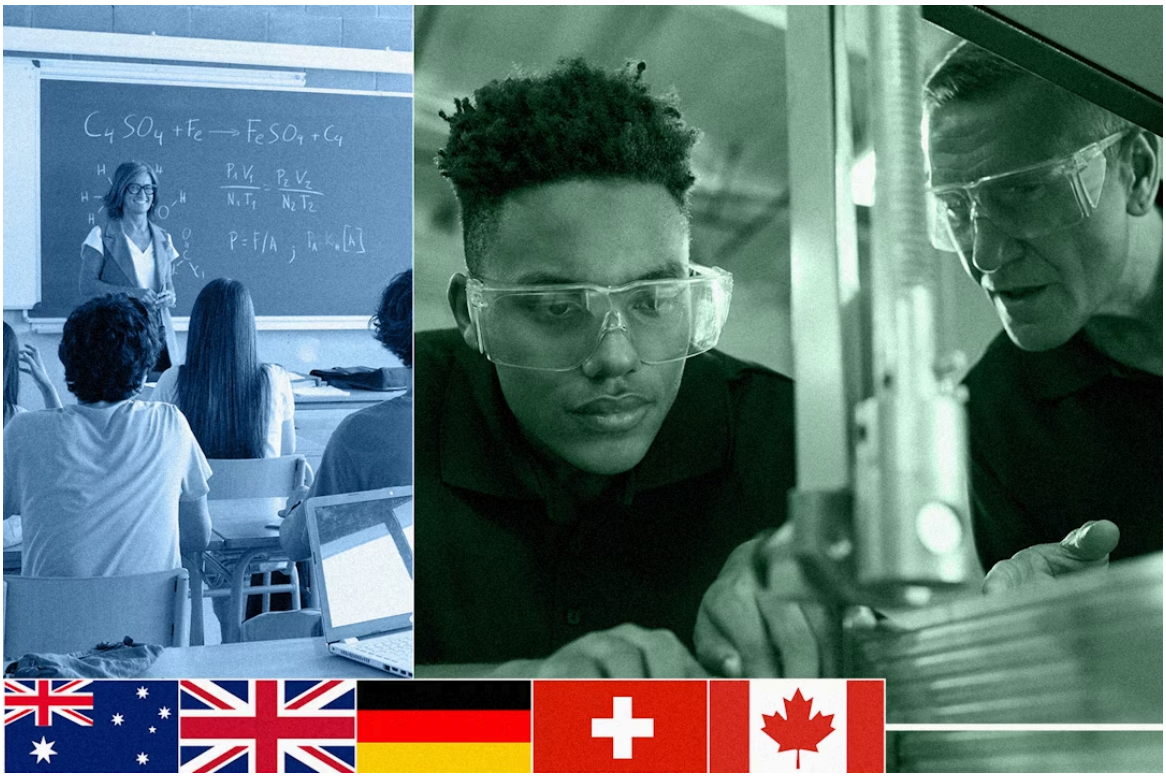
THIRD WAY

REPORT *Published October 30, 2025 • 24 minute read*

What Five Countries Can Teach America About Apprenticeships

Curran McSwigan & Frank Avery



Takeaways

- Apprenticeships have the potential to revolutionize training and economic opportunity in the United States, but high-quality models—and effective policy to support growth with quality—are not being utilized nearly enough in this country.
- Five international models—spanning the UK, Germany, Australia, Switzerland, and Canada—provide insights for US policymakers on how to scale apprenticeships.
- Countries that have scaled their systems show three common ingredients: technology-enabled tracking that links outcomes to policy, national standards that make credentials portable, and incentives that help both apprentices and businesses stay engaged.

Two out of every three workers in the United States doesn't have a college degree. [1] Now, policymakers are faced with a central question when thinking about the future of the American economy: how do we provide other high-quality training outside of a traditional four-year college degree?

Apprenticeships must be a key part of that answer. This earn-and-learn model where workers earn wages while getting technical and foundational instruction and on-the-job training, can provide a path to the middle class. And yet, apprenticeships are woefully lacking in this country.

In 2024, there were 680,000 Americans in registered apprenticeship programs which represents just 0.3% of the working-age population. [2] At the same time, the share of working-age adults in apprenticeship programs was over five times higher in Canada, seven times higher in Germany, and 11 times higher in Switzerland. [3] Despite nearly a century of history, American apprenticeships remain fragmented and disconnected. In other countries apprentices are integrated into educational and workforce systems. In America they are not. Plus, without national standards and incentives for quality, our apprenticeship oversight is spread across federal and state agencies leading to inconsistent quality and uneven outcomes. [4]

Bipartisan investments have fueled growth but not at the scale our economy demands. Business, education, and workforce partners must be integrated into a single system that delivers both scale and quality. But the United States doesn't need to start from scratch. International peers show us how different systems can expand apprenticeships, keeping employer and worker needs in focus. In this report, we examine five international models—spanning the UK, Germany, Australia,

Switzerland, and Canada—to see what works and why. We then distill our learnings into three key takeaways for policymakers looking to expand apprenticeships in America and make this critical training tool as ubiquitous as a four-year degree.

What Works: Five International Models

Australia

Australia's apprenticeship system combines paid on-the-job training with courses run by Registered Training Organizations (RTOs) that adhere to national and state educational standards. [5] The country utilizes a competency-based training model, meaning apprentices progress only once they demonstrate required skills, not on a fixed timeline. [6] Usually, apprenticeships last around three to four years, but some regions, like South Australia, are experimenting with pilot programs to accelerate training timelines. [7] A competency based approach allows for high-demand industries to institute programs geared toward earlier completion if apprentices can demonstrate proficiency in necessary skills. [8] Key aspects of the Australian model include: targeted approaches to addressing skills shortages, robust intermediaries, and strong safety net support.

Focus on Skills Shortages

The Australian government utilizes apprenticeships to tackle economy-wide skills shortages by making training programs easier to access and afford. To track these shortages, policymakers first put together a quarterly list of the occupations with the biggest workforce needs. [9] Jobs and Skills Councils (JSCs) then bring together employers, unions, and educators in order to better tackle skills shortages. [10] These councils conduct sector forecasting, identify system-wide barriers to success, and develop nationally recognized training pathways within their respective fields. [11] The formation of these industry councils allows sectoral experts to drive forward workforce responses to training needs, especially in growing industries like clean energy or digital technology. [12]

To ease labor force shortages, Australia also provides financial incentives to certain employers. Employers hiring apprentices in priority occupations receive a $5,000 incentive and, starting in 2025, weekly support for those hiring apprentices with disabilities will more than double. [13] Some regions have gone even further than national efforts by offering a payroll tax rebate to subsidize employers' cost to hire apprentices. [14]

Australia analyzed the impacts of employer incentive programs prior to implementing recent reforms. They found that well-structured incentives, which focus on a series of payments geared toward minimizing financial barriers, not only boosted employer engagement but also substantially improved retention rates among apprentices. [15]

Strong Intermediaries

Australia's apprenticeship model significantly invests in program sponsors, primarily through the utilization of Group Training Organizations (GTOs) and Jobs and Skills Councils (JSCs). GTOs employ

apprentices and place them with host employers, while JSCs are a group of non-profits representing perspectives from various industries across Australia.

GTOs pay apprenticeship benefits and salaries while placing apprentices at local companies. GTOs currently employ around 9% of all apprentices. [16] This model helps smaller businesses access apprentice talent without a high-level of administrative burden or the pressure of a longer-term commitment. GTOs also utilize a rotation system between host employers which broadens apprentices' exposure to varying parts of their chosen industry and expands their networking opportunities. [17] Completion rates for apprenticeships through GTOs are higher than those administered from direct employers, especially at small and medium sized employers. [18] To further incentivize uptake by small businesses, the Australian government recently implemented a GTO Reimbursement Program which subsidizes small businesses' fees to utilize the GTO's services. [19]

Beyond helping to address where skills shortages exist, JSCs act as strong apprenticeship intermediaries. They map pathways across educational sectors, develop training products, and act as a guide on how to address issues impacting their sector. [20] As part of their efforts, JSCs are continually evaluated on their ability to increase employment options, improve economic wellbeing for apprentices, and demonstrate a responsiveness to workforce challenges. [21]

Safety Net Supports

Australia's apprenticeship system includes significant investments in safety net supports by offsetting rising cost-of-living pressures, aligning programs with higher education pathways, and integrating parts of the training system.

GTOs provide substantive support to apprentices via job coaching and employment security, which seem to help drive up programs' completion rates. Beyond GTOs, Australia also provides direct financial incentives to apprentices, particularly those in priority occupations. Through the Australian Apprenticeship Training Support Payment (AASTP), the government provides up to $5,000 for eligible apprentices in an occupation deemed *high-priority*. [22] They also offer loans that are partially forgiven upon program completion to all apprentices in *priority* occupations to address day-to-day expenses. [23] The Australian government recently stated they will now pay housing construction industry apprentices $10,000 in incentives over the course of their apprenticeship as a means of alleviating cost-of-living pressures and boosting retention in a high-demand industry. [24]

Additionally, the broader Technical and Further Education (TAFE) system and its strong interconnection with higher education helps support apprentices throughout their career development. [25] The well-integrated system provides a comprehensive vocational education while also mapping clear pathways into further education. For example, it offers guaranteed entry pathways to universities for apprentices receiving a vocational education and training (VET) qualification. [26] Australia also has dual-sector universities, which offer both VET and higher education coursework, allowing for a more integrated learning experience. [27]

United Kingdom

In the UK apprenticeship system, employers play a central role in designing and funding programs. While an employer-driven model has certainly expanded opportunities in certain fields, ongoing challenges remain around the effectiveness of the system in reaching disadvantaged workers and smaller businesses. Key aspects of the UK model include: employer-led financing, expanded degree apprenticeships, and opportunities across diverse industries.

Employer-Led Financing via the Levy System

A cornerstone of the UK's apprenticeship system is its apprenticeship levy system which requires bigger employers (who have annual payrolls over £3 million) to contribute 0.5% of gross payroll to the nation-wide levy apprenticeship account. The government then provides a 10% top up in funds. [28] Contributing companies can then use money from this account to either to hire apprentices, train staff, or transfer dollars to smaller employers.

The "use it or lose it" rule of the levy is meant to incentivize training, but many organizations simply rebranded existing programs to reclaim funds, leading to fewer new apprenticeship starts than policymakers expected. [29] Recent reforms now allow up to half of levy funds to be spent on shorter training or upskilling initiatives, though this may further reduce the share of employer investments devoted to apprenticeships and raises questions about the quality controls on the subsidized training. [30]

Expansion of Degree Apprenticeships

Since their introduction nearly a decade ago, degree apprenticeships—which provide a work-based learning pathway to a higher education degree—account for a third of all apprenticeships across the UK. [31] This structure provides clear progression pathways across a variety of jobs and allows for alignment between the apprenticeship and higher education systems. [32]

Notably, many major employers see degree apprenticeships as a talent pipeline for white-collar roles that require advanced skills. JP Morgan offers several apprenticeships in software engineering and financial services that funnel into the workforce. [33] Health care is another sector where degree apprenticeships continue to be incredibly important, especially as the industry faces significant labor force shortages. [34]

However, the UK's experience with degree apprenticeships isn't a total success. First, administrative hurdles continue to deter companies. The Dyson Institute recently halted their incredibly successful apprenticeship partnership with the University of Exeter citing, in part, issues with the program's administrative burden. They instead chose to create their own in-house Master's in Engineering program outside the UK's apprenticeship system. [35] Additionally, degree apprenticeships disproportionately favor experienced workers looking to upskill and have not been as successful at lifting up economically disadvantaged populations. [36] Data from 2023 shows degree apprenticeship entrants were more likely to be white, male, and from advantaged areas than their higher education counterparts. [37] These findings swayed policymakers to restrict master's level apprenticeship

funding only for people under the age of 21. [38] While shifting the scales of funding towards younger workers is important, this could have significant negative impacts on labor supply in sectors that both require high levels of training and are already facing significant workforce shortages, like health care. [39]

Utilization Across a Variety of Sectors

Policymakers in the UK wanted to expand apprenticeships into high-demand industries like public administration, IT, and finance. In light of that, the UK invested in degree apprenticeships, tried to grow civil service apprenticeship numbers, and increased STEM apprenticeship funding. [40] Today, there are over 700 types of apprenticeship programs that span 15 different sectors. [41]

As part of these diversification efforts, the UK established "trailblazer groups," government supported collaborations between businesses and professional bodies to write apprenticeship standards across different occupations. [42] This shift puts employers in the driver's seat, ensuring that apprenticeship curriculum standards not only include rigorous training but are also reflective of industry needs. [43]

But the UK still faces its fair share of struggles in truly achieving strong utilization across industries. The apprenticeship levy is primarily weighted toward larger employers, which means sectors that contain a higher concentration of small businesses—like creative industries or those with larger freelance populations—are not engaging in apprenticeship development as much. [44] At the same time, the lengthy amount of time it takes to create these apprenticeship standards acts as an inhibitor to apprenticeship development or utilization in growing sectors like clean energy and cybersecurity. [45]

Germany

Germany's "dual system" combines vocational training and education making apprenticeships a respected and highly utilized pathway after high school. Industries set the training standards, while federal and local governments in partnership with unions ensure programs' quality and accessibility. [46] Key aspects of the German model include: heightened collaboration, business-led standards and portable credentials, and parity with higher education.

Collaborative Governance Between Unions, Government, and Employers

Germany's apprenticeship system is jointly run by trade unions, the federal government, and employer associations. [47] The goal of this three-party governance structure is to ensure the country can rapidly respond to economic needs, maintain strong educational offerings, and ensure workers' interests remain protected. [48] When occupational needs emerge, these three-party committees work to develop new apprenticeship standards together. This means any new curriculum receives input from union representatives, government experts, and industry professionals to ensure it aligns with workplace and worker needs. [49]

The success of this collaborative approach can be seen in the country's quick response to changing digital developments. The federal government and states allocated €5 billion in funding to equip vocational schools with digital infrastructure, launched a digital AI campus to create practical applications for apprenticeship training, and began issuing AI skills certificates in its apprenticeship programs. [50] All of this has allowed for rapid integration of AI into industry apprenticeships with both TRUMPF, a German manufacturing company, and BMW introducing their first "AI specialist" apprentices earlier this summer. [51]

Business-Led Standards and Portable Credentials

One of the defining characteristics of the German system is the delegation of quality-control monitoring and standard-setting to industry chambers (like chambers of commerce or industry associations in America). [52] Industry chambers in Germany create standardized occupational frameworks that ensure consistent quality across all apprenticeship programs. [53] This quality is maintained throughout apprentices' training, as they are required to pass examinations jointly designed by chambers and vocational schools in order to graduate. [54] Once workers enter the job market, they have highly portable, nationally recognized credentials that employers trust. Job titles in Germany are also legally standardized and aligned with apprenticeship certificates or degrees, further smoothing transition into the workforce. [55]

Additionally, entities training apprentices are held to rigorous standards. [56] This ensures consistency in the training provided across the 400,000 companies utilizing apprenticeships. [57]

Apprenticeships Integration and Parity with Higher Education

Germany utilizes a "dual system" approach to apprenticeships with private companies handling the "work" side and states the "learn" side via vocational schools. [58] These vocational schools employ a comprehensive training approach focused on providing technical teachings and general education offerings. [59] Around 70% of training occurs in the workplace and 30% at vocational schools. The impact of this dual system is evident in the German economy, with around half of all high school graduates entering the dual education track. [60]

The system provides strong outcomes with two-thirds of companies offering apprentices employment contracts upon completion of their program and around 90% of younger graduates being employed. [61] Additionally, apprenticeship graduates can expect to earn around $60,000 one year after completing the program and around $100,000 five years after graduation. [62]

There is also a high value placed on vocational education in Germany, with many Germans believing vocational training and university degrees provide a similar economic value. [63] Notably, vocational training is seen by workers as playing a crucial role in finding a good job. [64]

Switzerland

Around 70% of Swiss students choose to pursue vocational education over traditional university

paths—highlighting the system's strength. [65] The federal government, regional (cantonal) authorities, and industry leaders work together to manage the country's apprenticeships. [66] Key aspects of the Swiss model include: industry-driven training standards, economic self-sufficiency, and integrated educational pathways.

Industry-Driven Training Standards

The Swiss vocational and educational training system is anchored by industry associations that set nationally consistent training standards and ensure programs meet employer needs. Whereas some other countries rely on government-led apprenticeship programs, professional organizations create apprenticeship objectives and educational curriculum in Switzerland. To coordinate this process, professional associations run mandatory inter-company courses to guarantee broad skills across sectors and prevent any single firm from dominating training. [67] For example, the Swiss Banking Association's Center for Young Professionals provides foundational education for 90% of banking apprentices, while individual banks focus on specialized training. [68] This setup enables apprentices as young as 19 to take on complex tasks like client advising and risk assessments, roles often reserved for college graduates elsewhere. [69]

Economic Returns Keep Employers Engaged

A unique aspect of Switzerland's system is that, from day one, companies see apprentices as revenue generators rather than a cost to their bottom line. [70] This is because Swiss apprentices spend much more time on productive activities that contribute to company operations compared to a more traditional approach to training. [71] They assign revenue-generating tasks to apprentices to help offset training investments with significant payoff—Swiss firms generate about €3,400 net profit per apprentice annually. [72] This is very different from the experiences of other countries, where employers will typically experience an initial financial cost when it comes to taking on apprentices. [73] With Switzerland being a smaller country, many view the country's continued economic prosperity as reliant on the success of young talent. CEOs across Switzerland have emphasized the high value they place on vocational education and investing in skills. [74] The strong return on their investment further encourages businesses to expand apprenticeship programs and competitors to follow suit, thereby sustaining high participation rates even without ongoing government subsidization.

The Vocational Baccalaureate Innovation

Switzerland's apprenticeship system commands such high prestige in part because it focuses on allowing students to simultaneously pursue hands-on training and higher education, rather than making them choose. The Federal Vocational Baccalaureate (FVB), implemented in 1993, exemplifies this approach. [75] The FVB is an optional credential layered on top of a traditional apprenticeship. Apprentices can either take extra academic coursework while they train or spend an additional year in full-time study after finishing. Courses are standardized at the federal level, which guarantees their quality and ensures national recognition. [76] Apprentices are then able to access Switzerland's Universities of Applied Sciences, which offer bachelor's degrees closely tied to industry needs. With

roughly 15-20% of apprentices earning the FVB, it is evident many apprentices value the stackability such a credential provides. It allows for students to toggle back and forth between on-job-training and educational pursuits, cultivating a focus on life-long learning within the country. [77]

Canada

Like the United States, Canada operates a decentralized apprenticeship system where the federal government sets the standards, and regions exercise control over training delivery. Despite continuing to experience issues with program completion rates (less than 20% of apprentices complete their program within the designated timeframe), key aspects of the Canadian model include: national quality standards, flexibility for regions, and investment in diverse program representation. [78]

Common National Standards

Canada's Red Seal Program establishes common national standards for the trades sector and aims to support the mobility of skilled workers. Apprentices who complete Red Seal trade programs receive an endorsement that is recognized nationwide and allows them to work in any province or territory in Canada. [79] Apprentices registered in Red Seal trade programs have a higher probability of completing their certification than those who are not. [80]

To address concerns over apprenticeship mobility, provinces and territories have also implemented a series of protocols and agreements to create continuity when apprentices move. [81] This coordination means apprentices don't lose progress towards their training efforts due to their relocation. Making it easier for apprentices to gain credit for prior experience is shown to have significant impacts on completion rates. In Canada, apprentices who received credits for training or work experience before their apprenticeship were 13 percentage points more likely to receive their certificate than those who did not. [82]

Canada's struggles with completion rates may be because many apprenticeship credentials remain voluntary and requirements can vary by province. [83] This means that, in some regions to work in a specific trade or industry, an apprenticeship credential may not be required. [84] In Ontario, for example, development service workers can apprentice but don't need certification to work. Not surprisingly, the field sees nearly a 75% early exit rate, as many apprentices leave training once they find jobs without finishing. [85] Across Canada, around a third of those quitting apprenticeships still end up working in a related industry in the year after departing. [86] In other countries, like Germany, there are much stricter protocols on apprenticeships that focus on getting apprentices across the finish line to certification. [87]

Provincial Flexibility

Within Canada's system, the federal government acts as a coordinating authority but grants strong autonomy to provinces when it comes to program administration. [88] The federal government may

define national standards and delegate funding, but provinces and territories are free to tailor programs to local needs. [89]

Provincial autonomy allows for rapid, localized system reforms. In 2021, Ontario acted to simplify its system and boost employer participation by dissolving the Ontario College of Trades. In its place, the province established Skilled Trades Ontario, a new agency designed to be a single, "digital-first" destination for apprentices, journeypersons, and employers. They also created new grants for employer sponsors to boost lagging completion rates. [90] This provincial flexibility ensures that local stakeholder needs are met while overall federal workforce targets are maintained through consistent quality and standards.

Investments in Diversity

To diversify the apprenticeship workforce, Canadian policymakers are investing in increasing the share of underrepresented groups in training programs, including women and Indigenous peoples. This strategy recognizes that broader apprenticeship policy efforts may not be able to address deep-seated demographic barriers keeping these groups on the sidelines.

Pre-apprenticeship programs may be one way to help boost apprenticeship numbers for underrepresented populations, as they can create clear entry pathways and offer strong systems of support. For example, Trade Winds to Success is a pre-apprenticeship program in Alberta helping Indigenous people get high-quality pre-training in the trades. It serves the dual purpose of also helping Canada reach its goal of achieving nearly four million new homes by 2031. [91]

Additionally, policymakers have recognized increasing diversity in apprenticeships involves support for not only recruitment efforts, but retention as well. Despite women accounting for 4.8% of construction apprentice registrations, only 2% were completing their programs. [92] Instead of broadly expanding general funding as a way to hopefully increase completion rates, Canada specifically allocated $28.9 million for 15 projects designed to target 6,400 women in the 39 Red Seal trades that exhibited the lowest female participation rates. [93] One way these programs help is by addressing financial barriers. As one survey found, female Canadian apprentices cited financial supports as critically important in them finishing their programs. [94]

Building Quality: Three Key Takeaways for the United States

Apprenticeships expand only when they are transparent, trusted, and valuable to both workers and employers. Countries that have scaled their systems show three common ingredients: technology-enabled tracking that links outcomes to policy, national standards that make credentials portable, and incentives that help both apprentices and businesses stay engaged. Together, these levers create a system where more people start and finish apprenticeship programs and employers reap their benefits.

1. Standardize Efforts to Enable Portability

Apprenticeships only work when everyone can trust what a credential represents. Without clear standards, quality varies, skills don't transfer, and certificates lose value once workers change jobs. Creating occupational standards that incorporate employer feedback ensures that apprentices nationwide are mastering the same core set of skills needed for good jobs. Other countries are utilizing shared standards to make apprenticeships more attractive to employers, raising the quality of training and providing workers with portable credentials.

Germany: Industry-backed training as the gold-standard. Germany sets the bar with national training regulations that spell out the skills apprentices must master, how classroom and jobsite learning should align, and what benchmarks mark success. These standards are co-written by governments, employers, and unions. [95] This means a certificate in Germany guarantees the same skills nationwide, earning trust from both employers and workers. When industry helps set consistent national standards, apprenticeships gain credibility and can scale.

Canada: Red Seal for skills that travel. Canada's Red Seal Program creates consistency across provinces by setting national standards and exams for more than 50 trades. Apprentices who pass their exam earn a Red Seal endorsement which guarantees their skills are recognized anywhere in the country. Even in Canada's more decentralized system, a national benchmark provides portability for workers and boosts employer trust in credentials. The Red Seal model points to a path where the United States establishes national floors for certain industries while leaving states flexibility in delivery.

Switzerland: Shared governance means strong adaptability. Switzerland regulates more than 240 professions through Vocational Education and Training (VET) ordinances that define what apprentices learn and how training is assessed. [96] These ordinances are drafted by industry groups, then approved by the federal government and regional governments. They are also reviewed every five years to keep up with changing employer needs. Through this collaborative approach to apprenticeship standard setting Switzerland allows for training to remain economically relevant and reflective of changing economic trends.

2. Target Your Incentive Structures

Countries often use financial or structural incentives to boost employer and apprentice participation. These efforts can also target apprenticeship growth in sectors of the economy that most need it, helping to match workers in need of jobs with employers in search of well-trained workers. Yet, effective incentive structures must also consider other barriers in the system that may reduce the effectiveness of certain initiatives. For example, support for larger employers doesn't do much to help smaller employers without a targeted policy to encourage the sharing of funds.

Below we highlight how countries are effectively using incentive structures and where they are falling short.

Australia: Payments to keep apprentices on track. Australia uses wage subsidies and completion bonuses as a tool to ensure apprentices actually complete their training. Some regions have also focused on providing bonuses to employers in high-demand industries, like construction, when their apprentices reach certain milestones in training. This can help incentivize employers to ensure apprentices are getting what they need at all stages to achieve qualifications in their chosen field. [97] While the Australian Government recently modified the incentive structure for apprenticeships, historically Additional Identified Skills Shortage (AISS) payments provided stipends to offset training costs for eligible apprentices in priority occupations. Recipients of the AISS payments were 3.6 times as likely to complete their programs as non-recipients. [98] Policymakers were motivated to implement reforms as a way of providing additional support for apprentices and employers to even further improve retention and completion rates. [99]

United Kingdom: Investments help, but red tape hurts. The UK's levy fund both requires larger employers to fund apprenticeships while giving federal dollars to maximize reach. After the levy's introduction, achievement rates for apprenticeships rose to 60.5% in 2023-24, and retention improved nearly six points. [100] Yet, the system is still falling short. Apprenticeship starts at small and medium-sized firms dropped by half, and just 4% of levy-paying employers currently use their full funds. [101] Employers cite red tape, long courses, and time burdens as key barriers. [102] While financial carrots may serve to improve outcomes for those already in the system, structural barriers can keep smaller and newer businesses on the sidelines.

Canada: Access gains but retention pains. Canada's apprenticeship system utilizes federal grants for apprentices, tax credits for employers, and provincial training programs to make "earn-and-learn" pathways more affordable for workers and attractive to employers. Evaluations show these incentives work: apprentices who receive grants are more likely to finish their programs and earn higher wages after completion. [103] Plus, targeted supports for women have modestly improved their entry into male-dominated trades. [104] The system is showing some recovery when it comes to retention—new apprenticeship registrations grew 8% in 2023, and certifications rose 3% over the same period. [105] But completion remains a stubborn challenge: only about one-in-five apprentices finish on time, and just over a third complete even when given twice the expected duration. While financial incentives help more people get in the door and improve equity issues like program length, employer support, and training, flexibility must also be addressed to close the gap between starts and completions. Stacked incentives can drive access, but it must be paired with reforms that make finishing a program easier. These efforts also must not jeopardize the quality of standards throughout the training to ensure apprentices are well-prepared for their chosen fields.

3. Dramatically Increase Technology-Enabled Tracking

In order to scale apprenticeships in the United States, policymakers need to have a clear picture of what is working and what is not. They need to know if apprentices finish, where they get jobs and how much they earn, whether employers are satisfied, and whether the public is getting a return on its investment. Right now, that information is fragmented and incomplete.

Other countries provide a roadmap for how to tackle this problem. By building technology-enabled tracking systems that link enrollment, completion, and labor market outcomes, they have made apprenticeships transparent, trusted, and easier to navigate.

Australia: A single front door for apprenticeships. Australia's *Apprenticeship Data Management System* is a one-stop digital shop for both employers and apprentices to manage their apprenticeships, apply for incentives, and track their progress. [106] Every learner is tied to a Unique Student Identifier, which provides a permanent training record. [107] This reduces the administrative burden placed on apprentices and employers to navigate several different systems. A centralized digital platform also gives policymakers a clearer view on what is working and what is not.

Canada: Tracking outcomes not just enrollments. Canada not only tracks apprenticeship participation through their Registered Apprenticeship Information System, but they also tie those records to wages and employment outcomes via the Education and Labor Market Longitudinal Platform. [108] This lets policymakers see the impact of apprenticeships in leading to good jobs and which incentives have the biggest payoffs. [109] The integration of labor market data with employment outcomes helps move forward evidence-based federal funding by highlighting which programs are delivering the strongest returns.

TOPICS

ALL TOPICS | WORKFORCE & TRAINING 131 | 21ST CENTURY JOBS 76 | POVERTY/MOBILITY 39

ENDNOTES

1. Colavito, Anthony et al. “Worlds Apart: The Non-College Economy.” *Third Way*, 19 May 2023, https://www.thirdway.org/report/worlds-apart-the-non-college-economy. Accessed 16 Oct. 2025.

2. Author’s calculations based on “Registered Apprenticeship: Federal Role and Recent Federal Efforts.” Congress.gov, *Library of Congress*, CRS Report R45171, 7 Feb. 2025, https://www.congress.gov/crs-product/R45171. Accessed 6 Oct. 2025; And Working Age Population: Aged 15-64: All Persons for United States.” Federal Reserve Economic Data, FRED, Federal Reserve Bank of St. Louis, https://fred.stlouisfed.org/series/LFWA64TTUSM647S/. Accessed 6 Oct. 2025; And; Curran McSwigan. “America’s Apprenticeship Gap in Two Charts.” *Third Way,* 4 Jan. 2024, https://www.thirdway.org/memo/americas-apprenticeship-gap-in-two-charts. Accessed 6 Oct. 2025.

3. Author’s calculations based on the share of apprentices divided by the working age (15 to 64) populations of Switzerland, Canada, and Germany. Apprentice numbers are sourced directly from the country’s government websites. Working age populations are sourced from Federal Reserve Economic Data, FRED, Federal Reserve Bank of St. Louis, 2024, https://fred.stlouisfed.org/. Accessed 6 Oct. 2025. Further details can be provided upon request. And; Curran McSwigan. “America’s Apprenticeship Gap in Two Charts.” *Third Way,* 4 Jan. 2024, https://www.thirdway.org/memo/americas-apprenticeship-gap-in-two-charts. Accessed 6 Oct. 2025.

4. Goger, Annelies, and Chenoah Sinclair. “Apprenticeships Are an Overlooked Solution for Creating More Access to Quality Jobs.” *Brookings Institution*, 27 Jan. 2021, https://www.brookings.edu/articles/apprenticeships-are-an-overlooked-solution-for-creating-more-access-to-quality-jobs/. Accessed 16 Oct. 2025.

5. “What Is an RTO?” Australian Skills Quality Authority, https://www.asqa.gov.au/rtos/what-is-an-rto. Accessed 16 Oct. 2025.

6. “Vocational Training in Australia.” *Australian Council of Trade Unions*, 30 Nov. 1993, https://www.actu.org.au/media-release/vocational-training-in-australia. Accessed on 16 Oct. 2025.

7. "Complete an Apprenticeship or Traineeship." *NSW Government*, https://www.nsw.gov.au/education-and-training/apprentices-and-trainees/employers/completing-qualification. Accessed 16 Oct. 2025. And; "New accelerated apprenticeships to help build homes faster." *Premier of South Australia*, https://www.premier.sa.gov.au/media-releases/news-archive/new-accelerated-apprenticeships-to-help-build-homes-faster, Accessed 16 Oct. 2025.

8. "I want to complete my training early." *Education NSW*, FAQs page, https://education.nsw.gov.au/skills-nsw/apprentices-and-trainees/support-with-your-apprenticeship-or-traineeship/self-help-section/i-want-to-complete-training-early. Accessed 16 Oct. 2025.

9. "Benefiting from the apprenticeship priority list in 2025." *Victorian Chamber of Commerce and Industry*, 22 Jan. 2025, http://www.victorianchamber.com.au/news/benefiting-from-the-apprenticeship-priority-list-in-2025. Accessed 16 Oct. 2025.

10. "Jobs and Skills Councils explained." *Manufacturing Industry Skills Alliance*, 14 June 2023, https://manufacturingalliance.org.au/jobs-and-skills-councils-explained. Accessed 16 Oct. 2025.

11. "Jobs and Skills Councils explained." *Manufacturing Industry Skills Alliance*, 14 June 2023, https://manufacturingalliance.org.au/jobs-and-skills-councils-explained. Accessed 16 Oct. 2025.

12. "Jobs and Skills Councils." *Department of Employment and Workplace Relations,* Australian Government, https://www.dewr.gov.au/skills-reform/jobs-and-skills-councils. Accessed 16 Oct. 2025.

13. "Incentives and funding." *Apprenticeship Support Australia*, 2025, https://www.apprenticeshipsupport.com.au/employers/getting-started/incentives-and-funding. Accessed 16 Oct. 2025. And; "Important Changes to Apprenticeship Incentives from 1 July 2025." *Apprenticeship Support Australia*, 1 Jul. 2025, https://www.apprenticeshipsupport.com.au/about/who-we-are/news-and-events/important-changes-to-apprenticeship-incentives-from-1-july-2025. Accessed 16 Oct. 2025.

14. "Incentives Explorer." *Australian Apprenticeships*, Australian Government, https://www.apprenticeships.gov.au/support-and-resources/incentives-explorer. Accessed 16 Oct. 2025.

15. "Strategic Review of the Australian Apprenticeship Incentive System – What We Heard." *Department of Employment and Workplace Relations*, Australia Government, 24 Jan. 2025 https://www.dewr.gov.au/australian-apprenticeships/resources/strategic-review-australian-apprenticeship-incentive-system-what-we-heard. Accessed 16 Oct. 2025.

16. O'Dwyer, Lisa and Patrick Corbel. "Completion rates for group training organisations and direct employers: how do they compare?" *National Centre for Vocational Education Research (NCVER)*, 2019, https://www.ncver.edu.au/__data/assets/pdf_file/0026/7456220/Completion-rates-for-group-training-organisations.pdf. Accessed 16 Oct. 2025.

17. "What Is a Group Training Organisation?" *MBA Apprenticeship Australia*, https://www.mbaapprenticeship.com.au/resource/what-is-a-group-training-organisation/. Accessed 16 Oct. 2025.

18. O'Dwyer, Lisa and Patrick Corbel. "Completion rates for group training organisations and direct employers: how do they compare?" *National Centre for Vocational Education Research (NCVER)*, 2019, https://www.ncver.edu.au/__data/assets/pdf_file/0026/7456220/Completion-rates-for-group-training-organisations.pdf. Accessed 16 Oct. 2025. And; "National Apprentice Employment Network: 2022-23 Pre-Budget Submission." *National Apprentice Employment Network*, Jan. 2022, https://treasury.gov.au/sites/default/files/2022-03/258735_national_apprentice_employment_network.pdf. Accessed 16 Oc. 2025.

19. "GTO Reimbursement Program FAQs." *Department of Employment and Workplace Relations*, Australia Government, 14 Feb. 2025, https://www.dewr.gov.au/download/16758/gto-reimbursement-program-faqs/39605/gto-reimbursement-program-faqs/pdf. Accessed 14 Feb. 2025.

20. "Jobs and Skills Councils Program Guidelines." *Department of Employment and Workplace Relations*, Australia Government, Last updated 28 Mar. 2023, https://www.dewr.gov.au/download/15433/jobs-and-skills-councils-program-guidelines/33363/jobs-and-skills-councils-program-guidelines/pdf. Accessed 16 Oct. 2025.

21. "Jobs and Skills Councils Program Guidelines." *Department of Employment and Workplace Relations*, Australia Government, Last updated 28 Mar. 2023, https://www.dewr.gov.au/download/15433/jobs-and-skills-councils-program-guidelines/33363/jobs-and-skills-councils-program-guidelines/pdf. Accessed 16 Oct. 2025.

22. "Incentives and funding." *Apprenticeship Support Australia*, https://www.apprenticeshipsupport.com.au/employers/getting-started/incentives-and-funding. Accessed 16 Oct. 2025.

23. "Australian Apprenticeships Incentive System Factsheet." *Department of Employment and Workplace Relations*, Australian Government, 1 Jul. 2025, https://www.dewr.gov.au/download/13748/australian-apprenticeships-incentive-system-factsheet/40471/australian-apprenticeships-incentive-system-factsheet/pdf. Accessed 16 Oct. 2025.

24. The Hon. Andrew Giles MP, "$10K incentives for new apprentice housing tradies kicks off." *Australian Labor Party*, 30 Jun. 2025, https://alp.org.au/news/10k-incentives-for-new-apprentice-housing-tradies-kicks-off/. Accessed 16 Oct. 2025.

25. "What is Technical and Further Education in Australia?" *educations.com*, 17 Jun. 2025, https://www.educations.com/articles-and-advice/academic-courses/what-is-technical-and-further-education-in-australia. Accessed 16 Oct. 2025.

26. "Vocational Degree – a new degree-level qualification type for VET." *Department of Employment and Workplace Relations*, 3 Mar. 2025, https://www.dewr.gov.au/skills-and-training/announcements/vocational-degree-new-degreelevel-qualification-type-vet. Accessed 16 Oct. 2025.

27. "The best of both worlds? Integrating VET and higher education." *National Centre for Vocational Education Research (NCVER)*, 25 Nov. 2021, https://www.ncver.edu.au/research-and-statistics/publications/all-publications/the-best-of-both-worlds-integrating-vet-and-higher-education. Accessed 16 Oct. 2025.

28. Patrignani, Pietro, Gavan Conlon, Andy Dickerson, and Steve McIntosh. "The Impact of the Apprenticeship Levy on Apprenticeships and Other Training Outcomes." *CVER Research Paper* 034, Centre for Vocational Education Research (LSE), 14 Apr. 2021, https://cver.lse.ac.uk/_new/publications/abstract/?index=7900. Accessed 16 Oct. 2025.

29. "New research highlights need to 'reclaim' apprenticeships for young people and for skills levy to boost training across the economy." *Youth Futures Foundation*, 20 May 2024, https://youthfuturesfoundation.org/news/new-research-highlights-need-to-reclaim-apprenticeships-for-young-people-and-for-skills-levy-to-boost-training-across-the-economy/. Accessed 16 Oct. 2025.

30. Farquharson, Christine, Luke Sibieta, and Imran Tahir. “Labour’s ‘Growth and Skills’ Levy Would Give More Flexibility to Firms – But Employers Would Still Need to Get on Board.” *Institute for Fiscal Studies*, 1 Jun. 2024, https://ifs.org.uk/articles/labours-growth-and-skills-levy-would-give-more-flexibility-firms-employers-would-still. Accessed 16 Oct. 2025.

31. Patel, Josh. “Degree Apprenticeships in England: What Can We Learn from the Experiences of Apprentices, Employers and Education and Training Providers?” *Higher Education Policy Institute*, 30 Jan. 2025, https://www.hepi.ac.uk/2025/01/30/degree-apprenticeships-in-england-what-can-we-learn-from-the-experiences-of-apprentices-employers-and-education-and-training-providers/. Accessed 16 Oct. 2025.

32. “How are apprenticeships funded and what is the apprenticeship levy?” *Education Hub*, 7 Aug. 2025, https://educationhub.blog.gov.uk/2025/08/how-are-apprenticeships-funded-and-what-is-the-apprenticeship-levy/. Accessed 16 Oct. 2025.

33. “Programs.” *JPMorgan Chase*, https://www.jpmorganchase.com/careers/explore-opportunities/programs. Accessed 16 Oct. 2025.

34. “How can you become a medical doctor via an apprenticeship / “Medical Doctor Degree Apprenticeship.” *NHS England*, https://www.hee.nhs.uk/our-work/talent-care-widening-participation/apprenticeships/medical-doctor-degree-apprenticeship. Accessed 16 Oct. 2025.

35. Rogers, Tom. “Dyson Scraps Outstanding Degree Apprenticeships.” *LinkedIn*, 26 Nov. 2023, https://www.linkedin.com/pulse/dyson-scraps-outstanding-degree-apprenticeships-tom-rogers-y9kme/. Accessed 16 Oct. 2025.

36. “Apprenticeships and social mobility.” *GOV.UK*, Social Mobility Commission, 6 Jan. 2022, https://www.gov.uk/government/news/apprenticeships-and-social-mobility, Accessed 20 Oct. 2025.

37. Bolton, Paul, and Joe Lewis. “Degree Apprenticeships.” *House of Commons Library Research Briefing*, 8 May 2024, https://researchbriefings.files.parliament.uk/documents/CBP-8741/CBP-8741.pdf. Accessed 16 Oct. 2025.

38. Jeffreys, Branwen. "Apprenticeships and social mobility." *BBC News*, 27 Apr. 2025, https://www.bbc.com/news/articles/c9vgd8zmpe3o. Accessed 16 Oct. 2025.

39. “Skills crisis to worsen unless government backs universities to deliver high-level apprenticeships, think tank warns.” *Social Market Foundation*, 17 Jul. 2025, https://www.smf.co.uk/skills-crisis-to-worsen-unless-government-backs-universities-to-deliver-high-level-apprenticeships-think-tank-warns/. Accessed 16 Oct. 2025.

40. “Millions invested in degree apprenticeships.” *GOV.UK*, Department of Education and The Rt Hon Robert Halfon, 10 Nov. 2016, https://www.gov.uk/government/news/millions-invested-in-degree-apprenticeships. Accessed 16 Oct. 2025. And; “Civil Service Apprenticeships Strategy 2022 to 2025.” *GOV.UK*, 28 Apr. 2022, https://www.gov.uk/government/publications/civil-service-apprenticeships-strategy-2022-to-2025/civil-service-apprenticeships-strategy-2022-to-2025. Accessed 16 Oct. 2025. And; “Supporting apprenticeships.” *GOV.UK*, Department for Education and The Rt Hon Justine Greening, 18 Apr. 2017, https://www.gov.uk/government/speeches/supporting-apprenticeships. Accessed 16 Oct. 2025.

41. “Find training and employment schemes for your business – Apprenticeships.” *GOV.UK*, https://find-employer-schemes.education.gov.uk/schemes/apprenticeships. Accessed 16 Oct. 2025.

42. “Group of Persons (Trailblazer groups).” *GOV.UK*, Skills England, 2 Jun. 2025, https://www.gov.uk/guidance/group-of-persons-trailblazer-groups. Accessed 16 Oct. 2025.

43. “Industry Updates: Leading the Way Through Trailblazer Groups.” *Accelerate People*, 7 Aug. 2025, https://www.accelerate-people.co.uk/post/industry-updates-leading-the-way-through-trailblazer-groups. Accessed 16 Oct. 2025.

44. Wolf, Professor Baroness Alice. “New Growth and Skills Levy: Design.” *Social Market Foundation*, 17 Jan. 2025, https://www.smf.co.uk/publications/new-growth-and-skills-levy-design/. Accessed 16 Oct. 2025. And; “PM pressed to address ‘inflexible’ levy to boost creative industry apprenticeships.” *Communications and Digital Committee, UK Parliament*, 5 Oct. 2020, https://committees.parliament.uk/committee/170/communications-and-digital-committee/news/119797/pm-pressed-to-address-inflexible-levy-to-boost-creative-industry-apprenticeships/. Accessed 16 Oct. 2025.

45. "Institute for Apprenticeships and Technical Education (Transfer of Functions etc) Bill [HL]." *Hansard – House of Lords*, 22 Oct. 2024, https://hansard.parliament.uk/lords/2024-10-22/debates/BE4E20F5-6A33-4EF6-A26B-06BDA5F83AA7/InstituteForApprenticeshipsAndTechnicalEducation%28TransferOfFunctionsEtc%29Bill%28HL%29. Accessed 16 Oct. 2025. And; "Using the apprenticeship levy is easier than you think." *Institute for Student Employers*, 6 Feb. 2024, https://ise.org.uk/knowledge/insights/135/using_the_apprenticeship_levy_is_easier_than_you_think. Accessed 16 Oct. 2025.

46. Liu, Amy. "Importing the German Approach to Career Building." *Brookings Institution*, 1 Dec. 2014, https://www.brookings.edu/articles/importing-the-german-approach-to-career-building/. Accessed 16 Oct. 2025.

47. Elliott, Diana, and Miriam Farnbauer. "Bridging German and US Apprenticeship Models: The Role of Intermediaries." *Urban Institute*, Aug. 2021, https://www.urban.org/sites/default/files/publication/104677/bridging-german-and-us-apprenticeship-models.pdf. Accessed 16 Oct. 2025.

48. Haasler, Simone R. "The German system of vocational education and training: challenges of gender, academisation and the integration of low-achieving youth." *Transfer: European Review of Labour and Research*, vol. 26, no. 1, Feb. 2020, pp. 57-71, https://journals.sagepub.com/doi/10.1177/1024258919898115. Accessed 16 Oct. 2025.

49. "Vocational education and training in Europe: Germany." *Cedefop*, Apr. 2019, https://www.cedefop.europa.eu/en/tools/vet-in-europe/systems/germany-2019. Accessed 16 Oct. 2025.

50. Brady, Kate. "German education minister unveils €5 billion digital pact for 40,000 schools." *DW*, 24 Jul. 2016, https://www.dw.com/en/german-education-minister-unveils-5-billion-euro-digital-pact-for-40000-schools/a-36023544. Accessed 16 Oct. 2025. And; "Germany: AI emerging as key VET competence." *Cedefop*, 25 Jul. 2025, https://www.cedefop.europa.eu/en/news/germany-ai-emerging-key-vet-competence. Accessed 16 Oct. 2025.

51. "Start of apprenticeship program across Germany: TRUMPF is training AI professionals for the first time." *TRUMPF SE Co. KG*, 29 Aug. 2025, https://www.trumpf.com/en_INT/newsroom/global-press-releases/press-release-detail-page/release/start-of-apprenticeship-program-across-germany-trumpf-is-training-ai-professionals-for-the-first-time-9582. Accessed 16 Oct. 2025. And; "Study Artificial Intelligence (Dual Studies B.Sc.)." *BMW Group Careers*, https://www.bmwgroup.jobs/de/en/pupils/dual-studies/artificial-intelligence.html. Accessed 16 Oct. 2025.

52. Liu, Amy. "Importing the German Approach to Career Building." *Brookings Institution*, 1 Dec. 2014, https://www.brookings.edu/articles/importing-the-german-approach-to-career-building/. Accessed 16 Oct. 2025.

53. "What is the BIBB's role?" *Federal Institute for Vocational Education and Training (BIBB)*, Last updated 10 Sep. 2025, https://www.bibb.de/en/146982.php. Accessed 16 Oct. 2025.

54. Oh, Patrick. "The German Apprenticeship Model: A Paradigm of Sustainable Vocational Education." *Medium*, 24 Mar. 2025, https://medium.com/@patrick-oh-sglion65/the-german-apprenticeship-model-a-paradigm-of-sustainable-vocational-education-a91ae0c20e06. Accessed 16 Oct. 2025.

55. "What is the BIBB's role?" *Federal Institute for Vocational Education and Training (BIBB)*, Last updated 10 Sep. 2025, https://www.bibb.de/en/146982.php. Accessed 16 Oct. 2025.

56. "What is the BIBB's role?" *Federal Institute for Vocational Education and Training (BIBB)*, Last updated 10 Sep. 2025, https://www.bibb.de/en/146982.php. Accessed 16 Oct. 2025.

57. "What is the BIBB's role?" *Federal Institute for Vocational Education and Training (BIBB)*, Last updated 10 Sep. 2025, https://www.bibb.de/en/146982.php. Accessed 16 Oct. 2025.

58. "Germany's apprenticeship model: a driver of workforce and economic strength." *Germany Missions in the United States,* https://www.germany.info/us-en/welcome/wirtschaft/03-wirtschaft/1048296-1048296. Accessed 16 Oct. 2025.

59. Elliott, Diana, and Miriam Farnbauer. "Bridging German and US Apprenticeship Models: The Role of Intermediaries." *Urban Institute*, Aug. 2021, https://www.urban.org/sites/default/files/publication/104677/bridging-german-and-us-apprenticeship-models.pdf. Accessed 16 Oct. 2025.

60. Kamm Bryan and Robert Lerman. “Skills Initiative: Expanding Apprenticeship in the U.S.—Lessons from the German Dual Education System.” *Germany.info*, German Embassy & German Missions in the U.S., https://www.germany.info/resource/blob/649542/35e0d1e2c95155704105b9013dd279bb/skills-whitepaper-data.pdf. Accessed 16 Oct. 2025.

61. “German dual apprenticeship system.” *Expatrio*, 1 Jul. 2024, https://www.expatrio.com/about-germany/german-dual-apprenticeship-system. Accessed 16 Oct.2025.

62. Moser, Harry, and Peter R. Niebyl. “German-Model Apprenticeships Are Key to US Reshoring.” *IndustryWeek*, 19 Jul. 2024, https://www.industryweek.com/talent/education-training/article/55127256/german-model-apprenticeships-are-key-to-us-reshoring. Accessed 16 Oct. 2025.

63. “Germany – VET attractiveness among higher education students.” *Cedefop*, 30 Jun. 2016, https://www.cedefop.europa.eu/en/news/germany-vet-attractiveness-among-higher-education-students. Accessed 16 Oct. 2025.

64. Pilz, Matthias, et al. “Learning for Life and/or Work: The Status Quo of Pre-Vocational Education in India, China, Germany and the USA.” *Research in Comparative and International Education*, vol. 11, no. 2, Mar. 2016, pp. 117–34, https://journals.sagepub.com/doi/10.1177/1745499916637173. Accessed 16 Oct. 2025.

65. Elliott, Diana and Batia Katz. “Three Lessons from the Swiss Apprenticeship Model to Inform Our Post-COVID-19 Recovery.” *Urban Institute,* Urban Wire, 20 Jul. 2020 https://www.urban.org/urban-wire/three-lessons-swiss-apprenticeship-model-inform-our-post-covid-19-recovery. Accessed 16 Oct. 2025.

66. “Organisation of vocational upper secondary education – Switzerland.” *Eurydice*, Last updated on 27 Nov. 2023, https://eurydice.eacea.ec.europa.eu/eurypedia/switzerland/organisation-vocational-upper-secondary-education. Accessed 16 Oct. 2025.

67. Graf, Lukas. “The Swiss Apprenticeship System.” *American German Institute*, 10 Sep. 2014, https://americangerman.institute/publication/the-swiss-apprenticeship-system/. Accessed 16 Oct. 2025.

68. Hoffman, Nancy. “The Secret Glue in the Swiss Apprenticeship System.” *Jobs for the Future*, 29 May 2018, https://www.jff.org/secret-glue-swiss-apprenticeship-system/. Accessed 16 Oct. 2025.

69. Hoffman, Nancy. "The Secret Glue in the Swiss Apprenticeship System." *Jobs for the Future*, 29 May 2018, https://www.jff.org/secret-glue-swiss-apprenticeship-system/. Accessed 16 Oct. 2025.

70. Moretti, Luca, et al. "So Similar and Yet So Different: A Comparative Analysis of A Firm's Cost and Benefits of Apprenticeship Training in Austria and Switzerland." *IZA Discussion Papers No. 11081*, Institute for Labor Economics (IZA), Oct. 2017, https://www.iza.org/publications/dp/11081/so-similar-and-yet-so-different-a-comparative-analysis-of-a-firms-cost-and-benefits-of-apprenticeship-training-in-austria-and-switzerland. Accessed 16 Oct. 2025.

71. Lerman, Robert. "Do firms benefit from apprenticeship investments?" *IZA World of Labor*, no. 55, May 2014, https://wol.iza.org/articles/do-firms-benefit-from-apprenticeship-investments/long. Accessed 16 Oct. 2025.

72. Moretti, Luca, et al. "So Similar and Yet So Different: A Comparative Analysis of A Firm's Cost and Benefits of Apprenticeship Training in Austria and Switzerland." *IZA Discussion Papers No. 11081*, Institute for Labor Economics (IZA), Oct. 2017, https://www.iza.org/publications/dp/11081/so-similar-and-yet-so-different-a-comparative-analysis-of-a-firms-cost-and-benefits-of-apprenticeship-training-in-austria-and-switzerland. Accessed 16 Oct. 2025.

73. Lerman, Robert. "Do firms benefit from apprenticeship investments?" *IZA World of Labor*, no. 55, May 2014, https://wol.iza.org/articles/do-firms-benefit-from-apprenticeship-investments/long. Accessed 16 Oct. 2025.

74. Hoffman, Nancy and Robert Schwartz. "Gold Standard: The Swiss Vocational Education and Training System." *National Center on Education and the Economy,* The Center on International Education Benchmarking, Mar. 2015 https://www.ey.com/content/dam/ey-unified-site/ey-com/en-us/campaigns/innovation/documents/ey-gold-standard-swiss-apprenticeship.pdf. Accessed 16 Oct. 2025.

75. "Vocational education and training." *About Switzerland*, 21 Aug. 2024, https://www.aboutswitzerland.eda.admin.ch/en/vocational-education-and-training. Accessed 16 Oct. 2025.

76. "Vocational education and training." *About Switzerland*, 21 Aug. 2024, https://www.aboutswitzerland.eda.admin.ch/en/vocational-education-and-training. Accessed 16 Oct. 2025.

77. Hänni, Miriam, Irene Kriesi and Jörg Neumann. "Entry into and Completion of Vocational Baccalaureate School in Switzerland: Do Differences in Regional Admission Regulations Matter?" *Education Sciences*, vol. 12, no. 3, 8 Mar. 2022,https://www.mdpi.com/2227-7102/12/3/188. Accessed 16 Oct. 2025.

78. "Pathways indicators for registered apprentices in Canada, 2022." *Statistics Canada — The Daily*, 14 Jun. 2024, https://www150.statcan.gc.ca/n1/daily-quotidien/240614/dq240614c-eng.htm. Accessed 16 Oct. 2025.

79. Jin, Hyeongsuk, et al. "Factors associated with the completion of apprenticeship training in Canada." *Insights on Canadian Society*, Statistics Canada, 9 Dec. 2020, https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00008-eng.htm. Accessed 16 Oct. 2025.

80. Jin, Hyeongsuk, et al. "Factors associated with the completion of apprenticeship training in Canada." *Insights on Canadian Society*, Statistics Canada, 9 Dec. 2020, https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00008-eng.htm. Accessed 16 Oct. 2025.

81. "Apprentice Mobility." *SkilledTradesBC*, https://skilledtradesbc.ca/apprentice-mobility. Accessed 16 Oct. 2025.

82. Jin, Hyeongsuk, et al. "Factors associated with the completion of apprenticeship training in Canada." *Insights on Canadian Society*, Statistics Canada, 9 Dec. 2020, https://www150.statcan.gc.ca/n1/pub/75-006-x/2020001/article/00008-eng.htm. Accessed 16 Oct. 2025.

83. Laporte, Christine, and Richard E. Mueller. "The Completion Behaviour of Registered Apprentices in Canada: Who Continues, Who Quits, and Who Completes Programs?" *Empirical Research in Vocational Education and Training*, vol. 5, Article no. 1, July 2013, https://ervet-journal.springeropen.com/articles/10.1186/1877-6345-5-1?. Accessed 16 Oct. 2025. And; Lerman, Robert I. "Expanding Apprenticeship Training in Canada: Perspectives from International Experience." *Urban Institute*, Apr. 2014, https://www.urban.org/sites/default/files/publication/22091/413116%20-%20Expanding-Apprenticeship-Training-In-Canada-Perspectives-From-International-Experience.pdf. Accessed 16 Oct. 2025.

84. "Registered Apprentices: The Cohort of 1993, a Decade Later, Comparisons with the 1992 Cohort." *Statistics Canada*, 17 Aug. 2011, https://www150.statcan.gc.ca/n1/pub/81-595-m/2008063/s4-eng.htm. Accessed 16 Oct. 2025.

85. Brown, Justin, et al. “Discontinuers of Apprenticeship Programs: An Analysis on the Impact of Discontinuation on the Labour Market Outcomes of Apprentices.” *Statistics Canada Education, Learning and Training Research Paper Series*, no. 81-595-M2024001, 26 Sep. 2024, https://www150.statcan.gc.ca/n1/pub/81-595-m/81-595-m2024001-eng.htm. Accessed 16 Oct. 2025.

86. Brown, Justin, et al. “Discontinuers of Apprenticeship Programs: An Analysis on the Impact of Discontinuation on the Labour Market Outcomes of Apprentices.” *Statistics Canada Education, Learning and Training Research Paper Series*, no. 81-595-M2024001, 26 Sep. 2024, https://www150.statcan.gc.ca/n1/pub/81-595-m/81-595-m2024001-eng.htm. Accessed 16 Oct. 2025.

87. “The Legal Framework in Germany.” *Federal Institute for Vocational Education and Training (BIBB)*, last updated 10 Sept. 2024, https://www.bibb.de/en/146370.php?. Accessed 16 Oct. 2025.

88. “Government of Canada – Investments in the Skilled Trades.” *Employment and Social Development Canada*, 31 Jan. 2022, https://www.canada.ca/en/employment-social-development/news/2022/01/government-of-canada-investments-in-the-skilled-trades.html. Accessed 16 Oct. 2025.

89. Lerman, Robert I. “Expanding Apprenticeship Training in Canada: Perspectives from International Experience.” *Urban Institute*, Apr. 2014, https://www.urban.org/sites/default/files/publication/22091/413116%20-%20Expanding-Apprenticeship-Training-In-Canada-Perspectives-From-International-Experience.pdf. Accessed 16 Oct. 2025.

90. “Skilled trades and apprenticeship system changes.” *Ontario.ca*, 1 Jan. 2022, https://www.ontario.ca/page/skilled-trades-and-apprenticeship-system-changes. Accessed 16 Oct. 2025.

91. “Funding Announcement for Trade Winds To Success.” *Construction Labour Relations (CLRA)*, 29 Jan. 2025, https://clra.org/2025/01/funding-announcement-for-trade-winds-to-success/. Accessed 15 Oct. 2025.

92. “Women Skilled Trades Students.” *Centre for Innovation in Campus Mental Health*, 2025, https://campusmentalhealth.ca/toolkits/skilled-trades/equity-considerations/women/. Accessed 16 Oct. 2025. Accessed 16 Oct. 2025.

93. "Minister Boissonnault announces more than $28.9 million to help women succeed in the skilled trades." *Employment and Social Development Canada*, 8 Mar. 2024, https://www.canada.ca/en/employment-social-development/news/2024/03/minister-boissonnault-announces-more-than-289-million-to-help-women-succeed-in-the-skilled-trades.html. Accessed 16 Oct. 2025.

94. "Apprenticeship Grants Evaluation Report." *Employment and Social Development Canada*, Sept. 2024, https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/apprenticeship-grants-impact.html. Accessed 16 Oct. 2025.

95. Elliott, Diana and Miriam Farnbauer. "Bridging German and US Apprenticeship Models: The Role of Intermediaries." *Urban Institute*, Aug. 2021, https://www.urban.org/sites/default/files/publication/104677/bridging-german-and-us-apprenticeship-models.pdf. Accessed 16 Oct. 2025.

96. Graf, Lukas. "The Swiss Apprenticeship System." *American German Institute*, 10 Sep. 2014, https://americangerman.institute/publication/the-swiss-apprenticeship-system/. Accessed 16 Oct. 2025.

97. "Employer Apprentice Grant | Employer Funding for Apprentices." *Construction Training Fund (WA)*, 1 Jul. 2024, https://ctf.wa.gov.au/funding/employer-grant. Accessed 16 Oct. 2025.

98. "2023-24 Major Projects Report." *Australian National Audit Office*, Department of Defence, 18 Dec. 2024, https://www.anao.gov.au/sites/default/files/2024-03/Auditor-General_Report_2023-24_20.pdf. Accessed 16 Oct. 2025.

99. "Additional support for apprentices and employers from 1 July 2025." *Australian Apprenticeships*, Australian Government, https://www.apprenticeships.gov.au/additional-support-apprentices-and-employers-1-july-2025. Accessed 16 Oct. 2025.

100. Camden, Billy. "National apprenticeship achievement rate hits 60.5 %." *FE Week*, 27 Mar. 2025, https://feweek.co.uk/national-apprenticeship-achievement-rate-hits-60-5/. Accessed 16 Oct. 2025.

101. "Only 4% of employers are spending their full apprenticeship levy funding." *City & Guilds*, 2 Feb. 2023, https://www.cityandguilds.com/news/february-2023/only-four-per-cent-of-employers-are-spending-their-full-apprenticeship-levy-funding. Accessed 16 Oct. 2025.

102. "More red tape slashed to reduce apprenticeship bureaucracy." *GOV.UK*, Department for Education and The Rt. Hon Baroness Smith of Malvern, 13 Feb. 2025, https://www.gov.uk/government/news/more-red-tape-slashed-to-reduce-apprenticeship-bureaucracy. Accessed 16 Oct. 2025.

103. "Apprenticeship Grants: Evaluation Report." *Employment and Social Development Canada*, Sep. 2024, https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/apprenticeship-grants.html. Accessed 16 Oct. 2025.

104. "Evaluation of the Skilled Trades Awareness and Readiness Program." *Employment and Social Development Canada*, Feb. 2023, https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/skilled-trades-awareness-readiness-program.html. Accessed 16 Oct. 2025.

105. "New registrations, certifications, and pathways indicators of registered apprentices in Canada, 2023." *The Daily — Statistics Canada*, 11 Dec. 2024, https://www150.statcan.gc.ca/n1/daily-quotidien/241211/dq241211c-eng.htm. Accessed 16 Oct. 2025.

106. "ADMS Help for Apprentices." *Australian Apprenticeships*, Australian Government, https://www.apprenticeships.gov.au/about-apprenticeships/using-apprenticeships-data-management-system/adms-help-apprentices. Accessed 16 Oct. 2025.

107. "USI — Unique Student Identifier (home page)." *USI Registry System*, Australian Government, https://www.usi.gov.au/ "Unique Student Identifier (USI)." Accessed 16 Oct. 2025, And; *Department of Education, Australian Government*, 22 Jul. 2025, https://www.education.gov.au/unique-student-identifier-usi. Accessed 16 Oct. 2025.

108. "Canadian Apprenticeship Longitudinal Indicators (Catalogue No. 71-607-X2021018)." *Statistics Canada*, 12 Mar. 2025, https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021018-eng. htm, https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/apprenticeship-grants-impact.html. Accessed 16 Oct. 2025.

109. “Canadian Apprenticeship Longitudinal Indicators (Catalogue No. 71-607-X2021018).” *Statistics Canada*, 12 Mar. 2025, https://www150.statcan.gc.ca/n1/pub/71-607-x/71-607-x2021018-eng, htm https://www.canada.ca/en/employment-social-development/corporate/reports/evaluations/apprenticeship-grants-impact.html. Accessed 16 Oct. 2025. And; “Apprenticeship Labour Market Outcomes in Canada since 2000: An Assessment of the Resources for Research.” *Canadian Apprenticeship Forum — Forum canadien sur l’apprentissage*, June 2011 https://www.caf-fca.org/wp-content/uploads/2022/04/Apprenticeship-Labour-Market-Outcomes-in-Canada-since-2000.pdf. Accessed 16 Oct. 2025.