Financial background and costing estimates

March 13, 2023

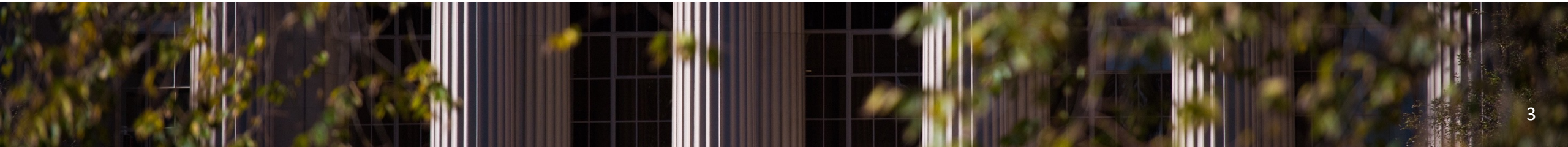
I. MIT finances: key reminders

II. Estimated financial impact of key GSU proposals

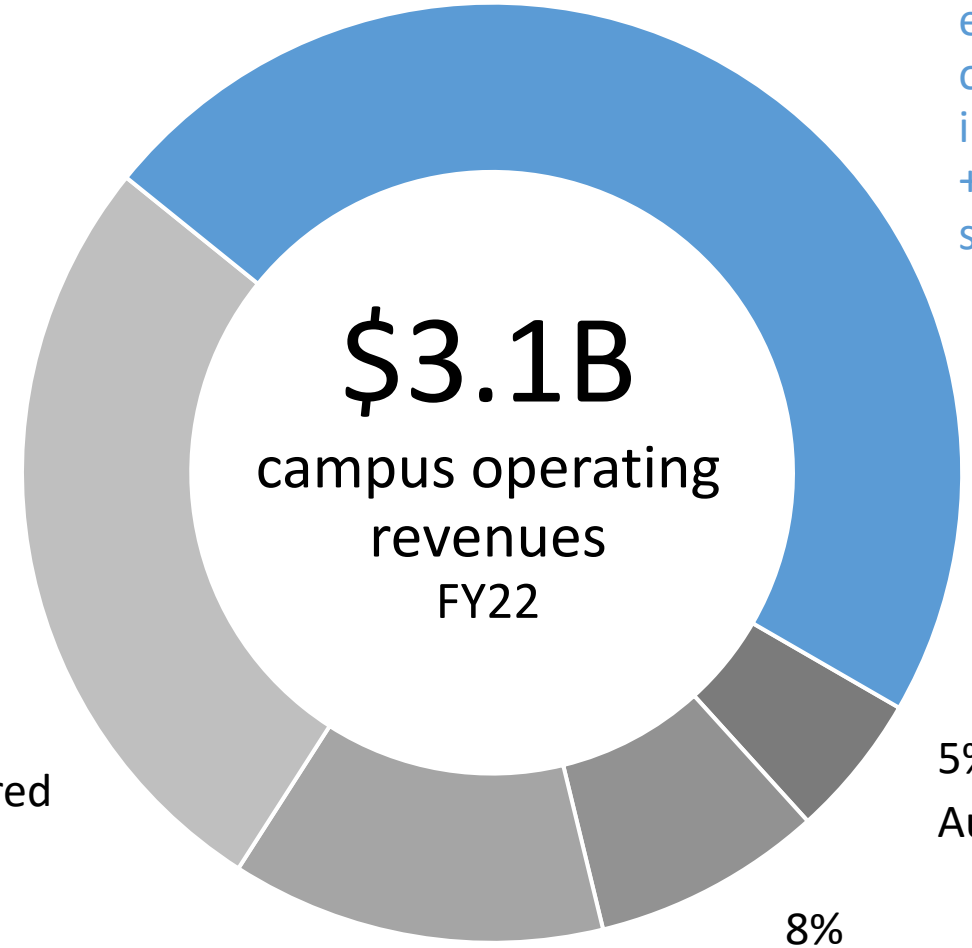
III. Historical stipends and peer comparisons

Supporting MIT's mission requires maintaining a balance

Allocate resources for immediate needs	⟷	Conserve resources to educate future generations of learners
Capitalize on strategic opportunities	⟷	Be prudent in reserving resources to sustain the Institute's operations
Encourage innovation	⟷	Maintain a strong core to keep MIT safe, compliant, and resilient



Support from the endowment and other investments, plus current use gifts, comprise about half of MIT's campus annual operating revenues



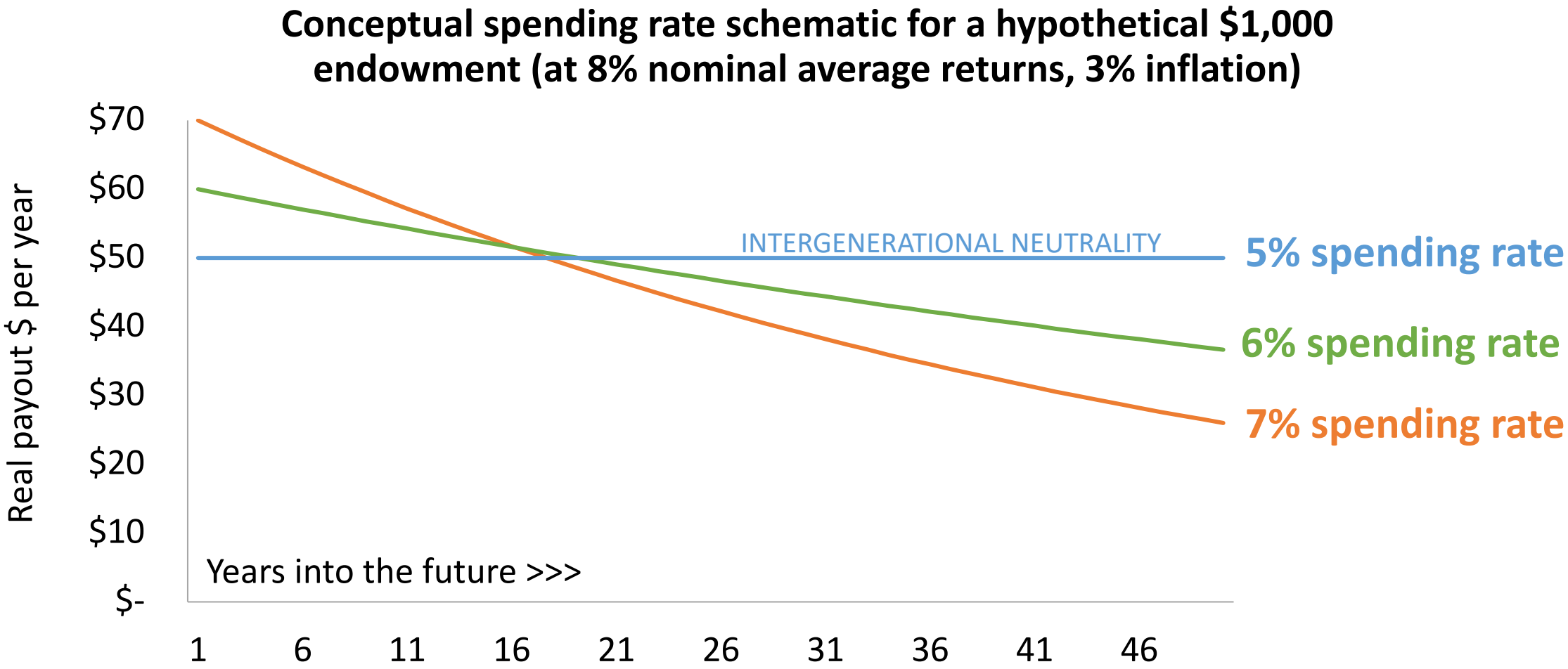
Constraints on sponsored support:

- Supports specific activity per terms set by source
- Size defined by source – does not/cannot necessarily flex with added cost
    - MIT's trying to add cost impacts competitiveness of proposals
- F&A revenue limited to costs allocated to overhead supporting sponsored activity
- Sponsors may not pay full overhead – has to be absorbed by central budget/units

Constraints on raising tuition:

- Affordability to students
- Affordability to grants
- MIT’s competitiveness

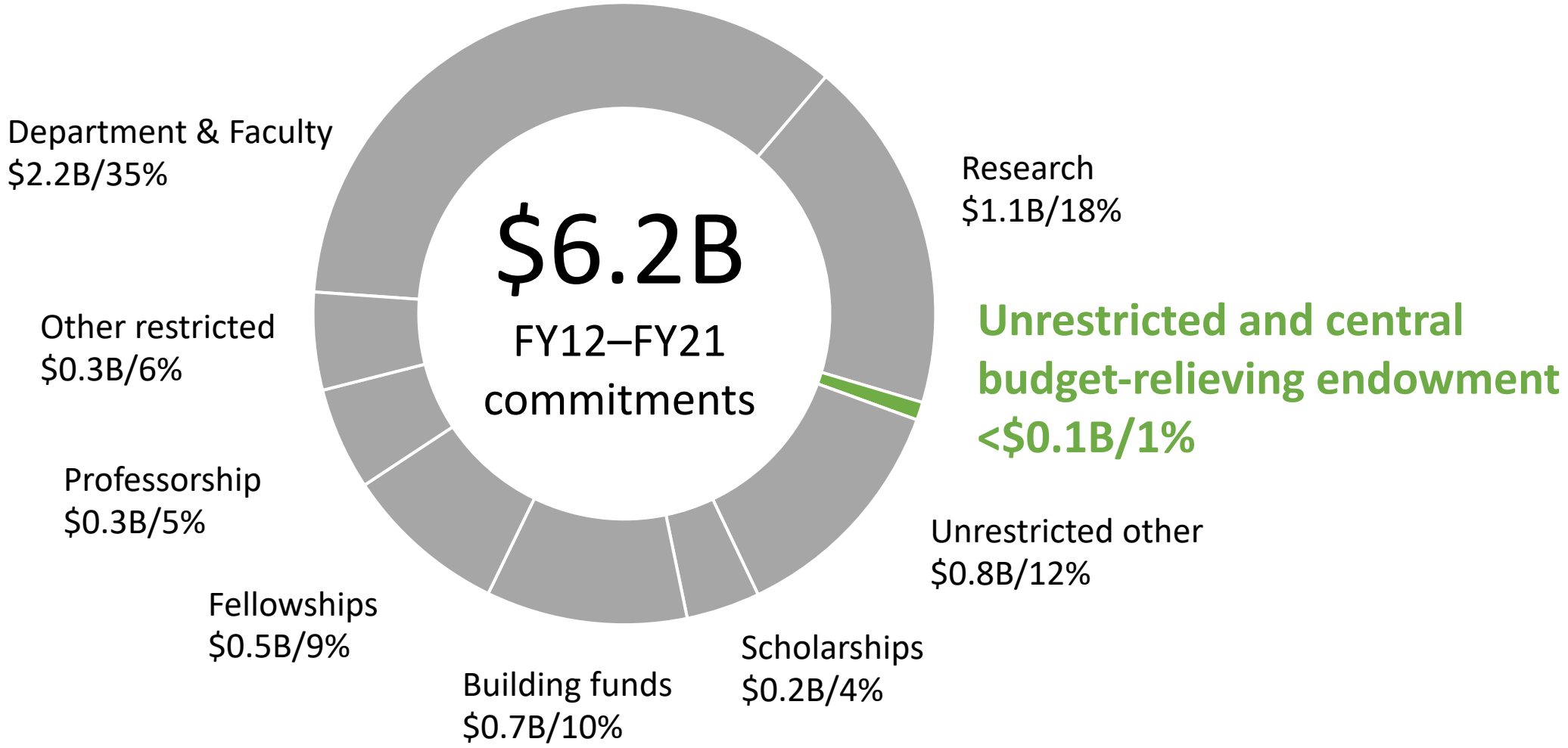
Constraint on endowment: We must maintain purchasing power



(1) Schematic is a conceptual depiction of spending rates, in general, and portrays payout per year on a $1,000 initial endowment (inflation-adjusted) while assuming investment results of 5% in real terms per year (which would translate into roughly 8% nominal if inflation was 3%).

Constraint: Most philanthropy is restricted

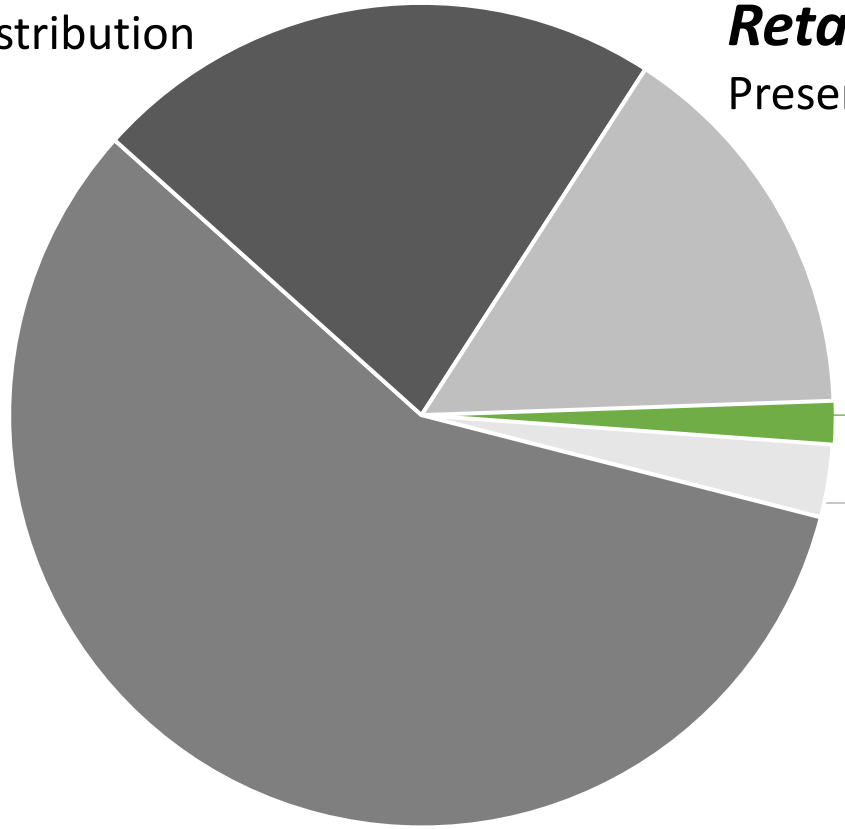
Makeup of Campaign for Better World commitments



Less than 2% of endowment is available to fund central budget

23% Principal
Not for distribution

15%
***Retained* general purpose gains**
Preserves intergenerational equity



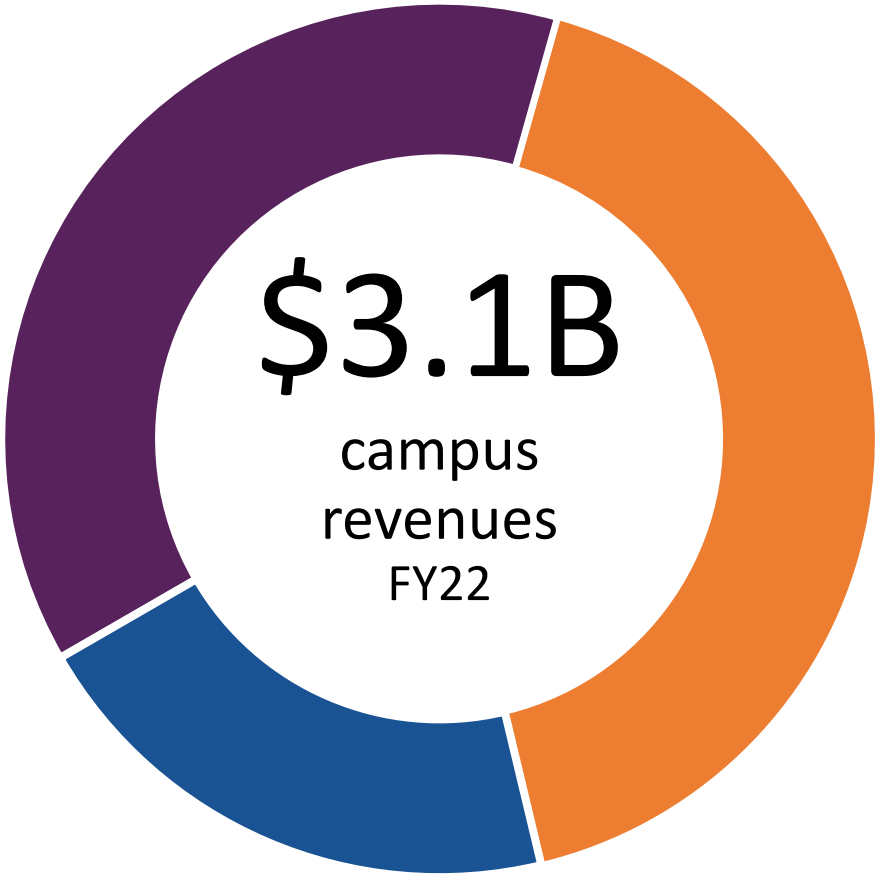
58% *Retained*
restricted gains
Preserves
intergenerational equity

<2%
<u>Distributed</u> to central budget
✓ **Sustainable unrestricted support**

<3%
Sustainable restricted support
Not for central budget

Notes: Endowment composition in this presentation is a conceptual view of FY23 projected size and use of endowment based on adjusting FY22 year-end endowment value (total and components) assuming 0% returns, no new endowed gifts, and payout to support operations, with payout based on FY23 approved payout per unit of endowment. Endowment for central budget is comprised of direct payout to endowed funds that support the central budget and recovery of service costs to the central budget from restricted endowed funds.

Reminder: Campus revenue use is restricted by the source



Unrestricted 42%

Allocated through central, or general Institute budget (GIB)

- **Degree tuition**
- **Unrestricted endowed** and expendable philanthropic support and other investment support
- Reimbursement of overhead costs that support research
- Central fees and services
- Internal transfers from restricted sources

Designated 38%

Allocated for specific purposes

- Designated endowed and expendable philanthropic support
- Sloan degree tuition
- Non-degree program tuition
- Departmental fees and services
- Standalone auxiliary fees (primarily housing and dining)

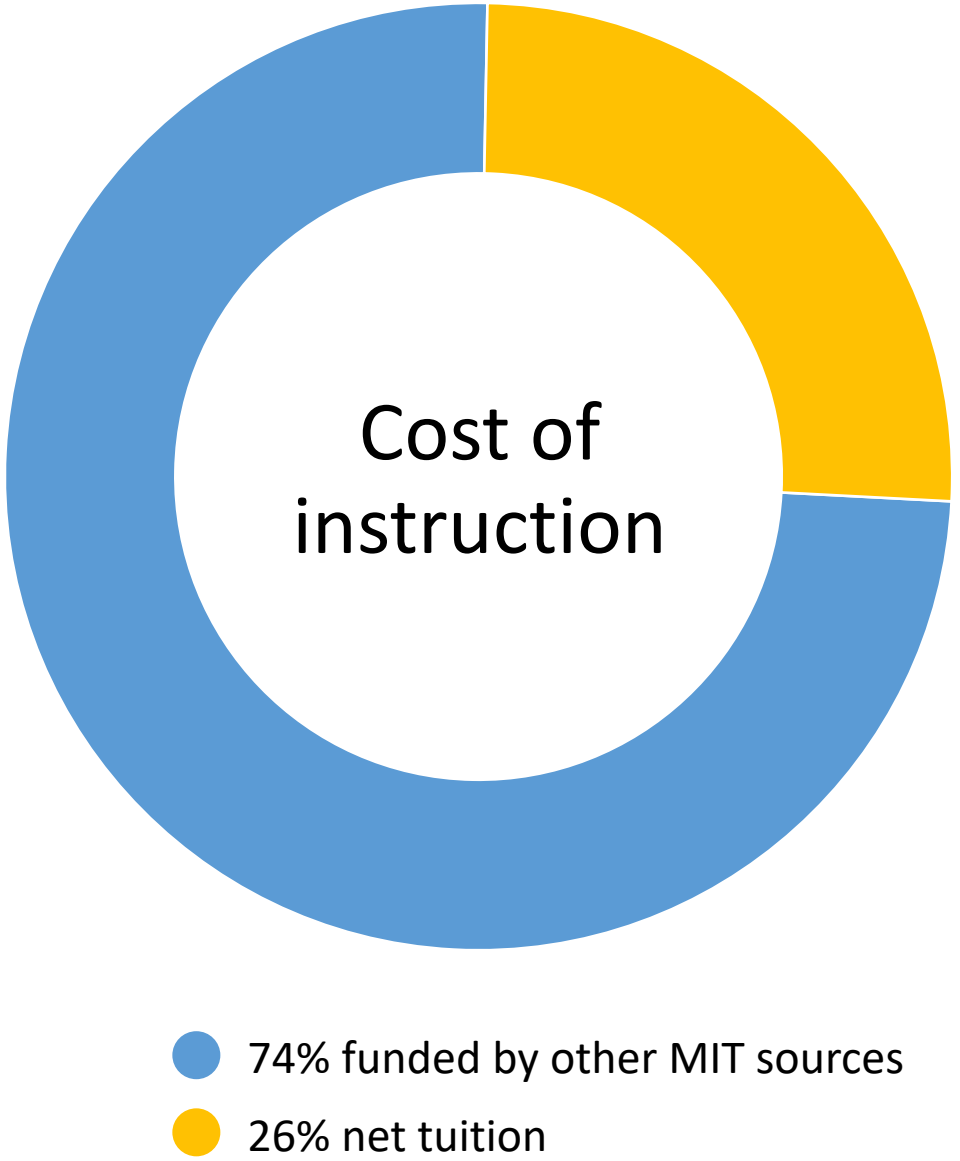
Sponsored support 20%

External sponsor support of direct expenses

- Direct research revenue
- Other sponsored revenue

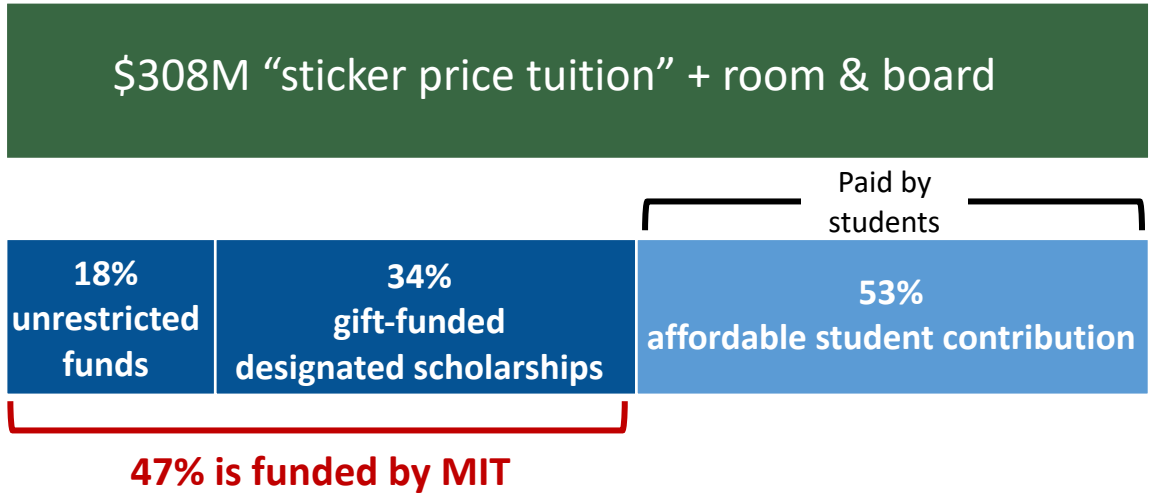
Just a quarter of the cost of instruction is funded by net tuition – the tuition charge net of financial aid

Instruction costs = ~4x net tuition

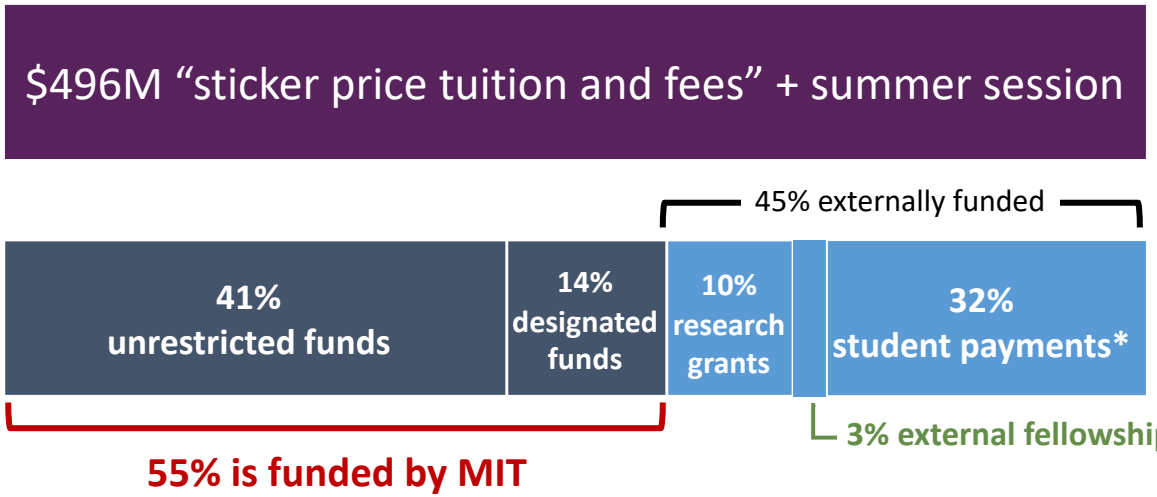


Different funding models for undergraduate vs. graduate students

+45% of undergraduate tuition, room & board charge is absorbed by MIT



+50% of graduate degree tuition charge is also absorbed by MIT



Based on FY22 actuals

*Student payments principally driven by graduate students without appointments

Pressures on the central budget

- Inflation has significantly increased costs (compensation, utilities, etc.)
- Economy is exerting drag on endowment performance and constraining financing for real-estate investments
  - -5.3% return for FY22
  - Continued stress in FY23
- Deficits in student life and other auxiliary units particularly vulnerable to revenue stresses (estimated at $14M in FY24)
- Need to invest and reserve more to continue renewing facilities (student housing, research buildings, etc.) and modernize our digital infrastructure and enterprise systems (research computing, SAP, MITSIS, KC, etc.)
- Demands to further subsidize research enterprise (under-recovery, etc.)

Typical central budget revenue growth covers typical base increases…

3.5% average annual revenue growth…

…equals ~$60M of current adjusted central budget revenue

Central budget revenues have on average grown 3.5% annually over the past decade (FY13-FY22)

Roughly equals impact of standard annual salary increases, tuition rate increase on financial aid, and other inflation

Notes: (1) Total central budget revenue is adjusted to remove undergraduate and graduate financial aid. (While typically included within revenue, financial aid is a “contra expense” and has therefore been adjusted out of revenue for this portrayal.) Additionally, department support of operations (restricted funds transferred to support central budget costs incurred by departments) has been removed for the calculation of central budget revenue growth in this view in order to focus on core revenue drivers for the central budget.

I. MIT finances: key reminders

II. Estimated financial impact of key GSU proposals

III. Historical stipends and peer comparisons

Estimating the cost of GSU proposals

Costing of GSU proposal includes estimates of most of the proposals, such as:

Pay rate increases	• 31%-40% year 1 stipend increases, Lead TA and UROP coord, start-up grants
Tuition charges	• Impact from "step-down" (noting there is a further impact to central budget)
Fee waivers	• Student life and other fees
401K	• As proposed
Health, dental, vision	• Est'd impacts from subsidies, premiums
Childcare/adoption	• $15,000 reimbursement, backup care, etc.
Employee assistance	• Professional dev., equipment, MyLife
Commuting	• Parking, transit, biking subsidies
Leaves	• Paid/unpaid leaves as proposed

This yields a fair approximation of the total annual cost of GSU proposals.

Some proposals are not *explicitly* included in the costing estimate due to their nature and/or variability (financial impact not clear) and could be additive. For example:

- Any additional impacts from tuition waiver (apart from "step-down")
- Additional relocation grants (apart from $3,500-$5,500 startup grants) and other assistance as needed
- Additional central costs associated with, for example, rent, utilities, living conditions proposals
- Any impacts from partial appointments (though likely factored into pay rate estimate) or continuity of funding
- Other various articles (grocery, hardship, etc.)

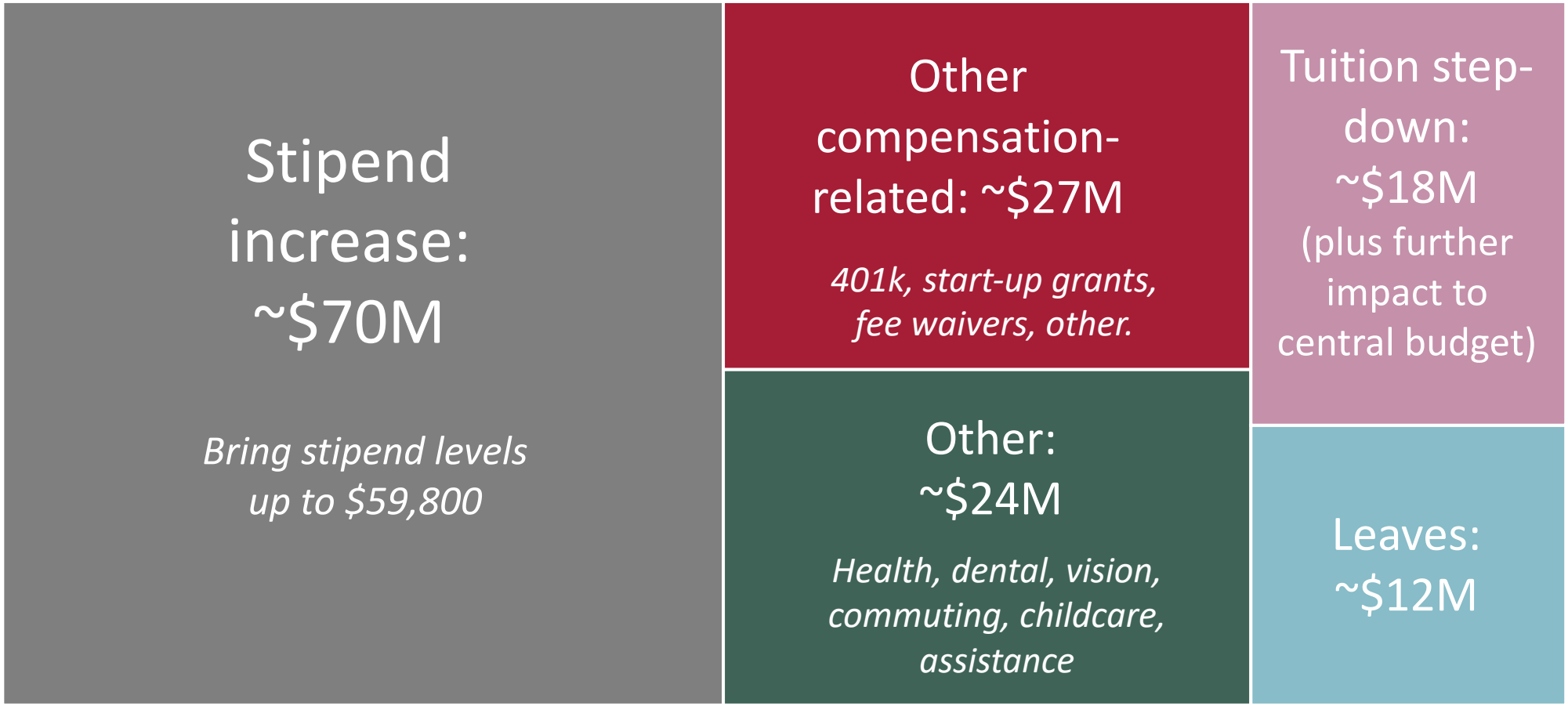
16

Estimated financial impact of GSU proposals

~$150M/year **total** costs	• Would impact all funding sources: central budget, grants, funds
~$125M/year of the total is likely to impact **central budget**	• Based on current financial structures • Draw on central unrestricted resources

- Largest impacts are from proposed stipend increases, other compensation/benefits, tuition step-down
- Estimates maintain equity with students outside the unit

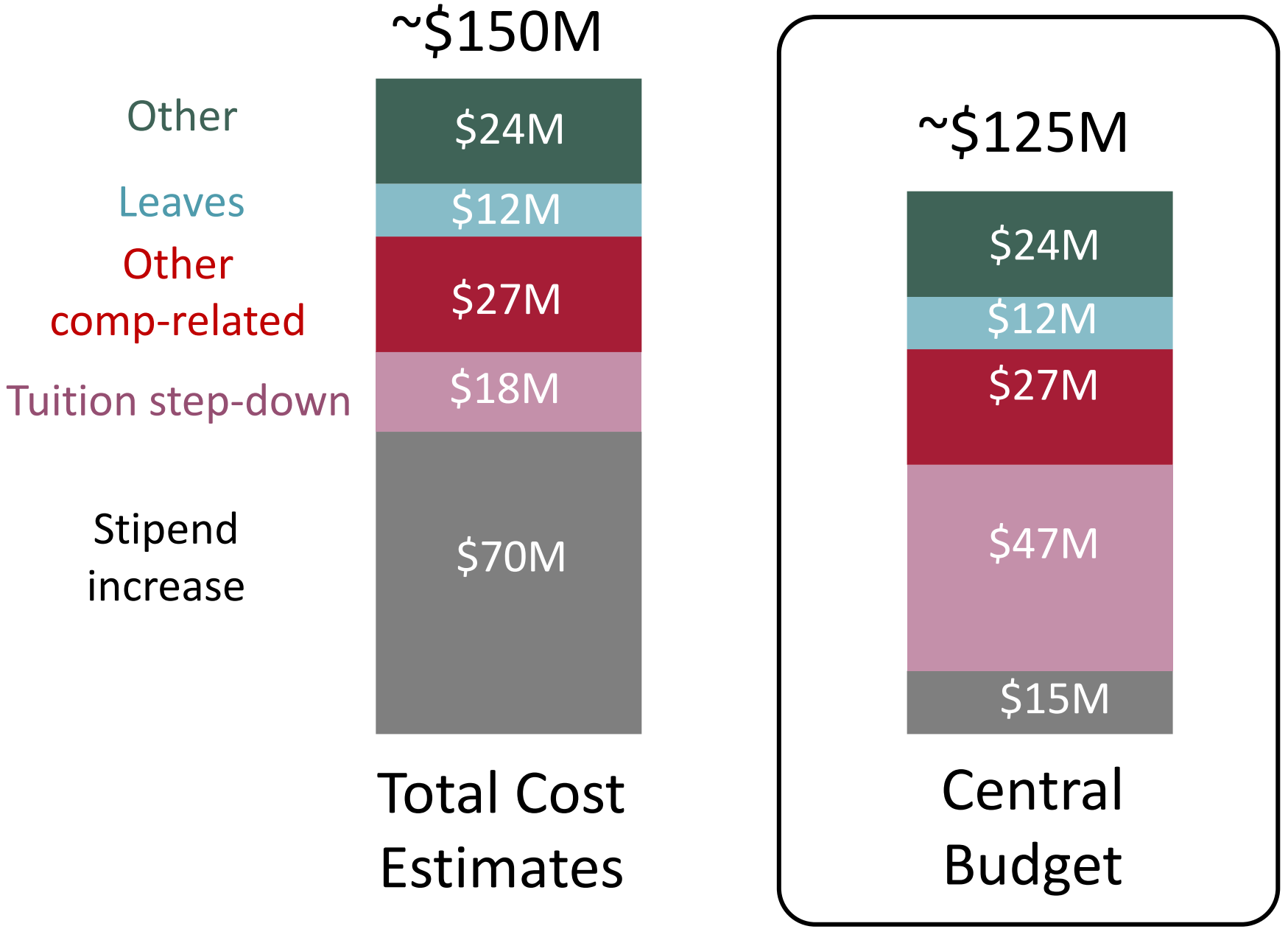
Economic proposals estimated to yield ~$150 million per year in total cost impact (“consolidated”)



Important note: Total impact to central budget varies from the above. See next page

18

Central budget likely to be impacted by up to ~$125M/yr

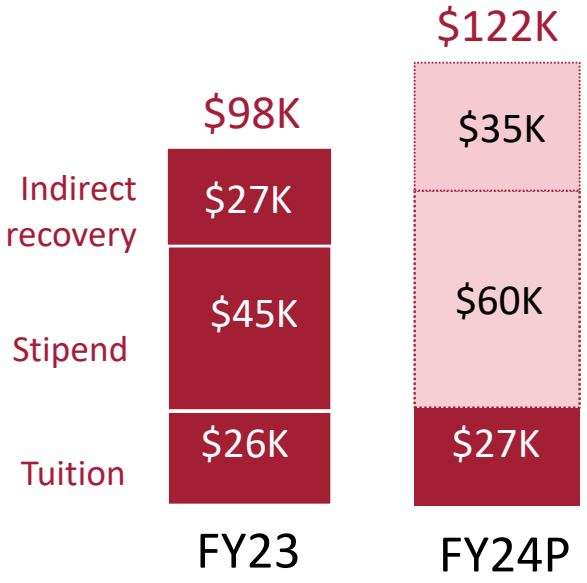


Cost to research for an RA Appointment under GSU Proposal

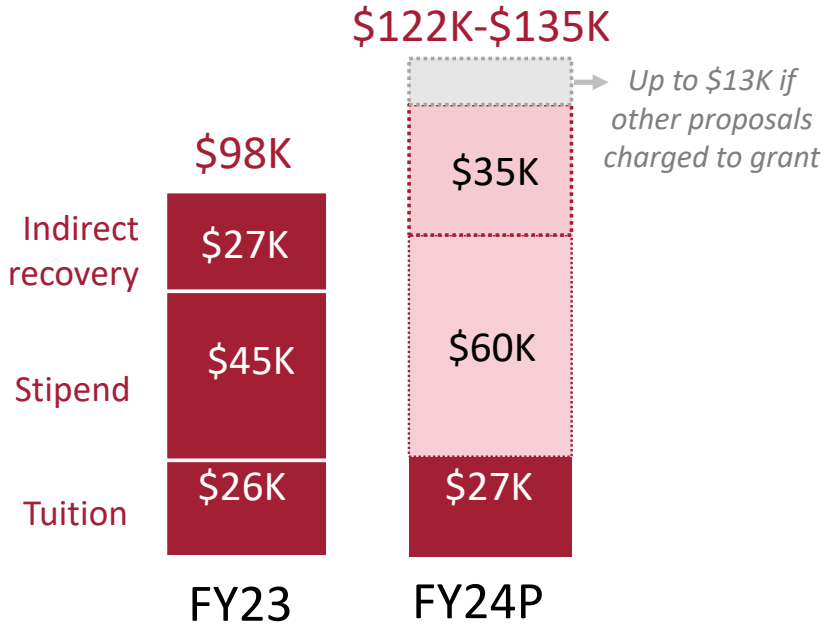
Example 1: Without tuition step-down

- Total GSU proposal estimated to cost ~$150M/yr.
- Stipends account for ~$70M, or +$15K (+31%) for a typical 12-month PhD RA
- The GSU tuition step-down proposal accounts for ~$18M of the $150M/year but is not included in this example (and would have ~$47M central budget implications)
- Remaining proposals est'd to cost ~$62M/year and would impact both grants and central budget

+24% cost to grant
when *only* factoring in proposed stipend increase



+36% with all proposals
(e.g., if all charged to grant)



Key notes:

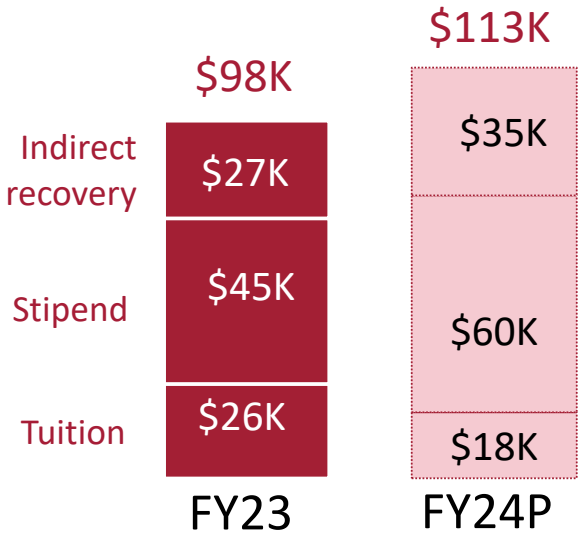
- FY24 tuition rate will increase 3.75%.
- Tuition treatment in this example is held constant to current arrangement for RA tuition (i.e., no tuition step-down as proposed by GSU).
- Indirect recovery (F&A) is applied to stipend only.
- SHIP typically covered separately by the central budget
- GSU proposals for benefits outside of stipends would impact both grants and central budget

Cost to research for an RA Appointment under GSU Proposal

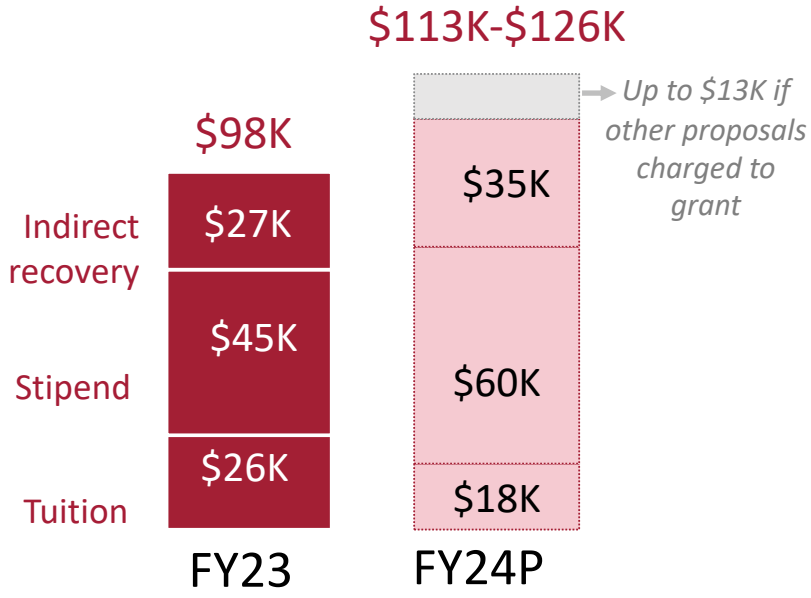
Example 2: With tuition step-down

- Total GSU proposal estimated to cost ~$150M/yr.
- Stipends account for ~$70M, or +$15K (+31%) for a typical 12-month PhD RA
- The GSU tuition step-down proposal accounts for ~$18M of the $150M/year (**and would have ~$47M central budget implications**)
- Remaining proposals est'd to cost ~$62M/year and would impact both grants and central budget

+15% cost to grant when *only* factoring in proposed stipend increase and tuition step-down



+27% with all proposals (e.g., if all charged to grant)



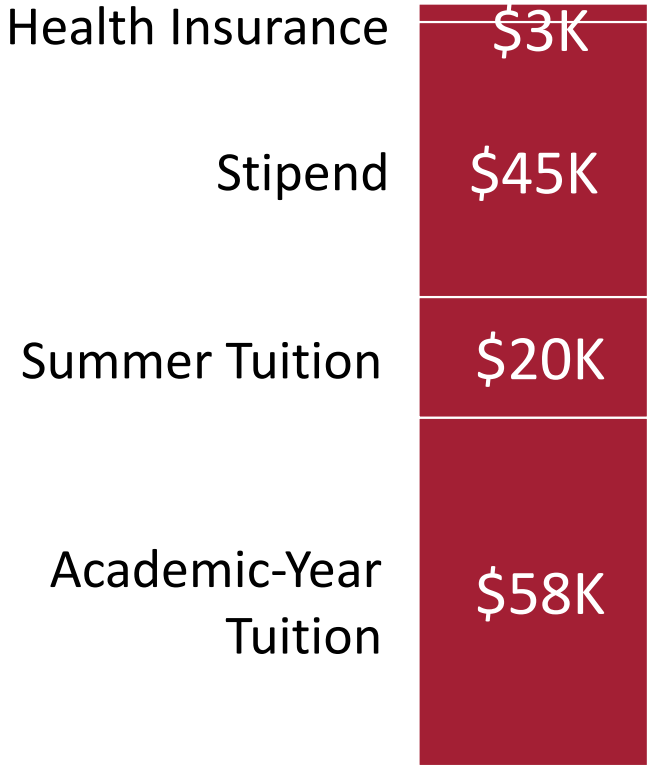
Key notes:

- FY24 tuition rate will increase 3.75%.
- Tuition treatment in this example is reduced by 33% to account for the GSU's proposed tuition step-down (based on a weighted average of the total years of study of a graduate student at MIT). **This impacts MIT's central budget by $47M.**
- Indirect recovery (F&A) is applied to stipend only.
- SHIP typically covered separately by the central budget
- GSU proposals for benefits outside of stipends would impact both grants and central budget

I. MIT finances: key reminders
II. Estimated financial impact of key GSU proposals
III. Historical stipends and peer comparisons

FY23 compensation for a typical RA appointment with 20-hour/week work obligation

FY23 Graduate Student Compensation: $126K



Assumes:

- Tuition support for the calendar year
  (To increase +3.75% in FY24)
- Stipend support for the calendar year
  (Calculated at the minimum level for a 12-month PhD RA)
- Full-time workload of 20 hours a week
- Health insurance for single coverage with no spouse or dependents
- Does not include additional MIT support for childcare or commuting

Historical stipend increases at MIT

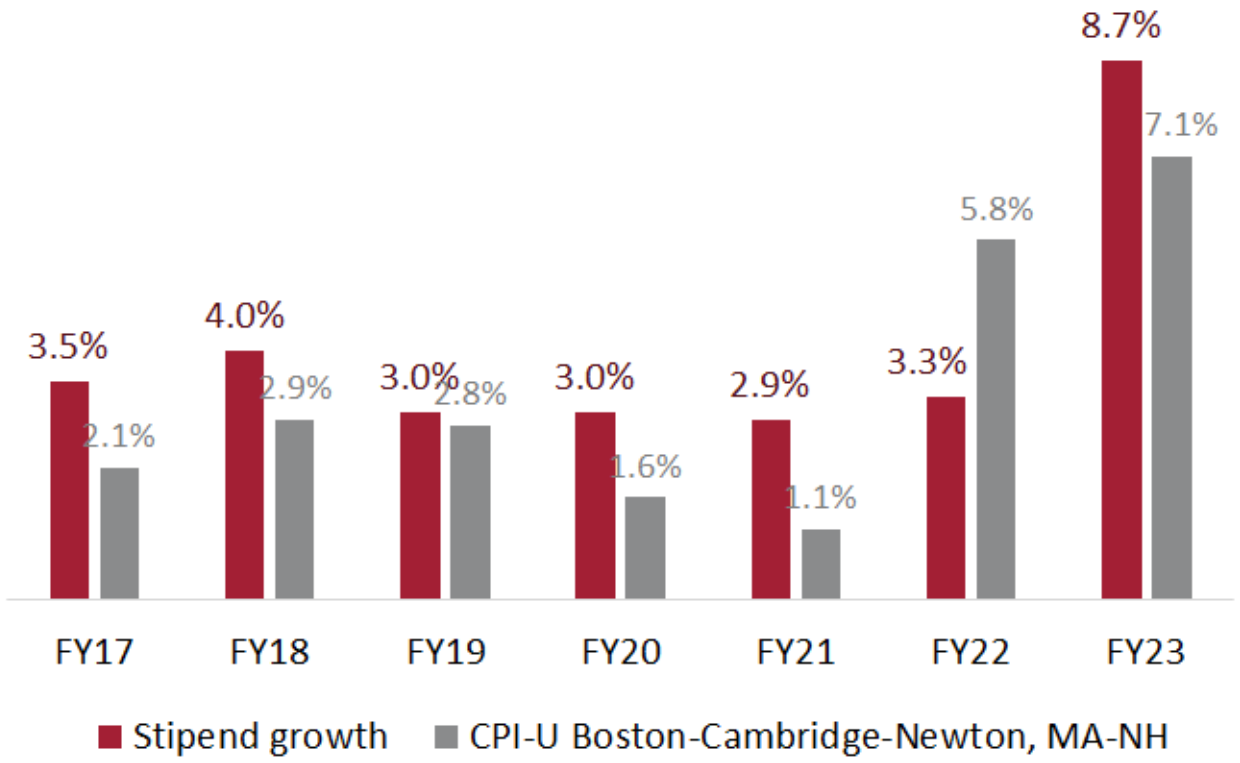
	RA stipend level Doctoral (12 months)	Annual increase
AY23	$45,480	8.67%
AY22	$41,856	3.25%
AY21	$40,533	2.90%
AY20	$39,391	3.00%
AY19	$38,244	3.00%
AY18	$37,128	4.00%

AY23 includes 5.50% stipend increase effective June 1, 2022 plus special 3.00% stipend increase in December 2021

Notes: (1) Table depicts RA stipend level (doctoral, annual) noting RA SM levels and TA stipend levels vary, but increase at the same rates.

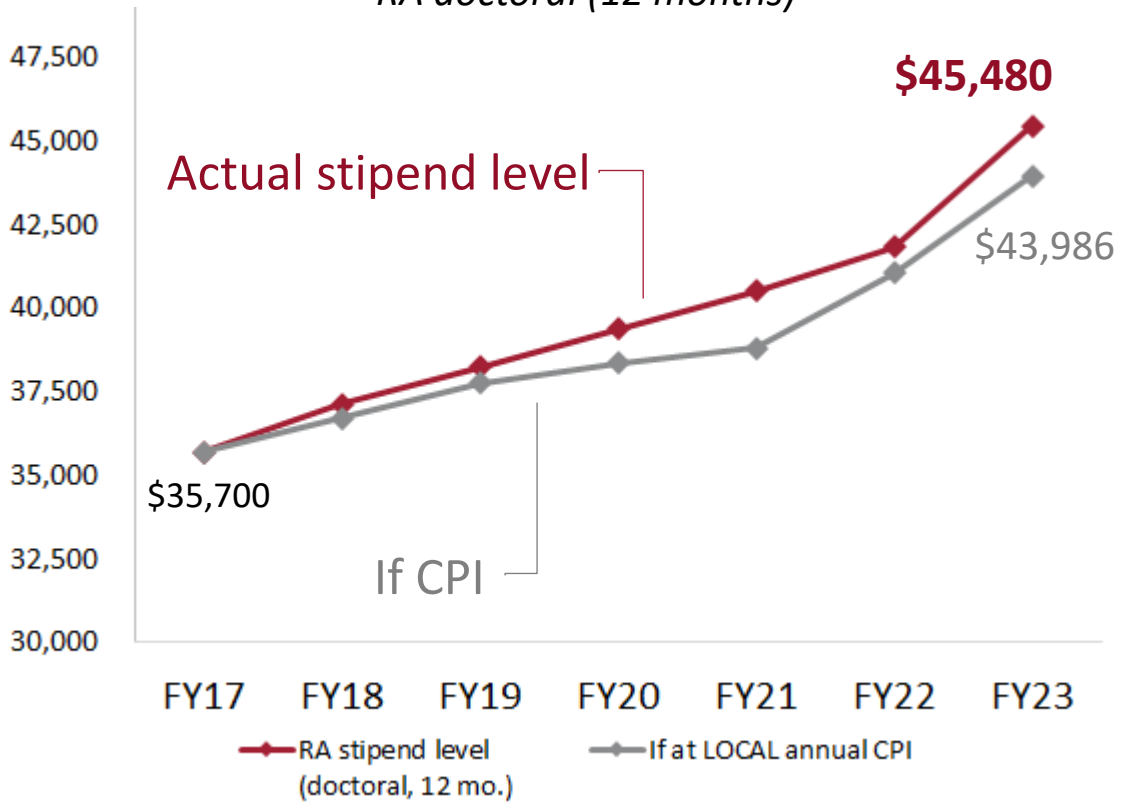
Stipend increases have out-paced CPI in recent years

Stipend increases vs. CPI



RA stipend growth

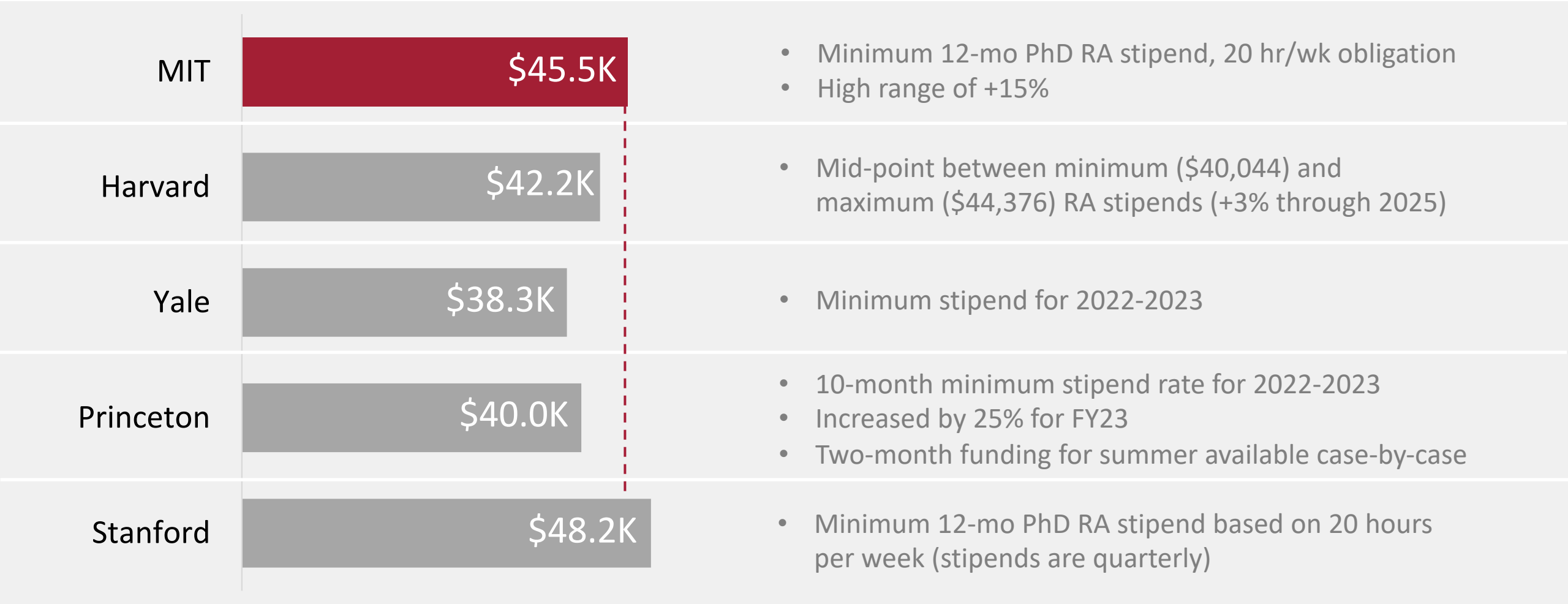
RA doctoral (12 months)



Notes: (1) Stipend increases are based on academic year increases, which typically take effect in June. To standardize for fiscal years, the chart plots those annual stipend increases against the average CPI increase for that fiscal year. (2) FY23 CPI is July 2022-January 2023 average. FY23 stipend increase includes first full year impact of the special 3% pay increase in December 2021. (3) The Consumer Price Index (CPI) is a measure of the average change in price over time in a fixed market basket of goods and services bought by consumers for day-to-day living. The metric used above is the CPI-U Boston-Cambridge-Newton, MA-NH, 1982-1984.

Current stipend levels for HYPS peers (FY23)

Based on 12-month RA stipends levels



- Minimum 12-mo PhD RA stipend, 20 hr/wk obligation
- High range of +15%

- Mid-point between minimum ($40,044) and maximum ($44,376) RA stipends (+3% through 2025)

- Minimum stipend for 2022-2023

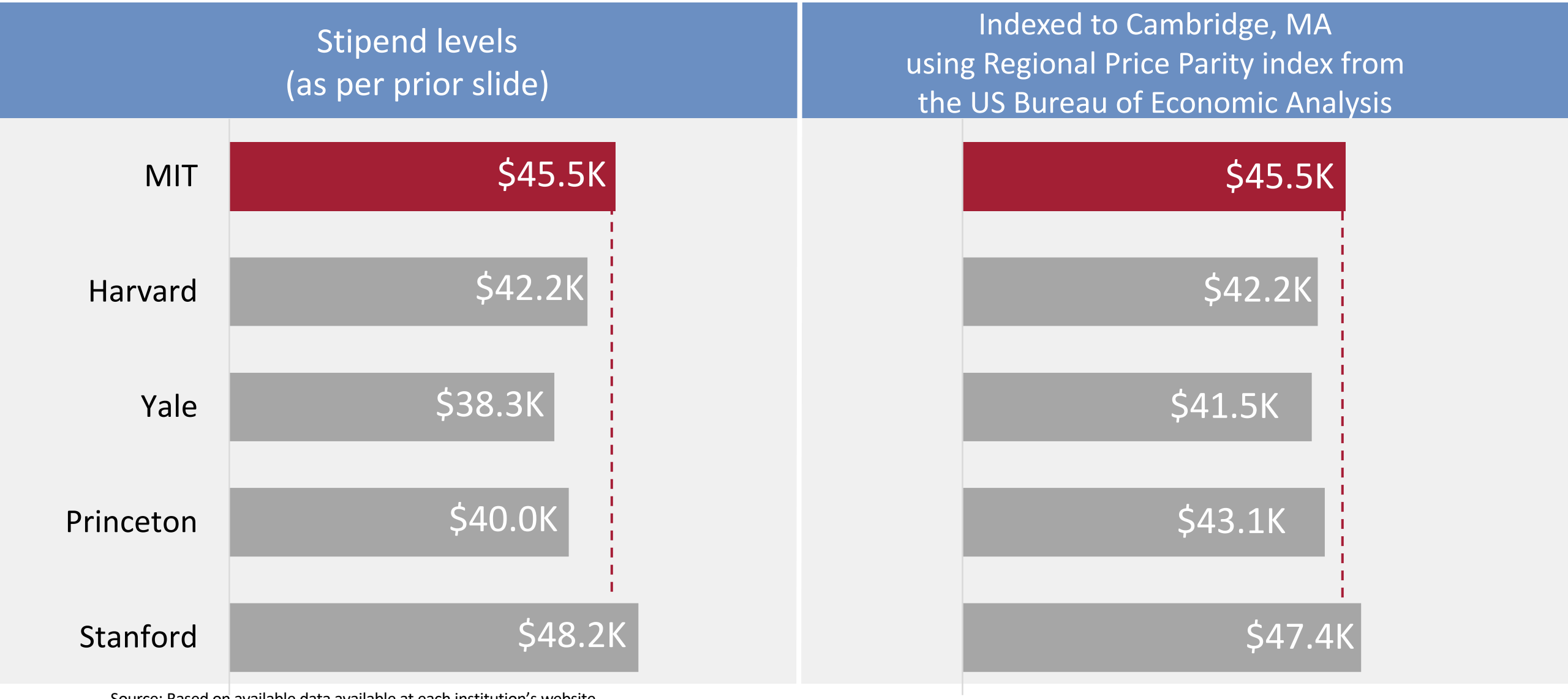
- 10-month minimum stipend rate for 2022-2023
- Increased by 25% for FY23
- Two-month funding for summer available case-by-case

- Minimum 12-mo PhD RA stipend based on 20 hours per week (stipends are quarterly)

Source: Based on available data available at each institution's website.

Current stipend levels for HYPS peers (FY23)

Based on 12-month RA stipends levels



Source: Based on available data available at each institution's website.

AY22 Student Health Insurance Costs

- MIT rates for dependents are significantly lower than peer institutions

	MIT	Brown	Yale[1]	Harvard	Dartmouth	Stanford
Student Only	$3,089	$4,255	$2,756	$4,040	$4,163	$6,768
Student + Spouse/Partner	$6,754	$8,492	$10,250	$12,544	$10,740	$12,980
Student + Dependent(s)[2]	$4,209	$12,729	$9,224	$10,840	$13,958	$12,853
Family[3]	$7,875	$12,729	$17,198	$19,304	$13,958	$18,795

Note: Where possible, rates for student-only coverage do not include a student health fee or equivalent; all other rates are inclusive of all fees.

[1] No separate student health fee

[2] Costs for two enrolled children

[3] Costs for enrolled spouse and two enrolled children

Overall Graduate Student Starting Salaries by Degree

MIT Degree	2022 Median Salaries
MBA	$170,000
MEng	$135,000
All other Masters	$120,000
Non-postdoc PhDs	$135,000
Post-doc PhDs	$62,000

Source: MIT Doctoral Exit Survey 2022

Non-Postdoctoral Starting Salaries by Department

MIT Department	2022 Median Salaries	Average Bonus
AeroAstro	$125,000	$19,583
Biological Engineering	$135,000	
Biology	$112,500	
Chemical Engineering	$120,000	
Chemistry	$119,000	$13,333
Economics	$171,000	
EECS	$169,000	$93,421
Management	$260,000	
Materials Science & Eng	$125,000	
Mechanical Engineering	$139,000	$56,125
Physics	$115,000	
Grand Total	**$135,000**	**$49,364**

Source: MIT Doctoral Exit Survey 2022

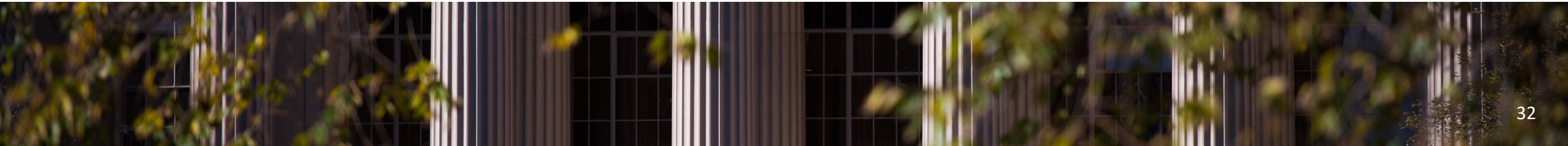
Non-Postdoctoral Starting Salaries by Occupation

Occupation for MIT grads	2022 Median Salaries	Average Bonus
Architecture and Engineering Occupations	$120,000	$26,893
Computer and Mathematical Occupations	$165,000	$88,231
Consultant	$170,000	$50,000
Education, Training, and Library Occupations	$160,000	
Management Occupations	$142,500	
Scientists: Life, Physical, and Social	$118,500	$16,912
Grand Total	**$135,000**	**$50,530**

Source: MIT Doctoral Exit Survey 2022

Summary

- MITs funds are highly constrained (allocated, restricted, or preserving intergenerational neutrality, etc.)
- New unrestricted central funds each year typically are very limited. Central budget revenue support typically grows 3.5%, on average, or ~$60M in current dollars.
- This is usually enough to cover current commitments such as standard salary increases across campus, financial aid growth, and other inflationary costs, leaving a very limited amount for new strategic uses (and we have other strategic needs)
- Union's economic proposal is ~$150M/year total impact; likely ~$125M/year to the central budget
    - It will significantly and negatively impact research competitiveness
- RAs and TAs are compensated >$126K/yr (stipend, tuition, benefits) for a 20-hour/week work obligation
- We already have comparable or better stipends and benefits relative to peers, even when corrected for differences in local costs, with stipend increases outpacing CPI
- Salaries upon graduating with an MIT degree are high (e.g. $135K median for non-postdoc PhDs)



APPENDIX

Additional peer comparisons

Based on 12-Month Research Assistant Appointment Stipend where available

Institution	FY23 Stipend	Additional Considerations
MIT	45,480	12-month PhD Research Assistant (High range of +15%)
Harvard University	44,376	Highest stipend for an RA (Life Sciences); Full range of stipends is $40,044 - $44,376. (Increasing 3% annually through FY25.)
Yale University	38,300	Minimum stipend for 2022-2023.
Princeton University	40,000	Represents 10-month minimum stipend rate for 2022-2023; noting that two-month add'l funding for summer available case-by-case
Stanford University	48,216	Based on $12,054 per quarter (minimum, 50%)
Columbia University	45,320	Minimum stipend for 2022-2023.
Brown University	42,411	Based on $32,818 academic year stipend and $9,593 summer stipend.
Cornell University	40,117	Based on $30,088 academic year stipend and $10,029 summer stipend; Cornell Tech receives a total of $49,958 due to NYC area cost of living
Georgetown University	36,934	Minimum stipend for 2022-2023.
University of Chicago	35,700	Represents the BioSciences PhD RA stipend. The minimum PhD RA stipend is $33,000.
Johns Hopkins University	35,608	Minimum stipend for 2022-2023.
Duke University	33,660	Minimum stipend for 2022-2023.
New York University	31,748	Academic year only
University of Pennsylvania	30,547	Minimum stipend for 2022-23, which is set to increase to $38,000 for 2023-24.
University of California	23,230	Minimum stipend for RAs will be $34,564.50 by 10/1/24 and will be based on 9-months (could vary by location/program)