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DEGREE-SPECIFIC
EARNINGS OUTCOMES OF
GRADUATES FROM
COLLEGES IN
MASSACHUSETTS

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Stig is a Senior Lecturer at Harvard Business School (HBS) where he teaches entrepreneurship. Apart from his work at HBS, Stig also is a practicing entrepreneur. He is currently the CEO and Founder of [College101](#), an issue advocacy organization focused on US higher education. Formerly, Stig was the CEO of Match Education, an education-related nonprofit that runs charter schools and trains teachers. Early in his career, Stig was a high-tech entrepreneur and an executive at Amazon.com. He is also the co-founder and board chair of Duet.org, a hybrid college that operates in partnership with Southern New Hampshire University. Stig has a JD-MBA from Harvard and BA from Princeton.

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Yazmin is a Researcher and Data Analyst with [College101](#). She has a Bachelor's in Urban Studies from MIT and a Master's in Educational Research from the University of Cambridge, Cambridge, UK.

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Michael is a Senior Fellow with [Third Way](#) and is responsible for shaping Third Way's higher education advocacy agenda. Prior to joining Third Way, Michael served as a Presidential Appointee for six years in the U.S. Department of Education, assuming a number of roles in K-12 and higher education. Most recently, he was the Director of the College Scorecard, an Obama Administration initiative focused on higher education transparency and accountability. Prior to this position, Michael served as the Deputy Chief of Staff in the Office of Postsecondary Education, working with the Acting Assistant Secretary to oversee the policy and administrative functions of the office.

For this paper, Michael supplied the data used in the analysis of wage premiums associated with degree programs in Massachusetts. Michael has written extensively on the topic of financial returns to college. Notably, Michael recently published a national analysis of degree-level earnings outcomes similar to the analysis that we present here for Massachusetts. See, "Which College Programs Give Students the Best Bang for Their Buck?" (Itzkowitz, Third Way, August 2021).

SUMMARY

In December 2020, the US Department of Education released new data on the short-term earnings of graduates from specific degree programs in US colleges.

In this paper, we analyze the Massachusetts component of this new data set.

Specifically, we examine the salary outcomes, two years after graduation, of 52,448 students who completed degrees in Massachusetts colleges in 2014-2015 and 2015-2016. These students graduated from 1,071 distinct degree programs across colleges in the Commonwealth.

This report is the first in-depth examination, based on these new data, of short-term earnings outcomes of college graduates in Massachusetts. Our analysis reveals important patterns and variation in the short-term earnings of graduates from different types of Massachusetts colleges and from various degree programs within them.

Our two main findings are:

- ***A majority of degree programs in Massachusetts generate substantial short-term wage premiums for typical graduates and allow them to recoup the cost of college in less than 10 years.*** In 55% of degree programs in Massachusetts colleges, typical graduates experience wage premiums two years after completing college (i.e., wages in excess of those they would have earned if they had only a high school degree), which allow them to recoup the cost of their degrees, via those added wages, in less than 10 years. These programs, which offer a clear short-term financial return on the cost of college, account for 63% of the graduates in our sample.
- ***A substantial minority of degree programs in Massachusetts generate no short-term wage premiums for typical graduates or require them to work 20+ years to recoup the cost of college.*** In 26% of degree programs in Massachusetts colleges, typical graduates experience either no wage premium two years after completing college (i.e. they earn less than they would have if they had only graduated from high school) or a modest wage premium that requires them to work for 20+ years to recoup the cost of college from added wages. These programs, which offer little or no short-term financial return on the cost of college, account for 19% of the graduates in our sample.

We also present two secondary findings: 1) we observe that degree programs in public 4-year colleges and in nationally ranked 4-year private colleges have similar pay-back periods; and 2) we itemize fields of study in Massachusetts colleges that are the most and least likely to produce strong short-term earnings.

We close the paper with recommendations for how data on earnings outcomes can play a wider, more pronounced role in higher education policy and practice.

OVERVIEW

OF COLLEGES IN MASSACHUSETTS

The table below describes the largest 85 colleges in Massachusetts. These 85 colleges account for 98% of undergraduate enrollment in Massachusetts. Their student bodies range in size from 347 to 23,907 students.

Figure 1: Overview of Massachusetts Colleges

		2 Year	4 Year Public	4 Year Private Not Nationally Ranked	4 Year Private Nationally Ranked	All Colleges
Sample	# of Institutions	20	13	36	16	85
	# of students	71,393	93,016	74,223	86,780	325,412
	% of students	22%	29%	23%	27%	100%
Graduation Rate	All students	20%	65%	67%	90%	62%
	Black students	13%	55%	48%	88%	42%
Admission Rate	All students	99%	75%	67%	23%	N/A
Price	Total Annual Price	\$14,119	\$27,411	\$56,552	\$71,328	N/A
	Net Annual Price	\$8,829	\$19,755	\$33,694	\$29,047	N/A
Demographics	% White	47%	60%	56%	47%	53%
	% Black	17%	9%	7%	5%	9%
	% Hispanic	22%	12%	11%	10%	13%
	% Asian	5%	8%	6%	14%	8%
	% First Generation	49%	32%	26%	18%	30%
	% with Pell Grant	42%	32%	25%	15%	28%
	% from MA	95%	85%	48%	23%	59%

=> Observation 1: Massachusetts is home to 16 nationally ranked universities with highly unusual characteristics.

Massachusetts has 16 nationally ranked colleges which, as we define them here, are colleges that appear on US News & World Report's top-100 lists of national or liberal arts universities.

These 16 colleges enroll 27% of all undergraduate students in Massachusetts. They stand out from the rest of the Commonwealth's colleges in a variety of ways.

- **Fewer Students from In-State.** Only 23% of students in the Commonwealth's nationally ranked colleges resided in Massachusetts prior to enrollment. The similar statistic for Massachusetts community colleges is 95%.
- **Lower Admission Rates.** Nationally ranked colleges in Massachusetts admit a far smaller percentage of applicants than do other colleges in the Commonwealth.

- **Fewer Low-income and First-generation Students.** Compared to other colleges in the Commonwealth, nationally ranked colleges enroll fewer students who are Pell grant recipients and fewer students who are the first in their family to attend college.
- **Higher Levels of Financial Aid.** Massachusetts' nationally ranked colleges are surprisingly affordable for low-income students because they issue high levels of financial aid, often enabled by endowment returns. The chart below illustrates this point by plotting the total annual price (i.e. the full price of tuition, room, board, and fees) and net annual price (i.e. the total annual price minus public grant aid and college-issued discounts) of 4-year colleges in the Commonwealth. Nationally ranked colleges are similar, on a net price basis, to other 4-year colleges in the state.

Figure 2: Total Annual Price versus Net Annual Price, Massachusetts 4-Year Colleges



=> Observation 2: Massachusetts colleges (excluding the 16 nationally ranked colleges in the state) have low graduation rates roughly similar to national graduation rates.

Graduation rates in Massachusetts colleges (excluding ones that are nationally ranked) are low, particularly for Black students. Overall, graduation rates in Massachusetts resemble national graduation rates.

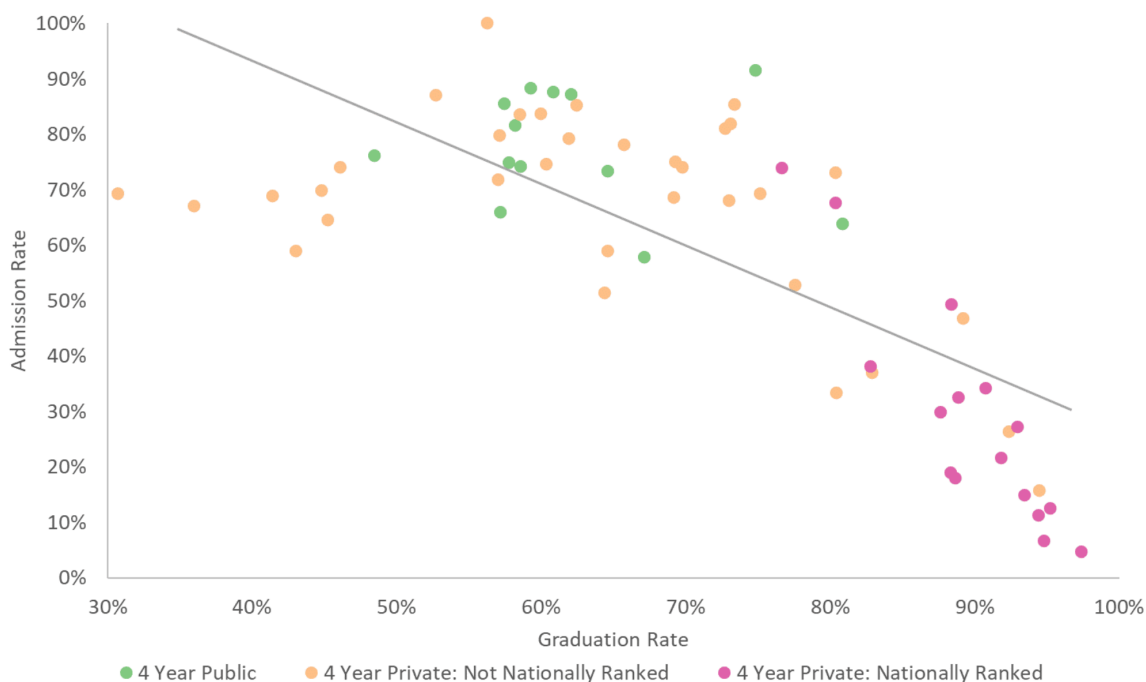
- The graduation rate in US non-profit public community colleges is 28%. In Massachusetts, community colleges have a 20% graduation rate.
- National graduation rates in 4-year public and 4-year private (nonprofit) colleges are 61% and 67%, respectively. These graduation results are similar to the 65% graduation rate in 4-year public Massachusetts colleges that are not nationally ranked.

=> Observation 3: In highly selective colleges, high graduation rates correlate with low admission rates. Less selective colleges sometimes produce high graduation rates.

In selective colleges in Massachusetts, high graduation rates correlate strongly with low admission rates. Notably, almost all colleges in Massachusetts that graduate 90% or more of their entrants admit fewer than 40% of their applicants.

By contrast, modestly selective and non-selective 4-year colleges (i.e. colleges with admission rates greater than 40%) vary widely in their graduation rates. Some of these 4-year colleges, to their credit, produce high graduation rates even as they admit students generously.

Figure 3: Graduation Rates versus Admission Rates, Massachusetts 4-Year Colleges



=> Observation 4: Graduation rates in Massachusetts 4-year colleges do not correlate with the net price of college.

Graduation rates in 4-year colleges in Massachusetts do not correlate significantly with net annual prices. Four-year colleges in Massachusetts are closely clustered by net price but differ widely in their graduation rates.

The chart below illustrates this point. It plots the graduation rates and the net annual prices of 4-year colleges in Massachusetts.

Figure 4: Graduation Rates versus Net Annual Prices, Massachusetts 4-Year Colleges



The weak relationship in Massachusetts colleges between net prices and graduation rates should be observed next to the also-weak relationship, which we discuss next, between net prices and post-graduation earnings.

In Massachusetts colleges, the net price of a college predicts neither its graduation rate nor the post-graduation earnings of its students.

DEGREE-SPECIFIC EARNINGS OUTCOMES

FOR GRADUATES FROM COLLEGES IN MASSACHUSETTS

In our analysis below of new federal data on degree-specific earnings of Massachusetts college graduates, we rely on the following terms and methodology.

- **Degree Program.** A degree program is a unique combination of a degree, a field of study, and an institution. A “Bachelor’s degree in electrical engineering from MIT” and an “Associate’s degree in clinical nursing from Wachusett Community College” are examples of degree programs.
- **Sample Size and Definition.** We analyze data on 52,448 graduates who finished college in 2014-15 or 2015-16. These students graduated from 1,071 degree programs, all administered in one of the 85 colleges we describe above. These degree programs include 884 Bachelor’s degree programs, 151 Associate’s degree programs, and 36 certificate programs.
- **Coverage of Programs.** The 1,071 degree programs on which we report here account for 29% of approximately 3,700 degree programs in Massachusetts. We do not have data on most degree programs in Massachusetts because they graduate very few students and trigger privacy laws that prohibit public disclosure about small groups of students.
- **Coverage of Graduates.** The 52,448 students on which we report graduated in 2014-15 and 2015-16. Because privacy laws block data on some degree programs in Massachusetts, we cannot calculate specifically the percent of all graduates in Massachusetts (in the two relevant academic years) that is included in our sample. We do know, however, that the national data set on degree-specific earnings, from which we extract our Massachusetts sample, covers 71% of all US graduates.
- **Treatment of Dropouts.** Our data do not describe the earnings outcomes of students who started but did not complete their degrees.
- **Net Price of Degree.** The net price of a degree is the net annual price of a degree (i.e. the full, advertised cost of tuition, room, board, and fees minus public grant aid and college-issued discounts) multiplied by one year if it is a certificate degree, two years if it is an Associate’s degree, and four years if it is a Bachelor’s degree.

- **Average Earnings of High School Graduates in Massachusetts.** For an estimate of the earnings that college graduates would have experienced if they had only a high school diploma, we use the median wages of working adults in Massachusetts who graduated only from high school. That median wage in Massachusetts is \$27,357.
- **Wage Premium.** We estimate the wage premium that follows from completing a degree as the difference between the median salary of graduates two years after completing the degree and the average earnings of working adults in Massachusetts who graduated high school and do not have a college degree.
- **Years of Wage Premium to Recoup Net Price of Degree.** For each degree program, we calculate how many years a median graduate needs to work in order, via a wage premium, to recoup the net cost of a degree.

=> Limitations of Data and Analysis

The degree-specific earnings data in this paper offer important, new insights into the financial returns of various degree programs and college types in the Commonwealth. These data are newly released from the US Department of Education, and this analysis is the first thorough look at what they imply about the college sector in Massachusetts.

As the US Department of Education expects to release yearly updates on the earnings of college graduates in Massachusetts, this analysis can be refined and repeated annually with the benefit of longer-term employment data.

Still, our data and analysis have the following limitations:

- **No Data on Dropouts.** We examine earnings data only for graduates. Degree-specific earnings data for college dropouts have not been released by the US Department of Education. As a result, our findings over-state the economic returns of degree programs, particularly in colleges and degree programs with unusually low graduation rates.

- ***Incomplete Sample of Graduates and Programs.*** We have data on approximately 29% of degree programs in Massachusetts. If we had data on all degree programs and on all graduates, our findings might change.
- ***Small Sample of 2-year Colleges.*** Most of the degree programs (83%) that we analyze are Bachelor's degrees, and 89% of the graduates in our sample are Bachelor's degree recipients. We have little data on certificate degrees, on Associate's degrees, or on 2-year colleges that typically house these degrees. As a result, we draw no conclusions about the financial returns of 2-year colleges, Associate's degrees, or certificate degrees.
- ***Median Earnings of High School Graduates in Massachusetts.*** We estimate the wage premium generated by degree programs in Massachusetts by comparing, on the one hand, the median earnings of graduates from a degree program two years after finishing college with, on the other hand, the median earnings of working adults in Massachusetts who have only a high school degree. This comparison has obvious limits. For example, most graduates from nationally ranked colleges in Massachusetts did not attend high school in Massachusetts so their earnings would ideally be compared to those of high school graduates from their home state.
- ***No Data on Long-term Earnings.*** We analyze only short-term earnings outcomes, two years after graduation. We do not look at long-term earnings outcomes since federal data is currently limited to two years after graduation. We recognize that some degree programs with weak short-term wage premiums might generate strong long-term wage premiums, and vice versa.
- ***No Analysis of Non-financial Returns.*** We do not examine a wide range of important non-financial returns to college (skill and knowledge acquisition, personal development, etc.). We recognize that many students legitimately value college degrees that do not have appealing financial returns, and our analysis is not meant to imply that financial return is the only measure of college quality.

DEGREE-SPECIFIC EARNINGS OUTCOMES FOR GRADUATES PAGE 12 FROM COLLEGES IN MASSACHUSETTS

=> Analysis #1: Overview of Graduate Earnings and Price of Degree

The chart below plots the 1,071 degree programs in our sample by their net price and by the earnings of a typical graduate two years after completing college.

Figure 5: Median Salary for Graduates versus Net Price of Degree, Undergraduate Degree Programs in Massachusetts Colleges



Two important observations stand out in the chart above.

- **Weak Relationship Between Net Degree Price and Short-term Earnings.**

The data show no obvious relationship between the net price of a degree and the typical short-term earnings of its graduates. In Massachusetts, the price of a degree does not predict in any reliable way how much a typical graduate from that degree will earn two years after completing it.

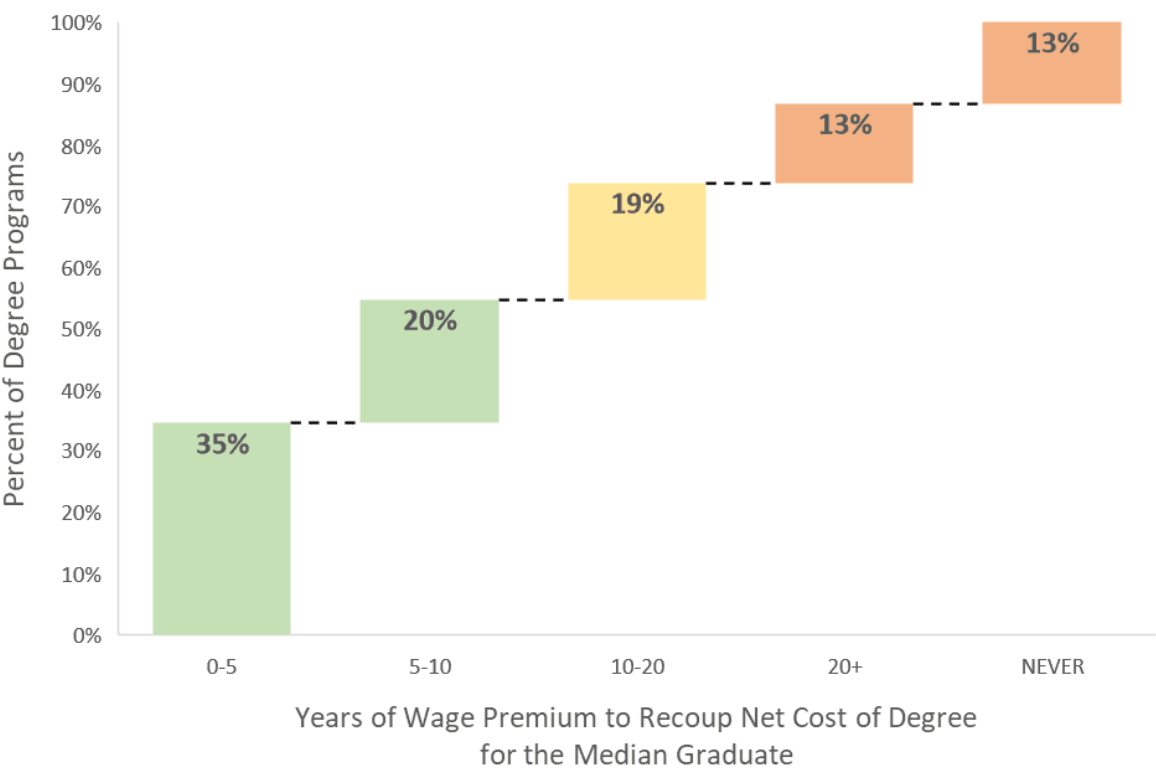
- **High Degree-level Variation in Price-to-Earnings.** Individual degree programs vary enormously in their prices, in the earnings prospects they generate for their graduates, and in the relationship of those two degree traits. Some degrees cost very little in relation to the short-term earnings experienced by typical graduates. For other degrees, the opposite is true. We label several degree programs in the chart above to illustrate this point.

=> Analysis #2: Years of Wage Premium to Recoup Net Cost of Undergraduate Degree

In the chart and two tables below, we categorize Massachusetts degree programs by how long a typical graduate needs to work in order to produce excess wages (i.e. wages above those of a typical working adult in Massachusetts who has only a high school degree) equal to the net cost of a degree.

We call this metric, “Years of Wage Premium to Recoup Net Cost of Degree.” The degrees in green pay back in less than 10 years. The degrees in orange pay back in 20+ years or never pay back because their median graduates make less than a typical working adult in Massachusetts with only a high school diploma.

Figure 6: Wage Premium from a College Degree, Undergraduate Degree Programs in Massachusetts Colleges



DEGREE-SPECIFIC EARNINGS OUTCOMES FOR GRADUATES PAGE 14 FROM COLLEGES IN MASSACHUSETTS

Figure 7: By Degree Type -- Years of Wage Premium to Recoup Cost of Degree, Undergraduate Degree Programs in Massachusetts Colleges

		Years of Wage Premium to Recoup Net Cost of Degree					Total
		0-5	5-10	10-20	20+	NEVER	
Bachelor's Degree Programs	# of Programs	255	201	201	129	98	884
	% of Programs	29%	23%	23%	15%	11%	100%
	# of Graduates	18,054	10,963	9,589	4,602	3,415	46,623
	% of Graduates	39%	24%	21%	10%	7%	100%
Associate's Degree Programs	# of Programs	91	14	4	9	33	151
	% of Programs	60%	9%	3%	6%	22%	100%
	# of Graduates	2,894	450	90	199	1,451	5,084
	% of Graduates	57%	9%	2%	4%	29%	100%
Certificate Degree Programs	# of Programs	24	0	0	1	11	36
	% of Programs	67%	0%	0%	3%	31%	100%
	# of Graduates	507	0	0	14	220	741
	% of Graduates	68%	0%	0%	2%	30%	100%
All Degree Programs	# of Programs	370	215	205	139	142	1,071
	% of Programs	35%	20%	19%	13%	13%	100%
	# of Graduates	21,455	11,413	9,679	4,815	5,086	52,448
	% of Graduates	41%	22%	18%	9%	10%	100%

Figure 8: By Institution Type -- Years of Wage Premium to Recoup Net Cost of Degree, Undergraduate Degree Programs in Massachusetts Colleges

		Years of Wage Premium to Recoup Net Cost of Degree					Total
		0-5	5-10	10-20	20+	NEVER	
Degree Programs in 2-Year Colleges	# of Programs	109	13	3	6	41	172
	% of Programs	63%	8%	2%	3%	24%	100%
	# of Graduates	3,281	435	75	161	1,632	5,584
	% of Graduates	59%	8%	1%	3%	29%	100%
Degree Programs in 4-Year Public Colleges	# of Programs	95	65	55	35	29	279
	% of Programs	34%	23%	20%	13%	10%	100%
	# of Graduates	7,385	5,136	4,027	1,399	930	18,877
	% of Graduates	39%	27%	21%	7%	5%	100%
Degree Programs in 4-Year Private Colleges: Not Nationally Ranked	# of Programs	64	63	71	53	41	292
	% of Programs	22%	22%	24%	18%	14%	100%
	# of Graduates	4,323	2,489	2,333	1,965	1,674	12,784
	% of Graduates	34%	19%	18%	15%	13%	100%
Degree Programs in 4-Year Private Colleges: Nationally Ranked	# of Programs	102	74	76	45	31	328
	% of Programs	31%	23%	23%	14%	9%	100%
	# of Graduates	6,466	3,353	3,244	1,290	850	15,203
	% of Graduates	43%	22%	21%	8%	6%	100%
All Degree Programs	# of Programs	370	215	205	139	142	1,071
	% of Programs	35%	20%	19%	13%	13%	100%
	# of Graduates	21,455	11,413	9,679	4,815	5,086	52,448
	% of Graduates	41%	22%	18%	9%	10%	100%

The data above reveal at least three important findings:

- **55% of degree programs pay back in less than 10 years.** The majority of degree programs in our sample (55%) -- which account for 63% of graduates and for 32,868 individual graduates in our sample -- generate an attractive short-term wage premium that allows a typical graduate to recoup the cost of a degree, via that wage premium, in less than 10 years. We view these degrees to be sound short-term financial investments.
- **26% of degree programs offer no return or take 20+ years to pay back.** One quarter of programs (26%) -- which account for 19% of graduates and for 9,901 individual graduates in our sample -- either generate a negative wage premium (in which case a median graduate makes less than a working adult in Massachusetts with only a high school degree) or generate an unattractive wage premium that requires a typical graduate to work for 20+ years to recoup the cost of the degree.
- **Degree programs in nationally ranked 4-year private and in public 4-year colleges have similar pay back periods.** In Massachusetts, private 4-year colleges that are nationally ranked and public 4-year colleges exhibit similar pay-back timeframes. Notably, in both types of 4-year colleges, 65-66% of graduates in our sample finished degree programs in which a typical graduate recoups the cost of a degree in less than 10 years.

Private 4-year colleges that are not nationally ranked have the least impressive pay-back periods among 4-year colleges in Massachusetts. In our sample, only 53% of graduates from these colleges completed degree programs in which a typical graduate can recoup the cost of a degree in less than 10 years.

As mentioned earlier, because of data limitations in our sample, we do not draw conclusions about the wage premiums and pay-back periods experienced by graduates of 2-year colleges or by recipients of Associate's or certificate degrees.

DEGREE-SPECIFIC EARNINGS OUTCOMES FOR GRADUATES PAGE 16 FROM COLLEGES IN MASSACHUSETTS

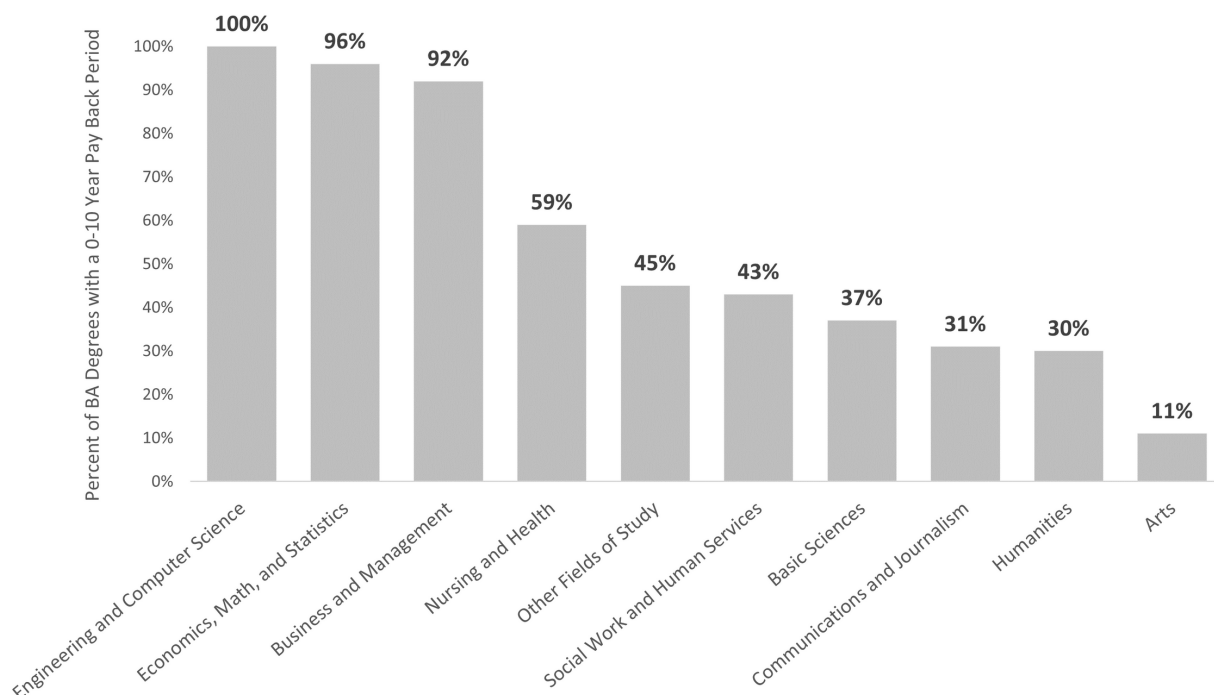
=> Analysis #3: Financial Returns of Degrees in Various Fields of Study

The table and chart below group the 884 Bachelor's degree programs in our sample into 10 general fields of study and describe pay-back characteristics of those fields. As mentioned, Bachelor's degree programs are 83% of our sample of degree programs, and Bachelor's degree recipients are 89% of our sample of graduates.

Figure 9: By Field of Study -- Years of Wage Premium to Recoup Net Cost of Degree, Bachelor's Degree Programs in Massachusetts Colleges

		Years of Wage Premium to Recoup Net Cost of Degree					Total	Examples of Degree Programs
		0-5	10-May	20-Oct	20+	NEVER		
BA's Related to: Humanities	# of Programs	19	59	85	64	33	260	Psychology, Literature, Sociology, Linguistics, Anthropology, Philosophy, Ethnic Studies, Writing
	% of Programs	7%	23%	33%	25%	13%	100%	
	# of Graduates	672	2,859	4,504	2,213	996	11,244	
	% of Graduates	6%	25%	40%	20%	9%	100%	
BA's Related to: Business and Management	# of Programs	56	43	8	0	1	108	Business Administration, Management, Operations, Marketing, Accounting, Finance
	% of Programs	52%	40%	7%	0%	1%	100%	
	# of Graduates	6,093	2,257	331	0	14	8,695	
	% of Graduates	70%	26%	4%	0%	0%	100%	
BA's Related to: Nursing and Health	# of Programs	30	7	14	5	6	62	Nursing, Health Administration, Public Health, Rehabilitation and Therapeutic Professions
	% of Programs	48%	11%	23%	8%	10%	100%	
	# of Graduates	3,574	271	540	85	200	4,670	
	% of Graduates	77%	6%	12%	2%	4%	100%	
BA's Related to: Engineering and Computer Science	# of Programs	90	2	0	0	0	92	Mechanical and Electrical Engineering, Computer Science, Information Sciences
	% of Programs	98%	2%	0%	0%	0%	100%	
	# of Graduates	4,641	36	0	0	0	4,677	
	% of Graduates	99%	1%	0%	0%	0%	100%	
BA's Related to: Science	# of Programs	14	22	26	22	13	97	Biology, Chemistry, Physics
	% of Programs	14%	23%	27%	23%	13%	100%	
	# of Graduates	326	937	997	711	403	3,374	
	% of Graduates	10%	28%	30%	21%	12%	100%	
BA's Related to: Social Work and Human Services	# of Programs	4	20	19	9	4	56	Social Work, Criminal Justice, Legal Studies, Health
	% of Programs	7%	36%	34%	16%	7%	100%	
	# of Graduates	489	1,436	836	322	97	3,180	
	% of Graduates	15%	45%	26%	10%	3%	100%	
BA's Related to: Arts	# of Programs	1	7	11	10	38	67	Music, Film, Drama, Visual Arts
	% of Programs	1%	10%	16%	15%	57%	100%	
	# of Graduates	53	246	485	509	1,646	2,939	
	% of Graduates	2%	8%	17%	17%	56%	100%	
BA's Related to: Communications and Journalism	# of Programs	1	10	19	5	1	36	Communications, Media Studies, Journalism
	% of Programs	3%	28%	53%	14%	3%	100%	
	# of Graduates	81	1,228	1,195	391	14	2,909	
	% of Graduates	3%	42%	41%	13%	0%	100%	
BA's Related to: Economics, Math and Statistics	# of Programs	32	13	1	1	0	47	Economics, Math, Statistics
	% of Programs	68%	28%	2%	2%	0%	100%	
	# of Graduates	1,831	323	15	13	0	2,182	
	% of Graduates	84%	15%	1%	1%	0%	100%	
BA's Related to: Other Fields of Study	# of Programs	8	18	18	13	2	59	Education, Architecture, Transportation
	% of Programs	14%	31%	31%	22%	3%	100%	
	# of Graduates	294	1,370	686	358	45	2,753	
	% of Graduates	11%	50%	25%	13%	2%	100%	
All BA Degree Programs	# of Programs	255	201	201	129	98	884	
	% of Programs	29%	23%	23%	15%	11%	100%	
	# of Graduates	18,054	10,963	9,589	4,602	3,415	46,623	
	% of Graduates	39%	24%	21%	10%	7%	100%	

Figure 10: Wage Premium by Degree Field, Bachelor's Degree Programs in Massachusetts Colleges



Per the tables above, some fields of study comprise degree programs that are very likely to generate high short-term financial returns. For other fields of study, the opposite is true.

For example, all 92 Bachelor's degree programs in our sample in engineering and computer science allow typical graduates to pay back the cost of their degrees, via added wages, in less than 10 years. Degree programs in the fields of mathematics, economics, and statistics have equally exceptional short-term financial returns, as do degree programs in business.

By contrast, degree programs in the arts (music, film, drama, etc.) have very low short-term financial returns. Notably, in our sample, 72% of arts-related Bachelor's degrees generated no wage premium for a typical graduate or required a typical graduate to work for 20+ years to earn back the cost of a degree.

In the middle of the spectrum of economic returns are primarily Bachelor's degrees in liberal arts, basic sciences, nursing, and social work.

INCREASING THE ROLE OF DATA ON EARNINGS OUTCOMES

IN HIGHER EDUCATION POLICY AND PRACTICE

A central theme that emerges from this paper -- and one that we hope will have bipartisan and widespread support -- is that data on earnings outcomes should be more widely collected, shared, and used by policy makers, practitioners, and students.

On this topic, we make five recommendations.

- **Students need and should demand full information on earnings outcomes.** Current and prospective college students have an obvious, crucial need for high-quality data on the earnings outcomes of individual colleges and of degree programs within them. For most college students, salary and employment outcomes after graduation are primary factors in their decisions about whether and where to attend college. College students should demand -- from colleges themselves and from higher education policy makers and regulators -- access to comprehensive, user-friendly data on post-secondary earnings outcomes.
- **Colleges should proactively and independently collect and share information on earnings outcomes.** All colleges should proactively collect information on the salary outcomes of their graduates and share that information openly with students, the public, and the agencies that oversee them.
- **Colleges should strongly consider earnings outcomes when allocating resources.** Degree programs are valuable to students for many reasons, and degrees with poor labor market results can be worthwhile to students and to society. But in the calculus of most students, salary and career outcomes are essential measures of college quality. When allocating resources across degree programs and when contemplating the development of new degree programs, college leaders should generally favor ones with strong career and earnings outcomes.
- **Public agencies should expand efforts to collect and share data on earnings outcomes.** State and federal agencies have an essential role to play in codifying, centralizing, and sharing data on the career and salary outcomes of college graduates. They should preserve and expand efforts in this domain. The College Scorecard, which has been rolled out over the past decade by the US Department of Education and which will expand annually, is a particularly important postsecondary data initiative.

- **Public agencies and college accreditors should rely more strongly on earnings outcomes when regulating colleges.** State and federal agencies and private college accreditors have enormous authority to approve colleges, to review and monitor them, and to fund them. We encourage public officials and college accreditors to lean more strongly than they currently do on earnings outcomes when monitoring, regulating, and funding colleges.

APPENDIX 1

COLLEGE SAMPLE

Colleges included in sample: 85 (98% of undergraduate enrollment in Massachusetts)

Colleges excluded from sample: 43 (2% of undergraduate enrollment in Massachusetts)

	Colleges Included in Sample		Colleges Excluded From Sample	
2 Year	BARD COLLEGE AT SIMON'S ROCK BENJAMIN FRANKLIN INSTITUTE OF TECHNOLOGY BERKSHIRE COMMUNITY COLLEGE BRISTOL COMMUNITY COLLEGE BUNKER HILL COMMUNITY COLLEGE CAPE COD COMMUNITY COLLEGE GREENFIELD COMMUNITY COLLEGE HOLYOKE COMMUNITY COLLEGE LABOURÉ COLLEGE OF HEALTHCARE MASSACHUSETTS BAY COMMUNITY COLLEGE MASSASOIT COMMUNITY COLLEGE MIDDLESEX COMMUNITY COLLEGE MOUNT WACHUSETT COMMUNITY COLLEGE NORTH SHORE COMMUNITY COLLEGE NORTHERN ESSEX COMMUNITY COLLEGE QUINCY COLLEGE QUINSIGAMOND COMMUNITY COLLEGE ROXBURY COMMUNITY COLLEGE SPRINGFIELD TECHNICAL COMMUNITY COLLEGE URBAN COLLEGE OF BOSTON		ALEXANDER ACADEMY ASSABET VALLEY REGIONAL VOCATIONAL SCHOOL BANCROFT SCHOOL OF MASSAGE THERAPY BLACKSTONE VALLEY VOCATIONAL REG SCHOOL DISTRICT BLUE HILLS REGIONAL TECHNICAL SCHOOL C H MCCANN TECHNICAL SCHOOL CATHERINE HINDS INSTITUTE OF ESTHETICS DIGRIGOLI SCHOOL OF COSMETOLOGY DIMAN REGIONAL VOCATIONAL TECHNICAL INSTITUTE EINE ELECTROLOGY/ESTHETICS INSTITUTE OF NE ELIZABETH GRADY SCHOOL OF ESTHETICS AND MASSAGE FINE MORTUARY COLLEGE GREATER LOWELL REG VOCATIONAL TECHNICAL SCHOOL JOLIE HAIR AND BEAUTY ACADEMY JUPITER BEAUTY ACADEMY LAWRENCE MEMORIAL HOSPITAL SCHOOL OF NURSING LOWELL ACADEMY HAIR STYLING INSTITUTE MASSACHUSETTS SCHOOL OF BARBERING MILLENNIUM TRAINING INSTITUTE MONTACHUSETT REG VOCATIONAL TECHNICAL SCHOOL MOTORING TECHNICAL TRAINING INSTITUTE NATIONAL AVIATION ACADEMY - NEW ENGLAND NEW ENGLAND HAIR ACADEMY NORTH BENNET STREET SCHOOL ROB ROY ACADEMY SHAWSHEEN VALLEY SCHOOL OF PRACTICAL NURSING SIGNATURE HC BROCKTON HOSPITAL SCHOOL OF NURSING SOUTHEASTERN REGIONAL VOCATIONAL TECHNICAL SCHOOL SOUTHERN WORCESTER COUNTY REG VOC TECHNICAL HIGH SCHOOL TONI & GUY HAIRDRESSING ACADEMY TRI COUNTY REGIONAL VOCATIONAL TECHNICAL HIGH SCHOOL UPPER CAPE COD REGIONAL TECHNICAL SCHOOL	
4 Year Public	BRIDGEWATER STATE UNIVERSITY FITCHBURG STATE UNIVERSITY FRAMINGHAM STATE UNIVERSITY MA COLLEGE OF ART AND DESIGN MA COLLEGE OF LIBERAL ARTS MASSACHUSETTS MARITIME ACADEMY SALEM STATE UNIVERSITY UMASS - AMHERST UMASS - BOSTON UMASS - DARTMOUTH UMASS - LOWELL WESTFIELD STATE UNIVERSITY WORCESTER STATE UNIVERSITY			
4 Year Private: Not Nationally Ranked	AMERICAN INTERNATIONAL COLLEGE ANNA MARIA COLLEGE ASSUMPTION UNIVERSITY BABSON COLLEGE BAY PATH UNIVERSITY BAY STATE COLLEGE BECKER COLLEGE BENTLEY UNIVERSITY BERKLEE COLLEGE OF MUSIC CAMBRIDGE COLLEGE CLARK UNIVERSITY COLLEGE OF OUR LADY OF THE ELMS CURRY COLLEGE DEAN COLLEGE EASTERN NAZARENE COLLEGE EMERSON COLLEGE EMMANUEL COLLEGE ENDICOTT COLLEGE	FISHER COLLEGE OLIN COLLEGE OF ENGINEERING GORDON COLLEGE HAMPSHIRE COLLEGE HULT INT'L BUSINESS SCHOOL IASELL UNIVERSITY LESLEY UNIVERSITY MCPHS UNIVERSITY MERRIMACK COLLEGE MONTSERRAT COLLEGE OF ART NE CONSERVATORY OF MUSIC NICHOLS COLLEGE REGIS COLLEGE SIMMONS UNIVERSITY SPRINGFIELD COLLEGE SUFFOLK UNIVERSITY WENTWORTH INSTITUTE OF TECH WESTERN NEW ENGLAND UNIVERSITY	BOSTON ARCHITECTURAL COLLEGE BOSTON BAPTIST COLLEGE HELLENIC COLLEGE & SCHOOL OF THEOLOGY MGH INSTITUTE OF HEALTH PROFESSIONS NEW ENGLAND COLLEGE OF OPTOMETRY (THE) NORTHPOINT BIBLE COLLEGE PINE MANOR COLLEGE SAINT JOHN'S SEMINARY	
4 Year Private: Nationally Ranked	AMHERST COLLEGE BOSTON COLLEGE BOSTON UNIVERSITY BRANDEIS UNIVERSITY COLLEGE OF THE HOLY CROSS HARVARD UNIVERSITY MASSACHUSETTS INSTITUTE OF TECHNOLOGY MOUNT HOLYOKE COLLEGE	NORTHEASTERN UNIVERSITY SMITH COLLEGE STONEHILL COLLEGE TUFTS UNIVERSITY WELLESLEY COLLEGE WHEATON COLLEGE WILLIAMS COLLEGE WORCESTER POLYTECHNIC INSTITUTE		

END NOTES

- **Complete Annotation.** All data used in this report and full information on sources and methods are available in downloadable format. See www.College101.org.
- **College Sample.** In the opening section of the paper, we analyze the 85 largest colleges in Massachusetts. These colleges, while only 66% of 128 colleges in Massachusetts, account for 98% of undergraduate enrollment in the state and for 94% of degree programs on which earnings data have been released by the US Department of Education.
- **UMass Amherst.** UMass Amherst is ranked as a top-100 national university by US News and World Report. Throughout the paper, we treat UMass Amherst as a 4-year public college.
- **Enrollment.** Enrollment data are from the fall of 2019 and are from the College Scorecard (2021).
- **Graduation Rates.** Graduation rates are the percent of first-time, full-time students who complete an Associate's degree in less than three years or a Bachelor's degree in less than 6 years. Graduation rates are for students entering 4-year colleges in the fall of 2013 and for students entering 2-year colleges in the fall of 2016. Graduation rate data are from the College Scorecard (2021).
- **Admission Rates.** Admission rates are for undergraduates who applied for admission in the fall of 2019 and are from the College Scorecard (2021).
- **Total and Net Annual Price.** Total and net annual prices are for the 2018-19 academic year and are from the College Scorecard (2021). Total annual price includes tuition, fees, room, board, and typical college-related expenses. Net annual price is the former, less public tuition grants (notably Pell grants) and college-issued discounts and aid. Price data for public 4-year colleges are for in-state students. Prices are for students who receive federal Title IV aid.
- **Race and Ethnicity.** Data on race and ethnicity are from the fall of 2019 and are from the College Scorecard (2021).
- **Pell Grant Enrollment.** Pell grant data are for the 2018-2019 academic year and are from the College Scorecard (2021).

- **In-state Enrollment.** In-state enrollment data are for students admitted in the fall of 2020 and are from the Integrated Postsecondary Education Data System (IPEDS).
- **Cambridge College.** Cambridge College is not plotted in Figure 3 and Figure 4 because it is an outlier and, if graphed, would make the chart hard to read.
- **Average Earnings of High School Graduates in Massachusetts.** We use the American Community Survey (2017) to compute the median earnings of working adults in Massachusetts who have only a high school degree.