

Case Study

The economic benefits of career and technical education and training in the United States



Introduction

Career and Technical Education (CTE) is gaining interest and traction in the United States of America. In the ongoing presidential campaign, the likes of Hillary Clinton, Marco Rubio and Scott Walker have joined current president Barack Obama in talking about apprenticeships.

While not a new concept, CTE and apprenticeships are starting to be viewed as a necessity for upskilling America, and cutting youth unemployment. Research from Georgetown University found that there is a shortage of five million workers with in-demand technical certifications and credentials.ⁱ There are also increasing concerns around high college drop-out rates (currently

at around 59%) and high student debt; Edvisors.com estimates that graduates have on average \$35,051 in debt – the most student debt in US history.ⁱⁱ

Currently less than 1% of 15-24 year olds are taking an apprenticeship,ⁱⁱⁱ and according to the National Center for Education Statistics,^{iv} the average number of credits earned in CTE by public high school graduates declined from just over 4 to 3.5 between 1990 and 2009. However, the tide is changing. In November 2015, the Department of Labor launched its first ever National Apprenticeship Week and apprenticeship success stories such as in South Carolina – where 768

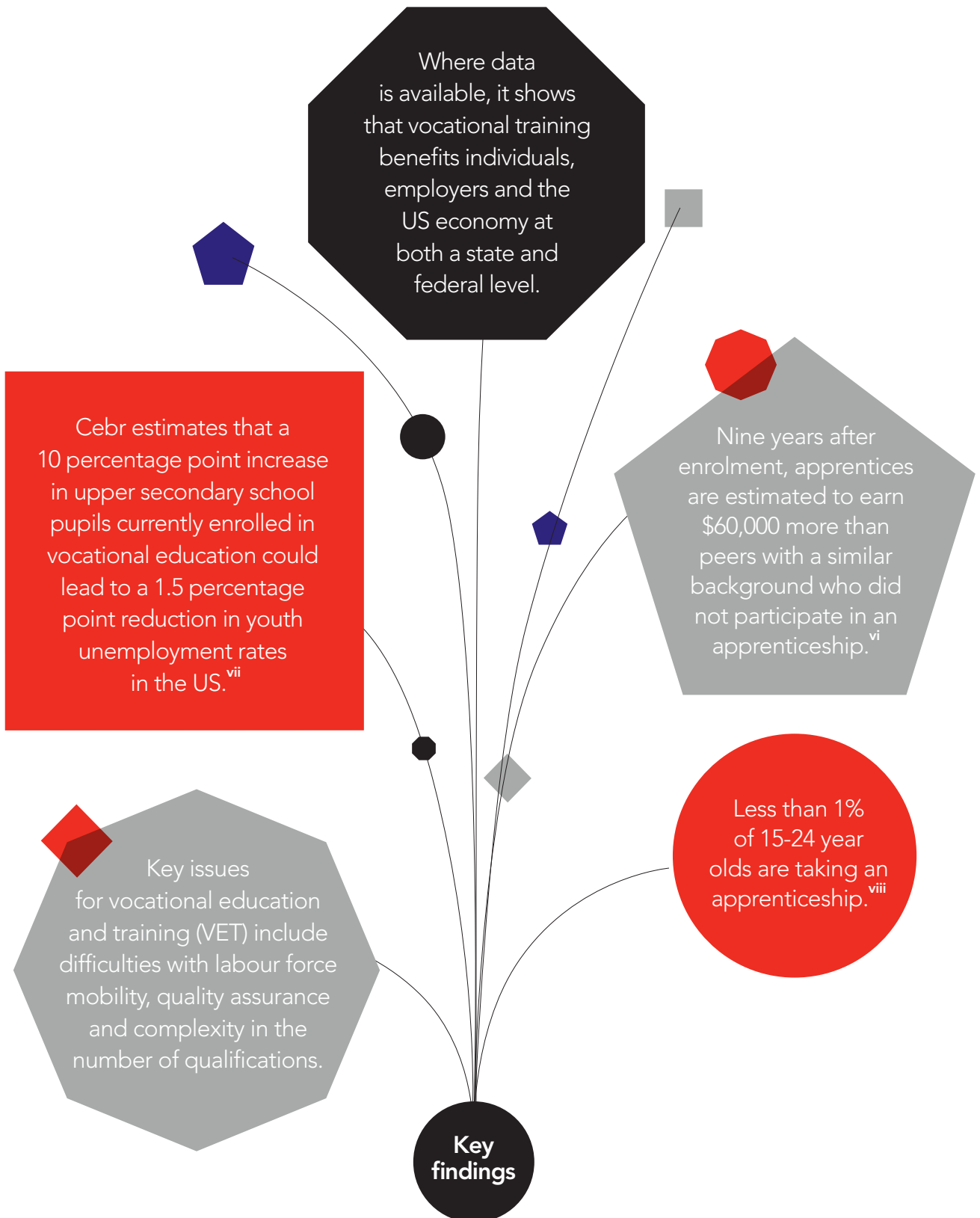
apprenticeship programmes are active^v – have been more widely celebrated.

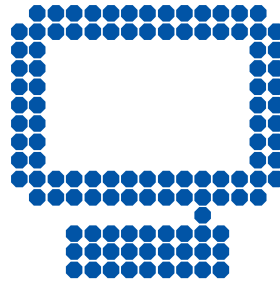
But this still pales in comparison to the likes of the UK. Approximately 850,000 young people are currently engaged in apprenticeships in the UK, which significantly outnumbers America's 410,000 apprentices. And yet, UK has a population one fifth the size of the US.

This case study explores the potential opportunities that increased investment and interest in CTE could open up for the US economy, and some of the challenges that need to be overcome to realise the benefits CTE offers.



Key findings





CTE: The Context

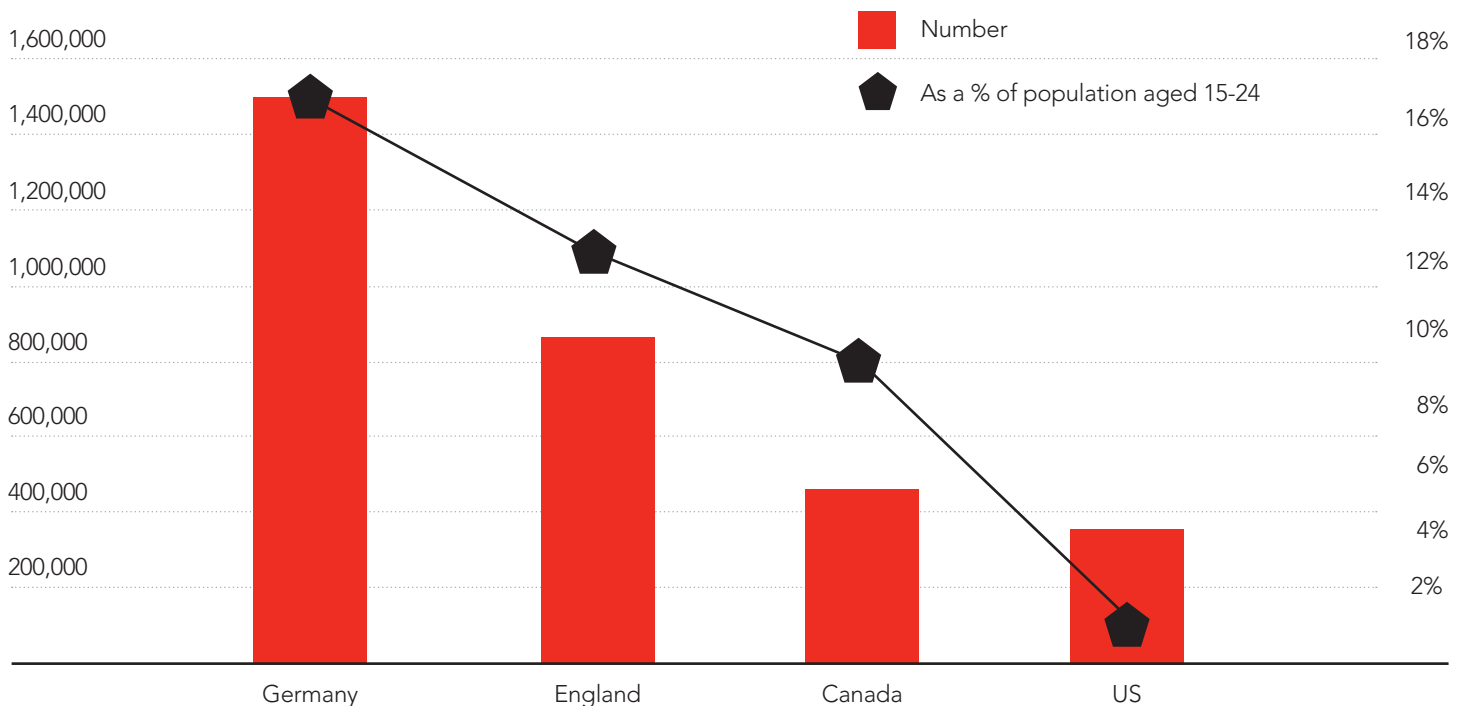
Career and Technical Education (CTE) in the US is highly decentralised, making it difficult to generalise about the CTE systems as a whole. Individual states have their own CTE system. Broadly, CTE takes place in four main contexts: high schools, two-year community colleges, on-the-job training and apprenticeships.^{ix}

CTE has attracted the interest of policymakers at a federal level in recent years. President Obama's address to Congress in 2009^x included CTE as part of the solution to his 2020 education goals; while several reports, such as those by the Harvard Graduate School of Education (2011)^{xi} and the OECD (2013),^{xii} have highlighted the challenges and potential benefits for CTE in the country.

As in many countries, however, CTE has often faced stigma from policy makers and elites.^{xiii} A 'college for all' rhetoric exists, in which college is narrowly defined as academic education. More than 90% of the lowest academic achievers in high school expect to go to college.^{xiv} It has been argued that the campaigns associated with the schools standards movement, culminating in the No Child Left Behind Act in 2001, placed an emphasis on university education.^{xv}

... and the US has an undeveloped apprenticeship system

Number of training apprentices, absolute terms and as a % of the 15-24 population, 2012/13



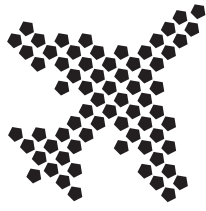
Source: OECD, UK Skills Funding Agency, Statistics Canada, United Nations, Cebr analysis.

Career guidance in the United States is often inadequate. In some areas of secondary education, the ratio of career counsellors to students is greater than 1:500. For post-secondary, this can stretch to 1:1000. Inadequate career guidance may contribute to the poor representation of high school graduates in community colleges, compared to returning adults.^{xvi}

Workplace-based training and apprenticeships make up a small proportion of CTE in the US, with very little data being collected regarding their success. Advocates have to point to specific case study examples in order to show the benefits as uptake by educators, employers and trainees is very low. Less than 1% of the population of 15-24 year olds are involved in an apprenticeship.^{xvii}



Less than 1% of
the population of
15-24 year olds
are involved in an
apprenticeship.

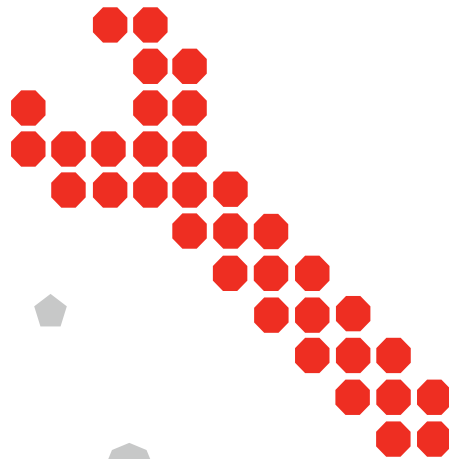


Issues and challenges with CTE

The decentralisation of CTE in the United States contributes to issues with labour force mobility, as qualifications are not always recognised across the country. Trades, such as carpentry and plumbing, typically call for qualifications that are gained through apprenticeships leading to licensing in order to be able to operate. Licences are given by individual states with varying requirements. They are often not transferable from state to state, or accepted by all learning institutions. In some extreme situations, the licence is given by the town or city (such as in New York), meaning licences may not be transferable even within state.^{xviii}

A lack of central oversight in quality assurance is also an issue. Accountability for quality assurance rests largely on institutional and programmatic accreditation, which is necessary for federal (Title VI) funding. There are both overlaps and differences between the federal list of recognised accreditation bodies, on which bodies have to be registered to be eligible for federal (Title VI) funding, and that provided by the Council for Higher Education Accreditation. The complexity of the accreditation system, however, means that there is large variance in the quality of programmes; returns vary greatly depending on programme duration, field of study and institution.^{xix}

The number of qualifications granted is difficult to ascertain. In 2010, roughly 1.5 million postsecondary CTE credentials were awarded. Approximately 60% of these were certificates, with the remainder made up of associate degrees. Although certificates are playing an increasingly important role in US CTE, little data is being collected on them. While institutions providing these certificates promise better jobs and higher wages, the lack of data makes it very difficult for potential students to make informed decisions. Again, certificates may not be recognised by different institutions, or even across state lines.^{xx}

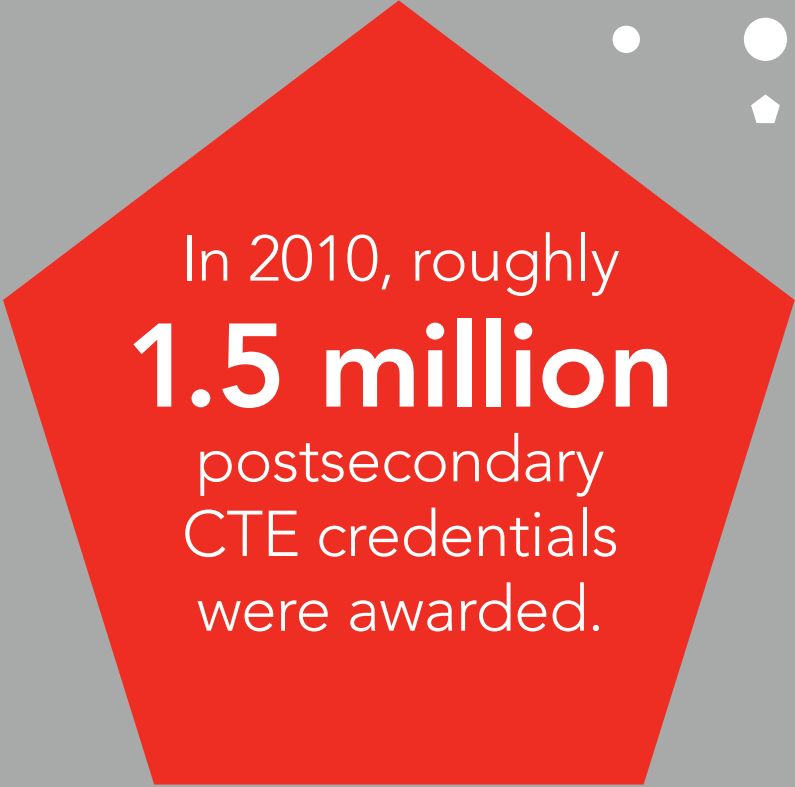


Initiatives that are being pursued

In contrast to countries like the UK and Germany, initiatives in the US are mainly being pursued at the state or employer level.

At a state level there are numerous examples of vocational experiments that are gaining public attention. New York City's P-Tech schools, mentioned by President Obama in his 2013 State of the Union address and co-sponsored by IBM, offer high school education with an additional two years that lead to an associate's degree. The success of the scheme is to be replicated in 16 additional locations in New York state this year.^{xxi}

Businesses, recognising the need for skilled vocational workers, have started to become involved. Key example initiatives include Pro Start, a two-year programme that mixes academic education with on-the-job training in local restaurants,^{xxii} and a collaboration between Volkswagen in Tennessee, Siemens in North Carolina and local schools to provide apprenticeships and technical diplomas.^{xxiii}



In 2010, roughly
1.5 million
postsecondary
CTE credentials
were awarded.



Economic Benefits of CTE

Domestic economy

While a largely decentralised postsecondary education system limits the scope and comprehensiveness of available data on the benefits of CTE, attempts have been made to calculate the return on investment accrued by CTE, which varies depending on the state. In Connecticut every public dollar invested in a state community college earns the state over 16 times as much over a student's career. In Washington that amount is calculated to be \$9 for every public dollar invested, earned through revenues and benefits and in Tennessee more than \$5 for every \$1 invested.^{xxiv}

At the secondary level, according to a Cebr analysis, a 10% increase in the number of upper secondary school pupils enrolled in vocation education would lead to a 1.5 percentage point reduction in youth unemployment rates.^{xxv} Those with CTE qualifications receive less in benefits such as food stamps and welfare, and pay more federal and state taxes. Over a 36 year period, the cumulative effect of these factors would result in \$25,000 in gains for the US government per student.^{xxvi}

Although causality has not been demonstrated, it is possible that providing CTE in high school

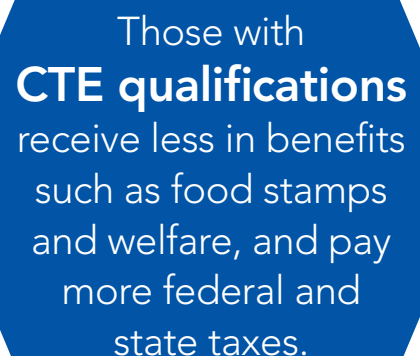
reduces dropout rates. High schools with vocational education as a high proportion of their study time, such as vocational high schools in Massachusetts and career academies in California, see much lower dropout rates than state averages.^{xxvii} Providing CTE more extensively at the secondary level could, therefore, have further economic scope. According to the OECD, in 2011 the US had the highest high school dropout rate in the industrialised world.^{xxviii} The Alliance for Excellent Education claims raising graduation levels to 90% from 73% in 2011 would yield \$1.8 billion in taxes alone due to increased wages.^{xxix}

There is also evidence for the economic benefits of apprenticeships in the US, both in terms of the effect on business income and individual wealth. The productivity benefits associated with training an apprentice are thought to be as high as an additional \$60,000 after 10 years of hiring an apprentice, and double that after 36 years.^{xxx} For individuals, when fringe benefits such as health insurance are taken into account, apprentices can expect to have earned a cumulative \$60,000 more after nine years than peers with similar backgrounds who did not enrol in an apprenticeship scheme.^{xxxi}

Skilled Labour Migration

Employers in the United States have been vocal in advocating a more relaxed visa policy for skilled workers, notably in the technology sector.^{xxxii}

As in the UK, the lack of comparable CTE qualifications makes it difficult for foreign workers to find work in the US, meaning that shortfalls attributed to a lack of skills cannot be easily made up by foreign workers. Getting a work-based visa to the US is normally dependent on having a university degree, and unlike Canada or Australia, there is no-skills based route for immigrants.^{xxxiii}



Those with CTE qualifications receive less in benefits such as food stamps and welfare, and pay more federal and state taxes.

Conclusion

The US has a huge opportunity to embrace CTE and apprenticeships. There is a clear need for a robust, high-quality alternative to the traditional college path, given the high college drop-out rates, impending skills gaps and high youth unemployment. And thanks to both government support and successful schemes in states such as South Carolina, interest and enthusiasm for such alternatives is growing.

However, there are still a number of significant challenges to overcome. First and foremost is the ongoing stigma around CTE and apprenticeships. They aren't widely discussed by career counsellors in schools, and more often than not college is still promoted as the only successful route into a career. Additionally, there is a lack of data on the economic benefits to individuals, employers and the economy as a whole. For apprenticeships and CTE to gain further traction, such research would be a sound investment.

Likewise, the decentralised federal system adds further complications, as it makes it harder to move between states and ensure quality, portable learning. In contrast, degrees are generally recognised across the country. There is an opportunity here to improve this situation.

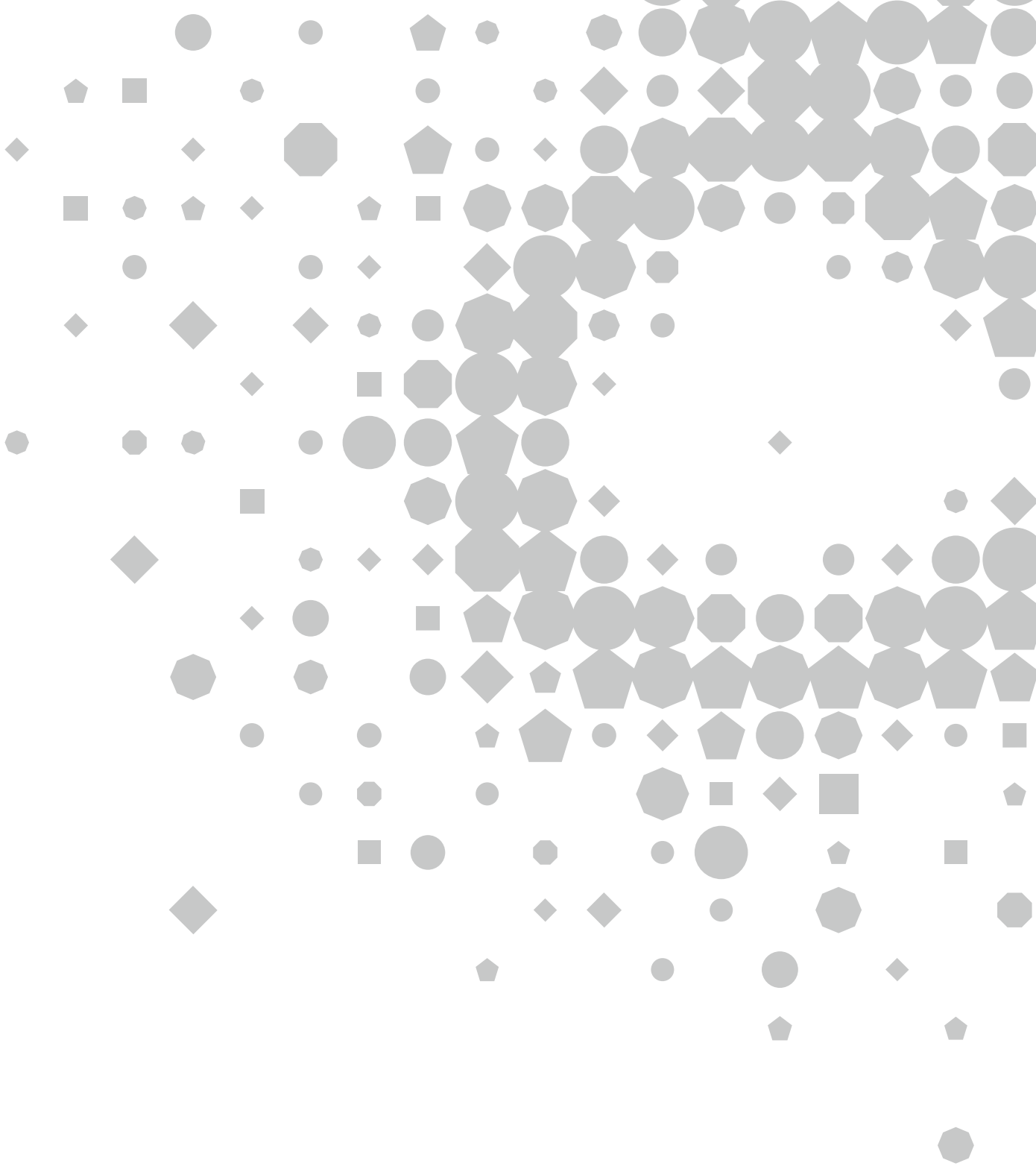
Currently the number of people participating in apprenticeships and CTE is small. But there is a huge opportunity to change this for the benefit of individuals, businesses and the economy. It's time to make the most of it.

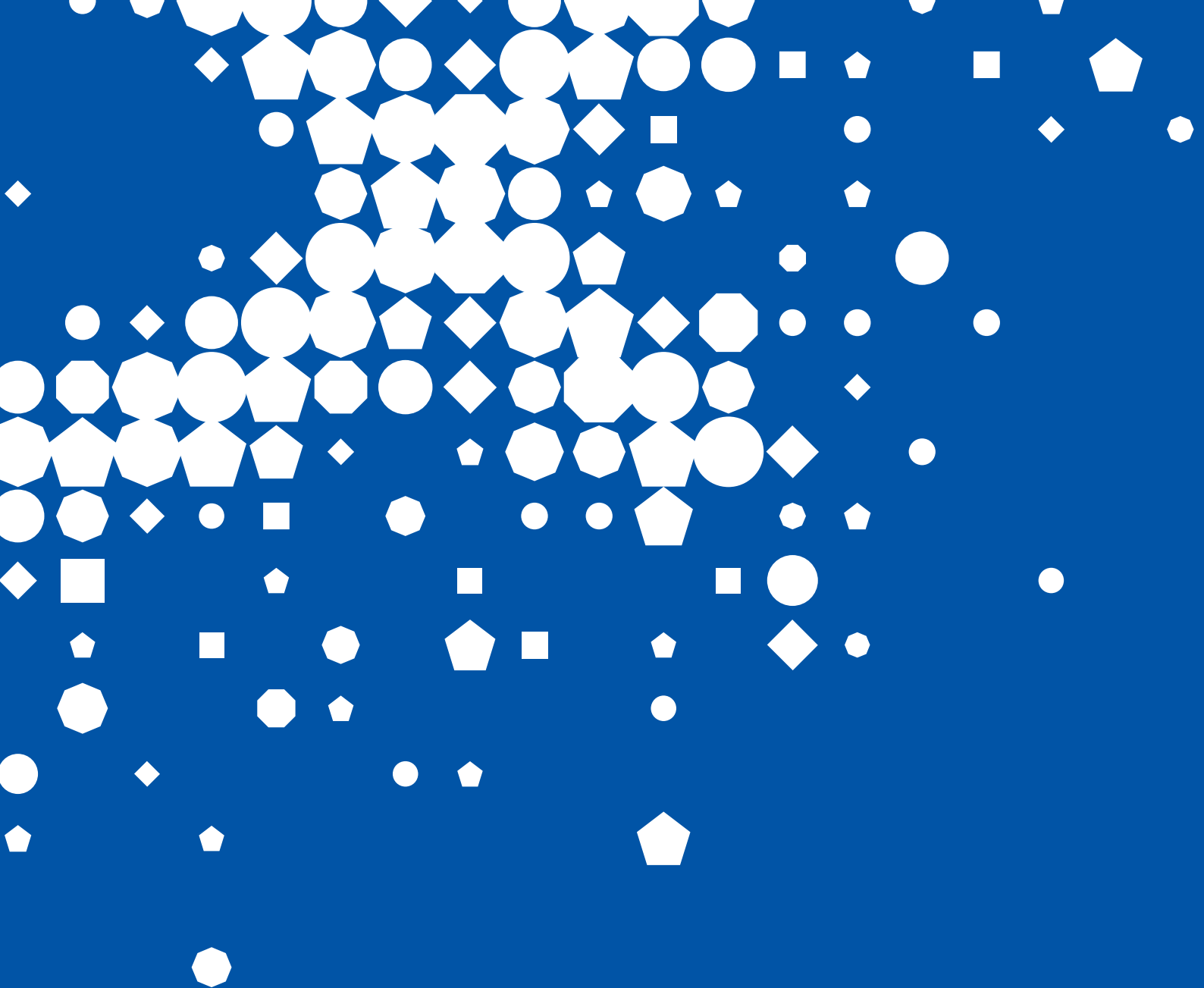


References

- i <https://cew.georgetown.edu/wp-content/uploads/2014/11/Recovery2020.Press-Release.pdf>
- ii <http://www.cnn.com/2015/06/16/student-loan-debt-grows-but-there-are-ways-to-ease-burden.html>
- iii Cebr report for the City & Guilds Group (2015)
- iv National Center for Education Statistics, Cebr analysis
- v <http://www.apprenticeshipcarolina.com/>
- vi Cebr report for the City & Guilds Group (2015)
- vii Cebr report for the City & Guilds Group (2015)
- viii Cebr report for the City & Guilds Group (2015)
- ix http://www.cedefop.europa.eu/files/etv/Upload/Information_resources/Bookshop/232/23_en_kreysing.pdf
- x President Obama, B. (2009). State of the Union Address 2009. Retrieved from <http://stateoftheunionaddress.org/2009-barack-obama>
- xi Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education.
- xii Kuczera, M., & Field, S. (2013). A Skills beyond School Review of the United States. <http://doi.org/10.1787/9789264202153-en>
- xiii Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education.
- xiv Jacoby, T. (2013). VOCATIONAL EDUCATION 2.0: EMPLOYERS HOLD THE KEY TO BETTER CAREER TRAINING.
- xv Jacoby, T. (2013). VOCATIONAL EDUCATION 2.0: EMPLOYERS HOLD THE KEY TO BETTER CAREER TRAINING.
- xvi Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education.
- xvii Cebr Report for the City & Guilds Group (2015)
- xviii <http://www.eplumbingcourses.com/plumbing-license/new-york-plumbing-license/> (Retrieved 28/05/2015)
- xix U . S . Background Information Prepared for the OECD Postsecondary Vocational Education and Training “ Skills Beyond School ” Study April 2012. (2012), (April).<http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf>
- xx U . S . Background Information Prepared for the OECD Postsecondary Vocational Education and Training “ Skills Beyond School ” Study April 2012. (2012), (April).<http://nces.ed.gov/surveys/ctes/pdf/PostsecVET.pdf>
- xxi www.ptecnyc.org/ (Retrieved 27/05/2015)
- xxii <http://www.nraef.org/ProStart> (Retrieved 27/05/2015)
- xxiii Wall Street Journal <http://www.wsj.com/articles/SB10001424052702303665904577452521454725242?cb=logged0.27557835704647005> (Retrieved 27/05/2015)
- xxiv <https://www.acteonline.org/CTETodayOct14>
- xxv Cebr Report for the City & Guilds Group (2015)
- xxvi Cebr Report for the City & Guilds Group (2015)
- xxvii Jacoby, T. (2013). VOCATIONAL EDUCATION 2.0: EMPLOYERS HOLD THE KEY TO BETTER CAREER TRAINING.
- xxviii Symonds, William C., Robert Schwartz, and Ronald F. Ferguson. 2011. Pathways to prosperity: Meeting the challenge of preparing young Americans for the 21st century. Cambridge, MA: Pathways to Prosperity Project, Harvard University Graduate School of Education.
- xxix Education, A. for E. in. (2012). On Tax Day 2012, a 90 Percent High School Graduation Rate Would Yield \$1.8 Billion Annually in Additional Tax Revenues, Report Finds. Retrieved from <http://all4ed.org/press/on-tax-day-2012-a-90-percent-high-school-graduation-rate-would-yield-1-8-billion-annually-in-additional-tax-revenues-report-finds/>
- xxx Cebr Report for the City & Guilds Group (2015)
- xxxi Cebr Report for the City & Guilds Group (2015)
- xxxii <http://www.ft.com/cms/s/0/62323b8a-4e3a-11e4-adfe-00144feab7de.html#axzz3reXSB0ZE>. Tech groups push White House for more work permits.
- xxxiii <http://travel.state.gov/content/visas/english/employment/nafta.html> (Retrieved 27/05/2015)

Methodology: The research was developed by the Centre for Economic and Business Research (Cebr) and research organisations Reputation Leaders and The Research Base.





City & Guilds Group
1 Giltspur Street
London, UK
EC1A 9DD
www.cityandguilds.com



City & Guilds Group