COLLEGE GRADUATE WORKFORCE OUTCOMES

Educated in Kentucky, Employed Elsewhere

Where Kentucky's college graduates go to work and what it means for the state's workforce goals

COUNCIL ON POSTSECONDARY EDUCATION

Keeping our talent at home

Kentucky's ability to compete, grow and create opportunity depends not only on educating talented people, but also on giving them compelling reasons to build their careers and lives here.

This report examines an important question for the Commonwealth: After students earn a degree or credential from a Kentucky institution, how many are observed working in the Commonwealth? The findings show that Kentucky retains graduates at high rates in education, health care, manufacturing-related fields and the skilled trades. However, we face greater challenges in keeping graduates in high-paying, highly mobile fields such as computer science, information systems and engineering.

These findings should not discourage us. They provide a clearer picture of where Kentucky's education-to-workforce pipeline is strong and where focused action can make the greatest difference. By connecting students with employers earlier, expanding work-based learning, supporting competitive career opportunities and targeting incentives to areas of greatest need, we can strengthen graduate retention and increase the return on our investments in postsecondary education.

CPE is committed to working with campuses, employers, policymakers and communities to ensure more Kentucky graduates can find meaningful, well-paying opportunities close to home. Together, we can turn the talent Kentucky develops into stronger businesses, more prosperous communities and a brighter future for the Commonwealth.

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Table of Contents

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About Us

The Council on Postsecondary Education is a coordinating board overseeing Kentucky's state universities and the Kentucky Community and Technical College System. The Council also licenses non-profit and for-profit higher education institutions to operate in Kentucky. As Kentucky's higher education coordinating board, the Council facilitates a positive return on investment of public funds supporting higher education by monitoring academic quality, affordability and student success through policy and accountability measures.

EXECUTIVE SUMMARY

Kentucky trains talent well – keeping it is the harder problem

Kentucky has set an ambitious goal: 60% of working-age adults will hold a college degree or credential by 2030. That goal reflects the workforce reality that 63% of Kentucky jobs in 2031 are expected to require education or training beyond high school (Georgetown University Center on Education and the Workforce 2024). Degrees and credentials remain among the clearest paths to economic mobility, better health, and stronger civic participation. For the state, higher education also strengthens public revenues, local spending, workforce growth, and the innovation capacity that shapes long-term economic competitiveness. But those returns depend on whether Kentucky can retain more of the graduates it educates, especially graduates with higher-level or specialized credentials who are most likely to fill technical, clinical, managerial, and professional roles tied to productivity, wage growth, and employer capacity.

WHAT WE FOUND

92–93%

of certificate, diploma, and associate graduates work in Kentucky a year later — retention falls to 80% for bachelor's, 85% for master's, and 77% for doctoral graduates.

4 of 5

priority sectors hold their graduates well. Healthcare, education, construction trades, and advanced manufacturing keep 86–90%. Computing and analytics is the exception.

$20,000+

the pay gap pulling computer science graduates out of state. Information systems and several engineering fields show similar patterns.

+292%

growth in computing credentials over the past decade — yet this remains among the fields with the greatest graduate losses.

This brief uses state postsecondary and multi-state workforce data to answer a simple question: After students earn a degree or credential from a Kentucky institution, how many are observed working in Kentucky? It also examines differences by credential level and field of study. The analysis draws on the Multi-State Postsecondary Report, compiled by the Kentucky Center for Statistics (KYSTATS) and links degree completions from the 2007–2017 graduating classes to wage records in Kentucky, Ohio, Indiana, and Tennessee.

These findings align with research showing that competitive wages and strong local employers are central to retaining graduates. The data signal a needed strategy: concentrate retention efforts on high-paying technical fields where graduates are most likely to leave, but treat incentives as one part of a broader workforce strategy. Kentucky already has a model in the Healthcare Workforce Investment Fund, a legislated public-private grant funding program that ties scholarship support to a commitment to work in the state. A service-for-support model such as this could help in IT, engineering, and related fields, but only if it is tied to real employer demand. Scholarships or loan repayment alone cannot retain computer science graduates; Kentucky must concentrate on supplying competitive technical jobs. The stronger strategy treats retention as a shared responsibility among higher education, employers, economic developers, and state policymakers. It pairs targeted retention incentives with employer commitments, paid work-based learning, competitive wages, and economic development efforts that grow the number of in-state jobs graduates would reasonably choose.

INTRODUCTION

A workforce goal that depends on retention

State governments invest heavily in higher education because the returns extend well beyond individual graduates. In Kentucky, those returns are substantial. A 2025 report by the University of Kentucky's Center for Business and Economic Research (CBER), commissioned by the Kentucky Council on Postsecondary Education (CPE), found that Kentucky bachelor's earners are projected to earn about twice as much as high school graduates. The same study estimated that every dollar the state spends on higher education returns approximately $4.50 in state and local tax revenue and supports roughly $17 in local consumer spending (Childress and Clark 2025).

Those returns, however, depend on whether graduates remain in the Commonwealth after completing their degrees or credentials. When graduates leave, Kentucky helps finance the education of workers whose earnings, taxes, spending, and professional contributions increasingly benefit another state. Economists often describe this pattern as brain drain (Zhang and Ness 2010). For Kentucky, the issue is not only whether the state can produce more graduates, but whether it can retain enough of that talent to strengthen its own workforce, communities, and economy.

Graduate retention is closely tied to Kentucky's long-term education and workforce strategy. The state has set a clear target: By 2030, 60% of working-age adults should hold a postsecondary credential (Kentucky Council on Postsecondary Education 2016). Kentucky has made substantial progress toward that goal, increasing attainment to 55.5%, more than five percentage points higher than in 2017. Degree and credential production among in-state students has grown by 32% over the past decade. But production alone will not fully deliver state benefits of attainment. To translate educational gains into workforce and economic gains, Kentucky needs more of the graduates it educates to stay, work, and build their careers in the Commonwealth.

This is especially important for graduates with higher-level and specialized credentials. Although they represent a smaller share of total completions, they account for an outsized share of the state's advanced workforce capacity. These graduates become engineers, analysts, clinicians, researchers, managers, computer scientists, and other professionals whose work supports productivity, innovation, and business growth. They are also central to Kentucky's ability to compete in fields where technical expertise, advanced training, and specialized knowledge are increasingly important.

The value of retaining these graduates goes beyond filling current job openings. A deeper pool of college-educated talent can help generate new economic activity by supporting entrepreneurship, attracting private investment, expanding research capacity, and mentoring the next generation of workers. Economists have found that regions with larger concentrations of college-educated workers tend to experience higher wages, stronger productivity, and greater competitiveness in high-growth industries (Moretti 2012). Retaining graduates with master's and doctoral degrees is therefore not only an attainment issue. It is also a workforce development and economic development issue.

When these graduates leave, Kentucky loses more than the direct tax and spending returns associated with their individual earnings. It loses part of the talent base employers need to create and expand high-quality jobs, as well as part of the workforce that anchors research, innovation, and new-company formation.

Lastly, it weakens the connection between the state's investment in higher education and the long-term economic benefits that investment is intended to produce.

Graduate retention is therefore a lever on three priorities at once: raising educational attainment, strengthening the quality of Kentucky's workforce, and improving the state's long-term economic competitiveness. This brief examines where Kentucky is holding onto graduates, where it is losing them, and how those patterns vary by credential level and field of study. It is organized around five questions:

1. **Who stays and who leaves, and how does staying in Kentucky vary by credential level and field of study?**
2. **What explains the pattern, and how does pay factor in?**
3. **How do these patterns line up with Kentucky's top in-demand industries and their shortages?**
4. **Where can policy have the most impact?**
5. **What does national research suggest actually works?**

WHY GRADUATES MOVE

Wages, not randomness, drive relocation

Research on graduate mobility points to a clear pattern: Graduates do not settle randomly after completing a degree or credential. They respond to wages, job opportunities, the portability of their skills, and the strength of local labor markets. These factors influence both the metrics used in this brief and the interpretation of its findings.

At the individual level, people tend to move when the expected benefits outweigh the costs (Sjaastad 1962). For workers, that often means moving toward better pay or stronger job opportunities. The size of the wage difference matters as well. The larger the pay advantage elsewhere, the more likely workers are to relocate (Kennan and Walker 2011). For Kentucky, this suggests that fields with the largest out-of-state wage premiums should also be fields where the state is more likely to lose graduates.

This helps explain why producing more graduates is not, in itself, a complete workforce strategy. Skilled workers can move, so the number of graduates a state educates does not automatically determine how many it ultimately employs. Prior research finds only a modest relationship between the number of graduates a state produces and the number it retains in its labor force (Bound et al. 2004). Attending college in a state does increase the likelihood that graduates will stay, but the effect is limited (Groen 2004). For Kentucky, the implication is straightforward: enrollment and completion matter, but retention is the link between postsecondary investment and workforce growth.

Graduate mobility also differs by credential level and field of study. College graduates are generally more mobile than workers without a degree and are more likely to respond to job opportunities in other places (Wozniak 2010; Bound and Holzer 2000). Mobility often rises with more advanced or specialized training. Graduates from research universities and professional programs may enter wider labor markets, while regional institutions tend to keep more graduates closer to home (Conzelmann et al. 2022). These findings lead to two expectations tested in this brief: graduates with higher-level credentials should be less likely to remain in Kentucky, and retention should vary by field, with the most portable and nationally recruited skills showing the highest rates of graduates leaving the state.

That is why the loss of higher-level graduates matters for Kentucky's workforce strategy. Some movement is normal and even healthy in a national labor market, but persistent losses among advanced and specialized graduates can weaken the state's capacity to support high-wage sectors.

These graduates often fill roles that are difficult to replace locally, and their absence can make it harder for employers to expand in Kentucky or for the state to attract industries that depend on technical and professional talent.

Those individual choices add up to a broader national pattern: High-paying metropolitan areas increasingly attract college-educated workers, while more rural states often struggle to keep them (Moretti 2012). That puts Kentucky at a disadvantage, especially in fields where employers in larger labor markets can offer higher wages. Policy research also offers a caution: State scholarship programs can encourage students to enroll in-state (Zhang and Ness 2010), but their effects on where graduates work after college are often smaller and fade over time (Sjoquist and Winters 2014). Long-term retention depends less on one-time incentives and more on competitive wages, strong local employers, and clear career pathways.

Graduate retention, then, is not only a higher education issue. It is also an economic development challenge, and one that no single sector can solve alone. Colleges and universities produce the talent, but whether graduates stay depends just as much on the employers who hire them, the economic developers who recruit and grow companies, and the policymakers who shape incentives, investments, and career pathways. Retention works best when these partners treat it as a shared and reciprocal responsibility rather than the job of higher education alone. Kentucky can continue increasing degree and credential production, but the full return on that investment depends on whether graduates have compelling reasons, and real opportunities, to build their careers in the Commonwealth.

DATA AND METHODS

Linking completions to four states' wage records

This brief uses a descriptive analysis of the Multi-State Postsecondary Report, produced by the Kentucky Center for Statistics (KYSTATS) with partner agencies in Ohio, Indiana, and Tennessee. The report links individual Kentucky degree and credential completions from the 2007 through 2017 academic years to wage records across all four states. This structure makes it possible to examine where graduates are working and how much they earn after leaving college. The analysis identifies patterns in retention, wages, and credential production, but it does not prove that any single factor causes graduates to stay or leave.

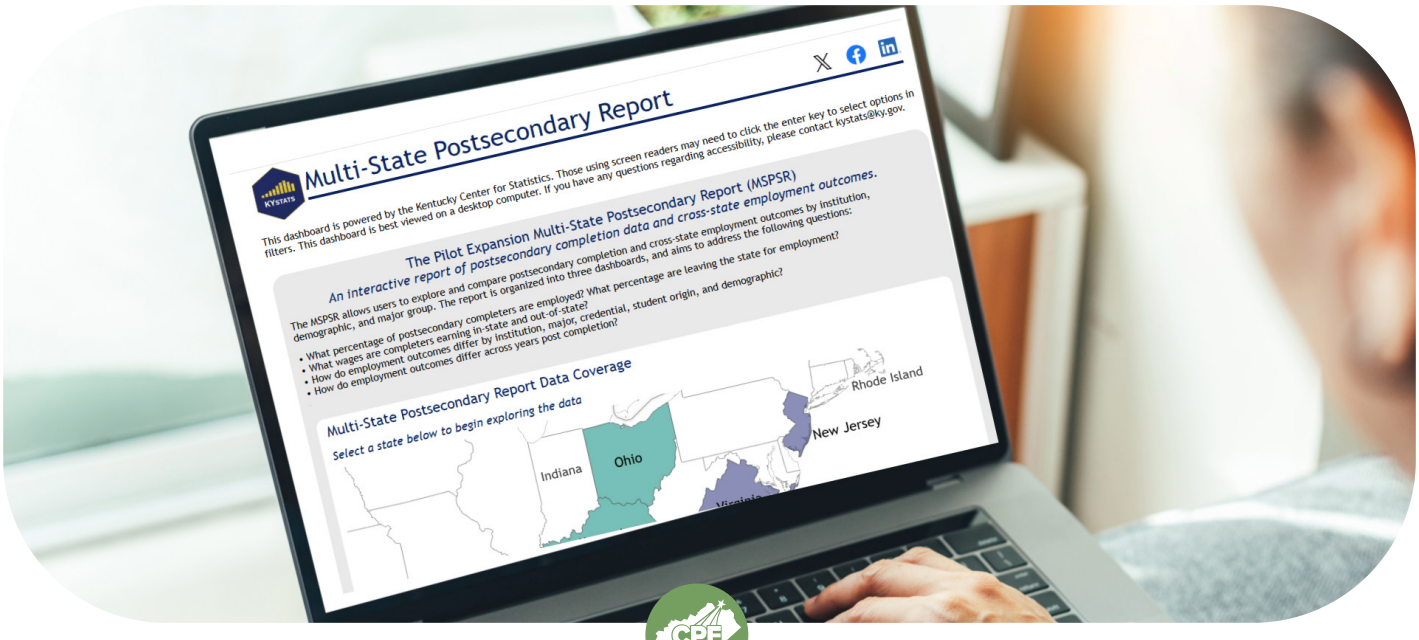
Although the report includes only three out-of-state labor markets, it provides strong coverage for a regional retention analysis. Indiana, Ohio, and Tennessee are contiguous states and major nearby labor markets for Kentucky graduates. Prior CPE reporting on the Multi-State Postsecondary Report found that Kentucky wage records alone identified 58% of graduates as employed within three years, but that figure rose to 73% when Indiana, Ohio, and Tennessee were included (CPE, 2021).

The Multi-State Postsecondary Report tracks graduates from each cohort one, three, and five years after completion and, to reduce the suppression of small groups, combines those follow-up windows across cohorts.

To reduce the suppression of small groups, this brief combines those follow-up windows across cohorts. It focuses on three measures: retention, median wage, and percent employed. Retention is defined as the share of working graduates whose primary job is in Kentucky. Median wage is adjusted for inflation. Percent employed is defined as the share of completers found in the four-state wage records; it shows how much of each graduating class the data can see.

The analysis follows the logic of the research summarized above. Since wages are a key factor in worker mobility, the brief compares in-state and out-of-state pay. Mobility also differs by education level and field of study, so the brief reports results by credential and major rather than relying only on statewide averages. That level of detail matters for policy, since a broad retention rate can obscure the fields where Kentucky is holding graduates well and the fields where it is losing talent to other states.

Retention is calculated only for groups large enough to report under the data's privacy rules. One year after completion, the reported results cover about 285,000 working graduates. To place those patterns in context, the brief also uses a second Kentucky data source: counts of credentials awarded by program and award level from the 2015–16 through 2024–25 academic years.



RESULTS

Who stays, by credential level

There is a moderate relationship between degree level and graduate retention. One year after completion, about 92% to 93% of certificate, diploma, and associate degree graduates work in Kentucky. The share falls to approximately 80% among bachelor's graduates and 77% among doctoral graduates, while master's graduates are a notable exception at 85% (Figure 1). These differences generally persist three and five years after completion.

This finding is consistent with national research. Graduates with more advanced degrees often enter narrower and more specialized labor markets, making them more likely to search regionally or nationally for the right job match. Certificate and associate graduates, by contrast, are often working adults earning a credential close to home for occupations tied more directly to local employers (Conzelmann et al. 2022). For Kentucky, the issue is not simply that some graduates move. The issue is that the state is most likely to lose graduates with professional degrees that often feed advanced technical, clinical, managerial, and professional roles.

Those losses matter because higher-level graduates are not interchangeable with other parts of the workforce. They help anchor high-wage employers, supervise and train other workers, support research and innovation, fill specialized health and technical roles, and expand the state's tax base through higher earnings. Losing these graduates, therefore, affects both sides of Kentucky's education-to-workforce bargain: the state receives less return on its education investment, and employers have a thinner pool of advanced talent from which to hire.

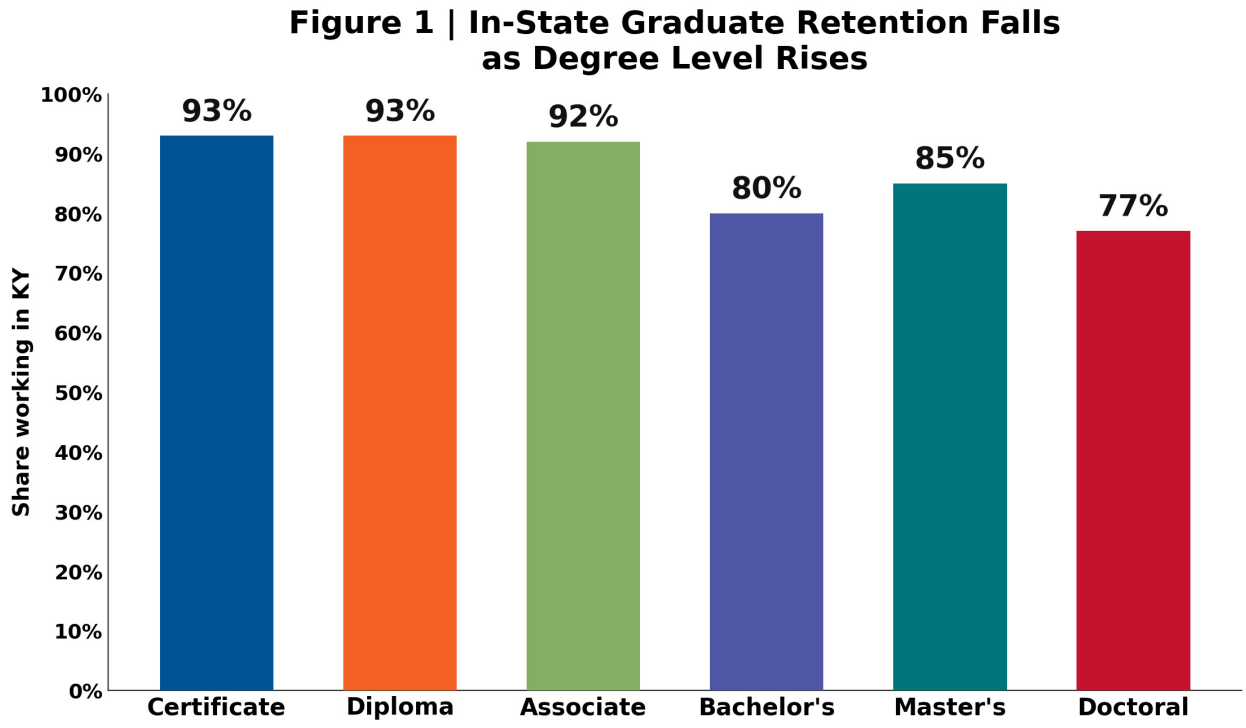


Figure 1. Share of graduates employed in Kentucky one year after completion, by credential level. Source: KYSTATS Multi-State Postsecondary Report.

Who stays, by field of study

Credential level helps explain how far graduates may be willing to move, but field of study helps explain which graduates are most likely to leave and what may be pulling them away. Education and trades graduates have the highest retention rates, at about 89% to 91%, followed closely by health and the arts and humanities. Business and STEM have the lowest retention rates (Figure 2). This pattern is consistent with research showing that some fields prepare graduates for broader regional or national labor markets, while others connect more directly to local employment opportunities (Faggian, McCann, and Sheppard 2007).

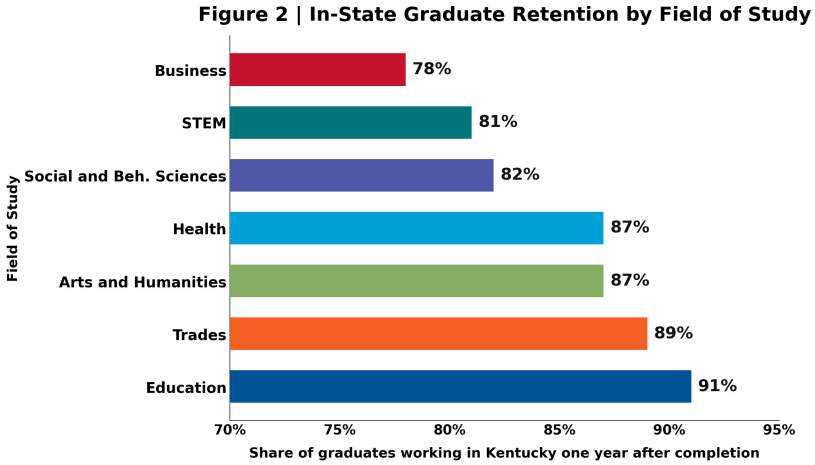


Figure 2. Share of graduates working in Kentucky one year after completion, by broad field of study.

The broad field averages are useful, but they also hide important variation. Within the same field, Kentucky can have both some of its most rooted graduates and some of its most mobile (Table 1). Construction is a clear example. Electricians stay at a rate of 93%, while construction managers stay at just a 52% rate. The difference is not simply that both are in construction; it is that one occupation is more locally anchored, while the other is more portable and more likely to connect to broader labor markets.

The field-level results point to two distinct retention profiles. Graduates who stay are concentrated in licensed, place-based, or hands-on fields, including teaching, nursing, the skilled trades, and many certificate and associate programs. These programs tend to lead directly into local labor markets. Graduates who leave are more concentrated in portable, nationally recruited technical and managerial fields, including computer science, information systems, engineering, and construction management.

Table 1. Selected Program Stay Rates One Year After Completion

Selected Programs	Major Group	Stay rate	Working graduates	In-state pay	Out-of-state pay
Industrial Mechanics & Maintenance	Trades	96%	1,719	$50,627	$46,077
Electrician	Trades	93%	1,542	$38,045	$53,375
Elementary Education & Teaching	Education	90%	9,165	$39,649	$32,590
Computer & Information Sciences, General	STEM	85%	3,478	$34,663	$47,658
Civil Engineering, General	STEM	84%	1,104	$50,236	$54,069
Electrical & Electronics Engineering	STEM	81%	835	$65,629	$70,129
Management Information Systems	Business	76%	1,457	$44,456	$55,282
Computer Science	STEM	62%	213	$52,187	$74,222
Construction Management	Business	52%	460	$45,568	$52,366

Table 1. Selected program stay rates, working graduates, and in-state vs. out-of-state pay one year after completion.

Variation within fields

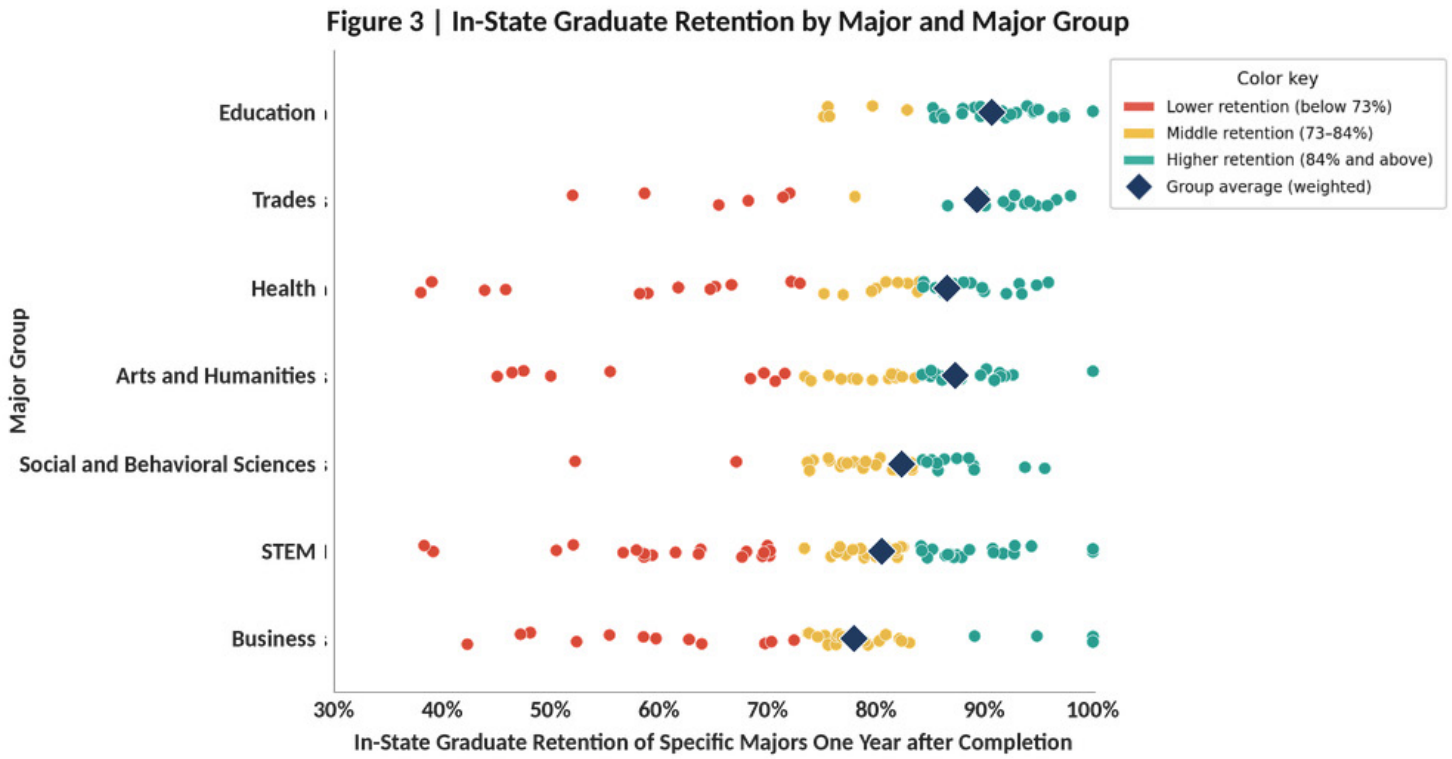


Figure 3. Retention of specific majors one year after completion, grouped by major group. Diamonds mark the group average.

The program-level results show that most programs follow the general pattern of their broader field, but the amount of variation differs sharply across fields. Education is the most consistent. Elementary education retains 90% of graduates, secondary education retains 92%, special education retains 94%, and educational administration retains 95%. In education, high retention is not driven by one or two programs.

STEM and business show a different picture. Their overall retention rates, about 81% and 78%, mask much wider program-level differences. STEM programs range from roughly 38% to 100% retention, while business programs range from 42% to 100%. Health and the trades also show meaningful variation, while education and social sciences are more tightly clustered (Figure 3). This means the broad field average is useful, but incomplete. In several fields, Kentucky retains graduates well across many programs, while highly mobile programs account for much of the graduate movement.

The programs with the lowest retention are generally the same ones where leaving Kentucky pays the largest wage premium (Table 2). Computer science retains 62% of graduates, and those who leave earn about $22,000 more out of state. Management information systems retains 76%, with leavers earning about $11,000 more. Occupational safety retains 59%, with leavers earning about $15,000 more. By contrast, electrical and electronic engineering technology retains 93% of graduates and shows no wage advantage for leaving. Across programs, the pattern is consistent: when out-of-state pay is substantially higher, retention tends to be lower. By headcount, Kentucky's largest sources of out-of-state employment are broad business programs: business and commerce accounts for about 2,070 graduates working out of state one year after completion, followed by business administration at about 1,630 and finance at about 590. Some high-retention programs also appear near the top simply because they produce many graduates — licensed practical nursing sends about 990 graduates out of state despite a 93% retention rate.

Table 2. Variation in Stay Rates Within STEM and Business One Year After Completion

Program	Stay rate	Working graduates	In-state pay	Out-of-state pay
STEM — second-lowest-retention field (field average 81%)				
Architectural Engineering Technology	39%	143	$42,392	$49,188
Occupational Safety & Health Technology	59%	377	$44,857	$59,519
Computer Science	62%	213	$52,187	$74,222
Electromechanical Technology	85%	72	$45,011	$64,789
Electrical & Electronic Engineering Technology	93%	220	$49,872	$46,235
Business — lowest-retention field (field average 78%)				
Human Resources Development	48%	106	$41,434	$42,698
Construction Management	52%	460	$45,568	$52,366
Organizational Behavior Studies	59%	1,546	$46,055	$49,870
Management Information Systems	76%	1,457	$44,456	$55,282
Organizational Leadership	89%	266	$43,082	$49,238

Table 2. Program-level stay rates within STEM and business, the field average's two lowest-retention fields.

The number working out of state, not just the rate

Retention rates show where Kentucky is most likely to lose graduates, but they do not capture the full scale of the number of graduates being lost to migration. Program size matters too. A large program with a relatively strong retention rate can send more graduates out of state even with a relatively small out-of-state share. Compared to a smaller program with a much weaker retention rate. For that reason, a complete retention strategy should consider both the share of graduates who leave, and the number of graduates affected.

These two views point to different policy priorities. Low retention rates identify fields where Kentucky is losing a large share of highly mobile talent. Programs with large numbers of graduates leaving Kentucky are important because even modest improvements in retention could affect many graduates. The strongest strategy uses both measures: focus on programs with the weakest retention while also watching large programs where small improvements could produce meaningful workforce returns.

The pull of higher pay

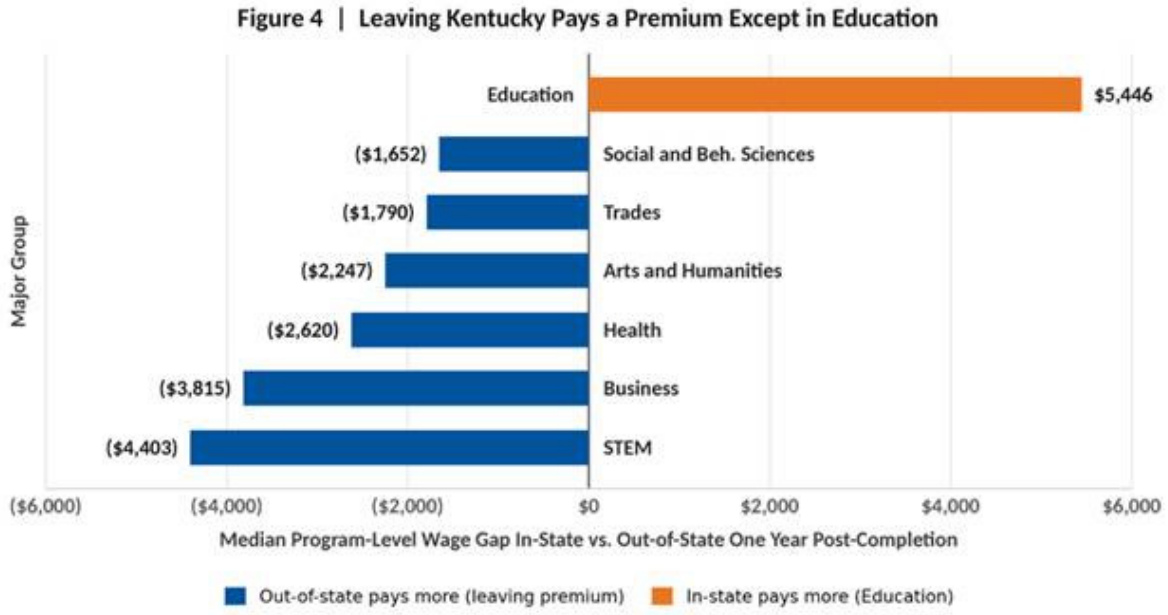


Figure 4. Median program-level wage gap, in-state vs. out-of-state, one year post-completion, by major group.

If graduates are moving toward stronger wage opportunities, the fields losing the most graduates should also be the fields where leaving Kentucky pays more. The data show that pattern clearly. Among programs where wages can be compared in both locations, graduates who leave Kentucky out-earn those who stay about two-thirds of the time, by a typical margin of roughly $2,200 a year. The wage advantage is largest in several high-skill fields Kentucky is working to grow (Figure 4).

Health, STEM, business, and the arts and humanities all show an out-of-state wage advantage. Education is the clear exception. Education graduates who leave Kentucky earn about $5,400 less than those who stay, likely because teacher pay and licensing are closely tied to state systems and Kentucky's pay is competitive with neighboring states. That helps explain why education graduates remain in Kentucky at high rates: the field gives them relatively little financial reason to leave.

The wage gap becomes sharper at the program level. Computer science graduates who leave earn about 42% more than those who stay, with median wages of $74,222 out of state compared to $52,187 in Kentucky. Information systems graduates who leave earn about $11,000 more. These gaps point to one of the brief's central findings: Kentucky is producing technical talent, but it is being outbid for many of those graduates after they complete their degrees.

Retention and pay together

Looking at retention and pay together helps clarify where Kentucky's strongest opportunities and biggest risks are. When programs are plotted by retention and median in-state pay, they fall into four broad groups (Figure 5).

The strongest group includes programs that retain graduates and pay them well. Advanced nursing retains about 90% of graduates at a median wage of roughly $83,000, while educational administration retains about 95% at roughly $63,000. These are bright spots in Kentucky's priority sectors because they show that strong wages and strong retention can exist together.

Figure 5 | The Graduate Retention/Wage Map: Bright Spots and Weak Spots

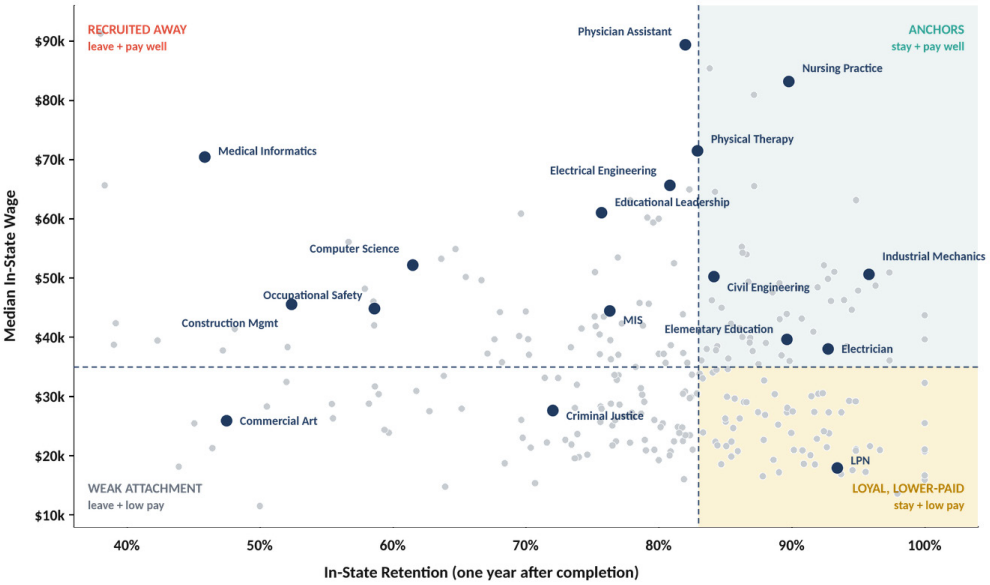


Figure 5. Programs plotted by one-year in-state retention (x-axis) and median in-state wage (y-axis).

A second group pays well but loses too many graduates. This is the core of Kentucky's brain-drain challenge. Computer science, information systems, and construction management all prepare graduates for strong careers, but many leave for higher-paying opportunities elsewhere. These programs deserve focused attention because they sit at the intersection of high demand, strong wage potential, and weak retention.

A third group retains graduates despite more modest pay. Many licensed, certificate, and hands-on fields fall into this category. These programs are often tied closely to local employers and regional labor markets, which helps explain why graduates stay even when wages are not especially high.

The final group has both lower pay and lower retention, including fields such as commercial art and creative writing. For these programs, the question is broader than whether graduates remain in Kentucky. It is also whether students have clear pathways into stable, sustainable careers after completion.

Together, the pay and retention patterns point to a practical strategy. Kentucky should protect the bright spots where graduates already stay and earn strong wages, focus employer engagement and recruitment on high-paying fields where graduates are leaving, and treat low-pay, low-retention fields as a career-alignment challenge rather than a retention challenge alone.

ANCHORS — STAY + PAY WELL

Advanced nursing retains ~90% at ~$83,000; educational administration retains ~95% at ~$63,000.

LOYAL, LOWER-PAID — STAY DESPITE MODEST PAY

Many licensed, certificate, and hands-on fields, tied closely to local employers and regional labor markets.

RECRUITED AWAY — LEAVE + PAY WELL

Computer science, information systems, and construction management prepare graduates for strong careers, but many leave for higher pay.

WEAK ATTACHMENT — LEAVE + LOW PAY

Fields such as commercial art and creative writing raise a broader question of career pathways, not just retention.

Retention changes as careers progress

The pull of higher pay and broader career opportunities does not stop at graduation. It can continue as graduates gain experience, change jobs, and move into the next stage of their careers. Overall, the share of graduates working in Kentucky falls from about 85% at one year to 83% at three years and 82% at five years. But the trend varies by credential level (Figure 6).

Associate-degree graduates remain the most consistently tied to Kentucky's labor market, with retention holding near 90% across all three follow-up points. Bachelor's retention falls from about 80% to 75%; and master's retention declines gradually from about 85% to 83%. Doctoral retention starts lower than other credential levels and remains in the mid-70% range over time.

This timing matters for policy. Research suggests that retention efforts are most effective when they reach graduates early and become less powerful as careers develop (Sjoquist and Winters 2014). For Kentucky, that makes the early-career window especially important. The first job after graduation is a key point of connection, but retention also depends on whether graduates see a long-term future in the state. Connecting students to Kentucky employers before they finish, and giving them reasons to build both a career and a life here, offers the strongest leverage early (Wozniak 2010).

The slippage is not evenly distributed across fields. Some programs lose graduates immediately, while others retain graduates at first and then lose them later. Comparing the same programs at one and five years, general allied health falls from 59% to 40%. Educational leadership drops from 76% to 63%, family and consumer sciences from 88% to 77%, and nursing administration from 87% to 78%.

These programs point to a different challenge than technical fields that lose graduates right away. In these cases, the issue appears less about whether graduates can find a first job in Kentucky and more about whether the state offers advancement, pay growth, and senior roles needed to keep experienced professionals over time. Retention, then, is not only about the first job after graduation. It is also about whether Kentucky's labor market can support the next job, the promotion, and the long-term career path.

Figure 6 | Graduate Retention by Credential Level Over Time

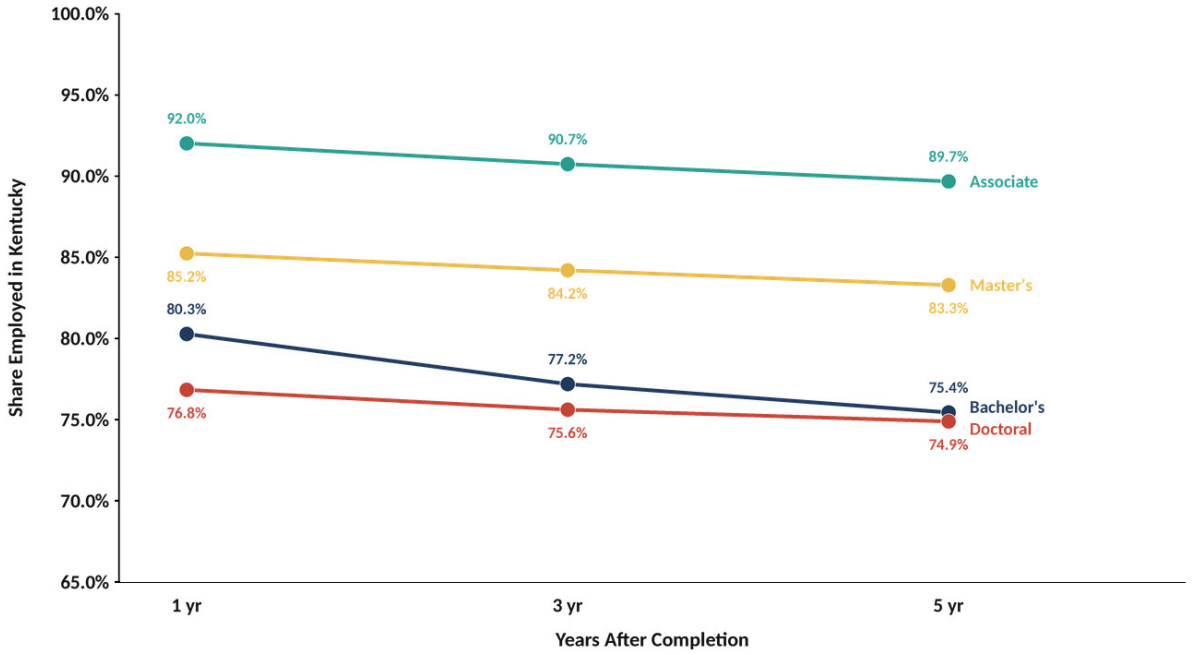


Figure 6. Share of graduates employed in Kentucky at one, three, and five years after completion, by credential level.

Lining up with in-demand industries

In 2025, the Kentucky Workforce Innovation Board (KWIB) identified five top in-demand sectors based largely on job demand, pay, and growth: healthcare, manufacturing and logistics, construction, education, and professional, scientific, and technical services (Table 3; KWIB 2025). Comparing those sectors with the retention findings shows where Kentucky's education-to-workforce pipeline is strongest and where it is most likely to lose talent.

The alignment is generally encouraging. Four of the five priority sectors are areas where Kentucky already retains graduates relatively well. Healthcare, education, manufacturing and logistics, and the skilled trades are tied closely to licensed, place-based, or hands-on work. These fields tend to connect graduates directly to local and regional employers, which means Kentucky's training investments are more likely to become Kentucky workers.

The clearest gap is in computing and analytics, which sits at the center of professional, scientific, and technical services. These fields are important to Kentucky's growth strategy, but they also show some of the weakest retention and strongest out-of-state wage premiums. That makes computing and analytics the most visible mismatch between the talent Kentucky needs and the talent it keeps.

This mismatch cannot be solved by scholarships or service commitments alone. If Kentucky does not offer enough competitive technical jobs, incentives may delay graduates from leaving but cannot create a durable reason to stay. A credible retention strategy for computing and analytics has to work on both sides of the labor market: reduce the individual cost of staying through targeted service-linked support, and increase the value of staying by growing employers, wages, and career ladders in the Commonwealth.

Table 3. In-Demand Sectors vs. How Well Graduates Stay

In-demand sector	Example programs	Retention	What it means
Healthcare	Nursing, allied health, clinical lab	Mostly 84-93%	Strong retention in front-line nursing; some leakage in allied health and informatics.
Manufacturing & Logistics	Industrial mechanics, machine shop, engineering tech	About 91-96%	A success story: technical talent at the certificate and associate level stays.
Construction	Electricians and carpenters (stay); construction management (leaves)	Split	Trades stay (above 90%); the management tier leaves (about 52%).
Education	Elementary, secondary, special education, administration	About 90-95%	The strongest pipeline; leaving means a pay cut.
Professional, Scientific & Technical	Computer science, information systems, analytics	About 62-76%	The main leak: lowest retention and the largest out-of-state pay premium.

Table 3. Kentucky's five in-demand sectors, example programs, and retention outcomes.

More graduates did not close the gap

If Kentucky's workforce challenge were only a matter of training too few people in high-demand fields, then increasing credential production would be enough to ease the shortage. The state's own production data suggest a more complicated story. Over the past decade, awards to in-state students each year rose 32% overall, with some of the fastest growth occurring in fields where graduate retention is weakest.

Computing and information sciences show this most clearly. Over the past decade, the number of credentials awarded in the field nearly quadrupled, rising 292% from about 2,500 a year to nearly 10,000 (Figure 7). Most of that growth came at the master's level, where annual awards jumped from about 150 to more than 4,500, a pattern consistent with the expansion of online and professional master's programs that

Figure 7 | Kentucky Increasing Degree Production in Fields it Loses Graduates Most

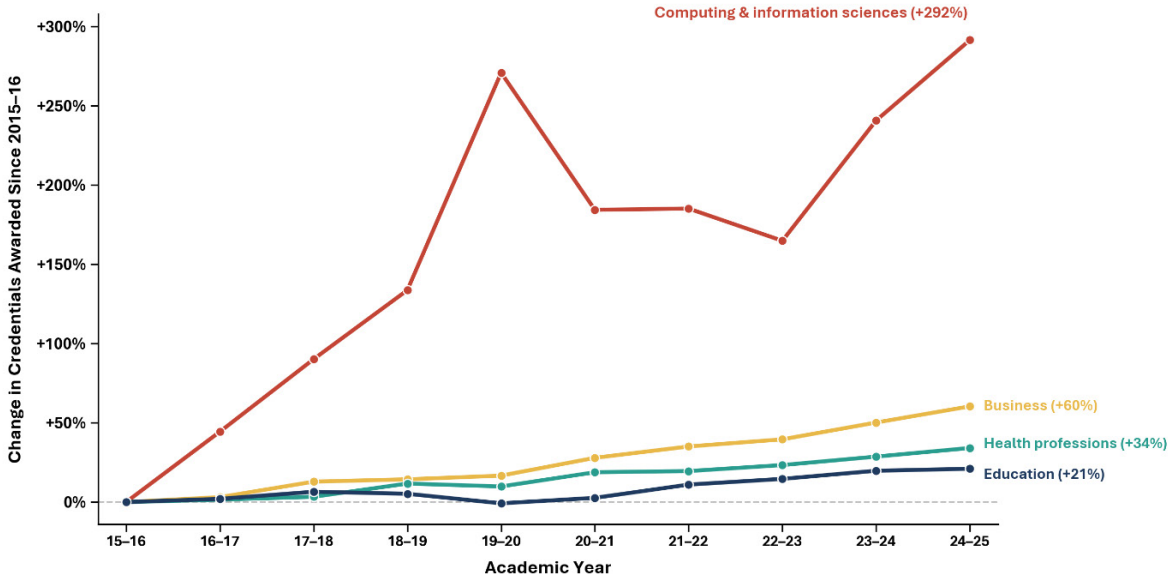


Figure 7. Cumulative change in credentials awarded since 2015–16, by field.

enroll students well beyond Kentucky. Bachelor's degrees in computing roughly doubled over the same period, and business credentials grew by 60%.

The bachelor's trend is the one most relevant to retention. These are the graduates with both the lowest retention and the largest wage premium for leaving. Kentucky now produces about twice as many of them as it did a decade ago, which means the state is steadily expanding the very group it struggles most to keep. The more recent master's surge is harder to read, because the retention figures describe earlier graduating cohorts and cannot yet speak to those graduates.

Placing production growth next to retention makes the point directly (Table 4). The fields where Kentucky has expanded production the most, especially computing and business, are also fields where many graduates leave and where out-of-state pay is more attractive. By contrast, fields Kentucky retains well, including health and education, also grew, and much of that added production appears more likely to remain in the state.

The same training effort can produce very different workforce returns depending on whether graduates stay. This is Kentucky's clearest local example of a long-standing national finding: producing more graduates does not necessarily build a state's workforce if those graduates leave (Bound et al. 2004). For computing especially, Kentucky is producing talent. The challenge is keeping that talent in the face of stronger wage opportunities elsewhere.

This distinction matters because different shortages require different solutions. In computing, analytics, and some advanced technical fields, Kentucky trains graduates but loses too many of them to higher-paying employers in other states. In those cases, simply enrolling more students may increase the number of graduates leaving rather than fully strengthening Kentucky's workforce. The more direct constraints are employer demand, wage competitiveness, and the availability of strong in-state career pathways.

For these fields, the workforce response has to reach beyond higher education. Kentucky can expand internships, co-ops, and service-linked scholarships, but those tools should be paired with employer expansion, business recruitment, support for technology adoption in existing industries, public-sector data and IT career ladders, and incentives tied to competitive technical jobs. Otherwise, the state risks paying to produce graduates for occupations that remain more attractive elsewhere.

Other high-demand fields require a different response. In nursing, teaching, and the skilled trades, graduates remain in Kentucky at high rates. Shortages in these fields are therefore more likely to reflect training capacity, clinical placements, apprenticeships, working

Table 4. Kentucky Degree Production vs. Graduate Retention

Field	First-year awards (2015-16)	Latest awards (2024-25)	Production change	Stay rate	Pay signal
Computing & information sciences	2,549	9,981	+292%	62-85%	Leavers earn up to about $22,000 more
Business	8,001	12,834	+60%	78%	Leavers earn more in most programs
Engineering	1,142	1,297	+14%	About 80%	Mixed; flat production is a partial exception
Health professions	12,615	16,920	+34%	87%	Small premium; graduates mostly stay
Education	4,926	5,962	+21%	91%	Leavers earn less; strongest retention

Table 4. First-year and latest awards, production change, stay rate, and pay signal, by field.

In nursing, teaching, and the skilled trades, graduates remain in Kentucky at high rates. Shortages in these fields are therefore more likely to reflect training capacity, clinical placements, apprenticeships, working conditions, or overall labor demand. Expanding seats and strengthening pipelines in these areas is more likely to translate directly into Kentucky workers.

Some fields fall between these two patterns. In construction and allied health, retention differs by program. The hands-on tier often stays, while the management, specialized, or more credentialed tier is more likely to leave. For these fields, the right policy tool depends on which jobs are short, which graduates are leaving, and whether the gap is mainly a training problem, a wage problem, or a pathway problem.

POLICY RECOMMENDATIONS

A focused strategy on keeping graduates

The evidence points to a focused strategy: protect the fields where Kentucky already turns education and training into Kentucky workers, and concentrate new effort on high-paying technical fields where the state is losing talent. The second task requires more than a student incentive program. Since long-term pay and job opportunity matter more than one-time incentives (Sjoquist and Winters 2014), the strongest policy response should combine employer demand, competitive job creation, work-based learning, and targeted retention support. In other words, Kentucky should not simply pay graduates to stay where good jobs are scarce. It should build more of the jobs and career pathways that make staying a rational choice. It should also treat retention as a shared responsibility. Higher education can prepare and connect students, but employers, economic developers, and state policymakers hold essential parts of the solution. The recommendations below are addressed to all of these partners, not to campuses alone.

1 Grow in-state demand for technical talent.

The clearest retention gap is in computing, analytics, engineering, and related technical fields, where Kentucky produces graduates but loses many of them to stronger wage opportunities elsewhere. The highest-leverage strategy is therefore on the demand side. Kentucky should recruit and expand employers that hire software, data, analytics, engineering, cybersecurity, and related talent; support technology adoption in existing Kentucky industries; and tie economic development incentives to the creation of competitive in-state technical jobs, not only to firm location or capital investment.

2 Build from the Healthcare Workforce Investment Fund model.

Use a state-funded, grant model as an employer-backed retention tool, not as a substitute for job creation. Created by the General Assembly in 2023, the Healthcare Workforce Investment Fund matches private healthcare dollars with state dollars for scholarships in high-need fields and requires recipients to work in Kentucky in their specialty for each year of support they receive (Kentucky Council on Postsecondary Education 2024). A similar service-for-support model could be useful in high-leak technical fields, but only if employers are active partners. Eligibility should be tied to verified in-state openings, employer matching funds, paid internships or co-ops, competitive wage expectations, and a clear job pathway after completion. Without those conditions, the model risks subsidizing graduates for jobs that do not exist or do not compete with offers elsewhere.

3 Treat work-based learning as core retention infrastructure.

Internships, co-ops, apprenticeships, industry-sponsored capstones, and structured mentorships help students form early, personal ties to Kentucky employers and to the communities where they might build a life. Research suggests these connections matter most before graduates make their first major job decision (Wozniak 2010). For high-attrition fields, Kentucky employers need to reach students earlier and more consistently, because national employers often recruit technical talent before graduation. In practical terms, a paid internship that turns into a job offer, or a mentor who helps a student picture a future in Kentucky, can do as much to keep a graduate in the state as a scholarship, and sometimes more. The research supports treating them that way: the effect of scholarships on where graduates later work tends to fade over time (Sjoquist and Winters 2014), while the first job after graduation is one of the strongest ties a state can build. Work-based learning is also one of the clearest places for employers and economic developers to carry their share of the retention effort rather than leaving it to colleges and the state alone.

4 Target retention support to high-attrition, high-demand programs.

Loan repayment, relocation support, and service-linked scholarship models are likely to have the greatest impact in fields where many graduates leave Kentucky and state workforce demand is high, including computer science, information systems, selected engineering fields, and some allied-health programs. These supports should complement, not replace, job creation. They should be tied to several years of in-state work and, where possible, to employers offering wages and advancement opportunities strong enough to make retention sustainable.

5 Protect and grow the fields that already stay.

Nursing, teaching, manufacturing-related technical fields, and the skilled trades retain graduates at high rates. In these fields, expanding clinical placements, apprenticeships, teacher preparation pathways, and program capacity remains a high-confidence investment because additional graduates are more likely to become Kentucky workers.

6 Track retention by program and report it regularly.

Program-level retention, paired with employer demand, job-opening, and wage data, would help Kentucky distinguish a training shortage from a retention shortage. Regular reporting would also show whether new strategies are working, whether employer demand is keeping pace with credential production, and whether the same fields continue to lose talent over time.

What these data can and cannot show

Several features of the data shape how these findings should be interpreted. The most important limitation is coverage. This brief can follow graduates only if they appear in wage records for Kentucky, Ohio, Indiana, or Tennessee. The data include a "percent employed" measure, which shows the share of each program's completers found in those four-state wage records. That share varies by field, from about 83% in education to 60% in STEM and about 65% in arts and humanities.

Graduates who do not appear in the records are not necessarily unemployed. They may have moved outside the four-state region, become self-employed, taken federal employment, or earned below the reporting threshold. As a result, retention is measured only among graduates visible in the data. The true number of graduates leaving Kentucky is likely higher than the reported figures suggest, especially in fields with lower observed employment rates, such as STEM and the arts and humanities.

Three other limitations are important. First, "out of state" refers only to Ohio, Indiana, and Tennessee. Graduates who move elsewhere appear as not employed in the four-state data rather than as out-of-state workers. Second, the data suppress groups with fewer than ten graduates, so very small programs and some extreme cases are not visible. Third, the analysis combines one-, three-, and five-year follow-up windows across cohorts to reduce suppression. For that reason, the over-time comparisons describe different groups of graduates rather than the same individuals followed continuously for five years.

Finally, this analysis identifies patterns and places them in the context of existing research. It does not prove that pay causes graduates to leave, even though the relationship between wage premiums and graduates leaving Kentucky is consistent throughout the data. A stronger causal analysis would require individual-level research files and a design that could separate the effects of pay, field, credential level, local job demand, and student background.

Next study: Measuring brain drain and brain gain

This brief describes who stays and who leaves. It does not yet show how much each factor, including pay, field, credential level, student background, or local job demand, contributes to the decision to leave. It also captures only one side of Kentucky's talent balance. By following graduates of Kentucky institutions, the brief measures the talent the state loses, but not the talent it gains from graduates educated elsewhere who come to work in Kentucky.

This study leveraged the already-aggregated data within the Multi-State Postsecondary Report. Next steps involve a cross-state agreement to allow individual-level record access for the purposes of continuing and deepening this research. With individual-level records, a future study would be able to estimate how much wage differences influence whether graduates leave Kentucky after accounting for other factors.

Those same records will also make it possible to measure brain gain alongside brain drain. A future study could estimate the inflow of out-of-state graduates who build careers in Kentucky and produce a net count of talent gained and lost, field by field. It could also follow the same graduates over time rather than combining graduating classes across follow-up windows.

That next study would move the conversation from who leaves to why they leave, how much each factor matters, and which policy levers are most likely to change the outcome. It would also give Kentucky a more complete picture of its talent balance, including not only the graduates it loses, but also the graduates it attracts.

CONCLUSION

Producing talent is not the same as keeping it

Kentucky retains the graduates it trains for local, licensed, and hands-on work, but loses too much of its high-paying technical talent to states that pay more. That pattern matters because the graduates most likely to leave are often the graduates most important to high-wage workforce growth: people trained for specialized technical, clinical, managerial, and professional roles that help employers expand, help new companies form and attract investment, and help the state increase productivity, earnings, and tax revenue. The pattern also matches decades of research: graduates with more advanced or specialized training are more mobile, workers respond to stronger wages and job opportunities, and producing more graduates does not guarantee keeping them.

Kentucky's own credential production data make the point clear. The state nearly quadrupled its computing credentials over the past decade, yet it retains only about 62% of computer science graduates one year after completion. The issue is not that Kentucky has failed to produce technical talent. It is that many of those graduates find stronger wage opportunities elsewhere.

The stakes are highest in the fields tied most closely to Kentucky's future workforce needs. Four of the state's five in-demand sectors retain graduates relatively well. The fifth, computing and analytics, has some of the weakest retention and the strongest financial pull to leave. That makes it the clearest target for a more focused talent-retention strategy.

The policy lesson is straightforward, but it is not limited to scholarships. Graduates stay when they have access to competitive in-state pay, strong local employers, and clear career pathways, not simply because of one-time incentives (Sjoquist and Winters 2014). For a state pursuing a 60% attainment goal, the opportunity is twofold: protect the fields where training dollars already become Kentucky workers, and build the in-state demand needed to retain the technical workforce the Commonwealth is already producing. A service-linked model can help where employers and jobs are present, but the larger task is shared: higher education, employers, economic developers, and policymakers working together to create more competitive technical jobs and career ladders so that Kentucky graduates have a strong reason to build their careers here.

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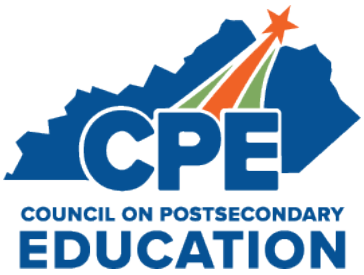

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