

Pay-per-Apprenticeship Can Accelerate Apprenticeship Growth

Policy memo

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Scaling Apprenticeships to Promote Mobility, Raise Earnings, and Reduce Skill Gaps

The emerging consensus that scaling apprenticeship is the most cost-effective approach to expanding opportunity is reaching policymakers. Scaling apprenticeship and other quality work-based learning is urgent given the state of the labor market, the importance of increasing mobility, and limitations of the existing U.S. education and training systems. Yet despite recent increases in apprenticeship numbers, the apprenticeship rate in the U.S. remains not only well behind rates in traditional apprenticeship countries of Austria, Germany, and Switzerland, but also [Australia, Canada, and the United Kingdom](#). These countries invest in apprenticeships at levels many times U.S. rates.

While recent funding of about \$170-\$200 million/year for apprenticeship grants has been welcome, the amounts pale in comparison with over \$100 billion funding for accredited colleges in universities and spending on apprenticeship in other countries. Australia alone added well over \$1 billion to apprenticeships in response to Covid; scaled to the U.S., the incremental investment in apprenticeships exceeds \$10 billion per year. Moreover, recent U.S. grants are more temporary than systematic; by themselves, they are far too small to make apprenticeship a viable pathway to economic advancement and socioeconomic mobility for millions of Americans.

Structural aspects of the U.S. registered apprenticeship system continue to hold back progress. Unlike other education and training for careers, apprenticeships arise only when employers create programs and sufficient slots. Unfortunately, the vast majority of employers are not launching apprenticeships; they generally lack the knowledge and expertise to do so. That's why we often say, "Apprenticeships are not bought, they're sold."

But how do we sell employers on apprenticeship and help them organize programs at scale? Too often when American policymakers discuss extending apprenticeships beyond building and construction trades into technology, professional services, and healthcare, the assumption is that employers will establish apprenticeship programs and hire apprentices themselves. However, the lessons of other countries and recent experience in the U.S. suggest that intermediaries (often an industry association, a nonprofit, a college, or a union) can be mobilized to generate apprenticeships at scale. Intermediaries not only persuade employers to try apprenticeship, but they also help employers organize and register their programs. Sometimes, they act as the employer of record before employers are asked to make a hiring decision. The question is, how can the US federal and state governments help intermediaries generate sufficient apprenticeship openings to scale the system?

We propose a major pay-per-apprenticeship initiative to mobilize an array of intermediaries to scale apprenticeships. Payment for placement could result in game-changing new investments in sourcing, screening, last-mile training, and mentoring new talent by agencies, nonprofits, and business services companies. Based on current workforce spending per placement into a good job, payments for placement at a comparable level could result in the establishment of hundreds of thousands of more effective pathways to economic advancement through apprenticeship. Payments should be staggered to ensure intermediaries are incentivized around not only placement but also for persistence, completion, and for placing (and retaining) socioeconomically disadvantaged candidates, or candidates underrepresented in target industries.

Funding would go to intermediaries only for the apprenticeships they generate and sustain. The exact incentives can take a variety of forms. The experience of U.S. grantees indicates that large increases can take place with a financial incentive of about \$3,500-4,000 for each apprentice hire that lasts at least 60

days. The workforce system has long used performance contracting in training programs. The Administration and Congress could create a unit with modest staffing, perhaps within the Labor or Commerce Department, to fund and oversee these performance-based financial incentives for intermediaries, ensuring payments only go for registered apprenticeships with appropriate auditing. Currently, the country can draw on some intermediaries but not nearly enough. We envision attracting staffing companies, business services companies, nonprofits, schools, workforce boards, and other state and local agencies to undertake the work.

Ideally, the incentive plan would be accompanied by structural reforms in registration and would allow apprenticeship programs more access to existing and new government support for off-job learning in apprenticeships. But by itself, the pay-per-apprenticeship initiative could go a long way to reshaping career-focused learning and substantially enhancing skill and diversity. Such a plan will become feasible with the new federal workforce funding and with workforce funds in states. Expenditures on the initiative of about \$4 billion per year could build a robust U.S. apprenticeship system across many industries.

As a point of comparison, the comparable incentive in the UK is [currently £3,000](#), and this is in addition to the £1,000 employers and/or intermediaries receive for taking on younger apprentices. In the year ending 9/30/21, the UK's additional £3,000 per apprentice incentives created an additional 90,000 apprenticeships across all sectors of the economy. From the outset of the incremental incentive, 161,000 new apprenticeships were created, including 126,000 for 16-24 year-olds.

In Australia, prior to Covid, Australia provided employers and intermediaries with \$1,500 per apprentice following placement for 60 days, and another \$2,500 upon completion of apprenticeships. As a result of Covid's labor market disruption, Australia upped the ante with its Boosting Apprenticeship Completions program, which also offered to pay 50% of apprentice wages for the first 12 months, or up to \$28,000. The program began in October 2020, was initially capped at 100,000 places, and scheduled to the end in 2021 but was extended for apprenticeship starts by March 2022. Boosting Apprenticeship Completions has stimulated at least 100,000 new apprenticeships across the economy.

While an investment on the level of Australia isn't likely, we believe investing at the level of the UK (or Australia prior to Covid) could create 1 million new apprenticeships each year.

A Concrete Pay-per-Apprenticeship Proposal

One plan is to provide intermediaries or employers with \$2,000 for each registered apprentice employed for at least 60 days. The incentives would be staged to reflect retention and completion. Once new apprentice has been on the job and apprenticeship for 12 months and 18 months or completion, intermediaries or employers would qualify for an additional \$1,000 per period, yielding a maximum of \$4,000 per new apprentice.

Apprenticeship requirements for funding: The apprenticeship Leads to a valued occupational credential with a demonstrated career path that generates a full-time, salary or wage equivalent at \$40,000 + benefits (possibly scaled based on cost of living).

Limited to: Registered apprenticeships.

Annual budget: \$4 billion

The Social Return on the Investment would be extremely high.

- *\$4,000 per apprenticeship*
- *Benefit to apprentice:*
 - *Estimated increase in lifetime earnings: \$300,000+*
- *Benefit to employer:*
 - *Gains from worker productivity, reduced turnover, reduced recruitment costs—most but not all employers benefit sufficiently to offset their costs, especially for new workers.¹*
- *Benefit to government (federal and state):*
 - *In some cases, substitutes for Pell Grant: \$6,495 annually – conservatively estimate one year only.*
 - *Reduced unemployment*
 - *Increased tax revenue over lifetime of apprentice:*
 - *\$20,000 return on \$4,000 investment or 5 times multiple of invested capital (results based on a detailed study of the Washington State apprenticeship program and adding \$4,000 to government costs in their calculations).²*

One major advantage of this approach is that once new apprenticeship pathways are established and employers recognize and begin to depend on the resulting talent, they tend to be durable, meaning employers become increasingly willing to invest themselves in sourcing, screening, hiring, and training. So, the program could also limit employer eligibility to several years, requiring employers (and intermediaries) to become self-sustainable.

If there's agreement that scaling apprenticeships across the economy would be a very good thing – and it certainly seems as though this is the case – what's needed right now is a jump start. And a jump start requires a systematic pay-per-apprenticeship incentive for intermediaries. Increasing apprenticeship grant funding and allocating it primarily to organizations already running apprenticeships in the construction and industrial trades will not move the needle.

The remaining part of the memo provides context for the proposal.

A Broken Labor Market, Broken Engine of Socioeconomic Mobility

While America's labor market is nearing full employment, it is far from healthy. Since the Great Recession, millions of workers have stopped seeking work and dropped out of the workforce.³ Covid and the ensuing Great Resignation have resulted in millions more. Real wages have remained stagnant for the past 40 years for all but the highest earners.⁴ Socioeconomic mobility has declined; for Millennials born in 1980, only half are earning more than their parents.⁵ With nearly half of all students graduating into underemployment, employability continues to plague college graduates, return on tuition invested, and the overall higher education value proposition.⁶ Diversity remains a huge challenge in high-skill positions,

¹ <https://wol.iza.org/articles/do-firms-benefit-from-apprenticeship-investments/long>

² Net impact study from <https://www.wtb.wa.gov/research-resources/reports/>

³ <https://data.bls.gov/timeseries/LNS11300000>

⁴ <http://www.pewresearch.org/fact-tank/2018/08/07/for-most-us-workers-real-wages-have-barely-budged-for-decades/>

⁵ http://www.equality-of-opportunity.org/assets/documents/abs_mobility_summary.pdf

⁶ https://www.burning-glass.com/wp-content/uploads/permanent_detour_underemployment_report.pdf

particularly in the fastest growing sectors with the greatest job creation i.e., technology and healthcare.⁷ And a majority of American youth think their children are likely to be worse off.⁸

Despite the large number of unemployed, underemployed, and unhappily employed Americans, there are over 10 million unfilled jobs, many of which are high- and middle-skill positions.⁹ Employers are spending as much as \$30,000 to recruit new software developers and \$5,000 per week on travel nurses.¹⁰

With labor market mismatches increasingly common, employers are frustrated, and many Americans feel left behind and disenfranchised. Far too many feel that participation in the dynamic economy – and the American Dream – is now out of reach, or runs through college classrooms, 4+ years of study, 120 credits, and unrealistic student loan debt, which amounts to the same thing. New research shows disadvantaged students increasingly believe life will get in the way of multi-year degree programs and prefer faster pathways to good jobs.¹¹ We need a lot more clearly demarked pathways help unemployed and frontline workers fill good open jobs.

There are four primary reasons for this supply-demand mismatch, two on the demand side and two on the supply side.

Demand

1. The economy has digitized

Over the past decade, even companies and organizations that have nothing to do with technology have replaced paper processes with software. Systems and processes that were once physical or manual are now digital and automated, and governed by sophisticated new business software or SaaS platforms. As a result, the typical good entry-level job is best characterized as helping to manage one or more business functions through use of one or more SaaS platforms.

Because these platforms typically require dozens — if not hundreds — of hours of training in order to navigate them competently, much of the skills gap is properly characterized as a digital skills gap. 90 percent of hiring managers consistently report difficulties in finding and hiring the right tech talent and 83 percent said the shortage of tech talent is slowing company revenue growth.¹² Three quarters of Business Roundtable CEOs say they can't find workers to fill jobs in STEM-related fields.¹³

Of course, it's inexact to generalize about a tech skills gap. The tech skills gap actually consists of thousands of micro-level or tactical technical skills gaps. For example, we don't have a shortage of C++ or Fortran coders, although there's huge unmet demand for J2EE, Microservices, and .NET developers. The gap extends well beyond coding to jobs that manage functions like supply chain, sales, marketing, customer service, finance, IT, and HR. Employers are seeking platform skills like Hubspot (marketing), Marketo (digital marketing), MuleSoft (application development), Atlassian (product/project

⁷ <http://siliconvalleyrising.org/files/TechsDiversityProblem.pdf>

⁸ <https://www.nytimes.com/2021/11/17/upshot/global-survey-optimism.html>

⁹ <https://www.bls.gov/news.release/jolts.nr0.htm>

¹⁰ <https://devskiller.com/true-cost-of-recruiting-a-developer-infographic/>; <https://qz.com/2057130/a-traveling-nurse-can-now-earn-5000-or-more-per-week/>

¹¹ <https://workshift.opencampusmedia.org/when-anything-could-happen-students-opt-for-shorter-programs>

¹² <https://www.hrtechnologist.com/news/candidate-search-and-sourcing/talent-shortage-is-killing-innovation>

¹³ <http://fortune.com/2018/06/22/business-roundtable-jamie-dimon-worker-training>

management), Epic (electronic health records), ZenDesk Plus (customer service), Xero (accounting), ServiceNow (IT), Workday (HR), Splunk (data analytics), and Salesforce.

The Salesforce skill gap alone is massive and growing (at least 300,000 open jobs in the U.S., another 9M+ to be created globally in the next five years).¹⁴ In addition to these cross-sector SaaS platforms, every industry has its own SaaS platforms for specific functions. For example, insurance companies and third-party claims administrators have a range of SaaS options for claims processing.

Employer demand for digital skills is likely to accelerate over the next decade as repetitive processes that can be automated are automated, and technology eliminates millions of middle-skill jobs.

2. Hiring has changed

Technology has fundamentally changed hiring in two ways, particularly for entry-level jobs. Because nearly every good job is posted online and generates hundreds of résumés, employers utilize keyword-based filters called Applicant Tracking Systems to determine which résumés are actually seen by a human. If you don't have sufficient keyword density, you're not visible.

Faced with the deluge of résumés over the past decade, HR and hiring managers have sought to tighten the screen and have done so by adding skills to job descriptions. Which skills have they added? Unfortunately, there are only so many ways to say, "critical thinking," or "problem solving." So, the skills that have been added to job descriptions are digital and software skills. Across virtually every industry, technical skills now outnumber all other skills in job descriptions, particularly for entry-level jobs.¹⁵ Without the digital skills employers are increasingly listing in entry-level job descriptions, too many college graduates are invisible for exactly the positions they want (and need to make student loan payments).

Another way hiring has changed is that employers are increasingly seeking new hires that can be productive on day one. Before the Great Recession, more employers were accustomed to providing training for new employees. But as a result of the economic downturn, increasing entry-level churn and the higher cost of bad hires, many large and mid-size companies abandoned entry-level training programs.¹⁶ So the bar for a new hire has been raised: unless a candidate already has the requisite skills, the position will remain unfilled.

Supply

3. Colleges have failed to adjust

While many colleges and universities continue to do a good job of equipping students with key cognitive skills like critical thinking and problem solving, they are controlled by faculty members who aren't incentivized to align curricula to employer needs. Few are interested in what employers are seeking, particularly for entry-level positions. Many have never worked in the private sector or have only outdated or tenuous connections to non-academic employers. Many more resist the idea that instruction should be aligned to employment opportunities. As a result, very few of the aforementioned digital or platform

¹⁴ <https://www.salesforce.com/news/press-releases/2021/09/20/idc-salesforce-economy-2021>

¹⁵ http://www.burning-glass.com/wp-content/uploads/Human_Factor_Baseline_Skills_FINAL.pdf

¹⁶ <https://www.washingtonpost.com/news/on-leadership/wp/2014/09/05/what-employers-really-want-workers-they-dont-have-to-train/>

skills are being taught at colleges and universities. For example, not a single accredited postsecondary institution provides courses on Epic, even though there may be as many as 50,000 unfilled jobs for Epic certified analysts to implement, configure, and integrate electronic health record systems at hospitals. And fewer than 20 colleges and universities offer courses on Salesforce.

One complicating factor is that these new skills don't neatly fit into existing academic departmental structures. Hundreds of thousands of new jobs have been created in business intelligence and data analytics over the past few years. But where do they fit into existing academic departmental structures? Some business schools have added relevant curriculum; at other universities, it's the statistics department. Under faculty control, most universities haven't yet come up with an adequate answer. The same dynamic exists in other high demand areas like cybersecurity. The skills required for cybersecurity require some computer science curriculum but are a distant relative from learning C++. At Texas A&M University, cybersecurity courses have been offered by engineering as well as agriculture and life sciences departments.

Higher education's interface of choice to employers is career services. But not only is career services well outside the academic chain-of-command, the concept of "career services" as a separate office, distinct from every other part of the institution, conveys to students that they aren't expected to think about employment until senior year. Not surprisingly, only half of all students ever visit career services.¹⁷ And at less selective institutions, evidence suggests students who seek help from career services actually achieve inferior employment outcomes.¹⁸ And efforts to more thoroughly integrate career services into the overall fabric of the university are nascent and unproven.

Finally, the college system works poorly for many students with high potential but who learn best by doing and directly applying what they learn. Completion rates, especially in community colleges, are low and the gains in relevant skills and earnings are far less than in apprenticeships.

4. Workforce development is underfunded and often ineffective

The federal government has over 40 workforce development programs (job search and/or training) across 12 agencies. Federal workforce development funding pales in comparison with support for colleges and universities; or every \$100 spent on accredited higher education, only \$1 is spent on job training.¹⁹ WIOA funding of only about \$1 billion per year is directed to state and local workforce boards that help job seekers find jobs.

While theoretically addressing upskilling and maintaining laundry lists of approved training programs, workforce boards are measured on speed-to-placement, leading to a vicious circle where employers only list low-skill positions attracting only low-skill workers. Legacy workforce development programs are designed for a different era when the main challenges were individual transitions and economic shocks rather than digital transformation.

New workforce training programs have not yet achieved significant scale. A recent Harvard white paper reviewed 316 "innovative" programs and found only a handful serving more than a few hundred each year. Any they may not be that innovative or effective. Only one-third has direct contact with

¹⁷ <https://hechingerreport.org/graduates-obsess-jobs-colleges-cut-spending-career-services>

¹⁸ <https://www.forbes.com/sites/ryanraig/2021/11/19/alumni-look-back-in-anger/>

¹⁹ <https://www.dol.gov/sites/dolgov/files/general/budget/2019/FY2019BIB.pdf>

employers, relatively few track employment outcomes (“the most common success metric tracked... was whether participants completed the program”), and < 3% track long-term career progression.²⁰

The Power of the Apprenticeship Model

As the only education or workforce development model that starts with employment, apprenticeships are a very effective tool for addressing these challenges and establishing many more pathways to economic advancement and socioeconomic mobility. Postsecondary and workforce bridges that don’t lead to the other side – i.e., good jobs – aren’t bridges. They’re just piers. Apprenticeships widen opportunity for workers who learn best by doing and level the playing field for workers of all backgrounds by not charging tuition or requiring loans and debt. Instead, by paying a living wage from the first day of training, apprenticeships enhance equity and reduce inequality. They have a strong track record of stimulating large gains in earnings. The occupational and employability skills they develop builds pride among completers and gives employers confidence that apprenticeship graduates will accomplish relevant job functions at a high level.

Limited Role of U.S. Apprenticeships Today

While U.S. apprentices have increased in number over the past generation, as a percentage of the workforce (0.3%) we’re below where we were after World War II and still only one-eighth the level of the UK, Canada, and Australia. The reason is that we’ve done very little to expand apprenticeships beyond their home in the construction and industrial trades.

Why has the U.S. done a poor job of growing apprenticeships in financial services, energy, healthcare, transportation/logistics, and, of course, tech? There are four primary reasons:

1. Government policy:

Whereas registration of apprenticeships (or the equivalent) in Germany, Switzerland, the UK, and Australia results in automatic funding for the related technical instruction component of apprenticeships, the U.S. has not yet connected registration with funding. Instead, DOL registration allows programs to seek state approval, which then establishes eligibility for funding by state and local workforce boards.

2. A Cumbersome Registration Process:

The Federal Office of Apprenticeship is improving but it still takes too long to register and begin operating a program. The problem is especially severe in some State Apprenticeship Agencies (SAAs); they are too often reluctant to embrace new initiatives that depart from the model used in mostly union apprenticeships dominant in construction and industrial trades.

3. Growing hiring friction:

The bar for hiring inexperienced workers is high and getting higher (which explains 10M unfilled jobs), and workers don’t come less experienced than new apprentices.

²⁰ <https://www.pw.hks.harvard.edu/post/working-to-learn>

4. Limited funds for off-job learning

Although some state and federal funds are available for the off job learning in a registered apprenticeship (called related technical instruction), public sources do not generally pay for the relevant courses and instruction, thus adding to the employer costs of financing an apprenticeship.

5. Lack of intermediaries:

The way most apprenticeship programs are structured in Europe – as well as in the construction and industrial trades in the U.S. – is that an intermediary (typically an industry association or a union) runs the program and acts as the employer of record before employers are asked to make a hiring decision. But too often when American policymakers discuss extending apprenticeships beyond building and construction trades into technology, professional services, and healthcare, the assumption is that employers will establish apprenticeship programs and hire apprentices themselves.

This assumption has limited the expansion of American apprenticeships. In order to launch apprenticeship programs, employers need to: (1) Hire or assign someone to run the program; (2) Source and screen talent; (3) Hire dozens or hundreds of apprentices; (4) Design curriculum and deliver training; and (5) Pay apprentices to sit through training. Employers who are already leaving millions of positions unfilled because they can't find talent prepared to be productive on day one aren't likely to be interested in taking the time and incurring the expense of completing all five of these tasks.

Employers need help if they're going to begin tapping apprentices as a new source of talent. Because apprenticeships are not bought, they're sold, the key to scaling apprenticeships in the U.S., across the economy into tech, healthcare, and other fast-growing sectors, is to motivate thousands of intermediaries to begin selling apprenticeships to employers, packaging turnkey programs that provide employers with the talent they need without as much work or risk.

How other countries have successfully expanded apprenticeships to new sectors

Incentives for intermediaries

The UK's success in scaling apprenticeships across the economy demonstrates the power of incentivizing intermediaries. Alongside its [Institute for Apprenticeship](#) and other initiatives, the UK managed to achieve an apprenticeship scale of over 850,000 in about eight years, largely through the efforts of 850 intermediaries. The British government provided funding to private training organizations and to colleges of further education for the off-job instruction in apprenticeships. The increased funding incentivized these organizations to sell and organize apprenticeships with employers. In fact, the British approach has led to the establishment of an [Association of Employment and Learning Providers](#): private companies that engage in the kind of retail marketing required to persuade employers to offer apprenticeships. Another step is the British government's initiative to create apprenticeships within the civil service, specifying that apprentices should constitute 2.3% of government employment.

Australia has achieved high levels of apprenticeship partly through private, often nonprofit, Group Training Organizations (GTOs). The GTOs, which serve as employers of record for the duration of training and then place apprentices with host employers, are tasked with selecting and recruiting apprentices; paying wages and providing for workers' compensation, sick/holiday pay, and other

employment benefits; managing the quality and continuity of training, both on and off the job; and providing the necessary ongoing support for apprentices to complete.

When Covid hit, rather than reacting by subsidizing colleges and universities, Prime Minister Scott Morrison announced Australia would invest an additional \$900 million (USD) in 100,000 new apprenticeships.²¹ The ambition of Boosting Apprenticeships Commencement is impressive: the U.S. economy is about 15x larger, so Australia's initiative works out to about \$13.5 billion and 1.5 million apprenticeships. The funding goes directly to employers to subsidize 50% of the wages for new apprentices – up to \$21,000 annually – with no limit on number of apprentices per employer other than the 100,000 cap.

Australian employers responded smartly to the direct subsidy, which imposed strict training requirements and reporting thereon. The 100,000 goal was quickly oversubscribed (it's now about 140,000) and Australia subsequently removed the cap and invested an additional \$1.2 billion to extend the program to next year. But it wasn't just employers. The Australian government also made the subsidy available to GTOs. As the government noted, GTOs are "particularly helpful to small and medium sized businesses that find committing to an apprenticeship difficult, lack the resources to manage an apprentice, [or] are unable to provide the full on the job training required for an apprenticeship."

²¹ <https://www.pm.gov.au/media/100000-new-apprenticeship-positions-lead-covid-19-economic-recovery>