



what works centre for
local economic growth

Toolkit

Apprenticeships

Pre-apprenticeships

What are they?

Apprenticeships are positions of paid work in a firm including training provided by the employer, typically leading to a formal qualification or title. They are provided in different forms across a variety of countries. 'Pre-apprenticeships' are programmes which precede an apprenticeship, and provide foundation skills required to help with a full apprenticeship. They may be school or vocational based (or a mix of the two). In some cases, pre-apprenticeship programmes are specifically designed to aid the transition to, and completion of, a full apprenticeship. In other cases, they take the form of lower level qualifications, which may help transition or completion, but where these are not specific programme objectives.

We consider the effects of pre-qualifications for general employment training in a separate toolkit.¹

How effective are they?

The available evidence suggests that pre-apprenticeships can increase apprenticeship enrolment. All three studies that consider enrolment show positive effects for some individuals. But aspects of scheme design may affect outcomes. For example, in an Australian study, there are no positive effects on enrolment for

pre-apprenticeships that are taken parallel to formal schooling. In another German study, there are negative effects when individuals took multiple pre-apprenticeship internships that are short in duration.

The evidence is less clear on whether pre-apprenticeships help with completion. Two studies examined the impact of pre-apprenticeship on subsequent apprenticeship completion. One Australian study finds that pre-apprenticeship participants are no more likely to complete their apprenticeship than those without a pre-apprenticeship. A second Australian study does find a positive effect on either being enrolled in, or having completed, an apprenticeship. But it is not possible to say if the programme impacted on completion rates once enrolled.

Two studies consider the impact on employment and wages. One of these finds no effects in the longer run, although it does suggest there may be positive effects of pre-apprenticeships on the chances of taking (non-apprenticeship) further education. The second study that looks at employment effects is a Randomised Control Trial that evaluates the Community Restitution Apprenticeship-Focused Training (CRAFT) programme that targeted high-risk juvenile offenders. The study finds that CRAFT participants were significantly more likely to gain employment and go on to further education than high-risk youths in education as usual. The results of this study suggest that pre-apprenticeships may be effective for targeting the particularly vulnerable.

How secure is the evidence?

This toolkit summarises the available ex-post (i.e. after introduction) evaluations on the impact of pre-apprenticeships. We focused on evaluation evidence from OECD countries, in English. We considered any study that provided before and after evidence; or cross-sectional studies that compared individuals receiving support to those not receiving support (or that compared those receiving different levels of support). We also included more robust studies that compared changes to participants with a suitable control group. That is, we included evidence that scored 2 or higher on the Maryland Scale.²

Generally, the evidence base on pre-qualifications is quite weak. More rigorous studies are required. We found no systematic reviews of the effectiveness and no meta-analysis.

We found five studies that looked at the impact of pre-apprenticeships upon a variety of factors (uptake of apprenticeships, completion of apprenticeships, employment and wages). Three of the five studies consider pre-apprenticeship schemes in Australia. One paper looks at a lower level qualification (the CRAFT programme) for young offenders in the United States, and is focused upon the construction industry. A fifth paper examines the impact of extended internships in Lower Saxony, Germany.

Are pre-apprenticeships cost-effective?

There is no discussion of cost effectiveness in any of the papers.

2 <http://www.whatworksgrowth.org/resources/the-scientific-maryland-scale/>

Things to consider

- *What is the objective of providing pre-apprenticeship programmes?* The evidence suggests that pre-apprenticeships may be more effective at increasing apprenticeship enrolment than completion.
- *When and how should pre-apprenticeships be taken?* One study suggests that a longer pre-apprenticeship may be more beneficial than many short ones, but that it is better to take a shorter more intensive pre-apprenticeship after school completion than to take a longer version parallel to completing formal schooling. We need to do more to understand what features of pre-apprenticeship determine effectiveness.
- *Could pre-apprenticeship programmes be particularly effective for disadvantaged groups?* One high quality study shows quite large effects on employment and further education for a US programme working with young offenders.

Annex: Evidence on pre-qualifications for Employment Training

What kind of evidence do we consider?

The aim of our toolkits is to summarise the available ex-post (i.e. after introduction) evaluation evidence on particular aspects of policy design. We consider a wider range of evaluations than for our evidence reviews. But we continue to focus on finding and summarising evaluations that identify effects which can be attributed, with some degree of certainty, to the support provided.

Our objective is to assess the quality of, and summarise the lessons from, the available evaluation evidence in a way that can help inform policy decisions. We focus on summarising the findings from available evaluations, while recognising that additional sources of evidence may play an important role in making good decisions around support provided in any specific context.

This toolkit looks at the evaluation evidence on the impact of pre-apprenticeships - programmes which precede an apprenticeship, and provide foundation skills required to help with a full apprenticeship. We looked for evidence on the impact of pre-apprenticeship programmes specifically designed to aid the transition to, and completion of, a full apprenticeship, as well as lower level qualifications which may help transition or completion (but where these are not specific programme objectives).

We focused on evaluation evidence from OECD countries, in English. We considered any study that provided before and after evidence; or cross-sectional studies that compared individuals receiving support to those not receiving support (or that compared those receiving different levels of support). We also included more robust studies that compared changes to participants with a suitable control group. That is, we included evidence that scored 2 or higher on the Maryland Scale.³

3 <http://www.whatworksgrowth.org/resources/the-scientific-maryland-scale/>

Using these criteria, we found five studies that looked at the impact of pre-apprenticeships on a variety of factors; most frequently uptake and completion of full apprenticeships, alongside wider outcomes such as employment and wages. These studies considered a number of different schemes.

Three of the studies are from Australia, where specific pre-apprenticeship programmes exist, with the explicit goal of facilitating the transition to, and completion of, a full apprenticeship. Within Australia, a pre-apprenticeship programme is a training pathway that prepares an individual for entry into an Australian apprenticeship. It consists of off-the-job training with a Registered Training Organisation (RTO) and may contain an element of work experience with an employer. A pre-apprenticeship programme could take the form of an Australian Qualifications Framework (AQF) qualification, a course accredited by a state training authority, or a combination of accredited and unaccredited training. Many Vocational Education Training courses in schools could also be considered pre-apprenticeship programs. Two of the three studies look at specific pre-apprenticeship courses which have the explicit goal of promoting transition to and completion of full apprenticeships; the third looks at a wider range of lower level qualifications, of which pre-apprenticeship courses are a common component.

A fourth study is from the USA, and looks at the CRAFT programme - a specific lower level qualification in the construction industry targeted at juvenile offenders. The remaining study is from Lower Saxony, Germany, and examines the impact of extended internships in enabling low achieving students to continue to regular apprenticeship training.

These studies use a range of methodologies and vary in terms of their robustness. One paper conducts a before-and-after comparison, with controls for demographic characteristics (SMS2); two papers use propensity score matching to create a counterfactual group (SMS 3); one uses a panel data method (SMS 3); whilst the remaining paper is a randomised control trial (SMS 5).

This toolkit sits alongside toolkits which review other elements of apprenticeship policy design as well as a toolkit on pre-qualifications for general employment training.

The available evidence suggests that pre-apprenticeships can increase apprenticeship enrolment. All three studies that consider enrolment show positive effects for some individuals. But aspects of scheme design may affect outcomes. For example, in an Australian study, there are no positive effects on enrolment for pre-apprenticeships that are taken parallel to formal schooling. In another German study, there are negative effects when individuals took multiple pre-apprenticeship internships that are short in length.

Study AP15 (SMS 2) examines the impact of undertaking Certificate I and II level in Australia upon a range of different outcomes, including participation in an apprenticeship. Certificate I and II are the first two levels in the current Australian Qualifications Framework and are often taken as part of a pre-apprenticeship or an ordinary apprenticeship, particularly in the traditional trades.⁴ Pre-apprenticeships in Australia are typically six-months in length when taken full-time, with a 60:40 split between classroom-based learning and practical experience/work placements. This study compares individuals who took these lower-level qualifications with similar individuals who did not, with results separated by gender. The paper finds positive and significant effects of pre-apprenticeships on the likelihood of engaging in apprenticeship training. After two years, compared to similar individuals, male certificate I and II graduates were up to 10 percentage points more likely to have completed, or be undertaking,

⁴ Certificate II is approximately equivalent to NVQ Level 1

an apprenticeship or traineeship. For women after two years, certificate I and II graduates were 8.4 percentage points more likely to be undertaking or have completed an apprenticeship.

The study also looks at longer term impacts at age 26. For men at age 26, the effect on entering a full apprenticeship has strengthened slightly (men are 11 to 13 percentage points more likely to engage in further education/apprenticeship training). For women at age 26, the benefits that were present after two years have disappeared suggesting that pre-qualifications might be affecting the timing but not the propensity to undertake apprenticeship training.

Study AP10 (SMS 3) focuses on the Western Australian pre-apprenticeship system which consists of a number of designated certificate I and II level courses. Using data from 2009 and 2010 it examines whether undertaking a pre-apprenticeship increases the chances of undertaking a full apprenticeship. For not-at-school pre-apprenticeship students (understood to be those that have already completed school) there is an 11 percentage point increase in the probability of going on to a full apprenticeship in the year following treatment (23% compared with 12% for the comparison group).

There is also the option for students still at school to do the course under the 'School Apprentice Link program' over an 18-month period. In this case, the pre-apprenticeship course is two days per week, one day training and a one day on work placement. In contrast to findings for not-at-school pre-apprenticeship students, study AP10 finds no statistically significant effect for school students participating in the School Apprentice Link program.

Paper AP47 (SMS 2) examines two programmes from Lower Saxony in Germany, the Berufsstarterklassen and Praxisklassen. These programmes are similar to one another and provide internships for grade 8 students.⁵ Typically, in Lower Saxony, pupils in grade 8 and 9 complete one or two short internships per school year. Under these two new programmes, participants completed internships of two days per week for a longer period of 1.5–2 years. Additionally, each programme class was equipped with its own guidance counsellor helping participating pupils to find internships and to support their training and career decisions. The study finds positive results overall. Results show that completing extended internships increased the likelihood of entering apprenticeship training by 12 percentage points on average. However, youths who changed internship more than twice were significantly less likely to be hired as apprentices (-11 percentage points) than youths who changed internship less frequently. The study interprets the finding as showing that longer internships (with fewer changes) allow employers more time to 'screen' youths and to find them employable. However, another potential explanation is that changes in internship reflect some form of mismatch between apprentice and programme.

The evidence is less clear on whether pre-apprenticeships help with completion. Two studies examined the impact of pre-apprenticeship on subsequent apprenticeship completion. One Australian study finds that pre-apprenticeship participants are no more likely to complete their apprenticeship than those without a pre-apprenticeship. A second Australian study does find a positive effect on either being enrolled in, or having completed, an apprenticeship. But it is not possible to say if the programme impacted on completion rates once enrolled.

Study AP2 (SMS 2) examines the impact of pre-apprenticeships in Australia on the likelihood of completing a full apprenticeship in 2010. The study makes use of the Apprenticeship Destination Survey which asks apprentices if they first completed a pre-apprenticeship course. Therefore, pre-apprenticeships are based on self-identification rather than specific qualifications (e.g. Certificates I and II used in Studies AP10 and AP15). The paper separates the results out by the trade of the

pre-apprenticeship, and by the level of previous qualification of the treated recipients. Overall pre-apprenticeships have no significant effect on completion rates of full apprenticeships.

Study AP15 reports the impact of undertaking Certificate level I and II in Australia on undertaking or completing an apprenticeship. As reported above, after two years, male certificate I and II graduates were up to 10 percentage points more likely to have completed, or be undertaking, an apprenticeship or traineeship. The effect was 8.4 percentage points for women. Unfortunately, it is unclear whether there is a separate effect on the likelihood of completion for enrolled apprentices.

Two studies consider the impact on employment and wages. One of these finds no effects in the longer run, although it does suggest there may be positive effects of pre-apprenticeships on the chances of taking (non-apprenticeship) further education.

Study AP15 examines the impact of undertaking Certificate I and II level in Australia upon a range of further outcomes: future completion of a higher level qualification; employment, and hourly wage.

The study finds that those who took the Australian Certificate I/II pre-apprenticeship were 6.8 percentage points more likely to have completed or be undertaking a Certificate III or higher qualification.

Study AP15 also finds positive impacts on employment two years following treatment; however the effects are small in magnitude. The results suggest that a higher proportion (1.4 percentage points) of male Certificate I and II graduates are employed compared to other similar individuals after two years. Female Certificate I and II graduates are 7.5 percentage points more likely to be employed (79.7% compared with 72.1% in the control group). However, in the longer term, the effects of pre-apprenticeships on employment are found to be insignificant.

Finally, the study finds negative results for earnings in the short term, with those who undertake a pre-apprenticeship earning slightly less than the control group (by an average of \$AUS 3.14 or GBP £1.86 per hour). This is to be expected since the pre-apprenticeship is associated with a higher likelihood of enrolling in an apprenticeship, where the apprentice will forego a higher wage in order to receive training in a particular trade. In the longer term however, the paper finds that the effect on wages is insignificant. This suggests that there are no long run wage effects for those individuals who take apprenticeship as a direct result of doing a pre-apprenticeship.

The second study that looks at employment effects is a Randomised Control Trial that evaluates the Community Restitution Apprenticeship-Focused Training (CRAFT) programme that targeted high-risk juvenile offenders. The study finds that CRAFT participants were significantly more likely to gain employment and go on to further education than high-risk youths in education as usual. The results of this study suggest that pre-apprenticeships may be effective for targeting the particularly vulnerable.

Study AP16 (SMS 5) examines the impact of the Community Restitution Apprentice-Focused Training (CRAFT) Programme upon employment, wages, working hours and educational level of participants post-completion between 2007 and 2011. CRAFT was a pre-apprenticeship initiative developed in the US in 1994 by the Home Builders Institute (HBI), to address the frequent skill deficits and job placement limitations that confront high-risk youths. The aim of the programme was to promote improved employment prospects in the construction/housebuilding industry for young offenders. Completion of CRAFT required attendance at a minimum of 100 hours of instruction and training in core skill areas. The programme consisted of a mix of practical construction skills training (approx. 75% of programme time), and classroom based learning and employability training (approx. 25% of programme time). Participants

that completed the program were awarded a pre-apprenticeship certificate that verified their skills and readiness for an entry level apprenticeship in construction.

The study compares treated individuals who went through the programme to those who did not receive a place on the programme (i.e. those who went through 'education as usual' (EAU)), using a randomised control trial (SMS 5).

Participants in the CRAFT programme were significantly more likely to have attended a General Educational Development (GED) programme than the control group (50% vs. 26%). In addition, if enrolled, youths in the CRAFT programme attended the GED programme for significantly more months than did their education as usual counterparts. The groups, however, did not ultimately differ on high school graduation rates (the focus of the GED programme).

CRAFT participants were significantly more likely to have been employed during the 30 month follow up period versus their EAU counterparts (76% vs. 50%). CRAFT participants were also more likely to be employed in the construction trade (46% vs. 19%), suggesting that the pre-apprenticeship programme aided them in finding relevant employment. However, the study reports no significant effects of the CRAFT programme on wages or working hours.

References and study numbers

Ref. No	Reference
2	Karmel, T & Oliver, D (2011). Pre-apprenticeships and their impact on apprenticeship completion and satisfaction, National Centre for Vocational Education Research (NCVER).
10	Stromback, T (2012). The effect of a pre-apprenticeship on getting an apprenticeship. National Vocational Education and Training Research Program technical paper, NCVER, Adelaide.
15	Oliver, D (2012). Lower-level qualifications as a stepping stone for young people. Australian Journal of Labour Economics, Volume 17, Number 1, 2014, pp 15 - 33.
16	Schaeffer, CM; Henggeler, SW; Ford, JD; Mann, M; Chang, R; Chapman, JE; (2014). RCT of a promising vocational/employment program for high-risk juvenile offenders. Journal of substance abuse treatment, 46(2), 134-143.
47	Solga, H. and Kohlrausch, B. (2013) How Low-achieving German Youth Beat the Odds and Gain Access to Vocational Training — Insights from Within-Group Variation, European Sociological Review, Vol. 29 (5), pp1068-1082.

This work is published by the What Works Centre for Local Economic Growth, which is funded by a grant from the Economic and Social Research Council, the Department for Business, Innovation and Skills and the Department of Communities and Local Government. The support of the Funders is acknowledged. The views expressed are those of the Centre and do not represent the views of the Funders.

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