the visibility of faculty achievements, fundraising opportunities may occasionally be created.
- 12) We recommend that the Senate invite the dean of undergraduate admissions and the dean of the college to come and discuss evolving undergraduate admissions.

CHART 1



In the period from 1970-1980, Yale faculty salaries were significantly above those in other major private research universities.* From 1980-2005 Yale is about even. Since 2005 a large salary gap has opened. The gap shown here measures the difference between Yale average faculty salaries and average faculty salaries at five competitors, measured as a percentage of Yale salaries. ** The data looks only at full professors, for which there is the best comparability across schools.

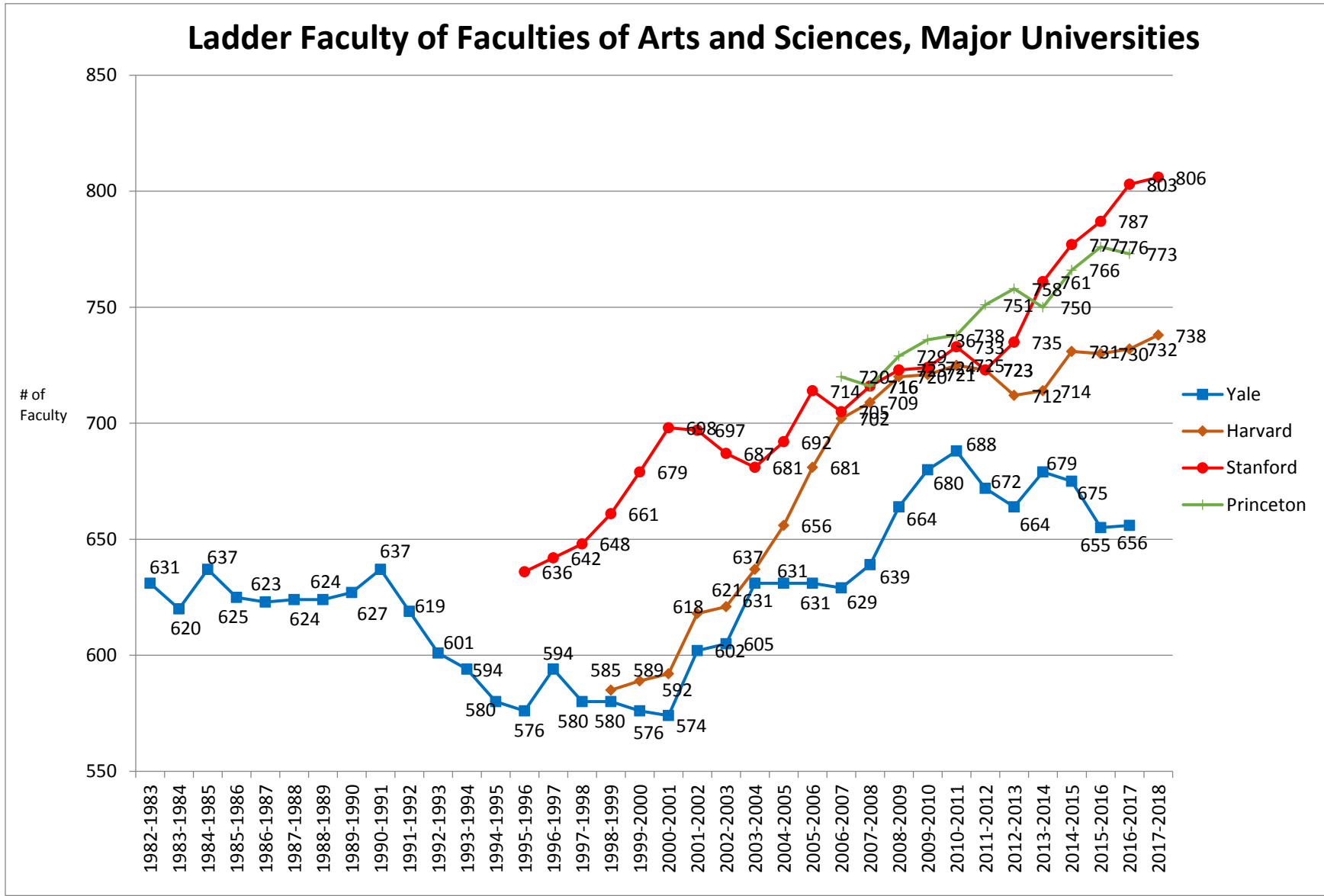
CHART 2



*There is no comparable data before 1970.

**The five competitive private universities are Harvard, Princeton, Stanford, Chicago, and Columbia.

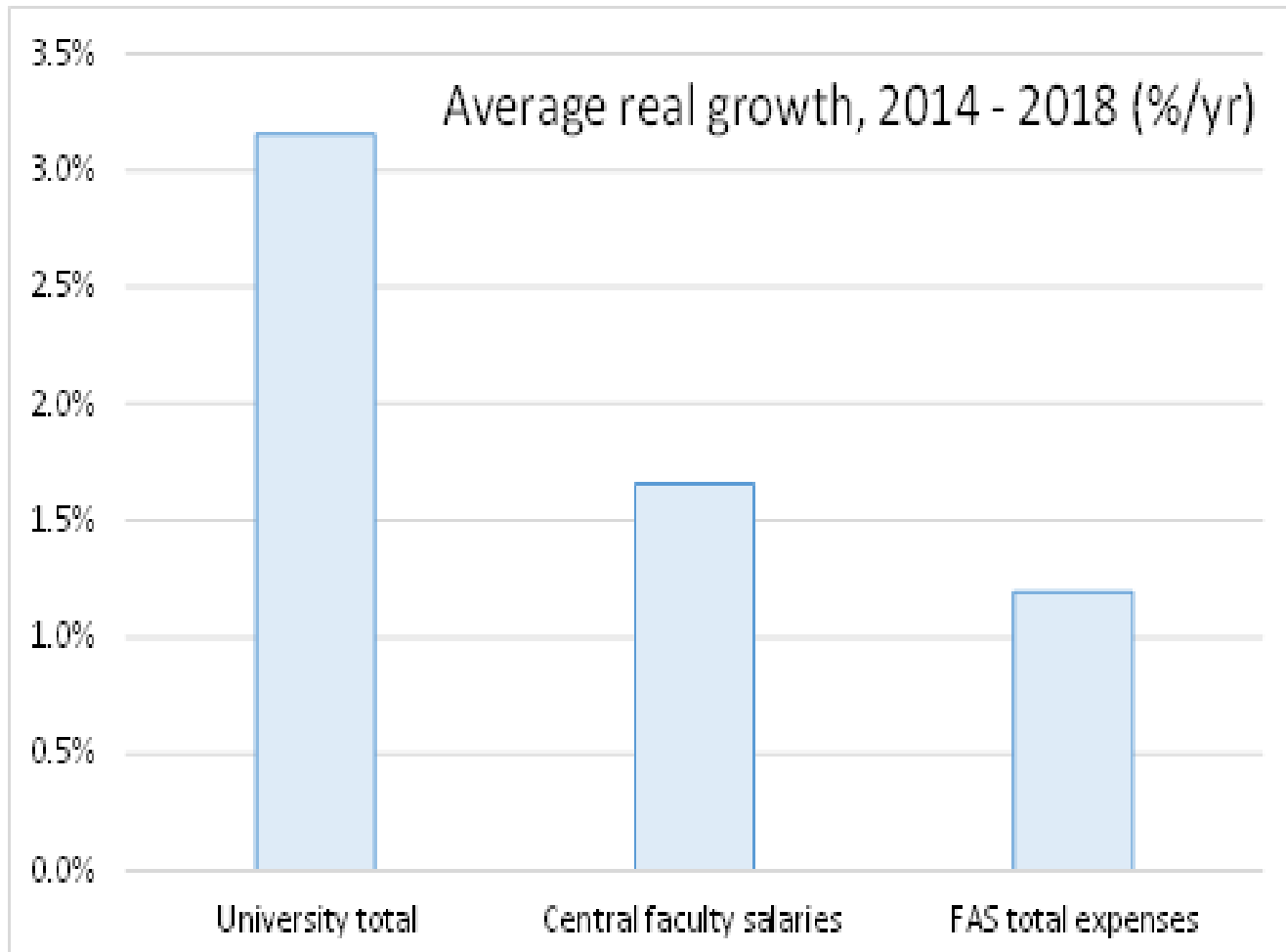
CHART 3



*These data were taken from the websites of the four universities. No data was available from Columbia.

Chart 4 Growth in expenses, major categories, Yale University

*Based on information in the Yale University Budget Book, Fiscal Year 2018



Yale University expenses

TABLE 1

3C. TENURE RATE BY AREA AS OF JULY 1, 2016 FOR FAS ENTERING COHORTS 1985 TO 2016 (NORMAL TENURE REVIEW YEAR 1994-2025)

Area	Cohort	Total # of entering faculty	Total # Faculty Receiving Tenure to Date	# Faculty Not Yet Considered for Tenure	Tenure rate of entering cohort (%)
Humanities	1985-89	68	8	0	12%
	1990-94	75	8	0	11%
	1995-1999	78	12	0	15%
	2000-2004	75	18	0	24%
	2005-2009	63	14	10	N/A
	2010-2015	51	1	40	N/A
	2016+	6	0	6	N/A
Social Sciences	1985-89	49	6	0	12%
	1990-94	35	6	0	17%
	1995-99	53	7	0	13%
	2000-2004	50	11	0	22%
	2005-2009	59	11	13	N/A
	2010-2015	39	0	30	N/A
	2016+	3	0	3	N/A
Physical Science & Engineering	1985-89	48	9	0	19%
	1990-94	34	14	0	41%
	1995-99	26	4	0	15%
	2000-2004	39	22	0	56%
	2005-2009	36	17	11	N/A
	2010-2015	29	3	24	N/A
	2016+	4	0	4	N/A
Biological Science	1985-89	15	7	0	47%
	1990-94	11	7	0	64%
	1995-99	13	9	0	69%
	2000-2004	13	6	0	46%
	2005-2009	10	4	3	N/A
	2010-2015	10	0	10	N/A
	2016+	4	0	4	N/A
Total: Faculty of Arts & Sciences	1985-89	180	30	0	17%
	1990-94	155	35	0	23%
	1995-99	170	32	0	19%
	2000-2004	177	57	0	32%
	2005-2009	168	46	37	N/A
	2010-2015	129	4	104	N/A
	2016+	17	0	17	N/A

Data from the Office of Institutional Research: fas ap since 1985 update 8-2016.xlsx