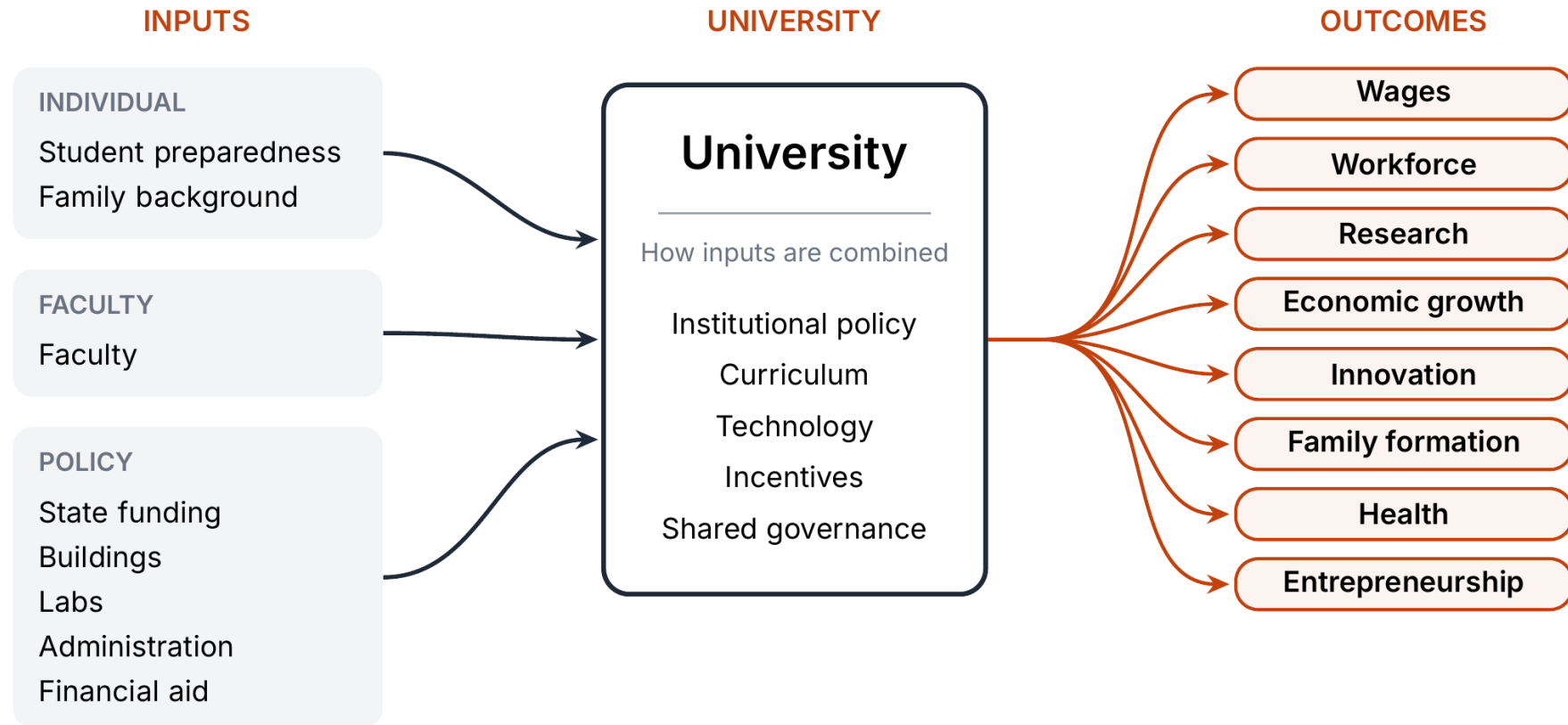


The Changing Economics of Higher Education

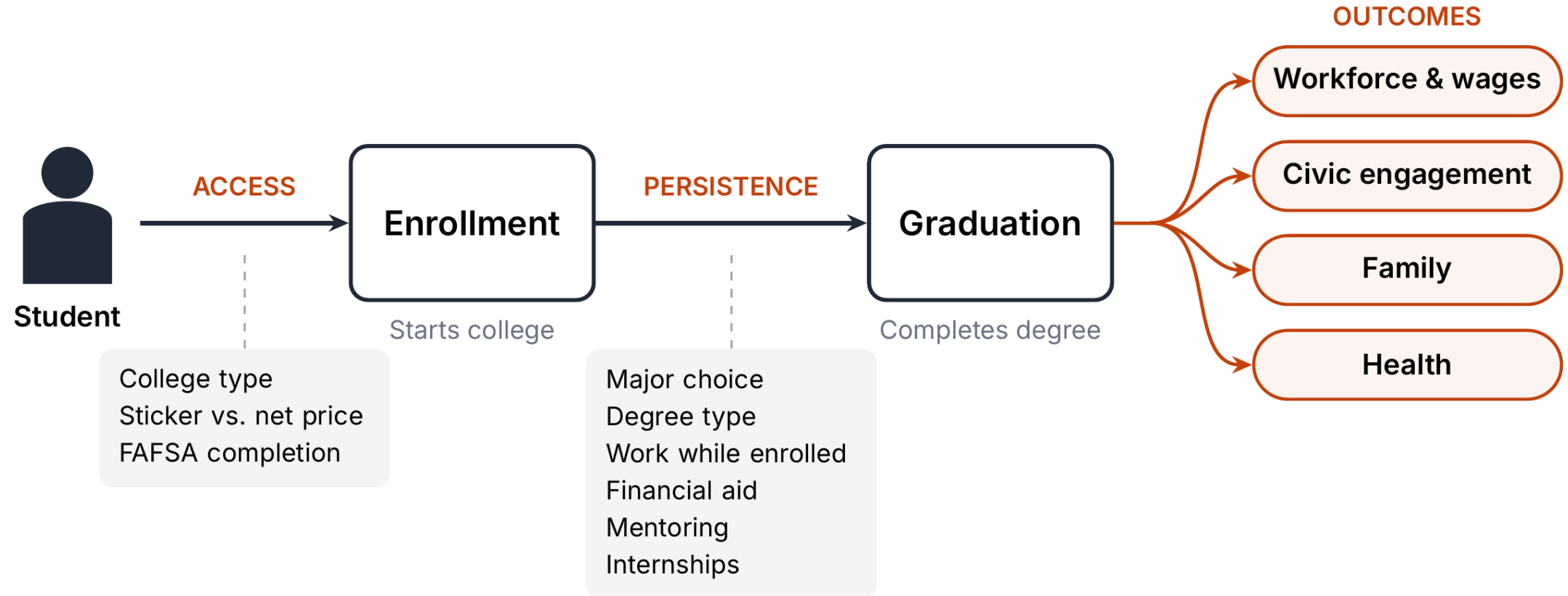
Mike Kofoed · Boyd Center for Business and Economic Research, University of Tennessee, Knoxville · October 2026

Framework: the education production function



Policymakers act mainly through the inputs: state funding, facilities, and financial aid. The university turns those inputs, together with what students and faculty bring, into the outcomes policymakers care about.

Framework: the college student life cycle



The evidence that follows focuses on access (prices, aid, FAFSA) and on graduation and debt at exit.

What is education? Two Nobel Prize winners

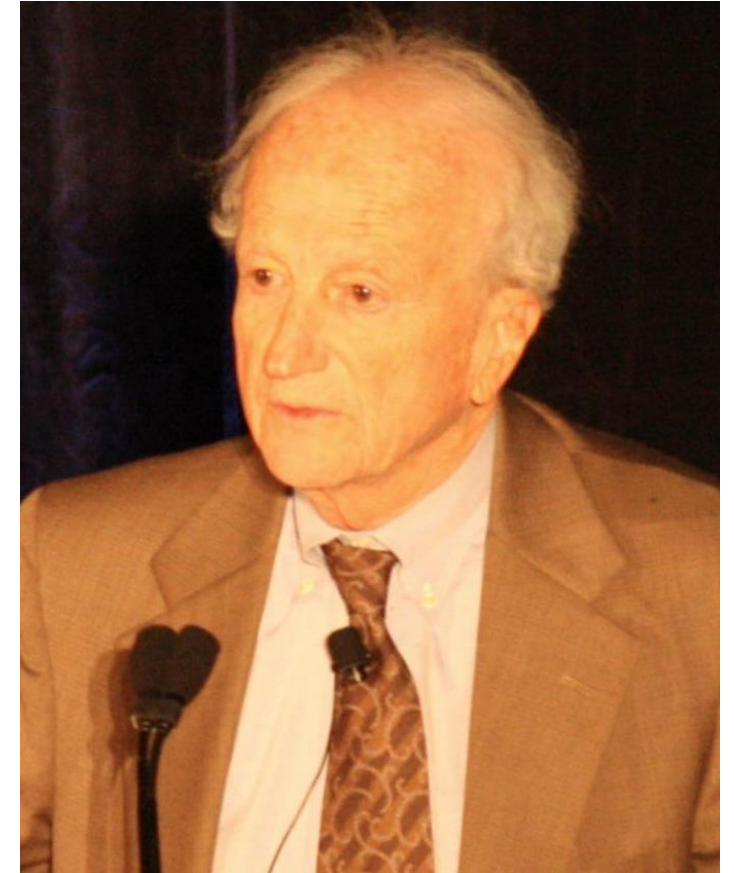
GARY BECKER · NOBEL PRIZE 1992

Human capital theory

- Education is an **investment** in skills and attributes that raise a worker's productivity.
- Students keep investing as long as the **net present value** of more education is positive.

Benefits to education include increased earnings and employment.

Costs are tuition, room and board, and present forgone earnings.



Gary S. Becker (1930–2014), University of Chicago

Becker, Human Capital (1964). Photo: Wikimedia Commons, public domain (2008).

What is education? Two Nobel Prize winners



A. Michael Spence (b. 1943), Stanford University

MICHAEL SPENCE · NOBEL PRIZE 2001

Signaling theory

- Employers can't easily tell who will be a good worker.
- A degree is **hard to fake**: it takes years to earn.
- Finishing tells employers something, even if you never use the coursework.

What the degree says: **“We can do hard things!”**

Takeaway: **much of the payoff comes from *finishing*.**

Spence, “Job Market Signaling,” *Quarterly Journal of Economics* (1973). Photo: Robert Scoble, CC BY 2.0, via Wikimedia Commons (2008).

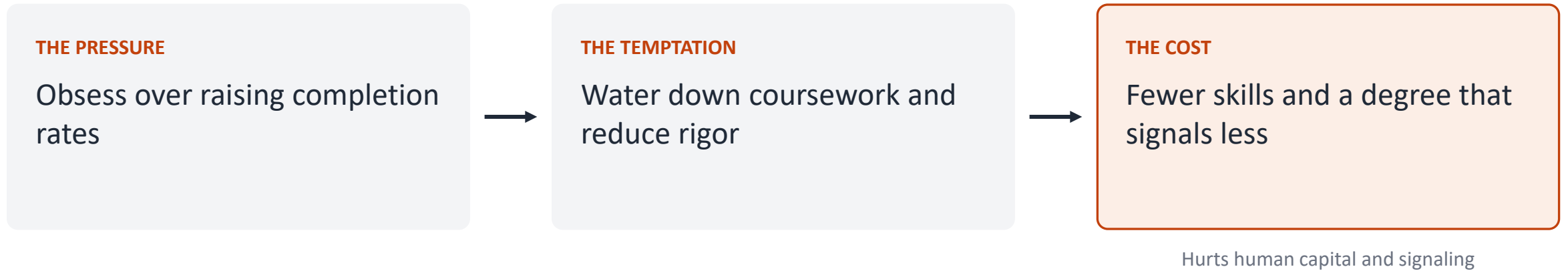
Two views of college, one lesson

	Human capital · Becker	Signaling · Spence
What college does	Builds skills that make workers more productive	Shows employers who is already productive
Where the payoff comes from	Every semester adds skills	Finishing the degree sends the signal
What it means for policy	Make it affordable to start: prices, aid, FAFSA	Help students finish: persistence and completion

Either way, policy has to get students in the door and through to the degree.

A student who leaves early pays the costs but misses much of the payoff, which is why the rest of this talk follows students from prices and aid through persistence and completion.

A caveat: completion is a means, not the end



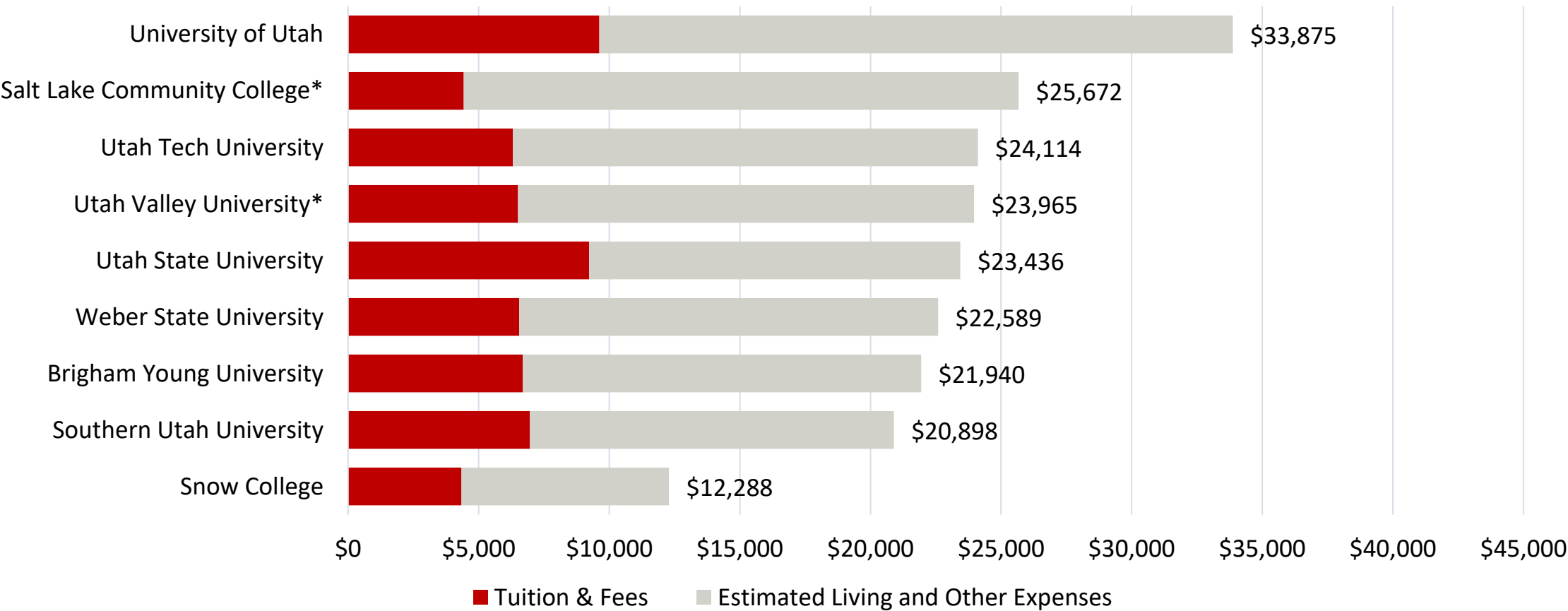
Graduation matters, but the real goal is **job placement, earnings, and real benefits** for students.

That is the tension in the economics of education:
more graduates versus degrees that are worth more.

PART 1

Prices and aid

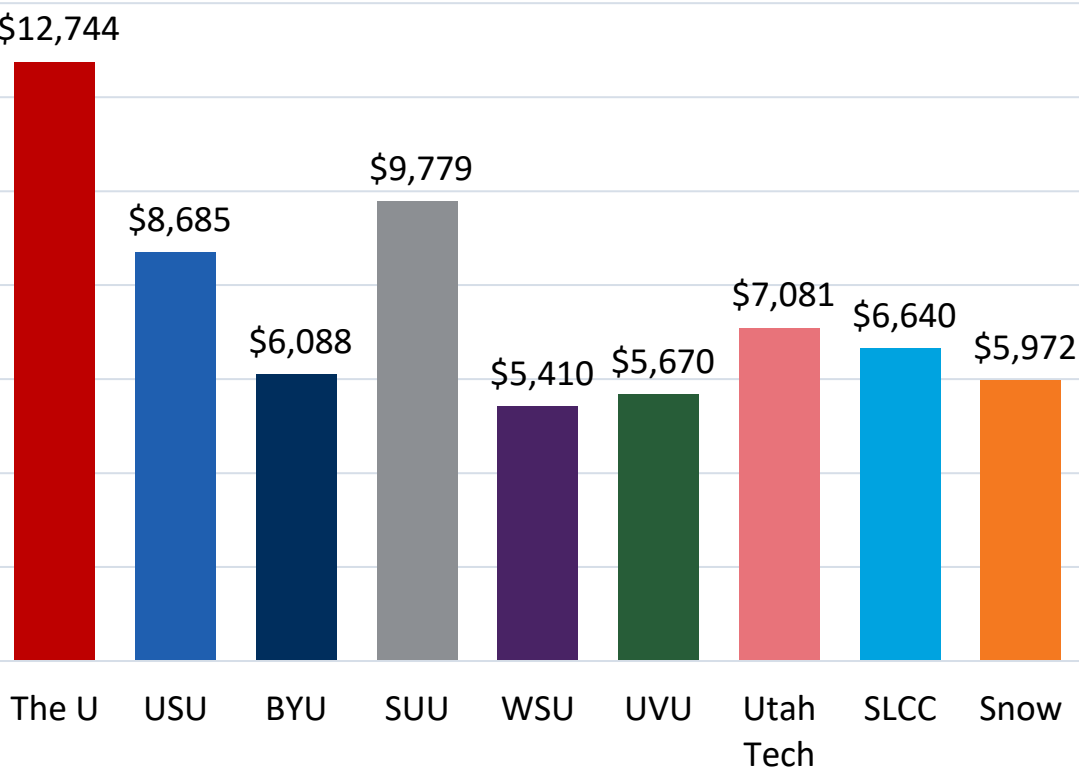
Cost of Attendance Includes More than Tuition & Fees



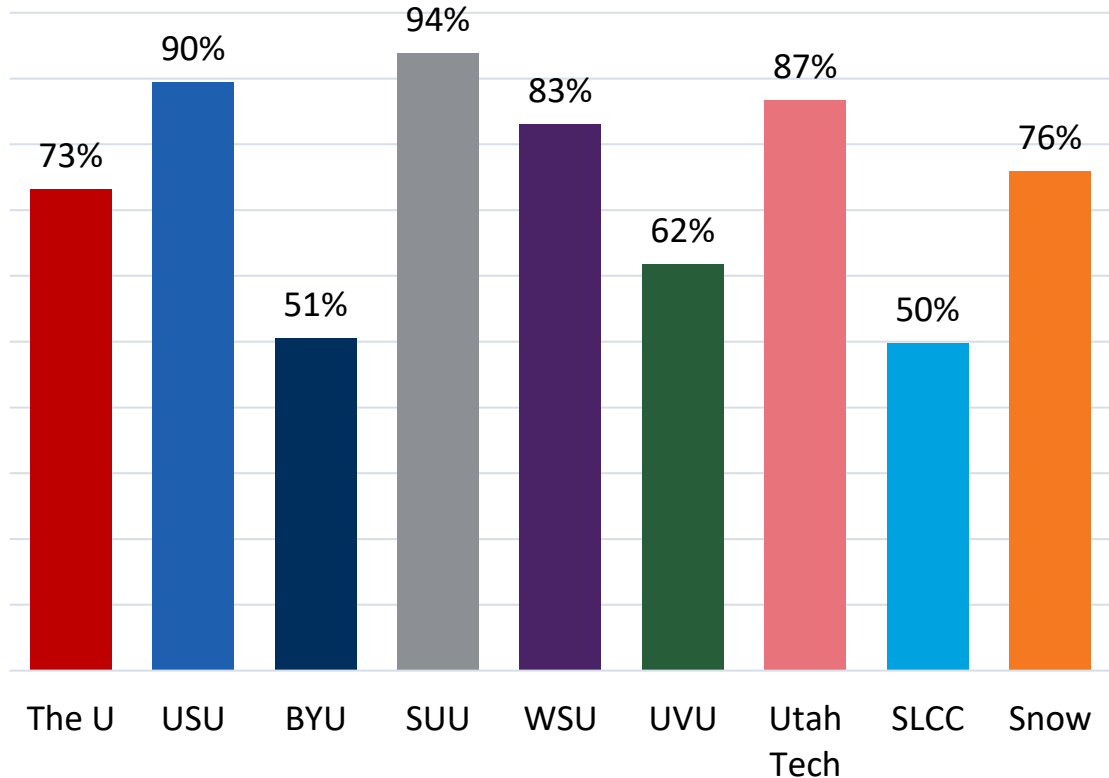
IPEDS 2023-24, full-time first-time undergraduates. Total cost of attendance includes tuition and fees plus estimated expenses for housing, food, books, transportation, and other personal costs.
* UVU and SLCC report off-campus cost of attendance. † BYU tuition is the Latter-day Saint member rate; non-members pay roughly double.

Grant aid helps many students offset tuition and fees

Average Grant Aid Awarded, 2023–24

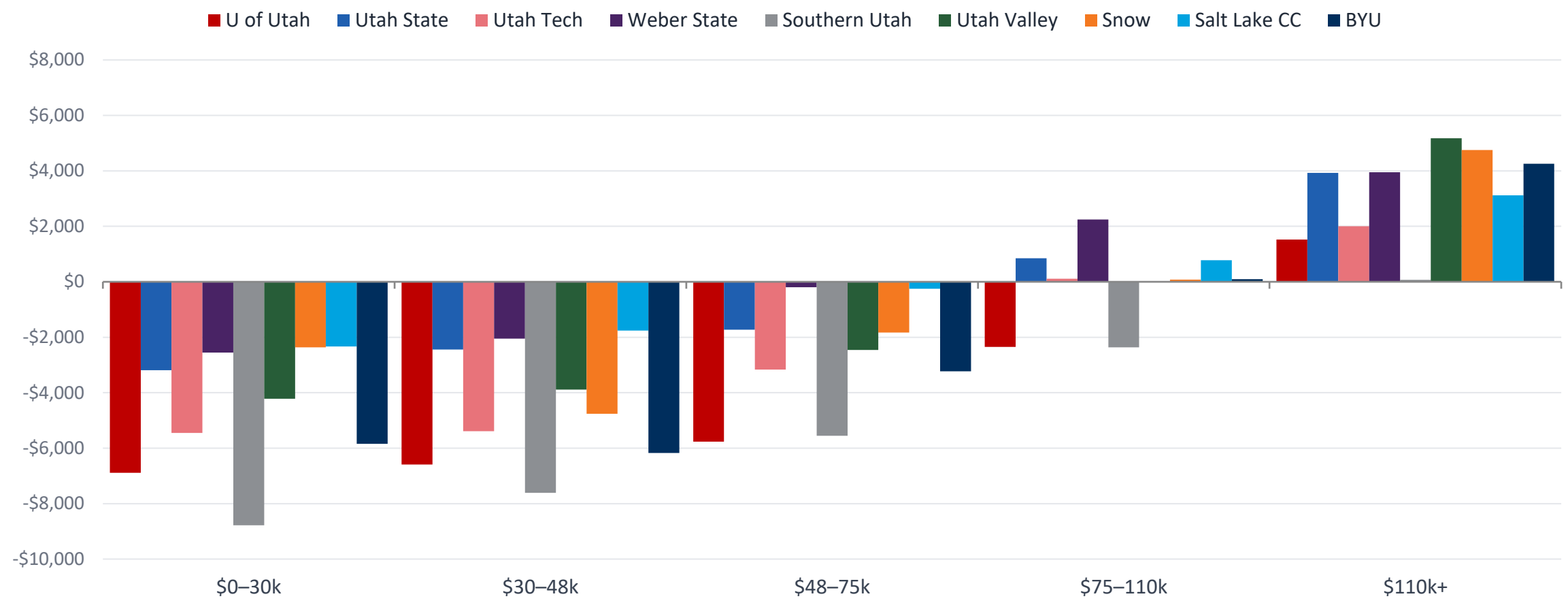


Share of Students Awarded Grant Aid, 2023–24



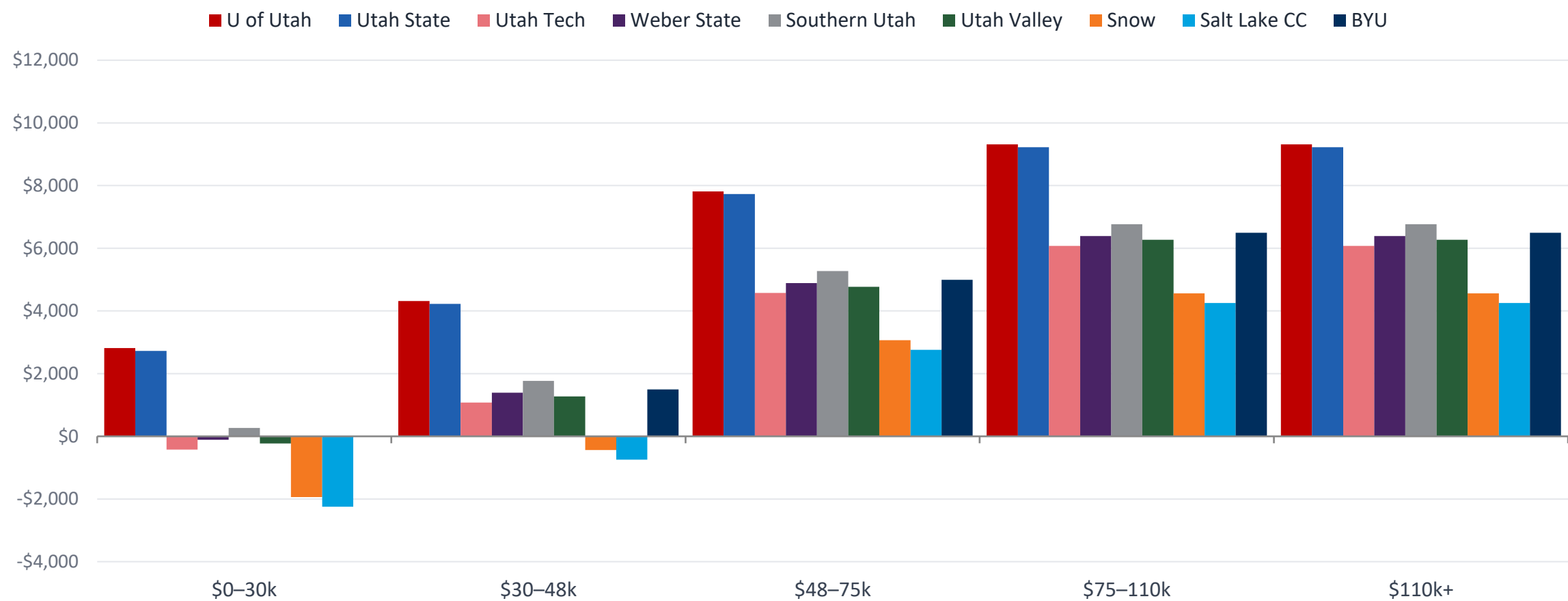
IPEDS 2023-24, full-time first-time undergraduates. Shows the share awarded grant aid and the average amount awarded to those who received aid. Grant aid includes federal, state, local, institutional, and other sources

With all grant aid, tuition is covered for families under \$75k



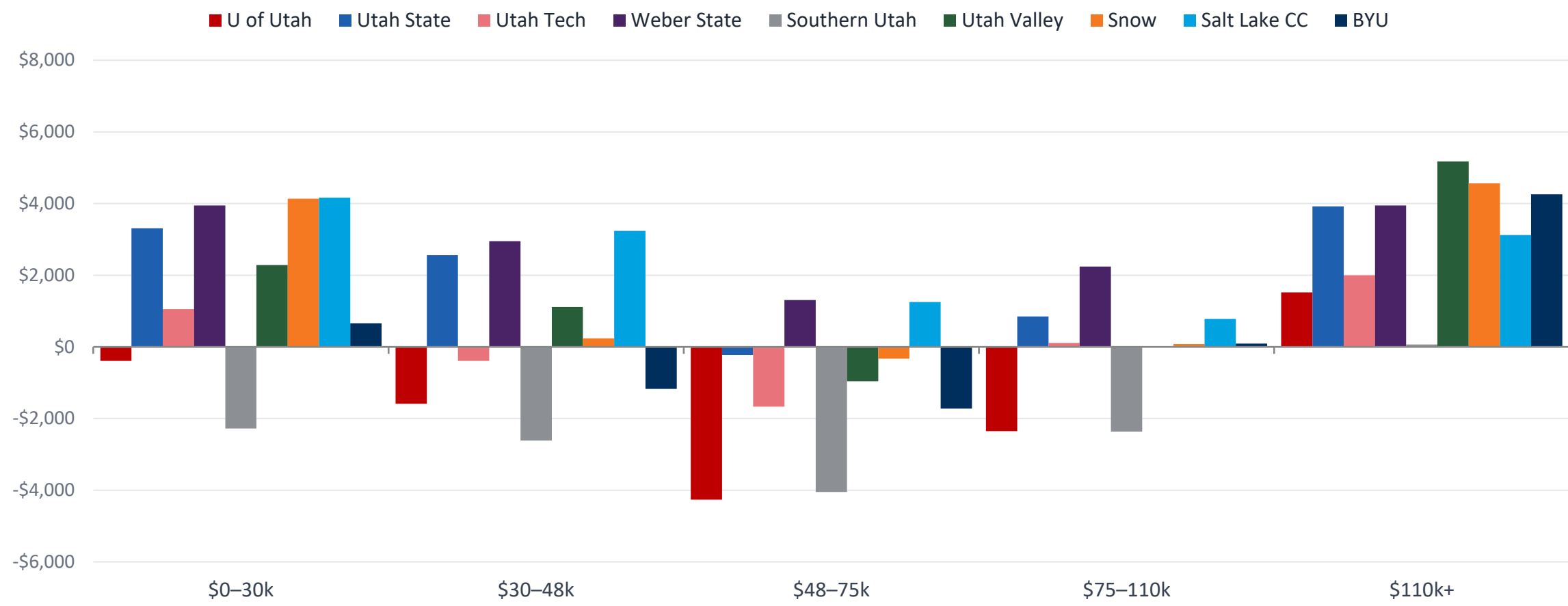
IPEDS 2023-24. Net tuition = tuition & fees minus all grant aid (Pell plus state, institutional, and other grants). Grant aid by income derived as (overall net price + overall average grant) – net price in each income bracket. Below zero = grants exceed tuition and help with living costs.

Pell alone roughly covers tuition below \$30k, except at the U and USU



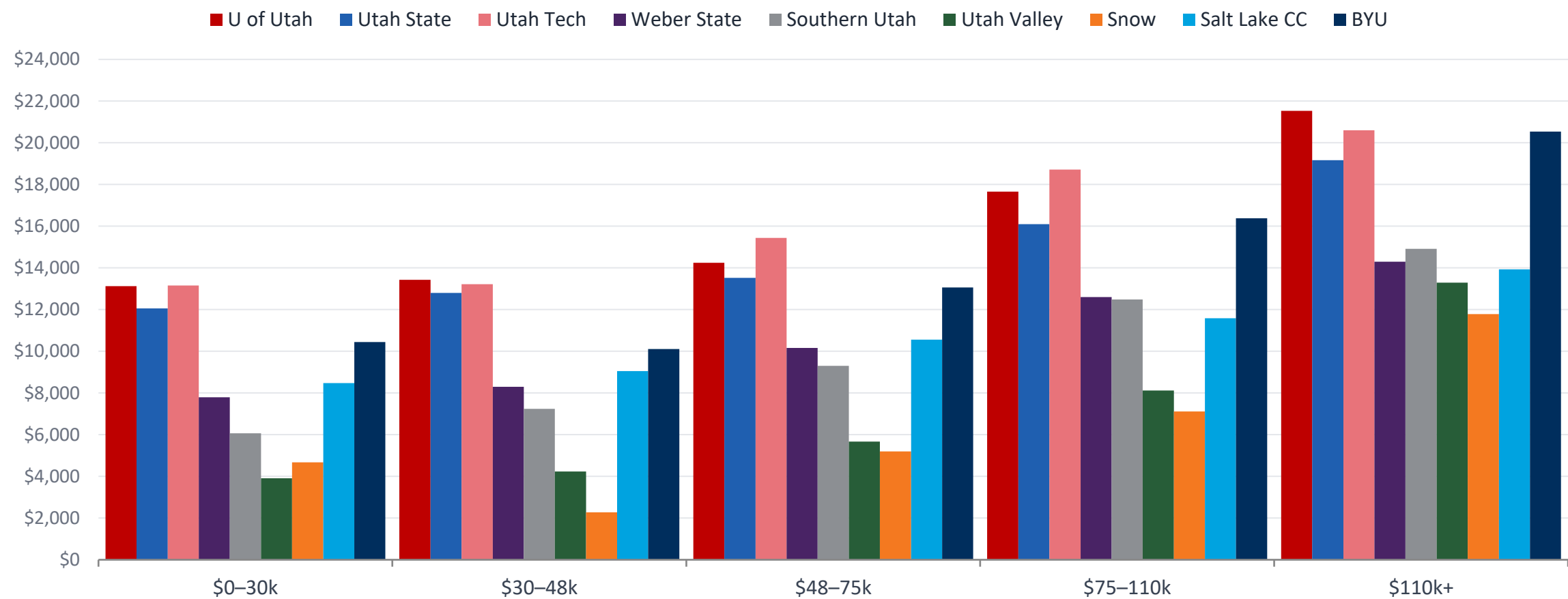
IPEDS 2023-24 tuition & fees minus Pell Grant only, using assumed average Pell by bracket (\$6,500 / \$5,000 / \$1,500 / \$0 / \$0; IPEDS does not report Pell by income). Because the Pell amounts are the same everywhere, differences across schools reflect sticker tuition. Below zero = Pell exceeds tuition.

Without Pell, low-income students lose most of their advantage



Same as the all-grant-aid slide with Pell removed, using assumed average awards of \$6,500 / \$5,000 / \$1,500 / \$0 / \$0 by bracket (IPEDS does not report Pell by income; 2023-24 maximum was \$7,395). Institutional aid at SUU and the U peaks in the \$48–75k bracket.

After all grants, low-income students still face \$4k–\$13k a year

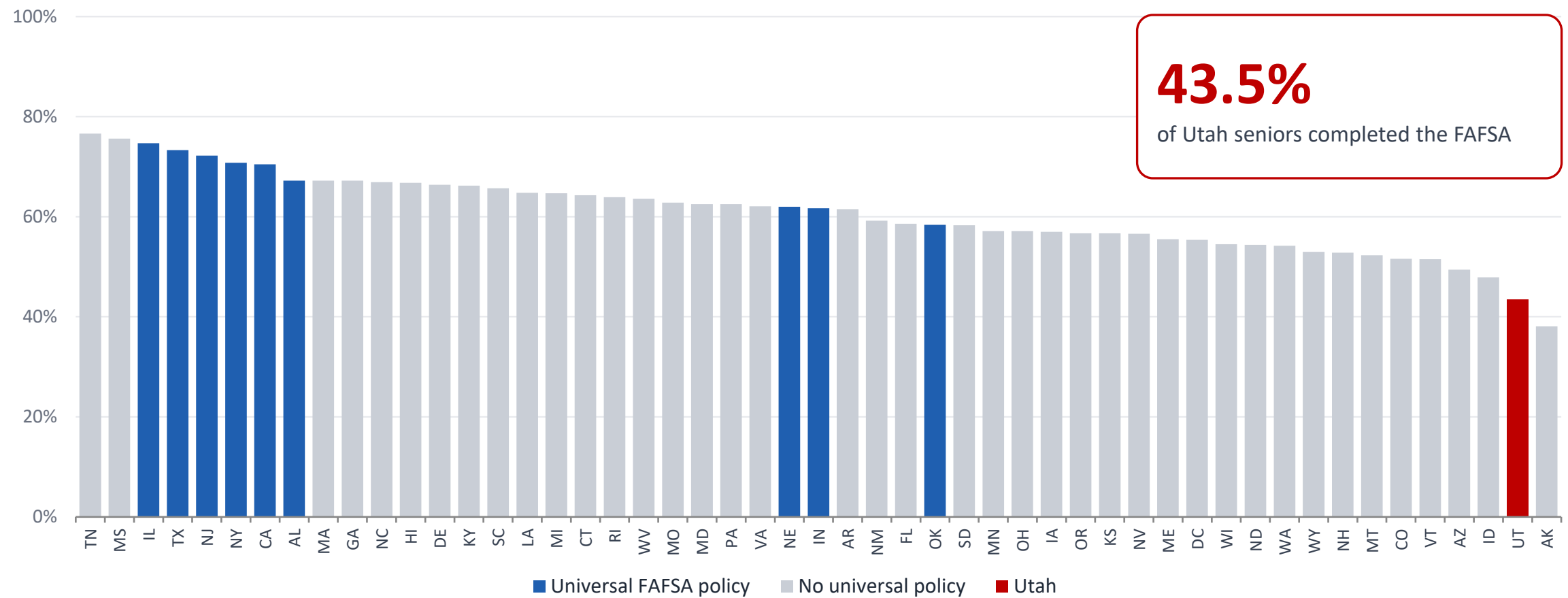


IPEDS 2023-24, average net price by family income: total cost of attendance (tuition, fees, housing, food, books, transportation) minus all federal, state, and institutional grant aid, for full-time first-time students receiving Title IV aid. UVU and SLCC use off-campus cost of attendance.

PART 2

FAFSA completion

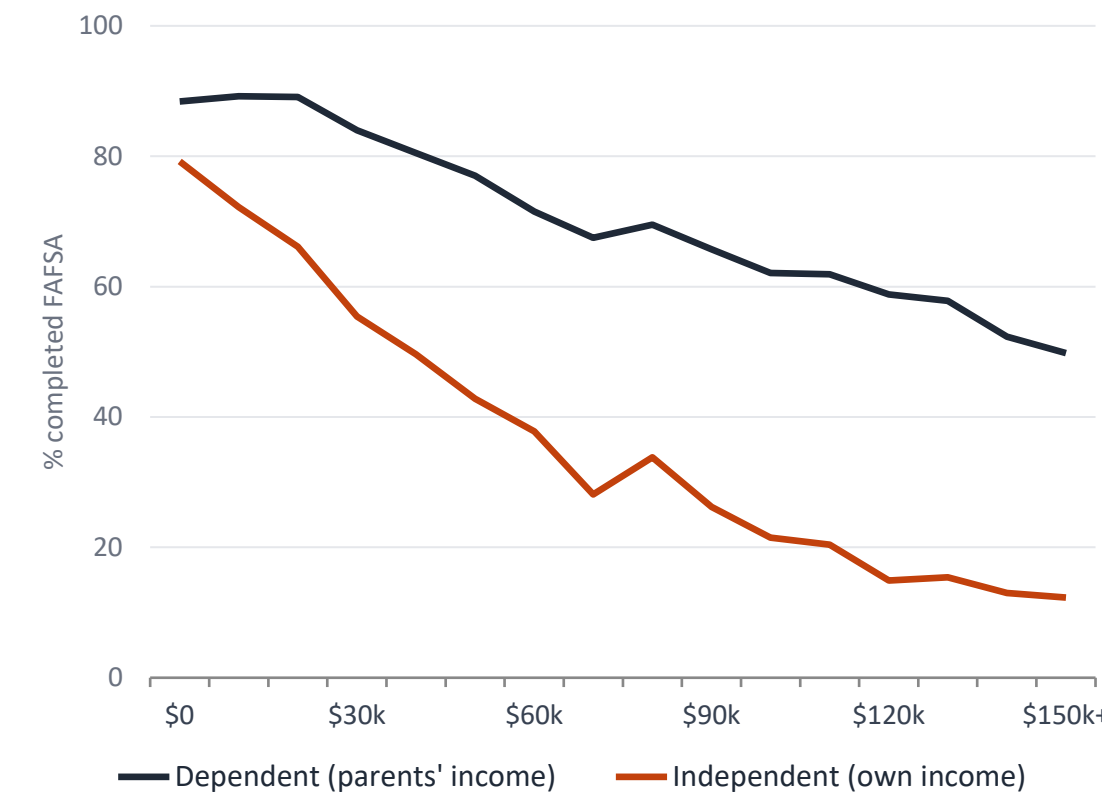
Utah ranks 50th of 51 in FAFSA completion



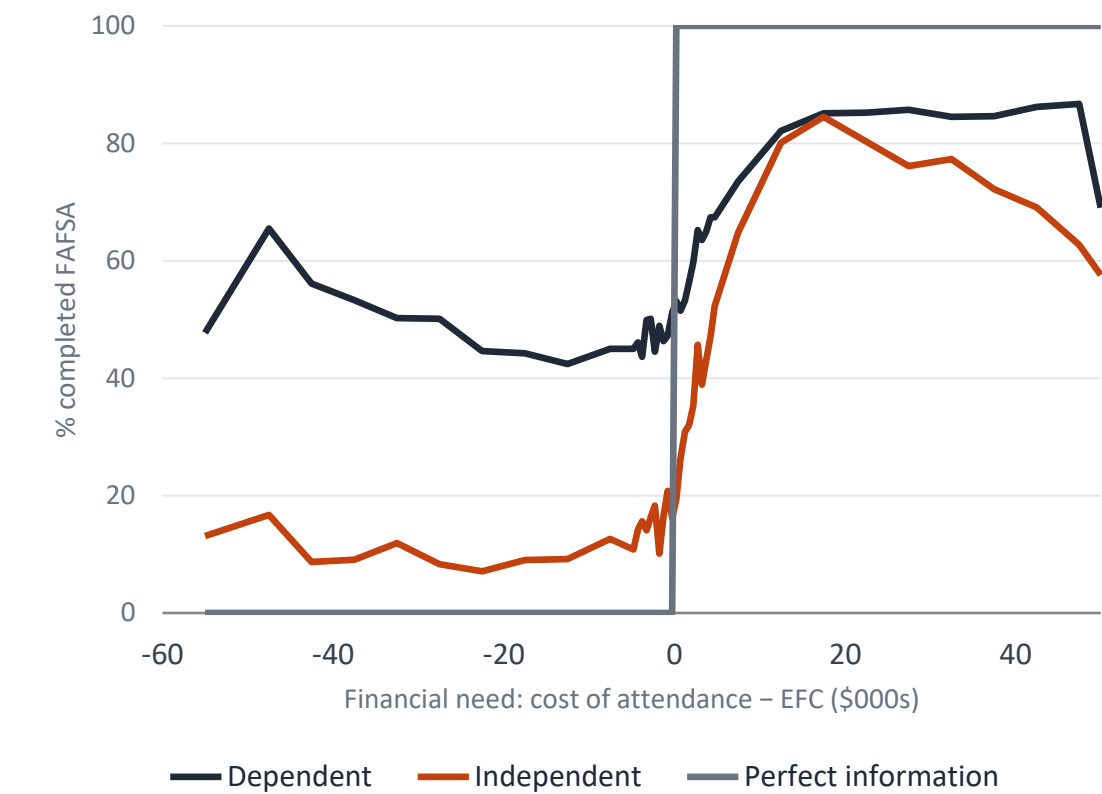
NCAN FAFSA Tracker, 2026-27 cycle: estimated share of class of 2026 seniors completing the FAFSA. Utah's completions grew 6.0% over 2025 (37th), so it is not closing the gap. Five of the top seven states have a universal FAFSA policy.

Lower-income and independent students are least likely to file

FAFSA completion by income (2008 dollars)



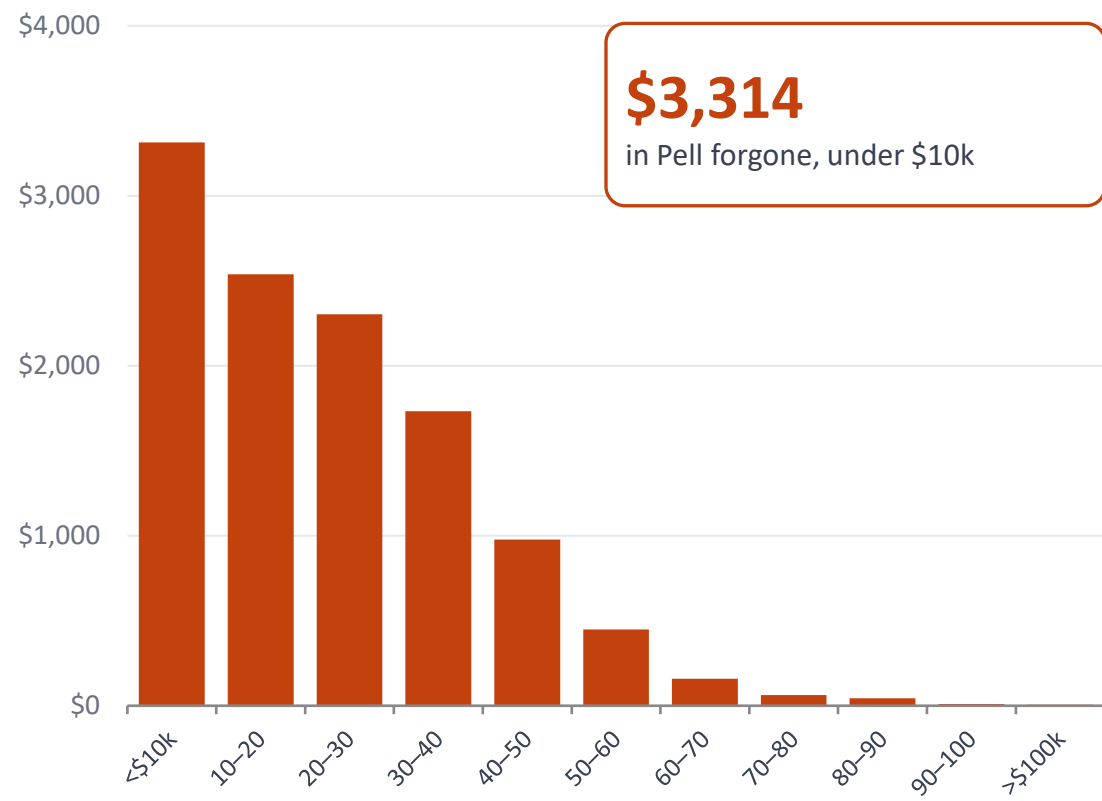
FAFSA completion by financial need



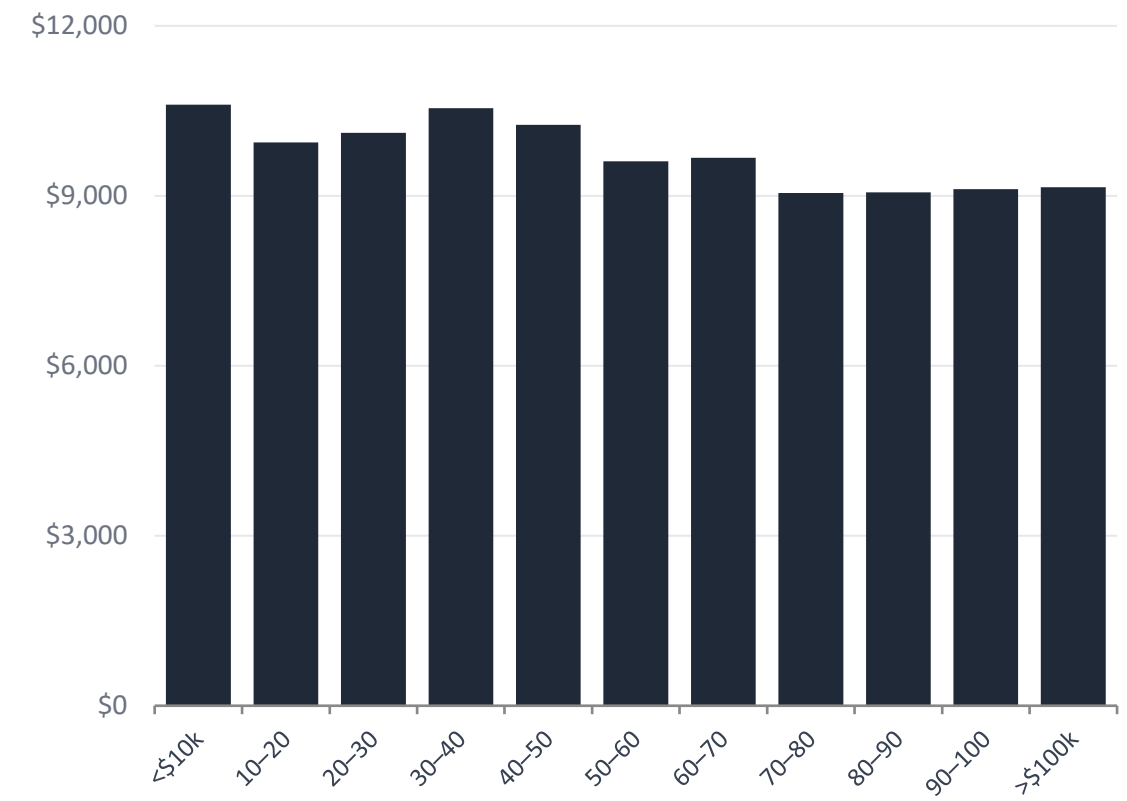
Kofoed (2017), Research in Higher Education 58(1): 1–39, Figs. 1–2. NPSAS 1999–2000, 2003–04, 2007–08. With perfect information, every student with positive need would file; instead about 85% of eligible dependent and 70–80% of eligible independent students do.

Non-filers leave about \$9,700 each on the table, roughly \$24 billion a year

Pell Grant gap by income (\$000s)



Total aid gap by income (\$000s)



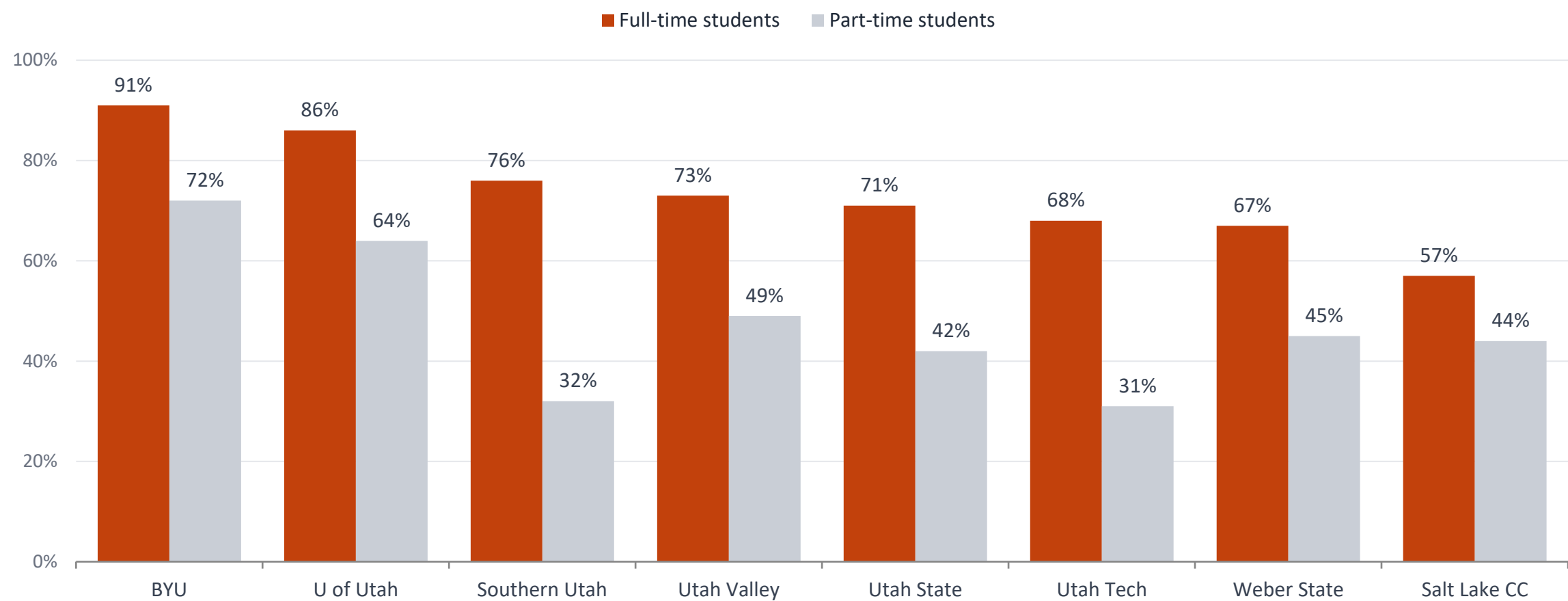
Kofoed (2017), Tables 5–6 (Figs. 4–5). Propensity-score-matched estimates of aid forgone by students who did not complete the FAFSA, pooled full sample, 2008 dollars. Overall: \$9,741 total aid gap, including \$1,281 in Pell Grants.

PART 3

Persistence

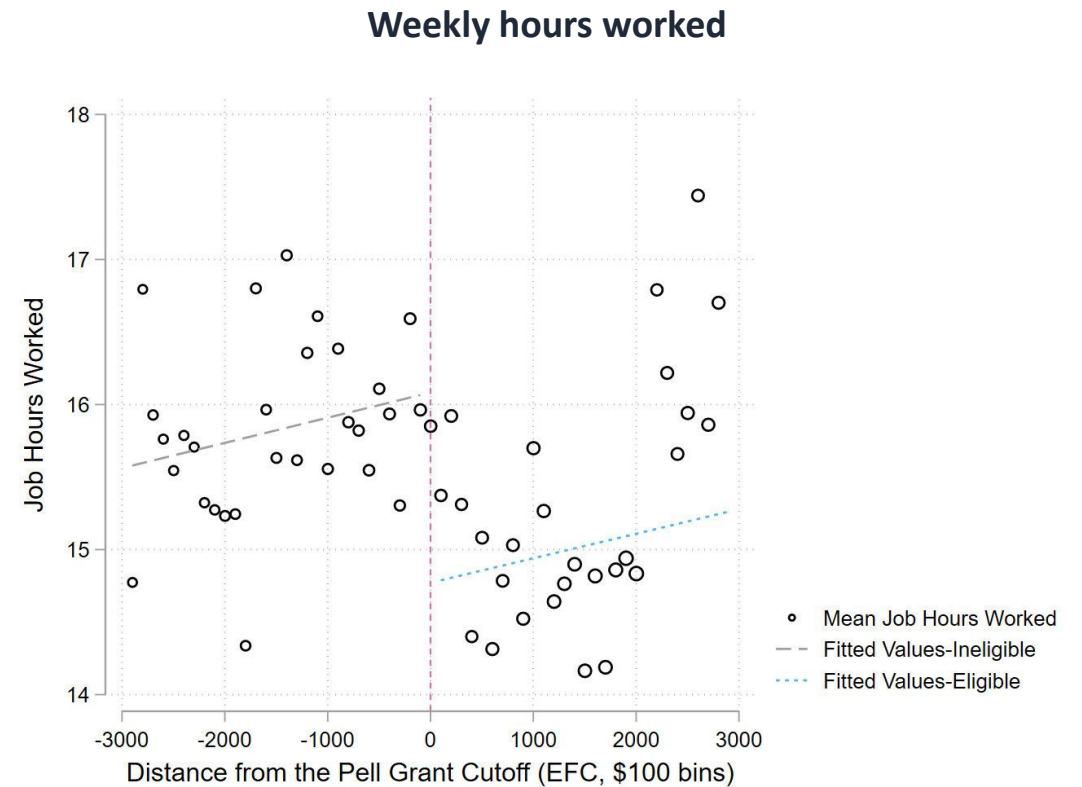
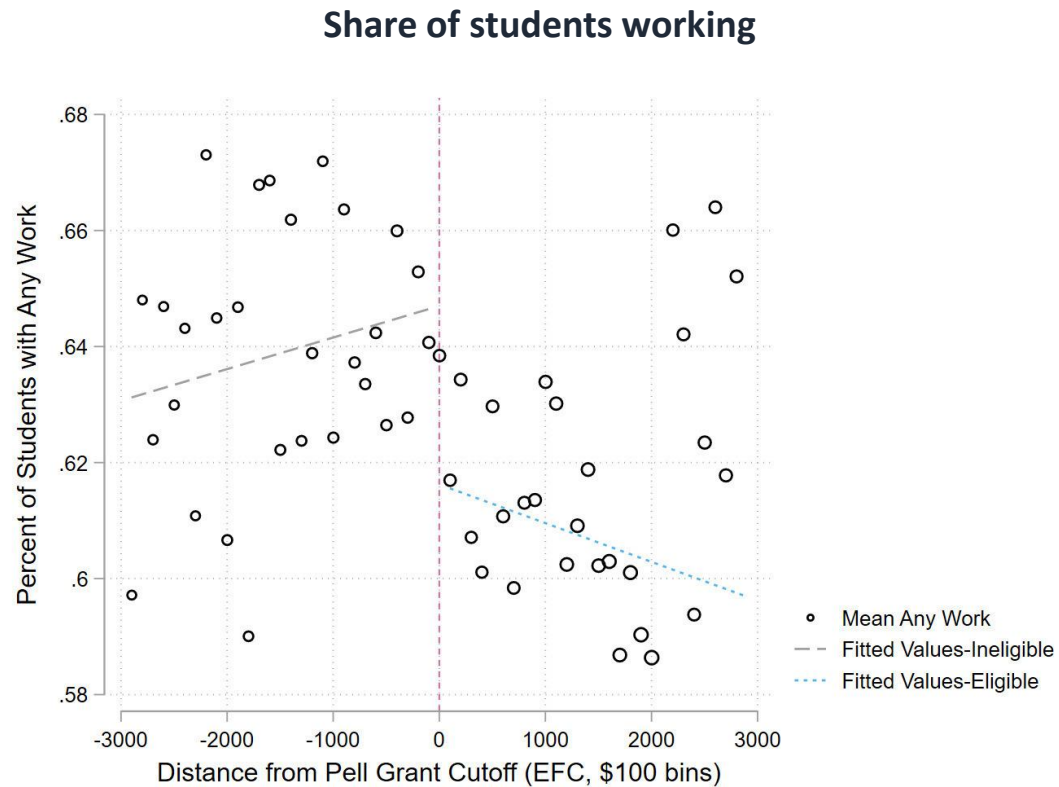
(Keeping Students on the Graduation Path)

Persistence starts in year one: part-time students fall away fastest



IPEDS via College Navigator: share of first-time students who began in fall 2023 and returned in fall 2024 (bachelor's-seeking students at four-year institutions; all degree/certificate seekers at SLCC). Snow College's retention rate was not available on College Navigator.

Pell Grants let students work less: work drops at the eligibility cutoff



Kofoed (2022), “Pell Grants and Labor Supply: Evidence from a Regression Kink,” IZA DP No. 15061, Figs. 4–5. NPSAS 1995–96 through 2011–12, \$100 EFC bins; Pell-eligible students are to the right of the cutoff.

An average Pell Grant buys study time: less work, better grades

−7.6 pts

less likely to work

about 12% fewer students working

−5.1

hours per week

for working students, about a 31% cut

+0.09

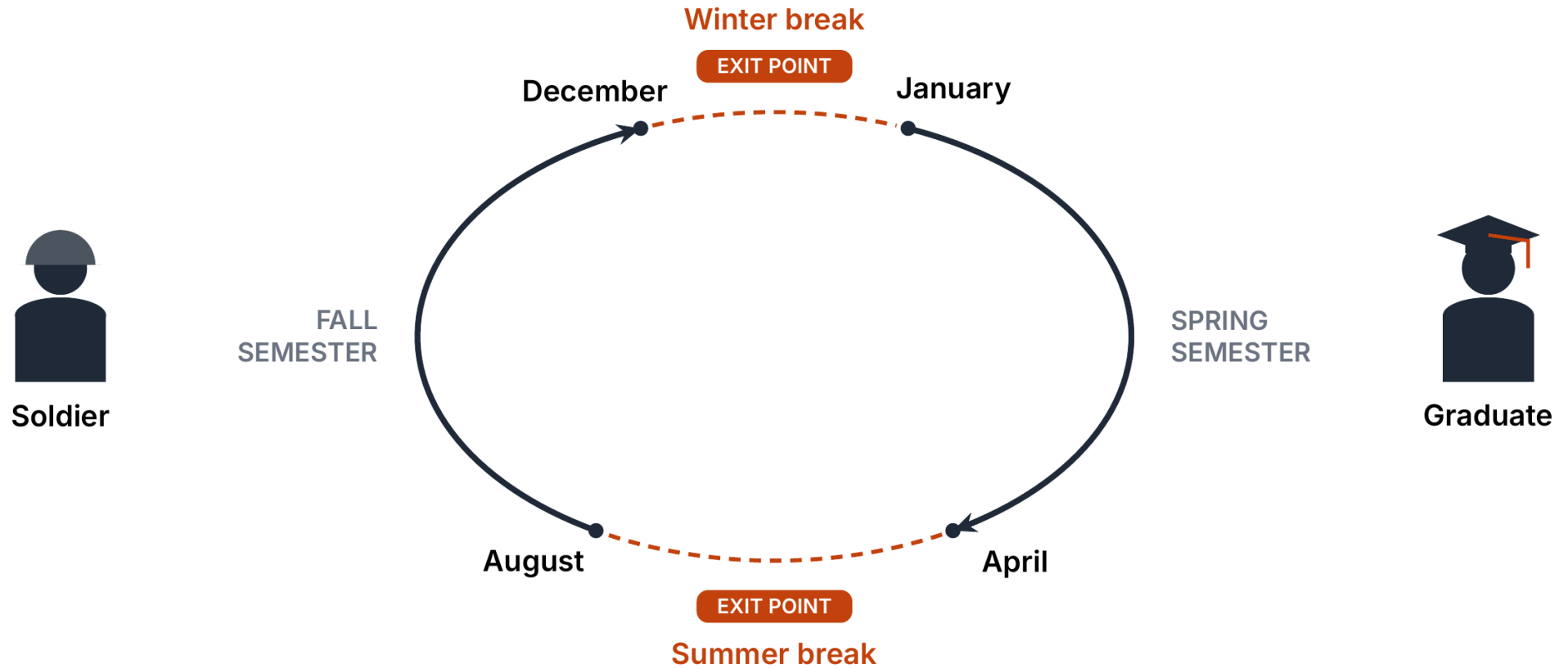
GPA points at the cutoff

about a third of a letter step (B to B+)

Students substitute study time for work, one channel through which grant aid can keep students on track to graduate.

Kofoed (2022), IZA DP No. 15061. Regression kink and discontinuity estimates from the Pell Grant formula; labor effects for a student receiving the average Pell Grant (\$2,250), GPA effect from crossing the eligibility cutoff (Table 4). NPSAS 1995–96 through 2011–12.

College exit points: students leave at the semester breaks



The academic calendar creates natural exit points at winter and summer break. Kofoed, Phipps, and Wojtaszek use the exit timing of U.S. Army soldiers to identify the college-going penalty of leaving the military off-cycle.

Bad timing: leaving the Army off-cycle lowers veterans' college-going

−0.8

pts GI Bill use

per extra month of waiting for a semester

−8%

college-going

February vs. September exit

−29%

first-year GI Bill use

February vs. September exit

−22%

middle-third AFQT

for a six-month wait

Bottom line: bad exit timing means roughly **4,000 fewer veterans a year** using the GI Bill for traditional college.

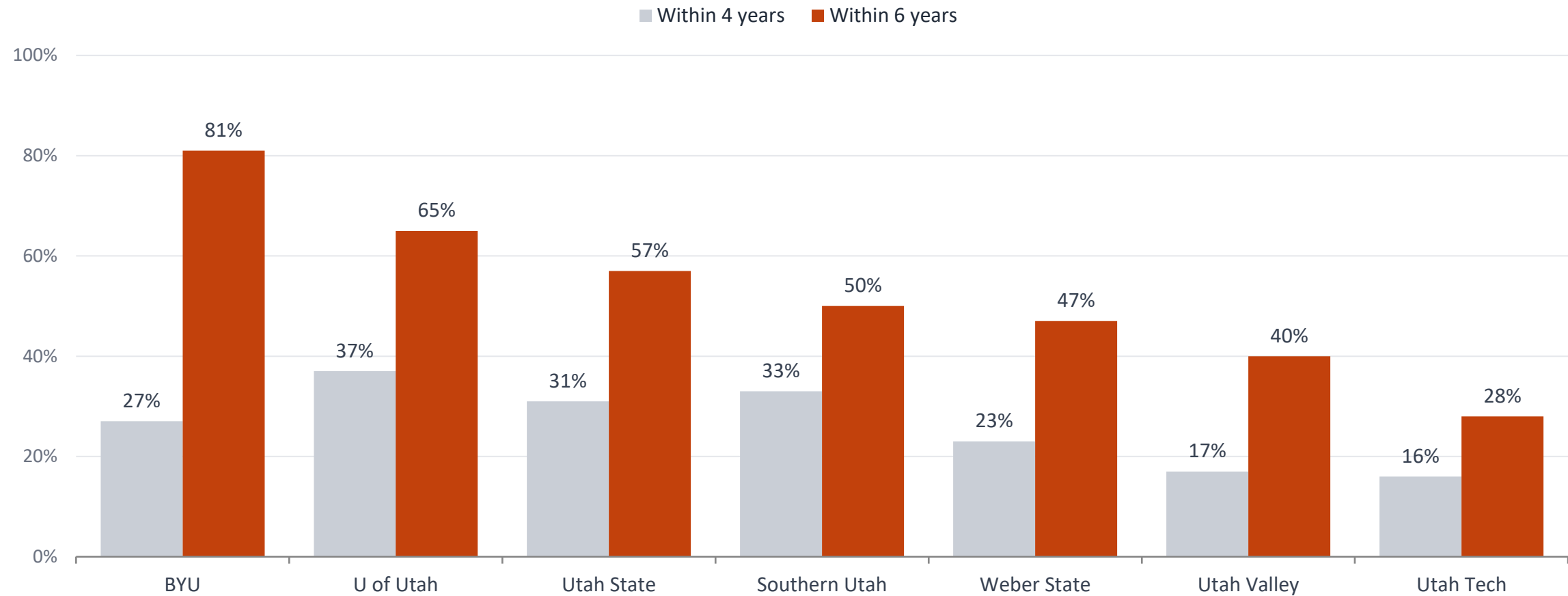
Design: Army records for soldiers exiting 1994–2001; 2SLS instrumenting exit timing with the Army's algorithm-assigned basic-training dates, which shift exit dates as good as randomly.

Wojtaszek, Phipps & Kofoed (2026), “The Cost of Bad Timing: The Effect of Military Exit Timing on Veteran Educational Attainment,” working paper (Sept. 2026). Montgomery GI Bill use; percent effects relative to mean GI Bill use of about 68% (27% in the first year).

PART 4

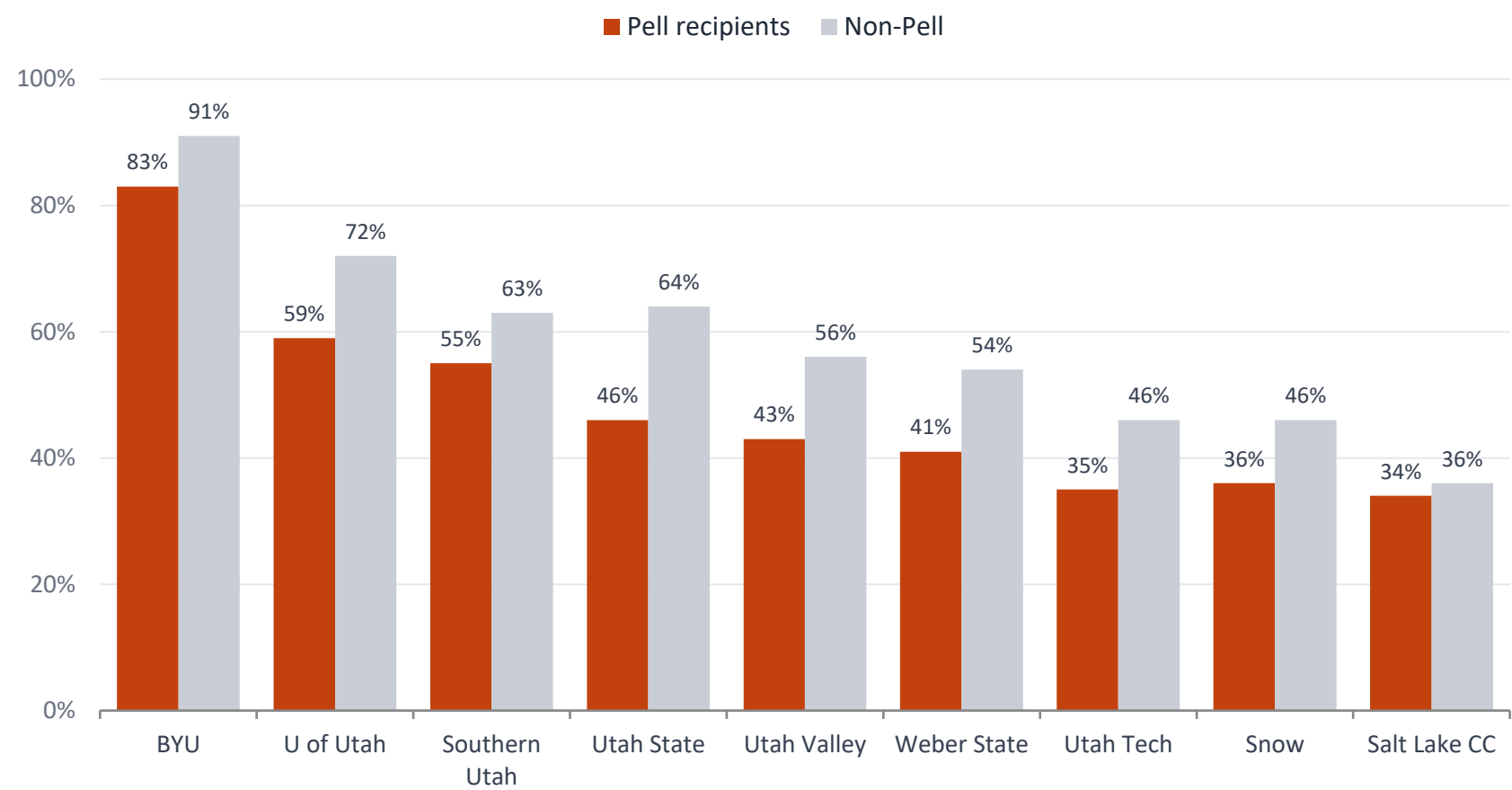
Completion

Six-year bachelor's rates range from 28% to 81%



IPEDS Graduation Rates, bachelor's-seeking full-time first-time students entering fall 2018 (four-year institutions). BYU's low four-year rate reflects mission service. Covers only full-time first-time entrants: 74–81% of new students at the U, USU, and BYU, but 20–21% at UVU and Weber.

Pell recipients finish less often everywhere; USU's gap is widest



Completion gap (pts)

Utah State	18
U of Utah	13
Utah Valley	13
Weber State	13
Utah Tech	11
Snow	10
BYU	8
Southern Utah	8
Salt Lake CC	2

IPEDS Outcome Measures, full-time first-time entrants in 2016-17: highest certificate, associate's, or bachelor's earned at the institution within eight years. Students who transfer and finish elsewhere count as non-completers, which especially affects Snow and SLCC.

PART 5

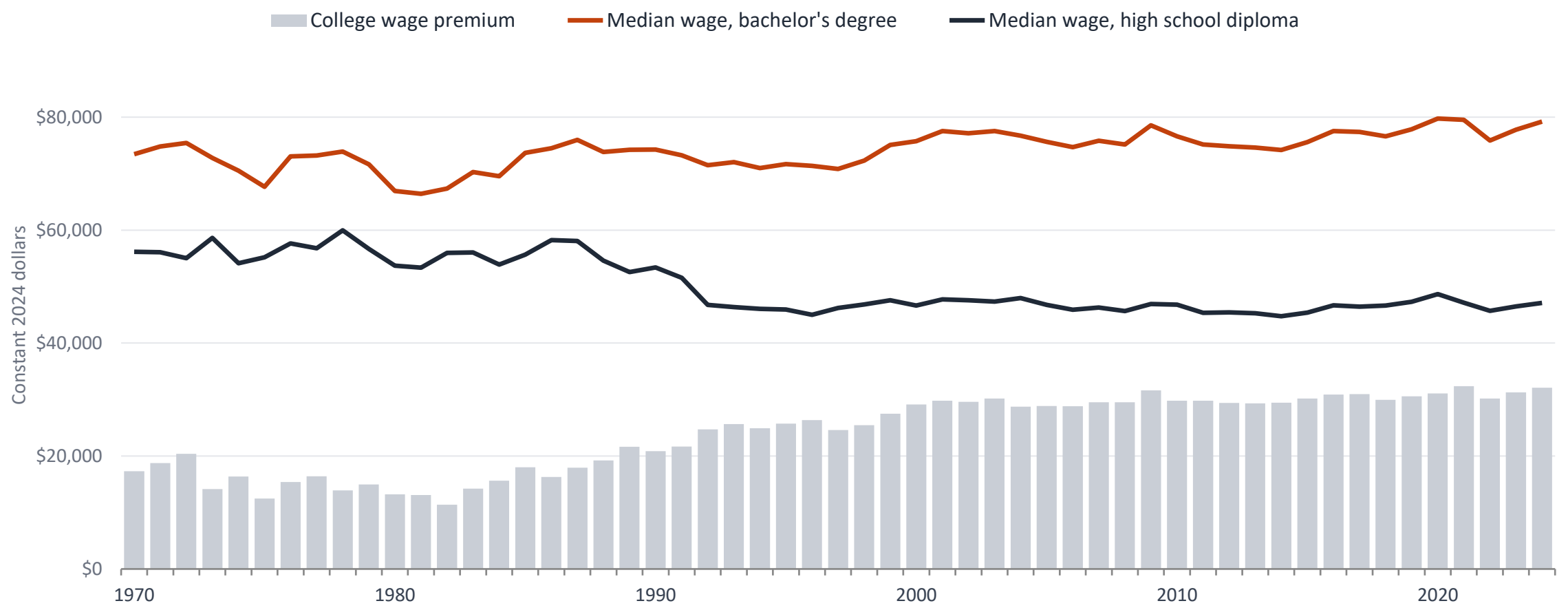
Returns

RECALL THE CAVEAT

Back to the real goal: what do degrees pay?

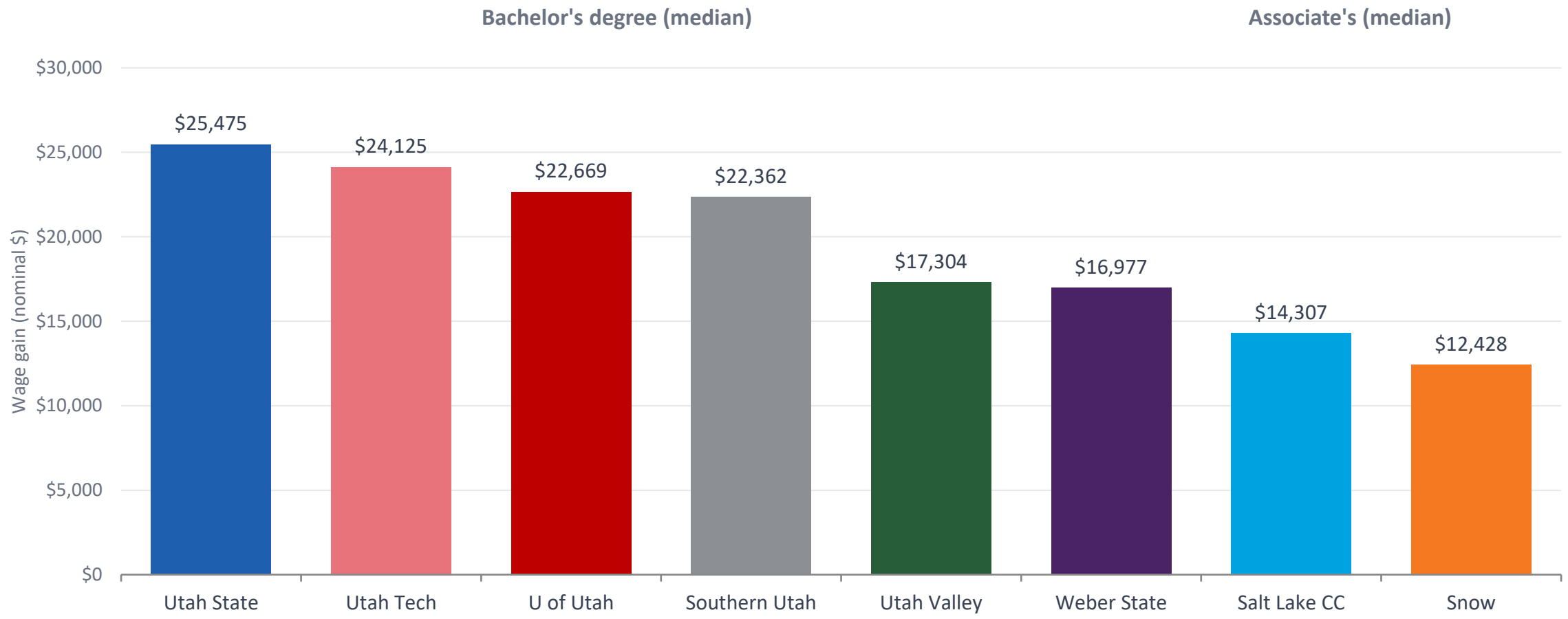
Completion is a means. Job placement, earnings, and real benefits are the end.

Nationally, the college wage premium has more than doubled since 1980



Lloyd, Private and Public Returns of Higher Ed (Oct. 2026); research assistance by Kristina Bishop and Christina Dong. Data: Abel & Deitz (2025), Federal Reserve Bank of New York, from the CPS March Supplement (IPUMS); constant 2024 dollars, adjusted for demographic differences. Bachelor's-only graduates vs. high school-only workers: recently about \$79k vs. \$47k, a premium of about \$32k (roughly 68%).

In Utah, graduates earn \$12k–\$25k more a year after finishing



Lloyd, Private and Public Returns of Higher Ed (Oct. 2026); research assistance by Kristina Bishop and Christina Dong. Data: USHE and Utah Department of Workforce Services UI wage records. 2023-24 graduates: median wages one year after minus one year before graduation, nominal dollars. Graduates working in Utah with wages in all four quarters, earning at least \$15,080/yr, and no further credential within a year. BYU is not in the USHE data.

Four-year college access raises income most for low-income students

Table 5 - Four-Year Public College Access and Log(Estimated Household Income)

Bandwidth	No controls				With controls			
	40	60	80	100	40	60	80	100
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(A) All students								
USG enrollment	0.120 (0.155)	0.157 (0.104)	0.167** (0.081)	0.136** (0.066)	0.098 (0.158)	0.145 (0.104)	0.146* (0.081)	0.114* (0.065)
CCM	10.818	10.798	10.798	10.844	10.828	10.803	10.811	10.858
N	48,145	66,356	80,480	92,409	48,145	66,356	80,480	92,409
(B) By high school income								
Low income	0.237 (0.187)	0.314** (0.142)	0.242** (0.102)	0.246*** (0.092)	0.212 (0.184)	0.276** (0.133)	0.206** (0.097)	0.213** (0.086)
CCM	10.706	10.640	10.703	10.709	10.720	10.668	10.729	10.733
N	22,119	30,629	37,213	42,690	22,119	30,629	37,213	42,690
Middle/high income	0.030 (0.247)	0.025 (0.145)	0.096 (0.119)	0.035 (0.085)	0.013 (0.251)	0.030 (0.152)	0.089 (0.123)	0.025 (0.088)
CCM	10.899	10.923	10.876	10.942	10.907	10.916	10.878	10.947
N	26,026	35,727	43,267	49,719	26,026	35,727	43,267	49,719

Smith, Goodman & Hurwitz (2024), NBER WP 27177, Table 5, panels A–B. Regression discontinuity at Georgia's University System (USG) SAT admission thresholds; IV estimates of USG enrollment on log household income around age 30. Boxed: preferred specification (column 2) for students from low-income high schools, about 0.31 log points (37%).



ONE GENERATION LATER

Keeping the path open

Thank you.

Email: mkofoed1@utk.edu

Twitter: @mikekofoed

Data and methods

Prices and aid

IPEDS Student Financial Aid and Institutional Characteristics, 2023-24, via College Navigator. Full-time first-time undergraduates paying in-state tuition.

Excluding Pell

Assumed average Pell by bracket (\$6,500 / \$5,000 / \$1,500 / \$0 / \$0). The IPEDS SFA file would allow a direct calculation.

Persistence

IPEDS retention (fall 2023 entrants) via College Navigator; Pell Grants and student work/GPA from Kofoed (2022), IZA DP 15061.

Completion

IPEDS Graduation Rates (fall 2018 entrants) and Outcome Measures (2016-17 entrants).

Net tuition by income

IPEDS reports net price by income but not grant aid by income. Grants were backed out from each school's overall net price and average grant; levels are approximate, the gradient more reliable.

FAFSA

NCAN FAFSA Tracker, 2026-27 cycle, class of 2026. Non-filing and forgone aid from Kofoed (2017).

Debt

U.S. Department of Education College Scorecard; federal loans only, borrowers only, pooled cohorts.

Returns

Abel & Deitz (2025, NY Fed); USHE/DWS wage records via Lloyd (2026), Gardner Institute; Smith, Goodman & Hurwitz (2024).