



# The longer the better? The impact of the 2012 apprenticeship reform in England on achievement and other outcomes

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# The longer the better? The impact of the 2012 apprenticeship reform in England on achievement and other outcomes

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## Abstract

In this paper, we estimate the effect of a reform of apprenticeships in England in 2012, which changed the duration for Intermediate Apprenticeships in many industries, while other sectors already exceeded the incoming minimum duration. We focus on the group the 19-24 year olds, who experienced a genuine increase in apprenticeship duration and estimate the impact on apprenticeship starts, achievement of the qualification and employment and earnings outcomes. We find that the reform reduced apprenticeship starts in the sectors affected (by 13 to 33 percent), increased drop-out rates (by 3-5 percentage points) and reduced achievement of the qualification (by 4-7 percentage points), but also significantly increased earnings (by 7% compared to counterfactual for 19-24 year olds without Level 2 qualifications). The main limitation of this study is that it is not possible with the available data to test whether the increase in earnings was driven by those who achieved a longer apprenticeship, by learners dropping out of their apprenticeships to get a better-paid job, or by a compositional change (i.e. weaker young people not starting an apprenticeship). However, in our view, the positive effect on earnings indicates that the SASE reform improved the job matching of young people to available employment opportunities, which was the reform's ultimate purpose.

**Keywords:** Apprenticeship, United Kingdom, returns to education

**JEL codes:** I26 (Returns to Education), I28 (Government Policy), C55 (Large Data Sets)

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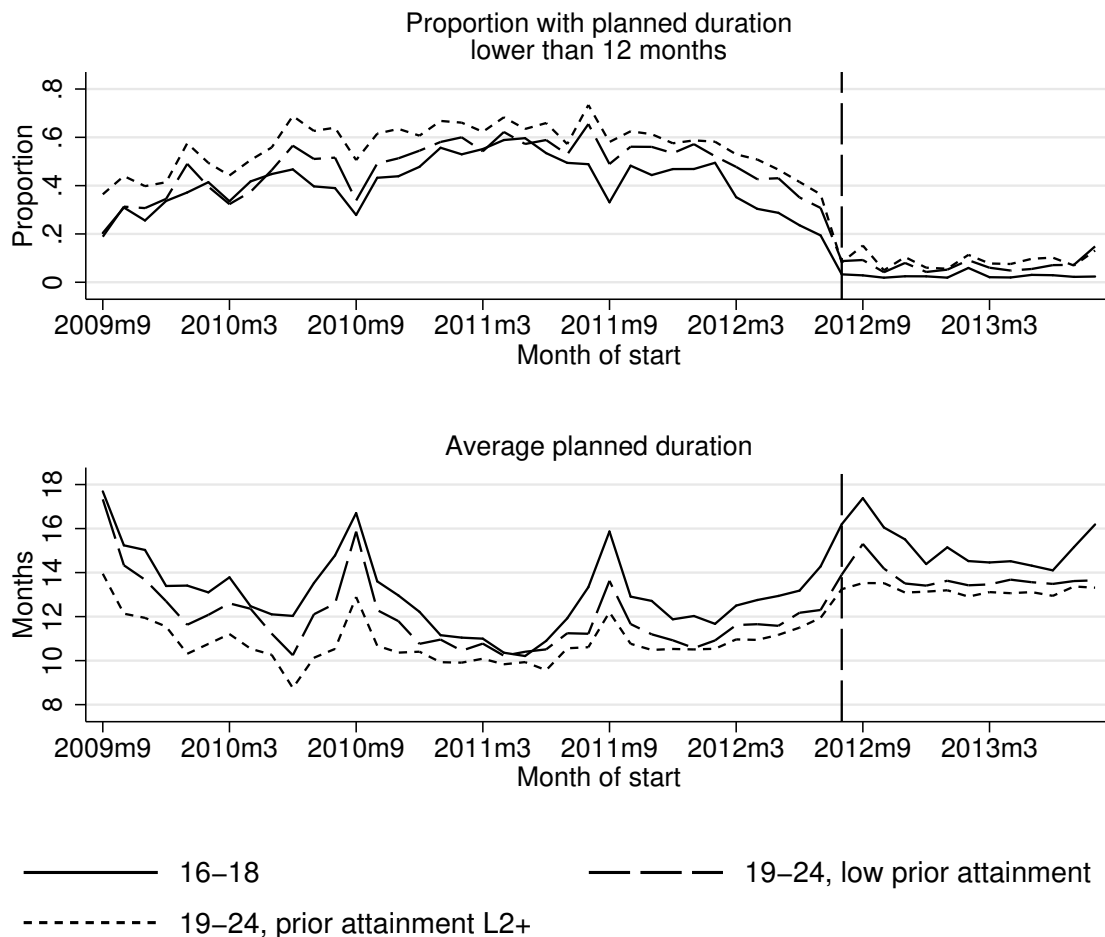
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# Executive Summary

## Institutional Context

Following the expansion of apprenticeships in the late 2000s, evidence emerged that some apprenticeships were of very poor quality. As a consequence, the Skills Minister introduced binding minimum standards for all apprenticeships, which came into effect in August 2012 (Specification of Apprenticeship Standards for England, SASE). These introduced a minimum duration of 12 months for apprenticeships, except for learners aged 19+ with prior attainment. However, even for those aged 19+, college funding would be reduced if learners completed apprenticeships in less than 12 months. In addition apprentices must have a least 280 Guided Learning Hours (GLH) in the college or workplace, of which at least 100 must be off-the-job. While GLH were widely unaffected by SASE, the planned duration of Intermediate Apprenticeships increased sharply as a result of the introduction of a 12-month minimum duration, as shown in Figure 1.

Figure 1: Planned duration by month of start



Source: Individualised Learner Records, 2011/12-2014/15

## Aims of this analysis

In this paper we analyse the effect of the introduction of the minimum duration of a year. We exploit the fact that SASE affected planned durations of apprenticeships for various occupations (also referred to as frameworks in the regulation), while others were unaffected. This allows for an estimation of the effects of the reform, i.e. the increase in duration, on starts and achievement of apprenticeships. The main identifying assumption is that achievement in affected frameworks would have evolved similarly to achievement in non-affected frameworks.

## Methodology

We use census-level data from the Individualised Learner Records (ILR), an administrative database held by the Department for Education (DfE) of the UK Central Government, which records all vocational education and apprenticeships undertaken in England for the purpose of allocating government funding. As Advanced Apprenticeships (Level 3) have on average a longer duration, we estimate the effect of the reform for Intermediate (or Level 2) Apprenticeships, which all have a planned duration of less than two years, both before and after the reform, so that we can evaluate the impact on achievement, employment and earnings until at least two and a half-years after the introduction of the SASE standards (where current data end). We focus on young people between 19 and 24 years of age, i.e. groups consistently participating in apprenticeships in recent years, and exclude apprentices above the age of 25, whose participation in apprenticeships increased more recently.

In order to estimate a credible counterfactual, we reviewed planned durations of all apprenticeship frameworks with at least 100 Intermediate Apprenticeship starts between 2009/10 and 2012/13. Since the duration also changes with specific in-year time-trends, we apply a symmetric 12-month moving average, with uniform weights. We found a number of frameworks which were genuinely affected by the reform, i.e. the duration of apprenticeships increased noticeably (by more than two months) post-reform and were significantly less than 12 months in the pre-programme period. In addition, there were other frameworks, which showed changes in planned duration before and after the introduction of the minimum duration. Some of these were affected by the reform and showed a significant increase in the post-reform period, but this only reinstated what used to be common practice before. Other apprenticeships always had a longer duration than one year, but also showed a decrease in planned duration before the reform and an increase afterwards.

## Results

Although planned duration increased for all apprentices under the age of 25 in the sectors affected, the planned duration of the 16-18 year olds which had decreased before 2012 went back to what was in 2010. As a consequence, we estimated the impact of the reform on apprenticeship outcomes using Difference-in-Differences and implement placebo-tests, which suggest that the reform actually only genuinely affected the 19-24 year olds.

We focus on this group and estimate the reform effects on apprenticeship starts, achievement of the qualification and employment and earnings outcomes. For the 19-24 year olds, the reform reduced apprenticeship starts in the sectors affected (by 13 to 33 percent), increased drop-out rates (by 5 percentage points) and reduced the achievement

(by 7 percentage points), but also created a sizeable and significant earnings increase (+7% compared to counterfactual).

## **Conclusion**

The SASE reform reduced number of starts and achievement but led to an overall increase in earnings in the medium term. The main limitation of this study is that it is not possible with the available data to test whether the increase in earnings was driven by those who achieved a longer apprenticeship, by learners dropping out of their apprenticeships to get a better paid job, or by a compositional change (i.e. weaker young people not starting an apprenticeship). However, in our view, this positive effect on earnings indicates that the SASE reform improved the job matching of young people to available employment opportunities, which was the reform's ultimate purpose.

# 1 Introduction

After the general election in 2015, the Chancellor of the Exchequer presented a long-term plan of policy initiatives to Parliament, which aimed at “creating a more prosperous nation” through long-term investments in infrastructure, science and education and reform of the tax and welfare system (HM Treasury 2015). This plan emphasised the importance of apprenticeships to improve intermediate-level technical and professional skills throughout the economy and for successful transitions of young people from the education system to employment. In addition to reforms affecting apprenticeship standards and regulation, an “Apprenticeship Levy” was announced to achieve funding for three million new apprenticeships, which was introduced in April 2017. Currently, the Government expects that the levy will generate about 3 billion per year, with 2.5 billion spent in England only. Compared to the 2014/15 spending on apprenticeships for 16-18 year olds (703.4 million by the Department for Education) and adult apprentices (776.6 million separately allocated to an Adult Skills Budget), spending will increase by almost seventy percent, see Delebarre (2016).

In the “Enterprise Bill” of 2015, the Government specified that the increase in apprenticeship numbers was to be matched by creating an independent body to ensure that standards and qualifications would meet employer demand, the Institute for Apprenticeships. Along with improvements in the qualifications obtained from apprenticeships, the Institute for Apprenticeships needs to advise the Department for Education on important design characteristics of apprenticeships. This involves a review of key elements of apprenticeships, such as their duration, the number of guided learning hours (GLH) for both off-the-job training (in colleges) and on-the-job instruction (in the workplace).

At present, apprenticeship duration and learning time required differ greatly by the characteristics of firms and industry. However, there is also variation in GLH because different colleges offer different qualifications for apprenticeships in individual sectors, and qualification-awarding bodies impose different minimum learning time. Finally, apprenticeships also differ by characteristics of the individual and can be of shorter duration for adults than for young people.

Most importantly, apprenticeships differ by the economic activity of the firm. Historically, this led to an industry-specific management of apprenticeships in “sector frameworks” by Sector Skills Councils (SSCs). While the planned duration of “Intermediate Apprenticeships”, i.e. those aiming for qualifications at Level 2 of the national “Qualifications and Credit Framework”, is around a year for many occupations, the duration in hairdressing, construction, engineering or vehicle maintenance and repair at Level 2 lasts on average for longer than 20 months. In these sectors, which traditionally offer apprenticeships, the acquisition of comprehensive occupational know-how over an extended duration is the norm. In contrast, service sector apprenticeships, which increased in recent years, often provide very specific skills, which link to specific tasks and related occupational standards.

Similar to duration, there are wide-ranging differences in Guided Learning Hours (GLH), which measure the time spent in college or being directed by a supervisor in the workplace. On the one hand, this variation results from the different requirements for technical skills by the various sectors. On the other hand, GLH differ depending on the particular specialisation within an apprenticeship, or even for the same specialisation, by the awarding body for the qualification. Finally, GLH also differ because of existing skills and those starting an apprenticeship with poor English and mathematics skills have to

enrol in additional courses to achieve GCSE standards during their apprenticeship.

The introduction of binding minimum standards became an issue after the rapid expansion of apprenticeships in the late 2000s and concerns that some apprenticeships were of very poor quality. In response to this, the Government introduced a minimum duration for apprenticeships of one year, which resulted in significant increases in planned apprenticeship duration in many sectors. It also set a minimum number of learning hours involved, which made very little difference to existing standards as practically all apprenticeships already met the minimum. Therefore, the changes affecting the planned duration of apprenticeships are the only manifest changes resulting from the reform.

For employers, the duration of apprenticeships and the time dedicated to learning are important elements of the apprenticeship as they affect the time apprentices can make a contribution to the company. Recent papers for the UK (e.g. McIntosh 2007, Hogarth et al. 2012) and other countries (e.g. Pfeiffer et al. 2009 for Germany) evidenced substantial net costs of apprenticeships for employers, i.e. what the apprentice produces is not sufficient to recover the staff costs to train, time-release for college, admin costs, etc. during the apprenticeship. In the light of this evidence, a reform reducing the time spent on productive contribution would reduce incentives for employers to create/maintain apprenticeships.

It is difficult to predict the effect of changes in apprenticeship duration or learning hours. For example, if the reform of apprenticeships aimed to increase the duration of apprenticeships while keeping learning hours constant, there would be more time for apprenticeships to make a contribution to the firm, which would reduce employer net costs of apprentices. However, an increased duration could also increase the risk of people dropping out of apprenticeships, because they could find better-paid employment elsewhere, which would create adverse incentives to firms as their upfront investment in apprentices could not be recovered subsequently by them staying with the firm.

In this paper, we estimate the effect of the 2012 apprenticeship reform, which changed the duration for Intermediate Apprenticeships for a number of service sector apprenticeships, on individual outcomes (achievement of apprenticeships, employment and earnings) while many other sectors remained unaffected. Using Difference-in-Differences (DiD), we estimate the impact of this reform on apprenticeship outcomes in the sectors affected, using data for apprentices in unaffected sectors as the control group.

Our findings show adverse effects on achievement of apprenticeships and increased drop-out from apprenticeships. However, we also find positive wage effects for apprenticeships affected by the reform. At first glance, this seems inconsistent, as one would expect the qualification gained from the apprenticeship to result in a return. However, if the Level 2 qualifications of apprenticeships in the industries affected by the reform add little value to both apprentices and employers making good job matches, the increased labour market experience from the extended duration, including the higher drop-out rate, might indeed improve this outcome and result in positive effects of the reform. A drop in achievement rates could therefore also imply that those meeting the requirements of their jobs better achieve outcomes.



## 2 Policy background and existing evidence

### 2.1 Institutional regulation of apprenticeships in England

#### 2.1.1 Apprenticeships in the English education system

In the UK, as in most European countries, apprenticeships were historically the traditional route to qualify for a range of occupations in activities such as building, heavy industries, mining and printing. While apprenticeships are still well established in countries like Germany, the Netherlands, or Switzerland, in the UK apprenticeships lost importance in the second half of the 20<sup>th</sup> century. In the 1960s around 30% of school leavers opted to enter an apprenticeship, see Gospel (1995) or Lee (2012). It fell to 13% in 1994 and has remained stable around 10-15% until today.

While apprenticeships continued to exist in industrial sectors, the introduction of Modern Apprenticeships in 1994 aimed to extend employer-based vocational education to all sectors of the economy, including the expanding service sector. The content was organised in apprenticeship “frameworks”, which were developed and managed by the Sector Skills Councils (SSCs). These bodies aimed to keep the learning and assessment activity up to date and in line with relevant National Occupational Standards. Successful achievement of apprenticeships included attainment of National Vocational Qualifications (NVQs), English and mathematics and a technical certificate as an optional component (Brockmann et al. 2010: 177). For many apprentices, the competency-based NVQs were the main qualifications gained from an apprenticeship.

Following the Apprenticeships, Skills, Children and Learning Bill in 2009, all apprenticeships had to include a “competencies qualification” at Level 2 or 3 of the Regulated Qualification Framework (RQF) as well as a “technical qualification” demonstrating knowledge and understanding of theoretical concepts alongside “Functional Skills” in English and mathematics for those with low secondary school attainment.

Apprenticeships aiming for Level 2 or Level 3 qualifications differ substantially, both in the qualifications required by employers of new apprentices and the complexity of procedural and theoretical knowledge and skills in the occupational field. Level 2 or Intermediate Apprenticeships aim to qualify people to be able to deliver clearly defined professional tasks, whereas Level 3 or “Advanced Apprenticeships” aim for people to further acquire knowledge and skills to address non-standard and more complex tasks and wider professional knowledge.

Compared to general qualifications, Intermediate Apprenticeships are equivalent to five good GCSEs passed at grades A\*-C<sup>1</sup>, while Advanced Apprenticeships are equivalent to 2 A-Level passes. Advanced Apprenticeships usually require existing Level 2 qualifications and (in most cases) takes longer to complete than Intermediate Apprenticeships, which can be started from achieved Level 1 qualifications, although there is considerable variation by industry and also learning provider.

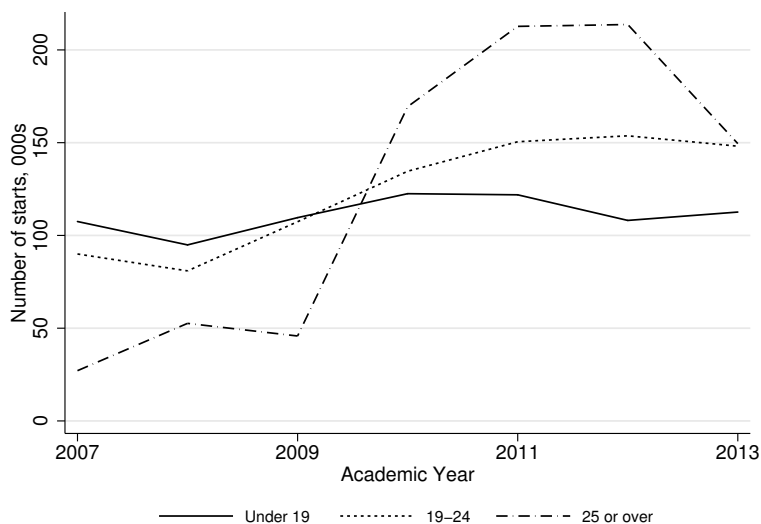
As can be seen from Figure 1, the number of apprenticeship starts recorded in official statistics have been increasing since the academic year 2009/10. Compared to about 167,700 apprentices in the academic year 2002/03, there have been about half a million apprenticeships in the most recent academic year for which published data exists (2014/15). While apprenticeship starts for the 16-18 year olds increased by 29% to 125,900, apprenticeship starts of the 19-24 year olds more than doubled to 160,100. The

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<sup>1</sup>General Certificates of Secondary Education are taken in a variety of subjects and examination takes place in Year 11, the final year of secondary school, when pupils are typically aged 15-16.

most significant growth affected apprenticeships started by people above 25 years of age, which have grown to 213,900 in the last academic year, from zero about ten years ago.

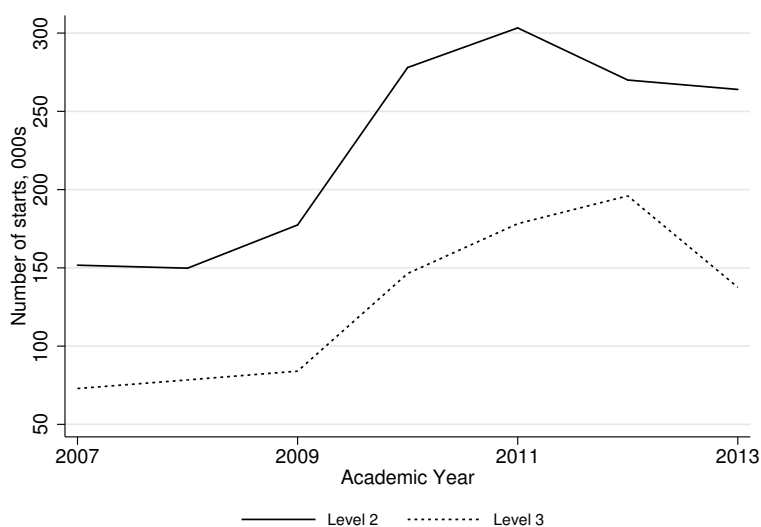
Figure 1: Apprenticeship starts by age groups



Source: Skills Funding Agency 2016

Figure 2 shows that the expansion affected both Intermediate and Advanced Apprenticeships. In the 2007/07 academic year, there were 151,700 starts of Intermediate and 72,900 starts of Advanced Apprenticeships. In 2013/14, starts of Intermediate Apprenticeships grew by 74% to 264,000, while Advanced Apprenticeships starts increased by 89% to 137,600. Starts of Higher Apprenticeships increased to 8,700 from one hundred in 2007/08.

Figure 2: Apprenticeship starts by levels



Source: Skills Funding Agency 2016

### 2.1.2 Recent changes in the regulation

Following the expansion of apprenticeships, evidence emerged that some apprenticeships were of very poor quality. Lee (2012: 228) summarises a variety of sources with negative perceptions of the limited options resulting from apprenticeships in some sectors and poor practice of employers. The Skills Minister subsequently introduced binding minimum standards for all apprenticeships, which came into effect in August 2012 (Specification of Apprenticeship Standards for England, SASE). These introduced a minimum duration of 12 months, except for learners aged 19+ with prior attainment. However, even for 19+ year olds, college funding would be reduced if learners completed apprenticeships in less than 12 months. With a minimum of 37 credits in the Regulated Qualification Framework (RQF), apprentices have at least 280 Guided Learning Hours (GLH) in the college or workplace, of which at least 100 are off-the-job.

Further reforms after the introduction of the SASE standards aimed to improve the quality of apprenticeships and vocational education more generally, in particular in English and mathematics following the Wolf report (2011). A further independent review (Richard 2012) found that apprenticeships in England resulted in many sectors in “an extraordinary number of qualifications, which under the guise of flexibility can be stitched together in an infinite number of combinations leading to any possible outcome but no clear accomplishment”. Therefore, current improvements primarily affect qualifications as recommended by Richard to set a few clear standards: preferably one per occupation (...) to form the basis for new, overarching, qualifications. More recently in July 2016, a similar recommendation was expressed by the Independent Panel on Technical Education (2016), which recommended that both employment-based (apprenticeship) and college-based vocational education should result in qualifications matching employer-set standards.

While it is far too early to obtain a thorough understanding of the impact of these more recent reforms of apprenticeships as they will affect primarily young people starting apprenticeships in this or coming years, we can estimate the effect of the introduction of the SASE standards in 2012 based on empirical data for apprenticeship starts and achievements.

## 2.2 Research background

Most of the existing research on characteristics of apprenticeship programmes and effects on education and labour market outcomes originate from cross-national comparisons and sector case studies, making use of the dissimilar institutional regulations internationally and comparable attainment and labour market data, see for example Steedman (2005). Key features in the “dual system” countries (Austria, Germany and Switzerland), where good labour market outcomes and attainment are observed, are long durations of apprenticeships and high employer commitment. In contrast, in many other countries, full-time vocational education in colleges prior to labour market entry is the norm for students outside general upper secondary education (Denmark, France, Netherlands and the UK) and apprenticeships are of shorter duration. Brockmann, Clarke and Winch (2010) argue that there are distinct approaches to vocational education and training, which contrast the skill or task-based English system to the occupational model prevalent in the Netherlands, France and Germany (*ibid.*, 113). However, apprentices in the UK often already have previous vocational education attainment.

Research evidence on the effectiveness of specific features of apprenticeship from international and inter-sectoral comparisons can be summarised as follows: Improved quality of apprenticeships requires additional employer investment (in addition to vocational schools funded by government), dedicated staff in firms to look after apprentices and accredited qualifications (e.g. EU Commission 2013, Bosch and Charest 2008, Grollmann and Rauner 2007, Fuller and Unwin 2007). At the lower level of individual industries, some evidence exists about the effects of introducing new service sector apprenticeships (e.g. for IT occupations) or modernising/merging some apprenticeships programmes (Bosch and Charest 2008: 434). However, research evidence about the specific duration of apprenticeships and learning time required for high-quality apprenticeships does not exist.

Some of the literature for Germany found that introducing more flexibility and modularisation would help increase achievement for people at higher risk of dropping out (e.g. Kloas 2001, Häfeli 2004), which in particular affects low pay service sector activities where almost half of the apprentices drop out before completion (Berufsbildungsbericht 2016). Similarly, facilitating the transition for low achievers by crediting qualifications obtained in pre-apprenticeship programmes to apprenticeships, see e.g. Euler and Servering (2006), has introduced elements of flexibility into the German system.

In international practice, German Federal Law on Vocational Education from 2005 (“Berufsbildungsgesetz”) confirmed existing apprenticeship standards. This included generally the occupational concept of apprenticeships as well as a minimum duration of two years, basic principles of assessment and the design of the apprenticeship working contract. However, in overarching regulation, a minimum number of learning hours has not been introduced. In the U.S., apprenticeship standards were last reformed in 2008 from a time-based concept, many taking four years to complete, to having the option of competency-based apprenticeships, distance learning and interim credentials, see United States Department of Labor (2008). Although this creates flexibility of apprenticeship duration, minimum hours of instruction (144 hours per year) remain.

Generally, the review of international evidence suggests that increasing flexibility particularly supports weaker students to improve achievement and to reduce drop-outs. In the light of this findings, the SASE reform of 2012 is likely to have created an increase in drop-outs as requirements for achieving qualifications have become more rigid. However, the increased drop-out rate may also result in a better match of (specifically young) people to jobs, i.e. those affected by longer duration apprenticeships may find long-term benefits in terms of making better job matches.

## 3 Data

### 3.1 Description of source data

For the empirical analysis in the following section, we use census-level data from the Individualised Learner Records (ILR) for the academic years 2009/10 to 2012/13 to prepare a longitudinal analysis of all apprenticeships. From these data we can observe both attainment and labour market outcomes for up to three years after the apprenticeships started.

Apprenticeships are identified based on ILR-data on “learning aims”, which are individual learning components undertaken by apprentices during an academic year. Such aims consist of the main vocational learning activity and – depending on existing levels

of qualifications – further courses in English, mathematics and/or ICT. ILR data are used for the production of official apprentice statistics, in particular the number of people starting and achieving apprenticeships each year. Since many apprenticeships run over different academic years, we linked the records of all years after 2009/10 to obtain information on individual completion and achievement.

While ILR aims include dates for start and planned end of the apprenticeship, not all apprenticeships have an actual end date, either because the apprenticeship is still ongoing or it was terminated and the spell has not yet been closed. This right-censoring affects a substantial percentage of apprentices (also the data are currently limited to the end of the February 2015, i.e. 24-36 months after the start of the apprenticeship) and consequentially, in a lower bound estimate on the duration as only apprenticeships that have been completed or withdrawn can be observed for the full duration. As this censoring would particularly affect programmes of longer duration, our analysis will be limited in the following section to Intermediate Apprenticeships with a planned duration exceeding a year only in few sectors.

In addition to completion and achievement, we link ILR data with two databases held by Her Majestys Revenues and Customs (HMRC), P45 and P14, to estimate the impact of the reform on employment and annual earnings.<sup>2</sup>

ILR data cannot be used for research without further processing: many apprenticeships with valid start dates in ILR data are subsequently withdrawn because people decided not to start the programme. To identify the actual number of starters, similar to how these are reported in official statistics, we therefore remove apprenticeships that ended on the same day as they started. We implement further data cleaning procedures as carried out by the Skills Funding Agency for published statistics and remove records where an apprentice has transferred to a different programme or a new provider, as well as frameworks where the apprentice has withdrawn from the learning aim early in the programme (in the so-called “funding qualifying period”) and the learning is not achieved. We further remove a few records with without a valid Unique Learner Number as these cannot be linked across multiple years.

## 3.2 Selection of cohorts and outcomes

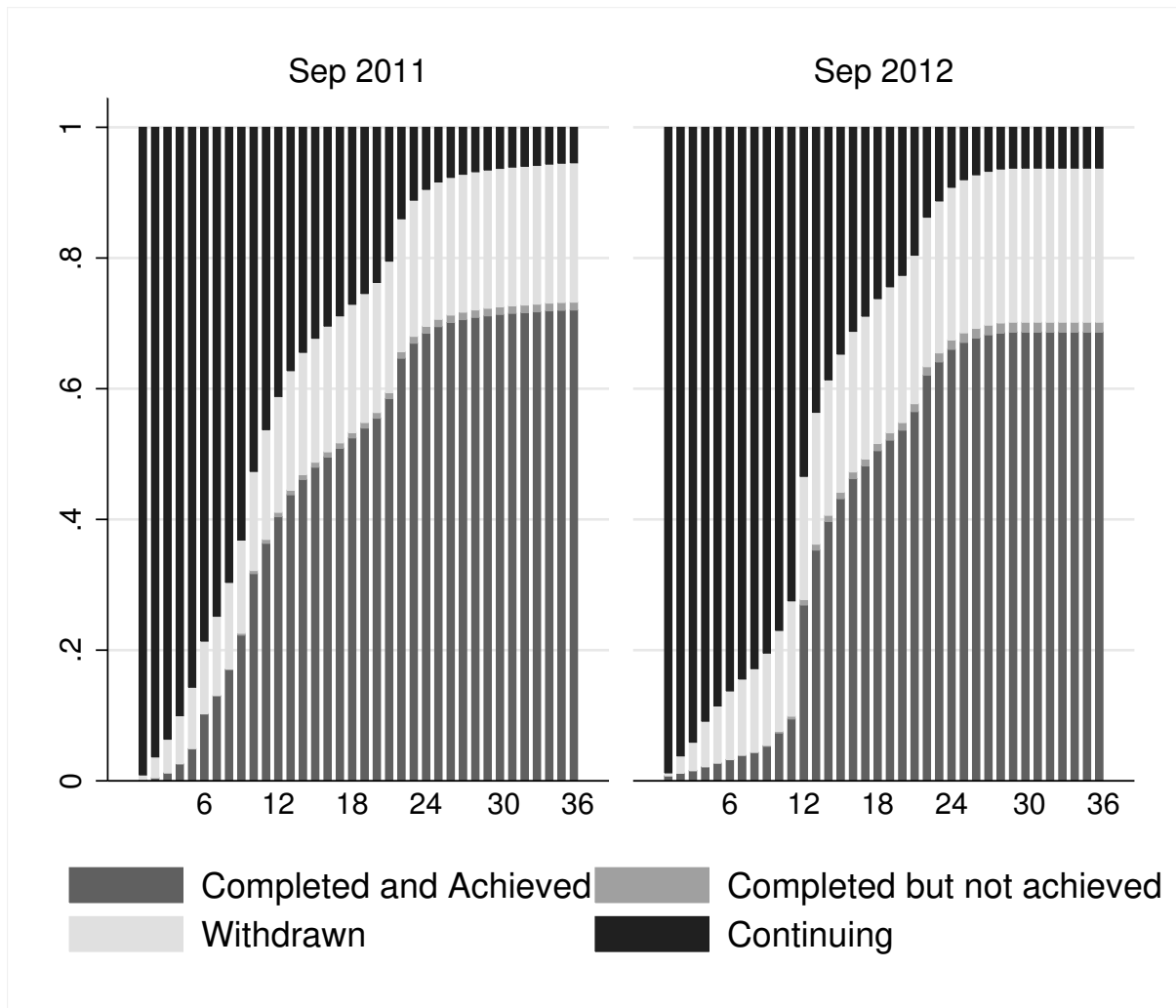
We restrict the analysis to Intermediate Apprenticeships as many Advanced Apprenticeships of post-reform cohorts would still be continuing during the period of observation. For the cohorts starting apprenticeships in 2009/10, 2010/11, 2012/12 and 2012/13 academic years, we derive a variable indicating whether the apprenticeship is, 24 months after starting, completed and achieved, completed but not achieved, withdrawn or continuing, based on observed start and end dates and completion status of the apprenticeship.

Consistent with a planned duration, which can be derived similarly from the data, the vast majority of Intermediate Apprenticeships are expected to be completed within 24 months. Figure 3 shows the completion status of Intermediate Apprenticeships started in September 2011 and in September 2012 up to 36 months after they started.

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<sup>2</sup>P45 contains information about employment spells and P14 about annual earnings until the tax year 2014/15, ending in April 2015. Employers are required to provide P45 forms when an employee joins or leaves “Pay As You Earn” (PAYE) employment, i.e. employment subject to standard labour taxes. In addition, an annual statement of total earnings subject to taxes and national insurance is issued at the end of each financial year (P14). Since employment and earnings in HMRC data suffer from recording issues, the duration of spells with invalid start or end dates was imputed in a non-parametric way based on the distribution of the duration of valid spells.

Figure 3: Completion status of Intermediate Apprenticeships



Source: Individualised Learner Records, 2011/12-2014/15

We can see that the vast majority of completed apprenticeships are achieved, and therefore in the remainder of this paper we focus on achievement only rather than completion. After 24 months, 68.5% of Intermediate Apprenticeships started in September 2011 were achieved, 1.0% were completed but not achieved, 21.0% had been withdrawn and 9.5% were still continuing. Of Intermediate Apprenticeships started in September 2012, 66.0% were achieved, 1.4% were completed but not achieved, 23.4% had been withdrawn and 9.2% were still continuing.

The vast majority of Intermediate Apprenticeships are expected to be completed within 24 months, so the apprenticeships that are still continuing 24 months after starting are likely to be non-completed apprenticeships whose spells have not been yet closed by the provider.

### 3.3 Description of the 2012 apprenticeship reform

#### 3.3.1 Changes in apprenticeship duration

The introduction of a 12-month minimum duration had a strong effect on both the planned and actual duration of Intermediate Apprenticeships. While all apprenticeships

Table 1: The effect of the introduction of minimum duration on planned duration of apprenticeships

|                               | Sep-10 | Sep-11 | Sep-12 |
|-------------------------------|--------|--------|--------|
| <i>16-18</i>                  |        |        |        |
| % with planned duration < 12m | 0.135  | 0.331  | 0.029  |
| Average planned duration      | 19.0   | 15.9   | 17.4   |
| Average actual duration       | 17.2   | 13.7   | 14.7   |
| Average GLH                   | 550.2  | 569.4  | 573.4  |
| <i>19+, low prior att.</i>    |        |        |        |
| % with planned duration < 12m | 0.422  | 0.588  | 0.097  |
| Average planned duration      | 14.3   | 12.1   | 14.1   |
| Average actual duration       | 9.8    | 11.4   | 12.6   |
| Average GLH                   | 477.8  | 464.0  | 470.3  |
| <i>19+, L2+ prior att.</i>    |        |        |        |
| % with planned duration < 12m | 0.568  | 0.624  | 0.151  |
| Average planned duration      | 12.0   | 11.6   | 13.1   |
| Average actual duration       | 9.2    | 10.7   | 11.9   |
| Average GLH                   | 337.1  | 396.4  | 397.3  |

Note: Intermediate Apprenticeship only

Source: Individualised Learner Records, 2011/12-2014/15

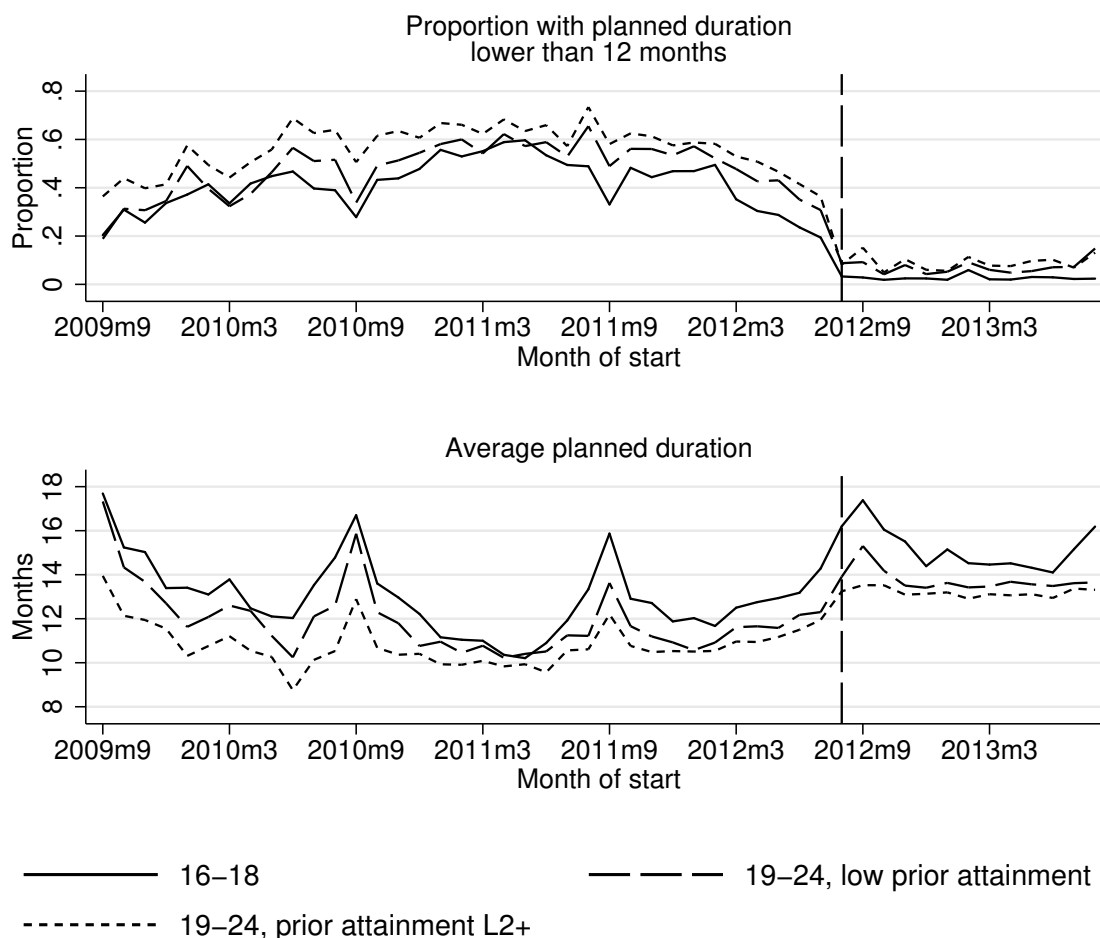
have a planned duration, actual duration is observed only for completed apprenticeships. Therefore, we mainly rely on planned duration in this analysis. Table 1 shows planned and actual duration of apprenticeships started in September 2011 and September 2012 by age and prior attainment of apprentices.

Almost half (47.5%) of Intermediate Apprenticeships started in September 2011 by 16-18 year old learners had a planned duration of less than 12 months, compared to only 2.9% for those started in September 2012. The proportion of Intermediate Apprenticeships expected to last for less than 12 months fell from 58.8% to 9.7% for apprentices aged 19+ with low prior attainment between September 2011 and September 2012. While the 12-month minimum duration did not apply to apprentices aged 19+ with Level 2 prior attainment, a sharp reduction in the proportion of Intermediate Apprenticeships with a planned duration of less than 12 months was observed (from 62.5% to 15.1%). Funding is reduced if the apprenticeship duration is less than 12 months, therefore providers may have encouraged learners to sign up for apprenticeships lasting at least 12 months. The right hand-side of Table 1 shows that the reform also had a strong impact on actual duration (of completed apprenticeships), but the proportion of Intermediate Apprenticeships that lasted less than 12 months is larger than expected given the planned duration. The distribution of planned and actual apprenticeship durations are reported in Figure A.1 (Appendix).

Figure 4 shows the proportion of Intermediate Apprenticeships with a planned duration of less than 12 months and the average planned duration by month of start. The 12-month minimum duration came into force in August 2012, but we can see from the left-hand side of the graph that the proportion was falling from March onwards, suggest-

ing some anticipatory effects. The right-hand side of the graph shows how the average planned duration has changed for apprenticeships started between September 2011 and August 2013. In addition, the planned duration seems to vary by calendar month of start: apprenticeships started in September tend to have a longer planned duration. Sixteen to eighteen year olds, starting Intermediate Apprenticeships at the beginning of the academic year, either from secondary school or leaving further education colleges, show particularly longer planned durations than people starting later in the academic year, even those of the same age.

Figure 4: Planned duration by month of start



Source: Individualised Learner Records, 2011/12-2014/15

Figures published by the Department for Education show that the number of Intermediate Apprenticeship started in England reached 329,000 in the academic year 2011/12 and has been declining since the introduction of the 12-month minimum duration, with 292,800 starts in 2012/13 and 286,500 starts in 2013/14.

### 3.3.2 Changes in Guided Learning Hours (GLH)

In order to understand whether the reform had an impact on the number of GLH, we processed the individual aims related to all Intermediate Apprenticeships started in the



three academic years 2010/11-2012/13. For most apprentices, the number of GLH needs to be calculated from two or more aims, i.e. one aim associated with a knowledge qualification and one with a competence qualification. In addition, there are modules in English, mathematics and ICT where apprentices' skills are at too low a level (normally below Level 2).

There are a number of problems related to using the information from GLH. First, not all aims show GLH values. NVQs, by far the most important competence qualification from Intermediate Apprenticeships, have no associated GLH. For other aims, including Diplomas and Certificates for both competence and knowledge elements, we found substantial numbers with missing values. The English and maths aims show 45 GLH when the learning aim title is "Functional Skills", but are missing when referred to as "Key Skills". In addition, English and mathematics aims often show a duration of one day and achievement of learning outcomes, i.e. suggesting that existing skills might have been credited and aims are not in relation to learning undertaken. Further, GLH within apprenticeships of the same framework could differ because of the particular specialisation or "Pathway", the exact title of the qualification or the associated awarding body. Finally, aims, which were subsequently left to start alternative aims in the same apprenticeship needed to be excluded to obtain the correct GLH value.

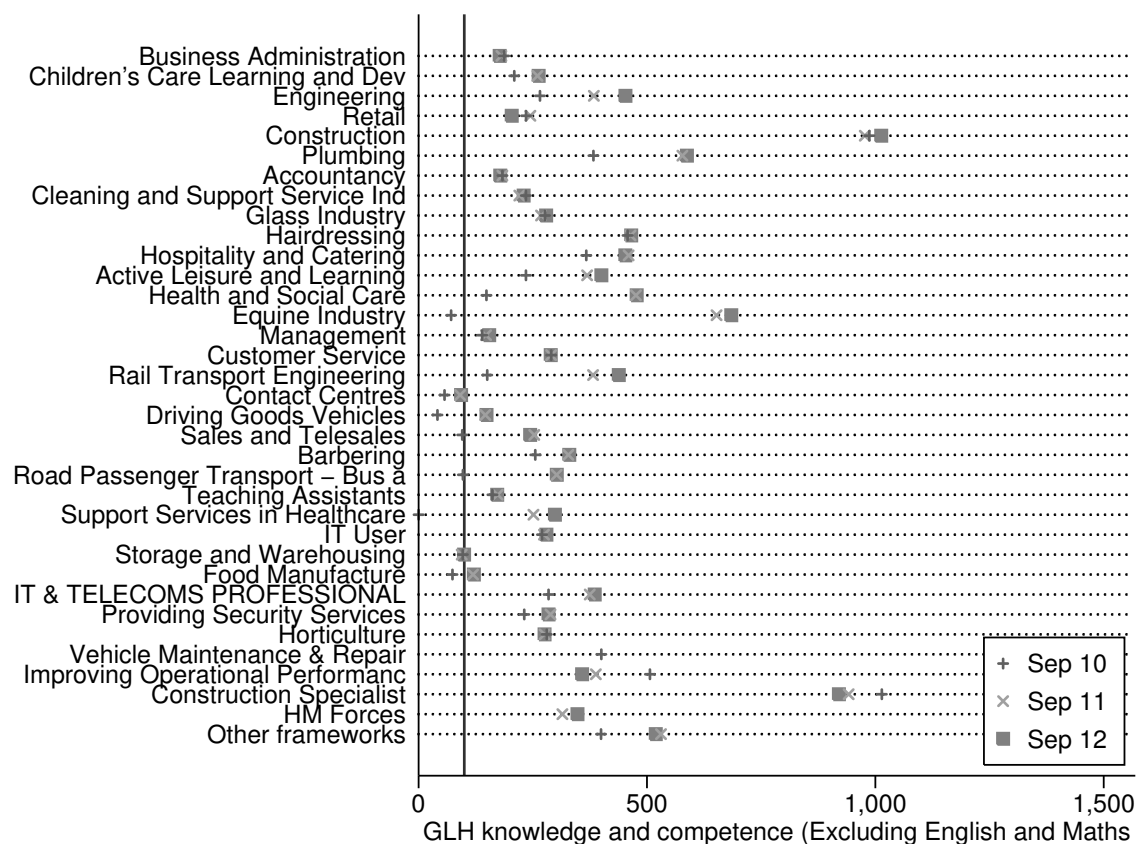
To gain some consistency across the very heterogeneous groups within frameworks, we removed all English, mathematics and ICT aims and kept only vocational qualifications (Diplomas, Certificates and Awards). We excluded aims which were left because of transfers or interruptions during the apprenticeships and removed learners with incomplete GLH values (in particular those with NVQs). The remaining records should show total minimum GLH for individual learners for the duration of the apprenticeship, as suggested by Ofsted, for all aims' GLH excluding English and mathematics, which should theoretically exceed 280 hours per learner per year. Based on this individual value, we then calculate the framework averages.

However, as shown in Figure 5, there are ten apprenticeship frameworks with on average fewer than 200 GLH.<sup>3</sup> In our view, such a finding could be expected as the 280 minimum GLH standard refers to on- and off-the-job training, of which only the off-the-job element of at least 100 GLH needs to be clearly evidenced. While this is the case for all frameworks in 2012, the graph suggests that the increase in GLH in Intermediate Apprenticeships in Food Manufacture to above 100 GLH could have been an outcome of the reform. However, all frameworks show considerable variation in GLH between 2010/11 and 2012/13 and there is no framework with a noticeable increase after the introduction of the 280 GLH minimum standard. Therefore, this element of the reform did not result in significant variation at framework level, which could be used to estimate the impact of changing learning time.

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<sup>3</sup>As there is some inconsistency over the years as some of the apprenticeship frameworks split or new frameworks emerged, the average minimum number of GLHs can only be derived consistently for 81 sector frameworks, which could be systematically mapped across the academic years 2010/11-2012/13. While these were all analysed, Figure 5 only includes framework with at least 1,000 apprentices as small apprenticeships framework with many different pathways tend to vary over the years as the proportions of the different pathways change.

Figure 5: Average total Guided Learning Hours of Knowledge and Competence aims by framework



Note: Time-constant frameworks with 1000+ apprentices  
 Source: Individualised Learner Records, 2010/12-2012/13

## 4 Empirical impact analysis

### 4.1 Identification strategy

As described in Figure 4, the planned duration of Intermediate Apprenticeships changed similarly between September 2009 and August 2013 for all the groups (16-18 year olds, 19-24 year olds without Level 2 qualifications and 19-24 year olds with Level 2 qualifications). It shows clear changes both in the proportion of apprenticeships with a duration of less than 12 months (which dropped sharply) and the average planned duration (which increased). However, it also shows that average planned duration depends on when an apprenticeship is started in the academic year, with longest durations observed for September starters. Finally, the figure also shows that the SASE reform followed previous decreases in observed durations since the academic year 2009/10.

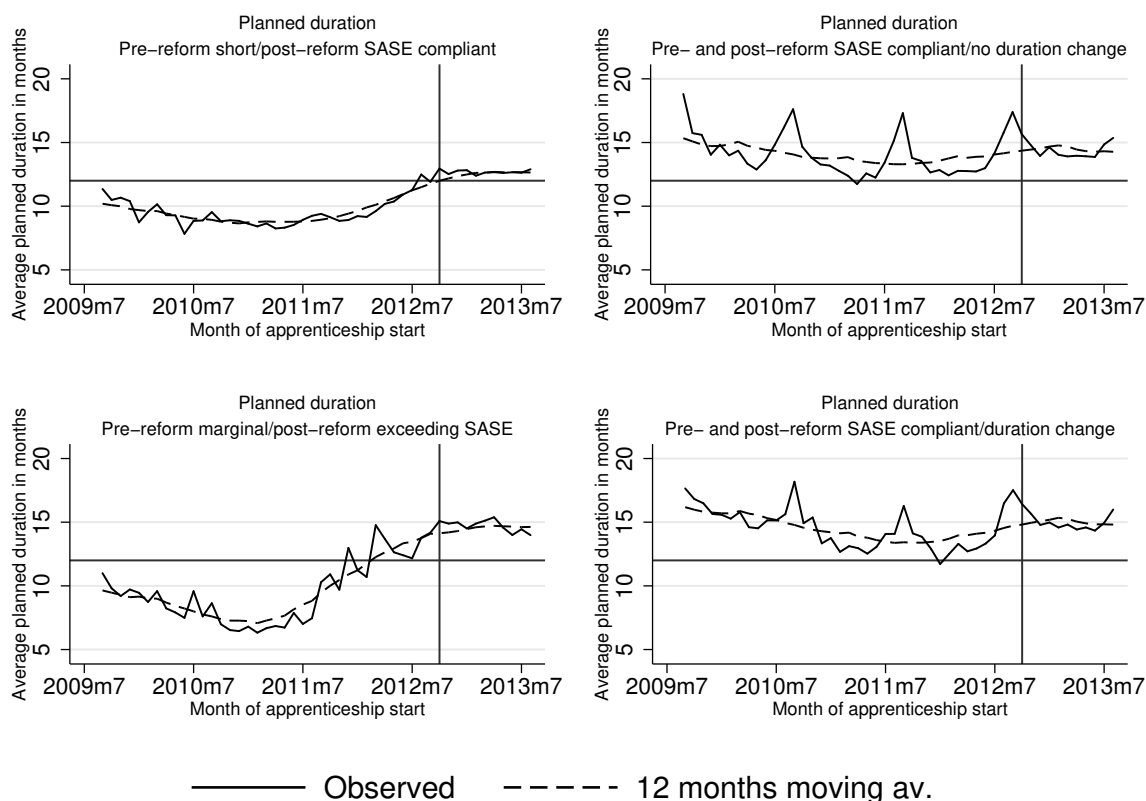
In order to separate out the frameworks which were genuinely affected by the reform from those unaffected and other frameworks which had increased durations after the previous decrease, we reviewed all frameworks with at least 100 apprenticeships between 2009/10 and 2012/13, which we show in Table B.1 in Appendix B. This table includes observed durations before (September 2009, September 2011) and after the reform (September 2012), when all frameworks show a planned duration of about a year

or more. Since the duration also changes with a specific in-year time-trend, we apply a symmetric 12-month moving average, with uniform weights. This means that we average the first six lagged value, the current value and the first six forward terms of the series, with each term in the average receiving a weight of one.

The resulting series of planned duration are much smoother because of the reduction in the noise of the time series and more able to exhibit genuine shifts in planned duration. Using the September 2011 and September 2012 moving averages, we identify a response to the SASE reform if the duration increased noticeably (i.e. by more than two months) post-reform and was less than twelve months in the pre-programme period. In contrast, a framework unaffected by the reform would show both pre- and post-reform planned average durations of more than one year.

Figure 6 provides a description of how the duration changed for the frameworks affected or unaffected by the reform. The figure shows the observed planned duration of apprenticeships starting in a particular month between September 2009 and August 2013 and the related moving average. The vertical line shows the time by which increased durations had to be implemented. The much smoother moving-average removes noise from the observed time series, making it easier to identify genuine shifts in planned durations.

Figure 6: SASE effect on framework duration



Source: Individualised Learner Records, 2010/12-2012/13

The data suggest that duration changes affected frameworks with short durations in 2011 and as well as other frameworks. For those with short durations, some of them showed decreasing durations in the pre-reform period, while others were of short duration and then just met the new 12-month duration. Since the reform aimed to reverse

decreasing durations in some frameworks, it is only possible to estimate the impact of the policy if the frameworks affected by the reform show stability in short durations before the reform. In addition, only frameworks unaffected by the reform allow us to estimate the counterfactual if their duration remains unaffected. However, this is not the case for all frameworks. Indeed, for many frameworks above the 12-month duration in September 2012, duration decreased before and increased around the time of the reform. Including frameworks in the control group, which were affected by significant changes in duration would not allow us to estimate a credible effect of a genuine policy shift.

As a consequence, we only include frameworks with a stable duration before the intervention in the group affected by the reform (treatment group) and exclude frameworks, which had pre-programme shifts of more than one month. Table B.2 in Appendix B shows that in the post-reform period the treatment group contains 32 percent of all starts and the control group 47 percent. Figures are similar in the pre-reform period (35 and 45 percent respectively).

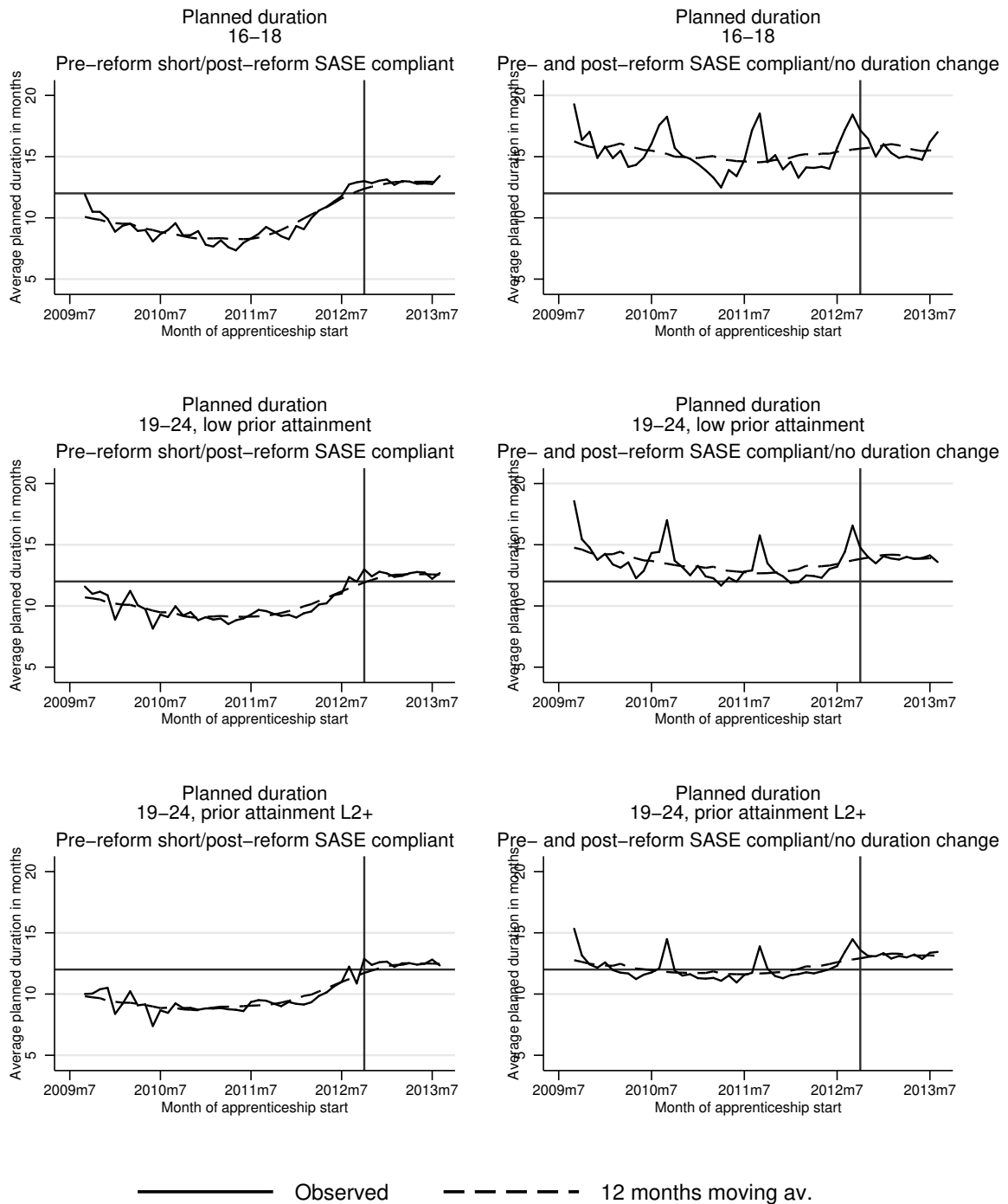
More details can be found in Table B.3 In Appendix B. The analysis in the following section will only make use of the groups shown in the upper half panel of Figure 6<sup>4</sup>. Including the frameworks shown in the lower part of the figure in the analysis would likely violate the common trends assumption.

In order to further check whether our distinction of “treatment” and “non-treatment” groups works, we provide a further description of treatment and control groups in the upper part of Figure 6 by age groups (Figure 7). The graphs show that our assumption of stable duration in the pre-reform period for 16-18 year olds is unlikely to hold because of a much longer duration in September 2009 based on observed values. As with all other groups, we will implement placebo tests in the pre-reform period to empirically test this. In Figures A.2 and A.3 in Appendix A we also show how labour market outcomes evolved over the period. The employment rate and earnings two years after start seem to evolve similarly in treated and control frameworks, but this will be tested empirically.

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<sup>4</sup>Frameworks of Intermediate Apprenticeships affected by the reform were Retail, Hospitality and Catering, Active Leisure and Learning, Customer Service, Contact Centres, Sales and Telesales, IT and Telecoms Professional, Providing Security Services and Logistics Operations. Table B.1 in the Appendix has the detail about the SASE response for all frameworks with more than 100 apprentices, which had a consistent framework regulation between 2009 and 2012.

Figure 7: SASE effect on framework duration



Source: Individualised Learner Records, 2009/10-2012/13

## 4.2 Estimation

As discussed, we analyse the effects of the SASE reform comparing frameworks with stable pre-programme planned durations, which were substantially affected by the introduction of a minimum duration, to those on which the reform had no impact *a priori* (because they already had an expected duration of over 12 months). This results in a simple binary treatment variable equal to one if the average planned duration of apprenticeships started in September 2012 (after the introduction of the 12-month minimum duration) exceed the average planned duration of apprenticeships started in September 2011 by at least two months and duration was well below a year in the previous period. We estimate the impact of this treatment separately for each age/attainment group (16-18 year olds, 19-24 year olds with no prior attainment, 19-24 year olds with Level 2 or above prior attainment).

More formally, we estimate the equation:

$$y_{i,j,t} = \alpha + \beta D_j \mathbb{1}(t > Aug2012) + \lambda_j + \delta_t + \mathbf{x}_{j,t}\gamma + \epsilon_{i,j,t} \quad (1)$$

where  $y_{i,j,t}$  is the individual level outcome of interest (e.g., achievement or withdrawal until 24 months after the start, employment 30 months after the start or log annual earnings) for individual  $i$  enrolled in framework  $j$  started at month  $t$ .  $D_{j,t}$  is a binary variable equal to one if the framework  $j$  was affected by the SASE reform<sup>5</sup>. The model includes framework fixed effects ( $\lambda_j$ ) and time fixed effects for the month when the apprenticeship started ( $\delta_t$ ) as well as a vector of individual characteristics (gender, age, disability status, level of prior attainment).

In order to analyse the effect of the reform on the number of apprenticeship starts, we use framework-level data derived from individual level data and estimate the following equation:

$$N_{j,t} = \alpha + \beta D_j \mathbb{1}(t > Aug2012) + \lambda_j + \delta_t + \epsilon_{j,t} \quad (2)$$

where  $N_{j,t}$  is number of apprenticeships started in framework  $j$  at month  $t$ . Like the individual-level model, the model includes framework fixed effects ( $\lambda_j$ ) and month-year fixed effects ( $\delta_t$ ). However, it does not include individual characteristics.

The main identifying assumption is that achievement in affected frameworks would have evolved similarly to achievement in non-affected frameworks. Because the duration of affected frameworks increased in the period ahead of the reform for all the frameworks affected, we focus on apprenticeships started in the first six months of the academic years before and after the introduction of the minimum duration.

Table B.4 in Appendix B provides a description of the average outcome variables for each of the groups affected or unaffected by the reform. These show achievement for about 50%-60% of apprenticeships within 24 months (depending on the specific group) and generally very high post-apprenticeship employment rates, which are highest for 19-24 year olds with existing Level 2 qualifications.

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<sup>5</sup>As explained above, a framework is considered as affected by the reform if the average planned duration of apprenticeships started in September 2012 (after the introduction of the 12-month minimum duration) exceed the average planned duration of apprenticeships started in September 2011 by at least two months and duration was well below a year in the previous period.

## 4.3 Results

### 4.3.1 Increased duration and apprenticeship starts

Table 2 shows DiD estimates of the effect of the reform on apprenticeship starts in the frameworks for 16-18 year olds, 19-24 year olds with low prior attainment, and 19-24 year olds with Level 2 or higher prior attainment. These estimates are based on data on the number of apprenticeships started per month between September and February of the academic years before and after the reform (or placebo) for reform and non-reform frameworks. The first two columns show the effect of the introduction of the 12-month minimum duration and the last two columns show the effects of a placebo reform in August 2011. The results suggest that the introduction of the 12-month minimum duration had a negative and statistically significant effect on the number of apprenticeships starts for all groups. Our weighted results suggest that in the SASE-affected sectors the reform reduced the number of apprenticeships started by 148 per month for 16-18 year olds, by 30 for the 19-24 year olds without Level 2 qualifications and by 103 for 19-24 year olds with Level 2 prior attainment. Results from column 3 and 4 show that the estimates of a placebo reform taking place one year before the actual reform are not statistically significant.

Results presented in Table B.5 in Appendix B suggest that the reform had a similar impact on learners with high and low prior qualifications. Therefore, the effects observed on individual-level outcomes are unlikely to be driven by compositional change in terms of prior qualifications

Table 2: Impact of the introduction of the 12 months minimum duration on starts

|                                       | Reform            |                    | Placebo reform |                |
|---------------------------------------|-------------------|--------------------|----------------|----------------|
|                                       | (1)               | (2)                | (3)            | (4)            |
| 16-18 Apprentices                     |                   |                    |                |                |
| Reform effect                         | -86.1**<br>(35.8) | -147.8**<br>(41.0) | 25.0<br>(44.6) | 28.8<br>(50.8) |
| Observations                          | 551.0             | 551.0              | 497.0          | 497.0          |
| R2                                    | 0.7               | 0.7                | 0.7            | 0.7            |
| Mean outcome                          | 122.3             | 471.1              | 136.6          | 523.2          |
| 19-24 Apprentices with low prior att. |                   |                    |                |                |
| Reform effect                         | -10.5**<br>(9.2)  | -29.8**<br>(12.5)  | 1.0<br>(7.1)   | 14.2<br>(8.4)  |
| Observations                          | 479.0             | 479.0              | 454.0          | 454.0          |
| Pseudo-R2                             | 0.9               | 0.8                | 0.9            | 0.9            |
| Mean outcome                          | 62.7              | 220.6              | 56.7           | 206.2          |
| 19-24 Apprentices with L2+ prior att. |                   |                    |                |                |
| Reform effect                         | -33.9**<br>(12.2) | -102.6**<br>(17.1) | 1.3<br>(8.8)   | 7.1<br>(10.5)  |
| Observations                          | 503.0             | 503.0              | 434.0          | 434.0          |
| Pseudo-R2                             | 0.9               | 0.8                | 0.9            | 0.9            |
| Mean outcome                          | 78.8              | 305.0              | 71.9           | 272.6          |
| Month of start                        | Yes               | Yes                | Yes            | Yes            |
| Framework FE                          | Yes               | Yes                | Yes            | Yes            |
| Weights                               | No                | Yes                | No             | Yes            |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Models include framework fixed effects; Weights are calculated using the total number of starts by framework over the period Sep 2009-Aug 2013; Sep 12-Feb 13 data are used for the actual reform (compared to one year before), Sep 11-Feb 12 for the placebo.  
Source: Individualised Learner Records, 2010/11-2012/13

### 4.3.2 Increased duration on individual-level outcomes

In this section, we present estimates of the effect of the introduction of the 12-month minimum duration on achievement of apprenticeships within 24 months of starting. Table 3 reports estimates of the effect of the reform on frameworks that saw an increase in average planned duration by at least two months for 16-18 year olds, 19-24 year olds with low prior attainment, and 19-24 year olds with Level 2 or higher prior attainment. As explained above, the sample is restricted to apprenticeships started between September 2012 and February 2013 and September 2011 until February 2012 to exclude the second half of the academic year, in which duration starts to change ahead of the new standards.

Overall, the estimates suggest that the introduction of a minimum duration had an adverse impact on the probability of achieving an Intermediate Apprenticeship.

The introduction of a minimum duration reduced achievement within 24 months by 10.2 percentage points for 16-18 year old learners, 7.3 percentage points for 19-24 year old apprentices with low prior attainment and 4.4 percentage points for 19-24 year old apprentices with Level 2 or higher prior attainment. One might argue that the negative



Table 3: Impact of the introduction of the 12-month minimum duration

|   | (1)                        | (2)                       | (3)                        | (4)                                  |
|---|----------------------------|---------------------------|----------------------------|--------------------------------------|
|   | Achievement<br>within 24 m | Withdrawal<br>within 24 m | Employed<br>30 after start | Log Annual<br>Earnings<br>2 y. later |
| A - 16-18 Apprentices                           |                            |                           |                            |                                      |
| Reform effect                                   | -0.102**<br>(0.009)        | 0.087**<br>(0.008)        | 0.039**<br>(0.005)         | 0.127**<br>(0.021)                   |
| Observations                                    | 67,034                     | 67,007                    | 61,410                     | 37,265                               |
| Pseudo-R2/R2                                    | 0.051                      | 0.033                     | 0.043                      | 0.083                                |
| Mean outcome                                    | 0.631                      | 0.267                     | 0.843                      | 10,212.6                             |
| B - 19-24 Apprentices with low prior attainment |                            |                           |                            |                                      |
| Reform effect                                   | -0.073**<br>(0.012)        | 0.050**<br>(0.011)        | 0.005<br>(0.008)           | 0.069**<br>(0.023)                   |
| Observations                                    | 29791                      | 29780                     | 28023                      | 22726                                |
| Pseudo-R2/R2                                    | 0.035                      | 0.028                     | 0.038                      | 0.067                                |
| Mean outcome                                    | 0.603                      | 0.300                     | 0.878                      | 12,487.8                             |
| C - 19-24 Apprentices with L2+ prior attainment |                            |                           |                            |                                      |
| Reform effect                                   | -0.044**<br>(0.010)        | 0.029**<br>(0.009)        | 0.000<br>(0.006)           | 0.029<br>(0.016)                     |
| Observations                                    | 39467                      | 39467                     | 37338                      | 33201                                |
| Pseudo-R2/R2                                    | 0.031                      | 0.019                     | 0.023                      | 0.057                                |
| Mean outcome                                    | 0.676                      | 0.242                     | 0.915                      | 13,245.5                             |
| Socio-demographic                               | Yes                        | Yes                       | Yes                        | Yes                                  |
| Framework FE                                    | Yes                        | Yes                       | Yes                        | Yes                                  |
| Time FE   | Yes                        | Yes                       | Yes                        | Yes                                  |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Sample is restricted to apprenticeships started between Sep 2012 and Feb 2013 and the same period a year before. Models include month of start and framework dummies, as well as socio-demographic characteristics (gender, age at start, level of prior attainment and disability status). Robust standard errors in parentheses.

Source: Individualised Learner Records, 2011/12-2012/13

impact on duration can simply be explained by the fact that apprenticeships take longer to complete after the introduction of the 12-month minimum duration. However, only 1.3% of apprenticeships in affected frameworks started in September 2012 had a planned duration greater than 24 months, compared to 1.0% for those started in September 2011.<sup>6</sup>

In addition, we report DiD estimates of the impact of the reform on the probability of withdrawing from the apprenticeship programme<sup>7</sup> in column 2. The estimates are of the same magnitude as the estimates for achievement for 16-18 and 19-24 year old

<sup>6</sup>In Tables C.1 and C.2 in Appendix C, we estimate the same models based on samples restricted firstly to those who are observed in HMRC data and secondly to those with positive earnings. The results are very similar.

<sup>7</sup>As mentioned above, some apprenticeships spells are still labelled as 'continuing' in the ILR data, although they started and were never completed three or four years ago. This is due to the fact that if the apprentice dropped out too soon, then the college would not get any money from the Skills Funding Agency and therefore may not take the time to close the spell in the ILR.

apprentices with low prior attainment, suggesting that the decrease in achievement rate within 24 months is driven by an increase in drop-outs. Table 3 also shows that the increased duration had positive and significant effects on earnings 30 months after the start of the apprenticeship for the 16-18 year old and 19-24 year old apprentices with low prior attainment, and positive effect on employment for the 16-18 year olds only.

In order to be able to interpret the effects from the Difference-in-Differences models as to be caused by the reform, we additionally implemented models testing the effect of a placebo reform introduced in August 2011. Results of these falsification tests are reported in Table 4.

The estimates of the effect of the 2011 placebo reform are close to zero and statistically insignificant for 19-24 year old apprentices with low and high prior attainment, which suggest that for these two groups the common trend assumption is likely to hold and the differences in achievement and labour market outcomes presented in Table 3 are due to the effect of the SASE reform<sup>8</sup>. The placebo reform shows significant effects for the 16-18 year olds on two of the four outcomes (withdrawal from apprenticeships and the employment status), which suggest that outcomes had not been stable in the pre-programme period and should not be interpreted as causal.

### 4.3.3 Interpreting the findings

When focusing on the group the 19-24 year olds, who experienced a genuine increase in apprenticeship duration, we found that the reform reduced apprenticeship starts in the affected sectors (by around 132 per month on average), increased drop-out rates (by 3-5 percentage points) and reduced achievement of the qualification (by 4-7 percentage points). We believe that the negative impact on achievement can be explained by the fact that the increase in duration induced an increased opportunity cost to participate in Intermediate Apprenticeships. As apprenticeships last longer, the learners have greater chances of finding another better-paid job and hence are more likely to drop out from the apprenticeships that they are engaged in.

However, we also find statistically significant increases in earnings (+7% compared to counterfactual for 19-24 year olds without Level 2 qualifications), which is a very positive effect of the reform. The main limitation of this study is that it is not possible with the available data to test whether the increase in earnings was driven by those who achieved a longer apprenticeship, by learners dropping out of their apprenticeships to get a better-paid job, or by a compositional change (i.e. weaker young people not starting an apprenticeship<sup>9</sup>). However, this positive effect on earnings suggests that the reform improved job matching. As suggested by job search theory, at given arrival rates of job offers, an extended period of job search (i.e. the time spent on low-pay apprenticeships) may help people make a better match.

This would also be consistent with the opportunity cost argument: apprenticeships might be regarded as a learning activity and an investment. However, if completing the apprenticeship and obtaining the qualification does not result in substantial earnings and employment opportunities, apprentices may be tempted to drop out of the apprenticeship program and move on to better-paid jobs, having gained valuable work experience whilst

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<sup>8</sup>The impact of the placebo reform on achievement of 19-24 year olds with low prior attainment would be at 10% level of significance if accepting lower levels of significance

<sup>9</sup>Results presented in Table B.5 in Appendix B suggest that the reform had a similar impact on learners with high and low prior qualifications. However, learners may differ according to unobserved characteristics

on the apprenticeship. All the frameworks affected by the reform are in service industries without the long-established tradition (and recognition) of apprenticeships. In these sectors, qualifications obtained from the apprenticeship may not be as important for long-term success as in sectors where they are the conventional (and often only) way of starting a successful career, such as in engineering or hairdressing.

Table 4: Impact of a 2011 Placebo reform

|   | (1)<br>Achievement<br>within 24 m | (2)<br>Withdrawal<br>within 24 m | (3)<br>Employed<br>30 after start | (4)<br>Annual<br>Earnings<br>2 y. later |
|---|-----------------------------------|----------------------------------|-----------------------------------|---|
| 16-18 Apprentices                           |                                   |                                  |                                   |   |
| Reform effect                               | -0.010<br>(0.008)                 | 0.023**<br>(0.007)               | -0.02**<br>(0.006)                | -0.018<br>(0.019)                       |
| Observations                                | 70,958                            | 70,948                           | 69,055                            | 51,669                                  |
| Pseudo-R2/R2                                | 0.045                             | 0.025                            | 0.041                             | 0.085                                   |
| Mean outcome                                | 0.657                             | 0.257                            | 0.804                             | 9,405.6                                 |
| 19-24 Apprentices with low prior attainment |                                   |                                  |                                   |   |
| Reform effect                               | 0.020<br>(0.011)                  | -0.017<br>(0.011)                | 0.012<br>(0.008)                  | 0.040<br>(0.024)                        |
| Observations                                | 29,106                            | 29,087                           | 28,216                            | 22,450                                  |
| Pseudo-R2/R2                                | 0.016                             | 0.011                            | 0.037                             | 0.072                                   |
| Mean outcome                                | 0.643                             | 0.276                            | 0.859                             | 12,094.4                                |
| 19-24 Apprentices with L2+ prior attainment |                                   |                                  |                                   |   |
| Reform effect                               | 0.001<br>(0.010)                  | 0.005<br>(0.009)                 | -0.004<br>(0.006)                 | 0.003<br>(0.018)                        |
| Observations                                | 36,300                            | 36,280                           | 35,342                            | 31,137                                  |
| Pseudo-R2/R2                                | 0.020                             | 0.012                            | 0.026                             | 0.063                                   |
| Mean outcome                                | 0.709                             | 0.223                            | 0.901                             | 13,019.7                                |
| Socio-demographic                           | Yes                               | Yes                              | Yes                               | Yes                                     |
| Framework FE                                | Yes                               | Yes                              | Yes                               | Yes                                     |
| Time FE                                     | Yes                               | Yes                              | Yes                               | Yes                                     |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Sample is restricted to apprenticeships started between Sep 2011 and Feb 2012 and the same period a year before. Models include month of start and framework dummies, as well as socio-demographic characteristics (gender, age at start, level of prior attainment and disability status). Robust standard errors in parentheses.

Source: Individualised Learner Records, 2010/11-2011/12

## 5 Conclusion

Following the expansion of apprenticeships in the late 2000s, the Skills Minister introduced binding minimum standards for all apprenticeships, which came into effect in August 2012 (Specification of Apprenticeship Standards for England). These introduced a minimum duration of 12 months, except for learners aged 19+ with prior attainment

and a requirement that apprentices should have no less than 280 Guided Learning Hours (GLH) in the college or workplace, of which at least 100 were off-the-job.

In this paper, we estimate the effect of this reform, which extended the duration for Intermediate Apprenticeships in many industries, while other sectors already exceeded the minimum duration and GLH were widely unaffected. Using Difference-in-Differences, we estimate the impact of this reform on starts of apprenticeships in the sectors affected as well as the impact on individual achievement, drop-out rate, employment and earnings. We use census-level data from the Individualised Learner Records (ILR) linked to employment and earnings from other government registers and restrict the analysis to 16-18 year old apprentices and 19-24 year olds with and without existing Level 2 qualifications.

In order to estimate a credible counterfactual, we reviewed planned durations of all apprenticeship frameworks with at least 100 Intermediate Apprenticeships. We found that many frameworks had been affected by changes in the planned duration, even those exceeding the post-reform duration consistently before the SASE reform. As a consequence, we restrict the non-intervention group to frameworks with a stable pattern of planned duration before and after the reform and exceeding twelve months consistently.

Although planned duration increased in the sectors affected by the reform for all apprentices under the age of 25, the planned duration of the 16-18 year olds - which had decreased before 2012 - basically only went back to what was in 2010. Difference-in-Differences of a placebo reform for this group confirm that suggested the method does not allow to credibly estimate impacts for 16-18 year olds. Therefore, we focus on the group the 19-24 year olds, who experienced a genuine increase in apprenticeship duration. We find that the reform reduced apprenticeship starts in the sectors affected (by 13 to 33 percent), increased drop-out rates (by 3-5 percentage points) and reduced achievement of the qualification (by 4-7 percentage points), but also significantly increased earnings (+7% compared to counterfactual for 19-24 year olds without Level 2 qualifications).

In summary, the SASE reform reduced the number of starts and achievement of apprenticeships but led to an overall increase in earnings in the medium term. The main limitation of this study is that it is not possible with the available data to test whether the increase in earnings was driven by those who achieved a longer apprenticeship, by learners dropping out of their apprenticeships to get a better-paid job, or by a compositional change (i.e. weaker young people not starting an apprenticeship). However, in our view, the positive effect on earnings indicates that the SASE reform improved the job matching of young people to available employment opportunities, which was the reforms ultimate purpose.

## 6 References

- Apprenticeships, Skills, Children and Learning Act* (2009),  
<http://www.legislation.gov.uk/ukpga/2009/22/contents>
- Berufsbildungsgesetz* (2005),  
[https://www.gesetze-im-internet.de/bundesrecht/bbig\\_2005/gesamt.pdf](https://www.gesetze-im-internet.de/bundesrecht/bbig_2005/gesamt.pdf)
- Bosch, G. and Charest, J. (2008), “Vocational training and the labour market in liberal and coordinated economies”, *Industrial Relations Journal* 39(5), 428-447
- Brockmann, M., Clarke, L. and Winch, C. (2010), “The Apprenticeship Framework in England: a new beginning or a continuing sham?” *Journal of Education and Work*, 23(2), 111-127
- Bundesministerium für Bildung und Forschung (2016), *Berufsbildungsbericht 2016*, Bonn.  
[https://www.bmbf.de/pub/Berufsbildungsbericht\\_2016.pdf](https://www.bmbf.de/pub/Berufsbildungsbericht_2016.pdf)
- Conlon, G., Patrignani, P. and Chapman, J. (2011), Returns to Intermediate and Low Level Vocational Qualifications, *BIS Research Paper 53*, London  
<http://dera.ioe.ac.uk/11930/1/11-1282-returns-intermediate-and-low-level-vocational-qualifications>
- Delebarre, J. (2016), Apprenticeships Policy, England 2015, *House of Commons Briefing paper* 03052,  
<http://researchbriefings.files.parliament.uk/documents/SN03052/SN03052.pdf>
- Enterprise Bill* (2015),  
<http://www.legislation.gov.uk/ukpga/2016/12/part/4/enacted>
- Euler, D. and Severing, E. (2006), *Flexible Ausbildungswege in der Berufsbildung*, mimeo Nürnberg, St. Gallen 2006,  
[https://www.bmbf.de/pub/Studie\\_Flexible\\_Ausbildungswege\\_in\\_der\\_Berufsbildung.pdf](https://www.bmbf.de/pub/Studie_Flexible_Ausbildungswege_in_der_Berufsbildung.pdf)
- European Commission (2013), Directorate-General for Employment, Social Affairs and Inclusion, *Apprenticeship and Traineeship Schemes in EU27: Key Success Factors, A Guidebook for Policy Planners and Practitioners*,  
[https://ec.europa.eu/education/policy/vocational-policy/doc/alliance/apprentice-trainee-success-factors\\_en.pdf](https://ec.europa.eu/education/policy/vocational-policy/doc/alliance/apprentice-trainee-success-factors_en.pdf)
- Fuller, A. and Unwin, L. (2007), “What counts as good practice in contemporary apprenticeships? Evidence from two contrasting sectors in England”, *Education + Training*, 49(6), 447-458
- Gospel, H. (1995), “The decline of apprenticeship training in Britain”, *Industrial Relations Journal*, 26 (1), 32-44
- Grollmann, P. and Rauner, F. (2007), “Exploring innovative apprenticeship: quality and costs”, *Education + Training*, 49(6), 431-446
- Häfeli, K. (2004), “Modularisierung in der Berufsausbildung: eine Chance für behinderte und benachteiligte Jugendliche?”, in Felkendorff, K. and Lischer, E. (Ed.), *Barrierefreie bergänge Schule-Beruf*, Zürich: Verlag Pestalozzianum,  
[http://www.hfh.ch/fileadmin/files/documents/Dokumente\\_FE/B.0\\_Haefeli\\_2005\\_.pdf](http://www.hfh.ch/fileadmin/files/documents/Dokumente_FE/B.0_Haefeli_2005_.pdf)

- HM Treasury (2015), *Fixing the foundations: Creating a more prosperous nation, Presented to Parliament by the Chancellor of the Exchequer by Command of Her Majesty*,  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/443898/Productivity\\_Plan\\_web.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/443898/Productivity_Plan_web.pdf)
- Hogarth, T., Gambin, L., Winterbotham, M., Baldauf, B., Briscoe, G., Gunstone, B., Hasluck, C., Koerbitz, C., and Taylor, C. (2012), *Employer Investment in Apprenticeships and Workplace Learning: The Fifth Net Benefits of Training to Employers Study, BIS Research paper 67*,  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/32306/12-814-employer-investment-in-apprenticeships-fifth-net-benefits-study.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/32306/12-814-employer-investment-in-apprenticeships-fifth-net-benefits-study.pdf)
- Independent Panel on Technical Education (2016), *Report of the Independent Panel on Technical Education*, Departments for Education and for Business, Innovation and Skills,  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/536046/Report\\_of\\_the\\_Independent\\_Panel\\_on\\_Technical\\_Education.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/536046/Report_of_the_Independent_Panel_on_Technical_Education.pdf)
- Kloas, P. (2001), “Modulare Berufsausbildung: Eine Perspektive für die Benachteiligtenförderung”, in Fülbiel, P. and Münchmeier, R. (Ed.): *Handbuch Jugendsozialarbeit*, Münster: Votum Verlag, 946959
- Lee, D. (2012), “Apprenticeships in England: An overview of current issues”, *Higher Education, Skills and Work-Based Learning*, 2(3), 225 - 239
- McIntosh S (2007), *A Cost-Benefit Analysis of Apprenticeships and Other Vocational Qualifications, Department for Education and Skills Research Report 834*,  
<http://webarchive.nationalarchives.gov.uk/20130401151715/>  
<http://www.education.gov.uk/publications/eOrderingDownload/RR834.pdf>
- Pfeiffer H., Dionisius R., Schoenfeld G., Walden G., Wenzelmann F. (2009), *Kosten und Nutzen der betrieblichen Berufsausbildung. Forschungsbericht BiBB 2.1.203*, Bonn: Bundesinstitut fuer Berufsforschung
- Richard, D. (2012), *Richard Review of Apprenticeships*, London: Department for Business, Innovation and Skills,  
<https://www.gov.uk/government/publications/the-richard-review-of-apprenticeships>
- Skills Funding Agency and Department for Business, Innovation and Skills (2016), *FE data library: apprenticeships, Statistical data set*,  
<https://www.gov.uk/government/statistical-data-sets/fe-data-library-apprenticeships>
- Steedman, H. (2005), *Apprenticeship in Europe: fading or flourishing? CEP Discussion Paper 710*, London: Centre for Economic Performance,  
<https://core.ac.uk/download/pdf/6431029.pdf>
- Steedman, H. (2010), *The State of Apprenticeship in 2010, A report for the Apprenticeship ambassadors network*, Published: CEP/ LSE,  
<http://cep.lse.ac.uk/pubs/download/special/cepsp22.pdf> S/1.4k

United States Department of Labor (2008), *21st century apprenticeship, How the Revised Regulations Strengthen the National Apprenticeship System*,  
<https://www.doleta.gov/oa/pdf/brochure.pdf>

Wolf, A. (2011), *Review of Vocational Education: The Wolf report*, Department for Education,  
[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/180504/DFE-00031-2011.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/180504/DFE-00031-2011.pdf)

# A Additional figures

Figure A.1: Distribution of planned and actual duration

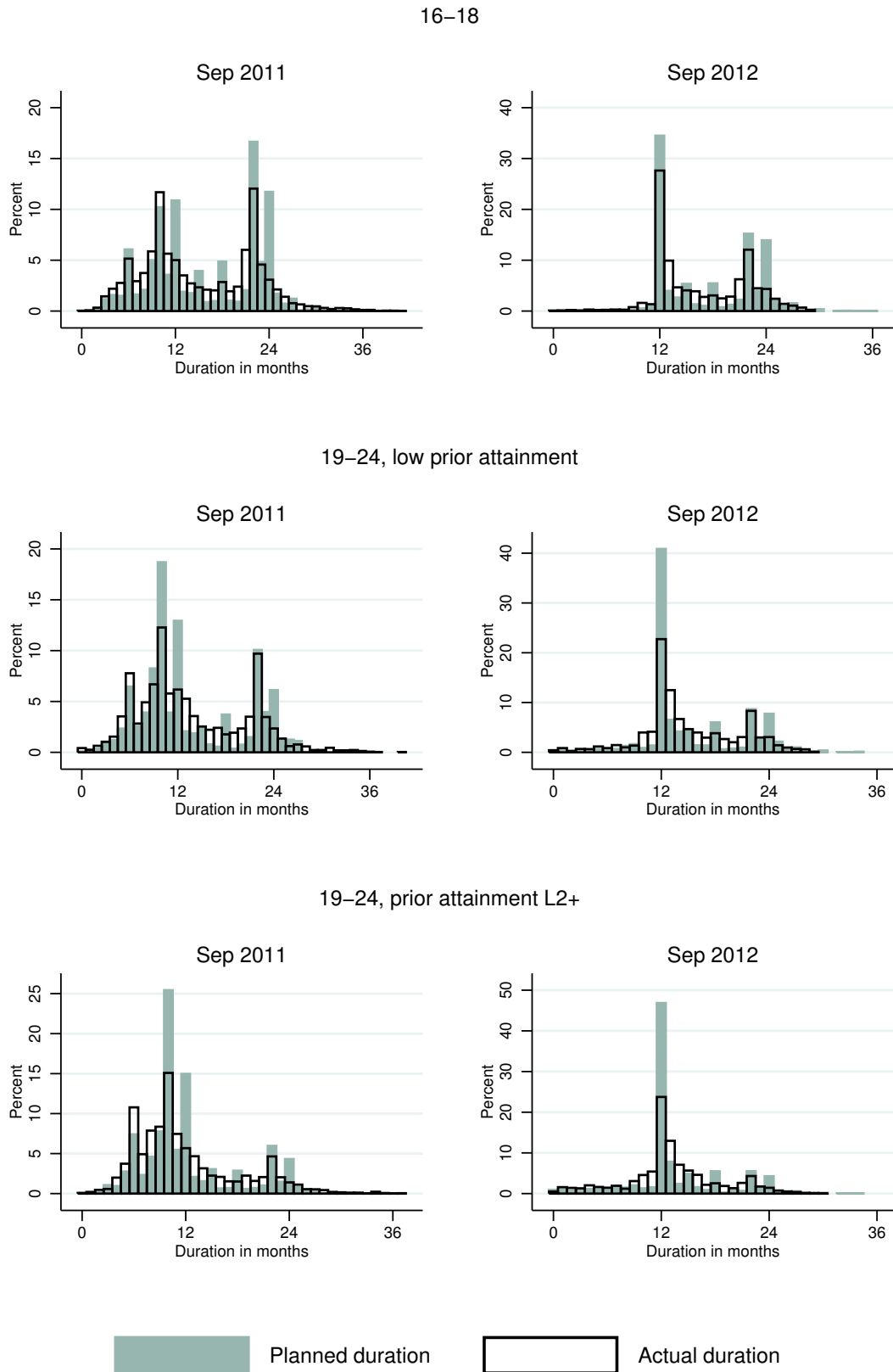
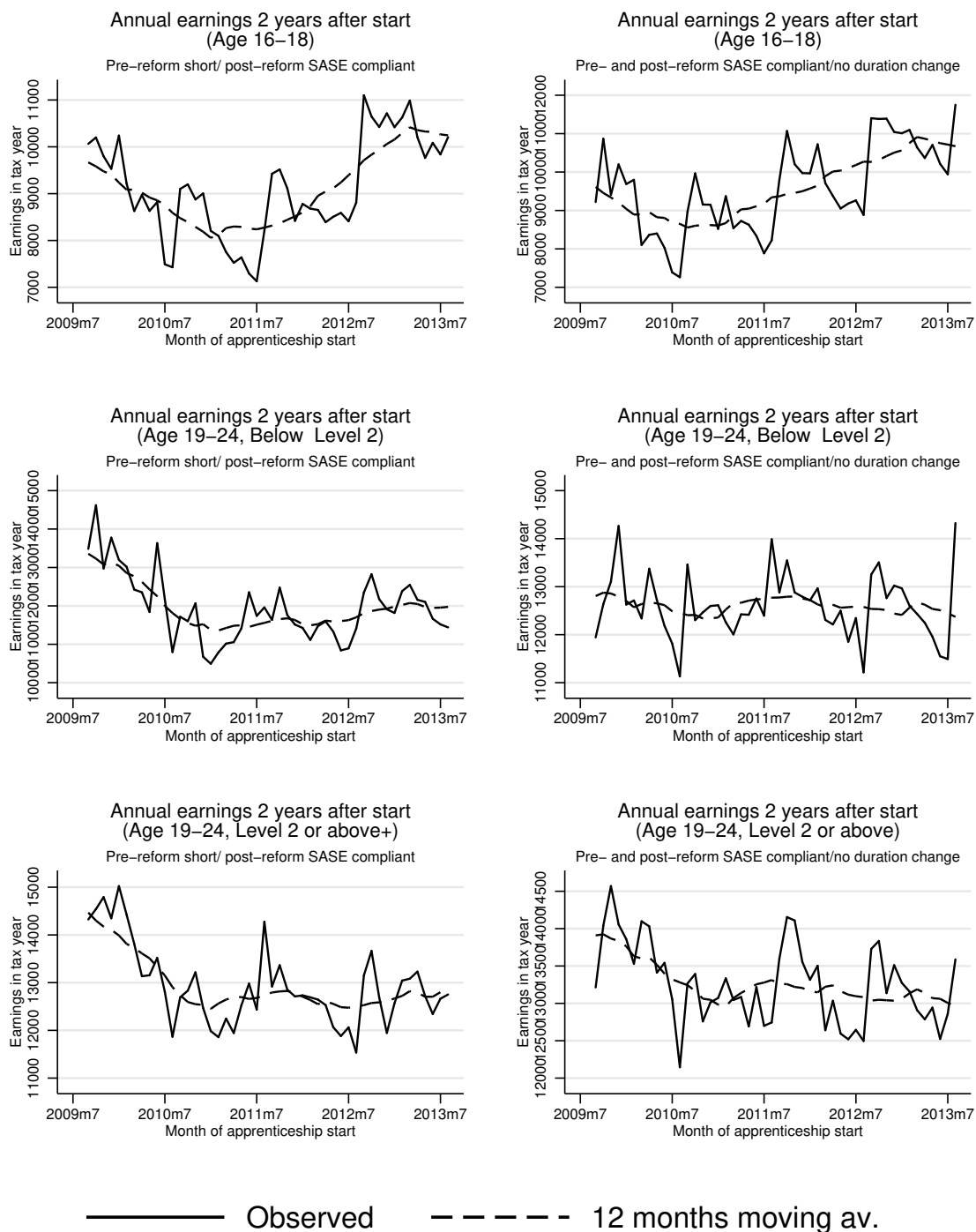


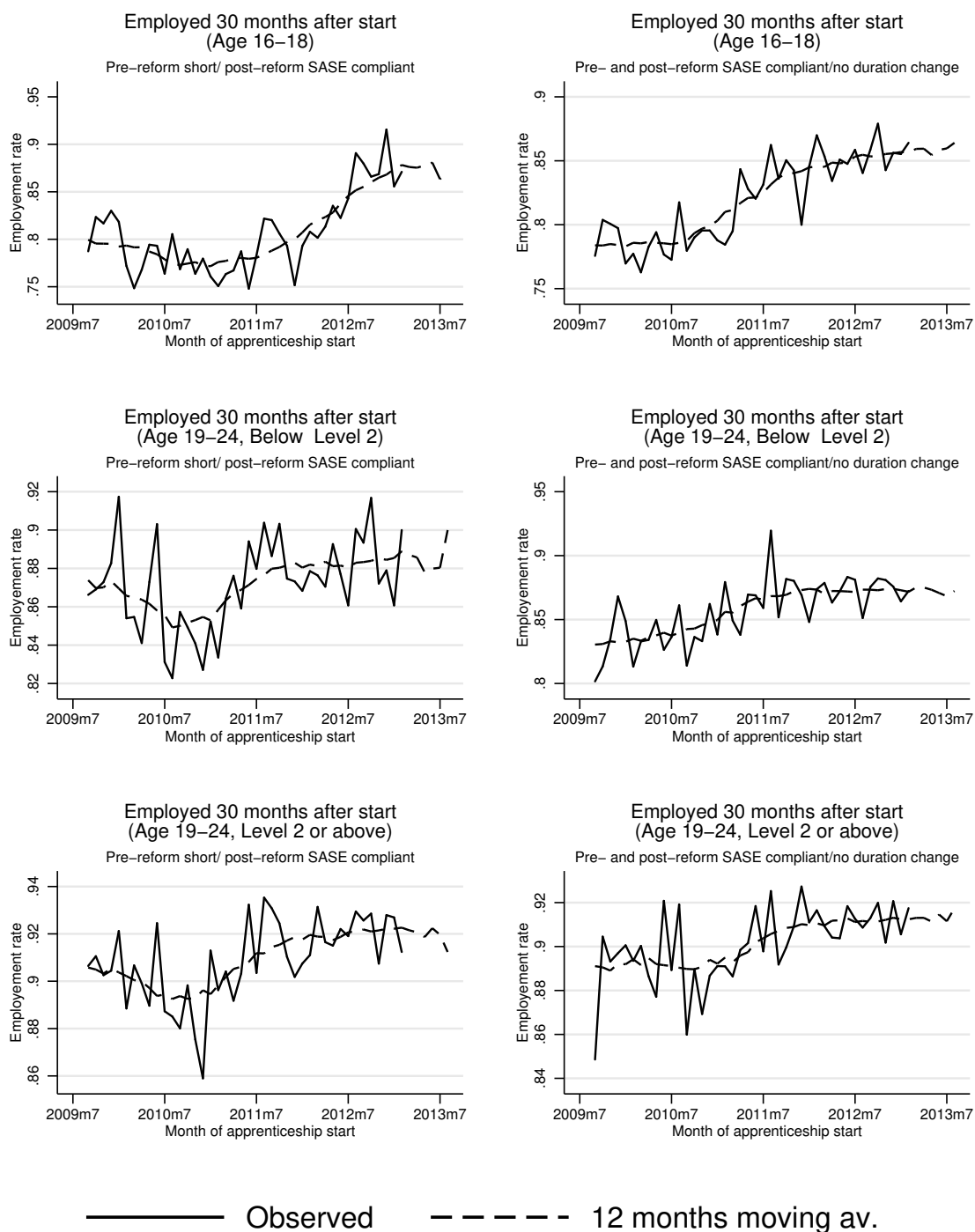


Figure A.2: SASE effect on earnings



Source: Individualised Learner Records, 2009/10-2012/13

Figure A.3: SASE effect on employment



Source: Individualised Learner Records, 2009/10-2012/13

## B Additional Tables

### B.1 Descriptive analysis

Table B.1: Average planned duration by Framework

|  | Observed planned duration |          |          | 12-months moving averages |          |          | Treatment group  |
|--|---------------------------|----------|----------|---------------------------|----------|----------|--|
|  | Sep-2009                  | Sep-2011 | Sep-2012 | Sep-2009                  | Sep-2011 | Sep-2012 |  |
| Agricultural Crops and Livestock                         | 16.8                      | 18.2     | 18.8     | 15.6                      | 15.6     | 16.3     | Pre- and post-reform SASE compliant/no duration change |
| Business Administration                                  | 11.9                      | 11.0     | 12.5     | 11.5                      | 10.7     | 12.2     | Pre- and post-reform SASE compliant/no duration change |
| Children's Care Learning and Development                 | 13.4                      | 12.0     | 13.7     | 12.8                      | 11.3     | 12.6     | Pre- and post-reform SASE compliant/duration change    |
| Engineering  | 16.5                      | 18.4     | 20.0     | 17.7                      | 14.3     | 16.9     | Pre- and post-reform SASE compliant/duration change    |
| Retail   | 11.2                      | 9.4      | 10.1     | 10.1                      | 9.2      | 11.3     | Pre-reform short/post-reform SASE compliant            |
| Construction   | 21.5                      | 21.1     | 22.0     | 18.9                      | 18.1     | 19.4     | Pre- and post-reform SASE compliant/duration change    |
| Plumbing   | 22.5                      | 22.9     | 23.0     | 20.4                      | 20.1     | 21.2     | Pre- and post-reform SASE compliant/no duration change |
| Nail Services  | 11.6                      | 12.8     | 12.0     | 11.1                      | 9.4      | 11.1     | Pre- and post-reform SASE compliant/duration change    |
| Accountancy  | 12.3                      | 10.8     | 12.6     | 11.6                      | 10.6     | 12.5     | Pre- and post-reform SASE compliant/duration change    |
| Aviation   | 12.6                      | 12.5     | 12.9     | 13.9                      | 12.3     | 13.7     | Pre- and post-reform SASE compliant/duration change    |
| Cleaning and Support Service Industry                    | 14.0                      | 7.5      | 13.0     | 12.0                      | 8.1      | 11.7     | Pre-reform marginal/post-reform exceeding SASE         |
| Electricity Industry                                     | 25.0                      | 23.8     | 23.0     | 24.5                      | 27.8     | 25.0     | Pre- and post-reform SASE compliant/no duration change |
| Heating, Ventilation, Air Conditioning and Refrigeration | 22.8                      | 22.6     | 23.8     | 20.0                      | 21.0     | 21.7     | Pre- and post-reform SASE compliant/no duration change |
| Property Services  | 11.0                      | 11.9     | 12.2     | 11.6                      | 11.0     | 12.8     | Pre- and post-reform SASE compliant/no duration change |
| Furniture Industry                                       | 22.7                      | 20.0     | 19.8     | 19.5                      | 18.6     | 18.8     | Pre- and post-reform SASE compliant/no duration change |
| Glass Industry   | 16.6                      | 11.6     | 12.9     | 13.2                      | 10.6     | 11.1     | Pre- and post-reform SASE compliant/no duration change |
| Hairdressing   | 21.2                      | 21.0     | 20.7     | 20.6                      | 18.5     | 18.5     | Pre- and post-reform SASE compliant/no duration change |
| Hospitality and Catering                                 | 11.6                      | 10.5     | 13.2     | 10.6                      | 9.8      | 12.1     | Pre-reform short/post-reform SASE compliant            |
| Housing  |                           | 12.1     | 15.4     |                           | 12.2     | 14.6     | Pre- and post-reform SASE compliant/duration change    |
| Printing   | 19.0                      | 24.2     | 21.8     | 19.3                      | 20.7     | 20.6     | Pre- and post-reform SASE compliant/no duration change |
| Active Leisure and Learning                              | 9.5                       | 7.7      | 12.4     | 8.1                       | 7.5      | 11.5     | Pre-reform short/post-reform SASE compliant            |
| Trees and Timber   | 21.2                      | 18.3     | 17.5     | 20.3                      | 17.9     | 17.3     | Pre- and post-reform SASE compliant/no duration change |
| Marine Industry  | 13.3                      | 22.0     | 15.0     | 21.6                      | 15.1     | 15.8     | Pre- and post-reform SASE compliant/no duration change |
| Health and Social Care                                   | 12.9                      | 11.5     | 13.0     | 12.7                      | 11.7     | 12.6     | Pre- and post-reform SASE compliant/no duration change |
| Environmental Conservation                               | 18.0                      | 12.1     | 17.6     | 14.2                      | 11.5     | 13.0     | Pre- and post-reform SASE compliant/duration change    |
| Floristry  | 15.1                      | 17.3     | 15.9     | 16.2                      | 16.2     | 15.5     | Pre- and post-reform SASE compliant/no duration change |
| Equine Industry  | 15.6                      | 15.5     | 14.7     | 15.2                      | 14.3     | 15.2     | Pre- and post-reform SASE compliant/no duration change |
| Land-based Service Engineering                           | 22.2                      | 25.5     | 23.2     | 22.0                      | 23.1     | 21.2     | Pre- and post-reform SASE compliant/no duration change |
| Management   | 10.9                      | 9.8      | 11.7     | 10.9                      | 10.2     | 11.7     | Pre- and post-reform SASE compliant/no duration change |
| Animal Care  | 14.8                      | 15.3     | 16.0     | 15.0                      | 15.0     | 15.1     | Pre- and post-reform SASE compliant/no duration change |
| Customer Service   | 9.5                       | 9.2      | 11.6     | 9.2                       | 9.3      | 11.7     | Pre-reform short/post-reform SASE compliant            |
| Rail Transport Engineering                               | 4.5                       | 12.9     | 12.1     | 5.1                       | 10.2     | 12.5     | Pre-reform marginal/post-reform exceeding SASE         |
| Beauty Therapy   | 11.7                      | 12.7     | 15.3     | 13.4                      | 11.8     | 14.0     | Pre-reform marginal/post-reform exceeding SASE         |
| Signmaking   |                           | 16.6     | 16.6     |                           | 16.4     | 14.8     | Pre- and post-reform SASE compliant/no duration change |
| Optical  |                           | 12.0     | 13.5     |                           | 11.6     | 13.4     | Pre- and post-reform SASE compliant/no duration change |
| Pharmacy Technicians                                     | 11.1                      | 15.2     | 15.4     | 11.6                      | 17.1     | 17.0     | Pre- and post-reform SASE compliant/no duration change |

|  |      |      |      |      |      |      |  |
|--|------|------|------|------|------|------|--|
| Contact Centres                              | 6.9  | 8.9  | 12.8 | 7.3  | 8.3  | 12.1 | Pre-reform short/post-reform SASE compliant            |
| Driving Goods Vehicles                       | 11.1 | 10.2 | 12.5 | 10.9 | 10.3 | 12.1 | Pre- and post-reform SASE compliant/no duration change |
| Payroll                                      | 11.2 | 6.5  | 14.7 | 12.4 | 7.5  | 12.9 | Pre-reform marginal/post-reform exceeding SASE         |
| Rail Transport Operations                    |      | 25.2 | 24.0 |      | 18.4 | 21.0 | Pre- and post-reform SASE compliant/duration change    |
| Sales and Telesales                          | 8.7  | 7.6  | 12.6 | 8.2  | 7.9  | 11.2 | Pre-reform short/post-reform SASE compliant            |
| Barbering                                    | 13.2 | 11.9 | 14.1 | 11.3 | 11.9 | 13.0 | Pre- and post-reform SASE compliant/no duration change |
| Road Passenger Transport - Bus and Coach     |      | 12.4 | 11.8 |      | 11.8 | 13.1 | Pre- and post-reform SASE compliant/no duration change |
| Teaching Assistants                          | 14.3 | 12.9 | 13.9 | 12.9 | 11.8 | 13.4 | Pre- and post-reform SASE compliant/duration change    |
| Game and Wildlife Management                 | 18.4 | 19.4 | 21.3 | 20.1 | 17.2 | 21.0 | Pre- and post-reform SASE compliant/duration change    |
| Support Services in Healthcare               | 10.2 | 10.9 | 13.0 | 11.6 | 11.4 | 12.5 | Pre- and post-reform SASE compliant/no duration change |
| Design                                       | 11.7 | 12.3 | 15.2 | 13.4 | 13.0 | 13.3 | Pre- and post-reform SASE compliant/no duration change |
| IT User                                      | 10.3 | 10.5 | 12.3 | 10.6 | 10.9 | 12.5 | Pre- and post-reform SASE compliant/no duration change |
| Storage and Warehousing                      | 12.9 | 11.0 | 12.5 | 13.5 | 11.0 | 12.3 | Pre- and post-reform SASE compliant/duration change    |
| Traffic Office                               |      | 11.7 | 12.0 |      | 11.7 | 13.5 | Pre- and post-reform SASE compliant/duration change    |
| Vehicle Body and Paint Operations            | 20.2 | 20.3 | 22.4 | 20.3 | 20.1 | 20.0 | Pre- and post-reform SASE compliant/no duration change |
| Vehicle Parts Operations                     | 20.9 | 18.4 | 18.0 | 18.5 | 19.4 | 19.7 | Pre- and post-reform SASE compliant/no duration change |
| Youth Work                                   | 14.2 | 14.2 | 13.0 | 17.0 | 11.9 | 12.2 | Pre- and post-reform SASE compliant/no duration change |
| Food Manufacture                             | 14.7 | 11.5 | 13.1 | 13.6 | 11.2 | 12.2 | Pre- and post-reform SASE compliant/no duration change |
| IT and TELECOMS PROFESSIONAL                 | 12.0 | 11.2 | 13.4 | 10.9 | 10.2 | 12.5 | Pre-reform short/post-reform SASE compliant            |
| Marketing and Communications                 |      | 13.4 | 14.1 |      | 13.5 | 14.5 | Pre- and post-reform SASE compliant/no duration change |
| Providing Security Services                  | 12.9 | 11.2 | 12.5 | 9.6  | 8.8  | 11.0 | Pre-reform short/post-reform SASE compliant            |
| Horticulture                                 | 17.7 | 17.1 | 18.5 | 17.0 | 15.7 | 17.0 | Pre- and post-reform SASE compliant/duration change    |
| Fashion and Textiles                         | 15.1 | 14.3 | 14.4 | 18.1 | 14.4 | 14.2 | Pre- and post-reform SASE compliant/no duration change |
| Sustainable Resource Management              |      | 11.8 | 12.1 | n.a. | 11.3 | 14.6 | Pre-reform marginal/post-reform exceeding SASE         |
| Travel Services                              | 10.3 | 9.4  | 12.0 | 9.1  | 9.8  | 11.3 | Pre- and post-reform SASE compliant/no duration change |
| Mail and Package Distribution                | n.a. | 10.0 | 9.9  | n.a. | 11.2 | 11.3 | Pre- and post-reform SASE compliant/no duration change |
| International Trade and Logistics Operations | n.a. | 10.0 | 10.5 | n.a. | 13.3 | 11.3 | Pre- and post-reform SASE compliant/no duration change |
| Process Manufacturing                        | n.a. | 12.4 | 17.2 | n.a. | 19.3 | 20.7 | Pre- and post-reform SASE compliant/no duration change |
| Bus and Coach Engineering and Maintenance    | n.a. | 20.3 | 23.4 | n.a. | 22.7 | 24.2 | Pre- and post-reform SASE compliant/no duration change |
| Vehicle Maintenance and Repair               | 21.7 | 21.5 | 21.8 | 20.6 | 20.4 | 21.3 | Pre- and post-reform SASE compliant/no duration change |
| Vehicle Fitting                              | 17.8 | 17.7 | 21.2 | 16.2 | 15.0 | 19.3 | Pre- and post-reform SASE compliant/duration change    |
| Logistics Operations                         | n.a. | 12.5 | 15.0 | n.a. | 9.2  | 13.8 | Pre-reform short/post-reform SASE compliant            |
| Providing Financial services                 | n.a. | 12.6 | 12.4 | n.a. | 13.0 | 12.6 | Pre- and post-reform SASE compliant/no duration change |
| Ceramics Manufacturing                       | n.a. | 12.0 | 15.3 | n.a. | 12.7 | 15.5 | Pre- and post-reform SASE compliant/duration change    |
| Live Events and Promotion                    | n.a. | 17.5 | 12.0 | n.a. | 12.3 | 12.2 | Pre- and post-reform SASE compliant/no duration change |
| Community Arts                               | n.a. | 11.2 | 14.4 | n.a. | 12.5 | 15.3 | Pre- and post-reform SASE compliant/no duration change |
| Technical Theatre, Lighting, Sound and Stage | n.a. | 13.2 | 12.0 | n.a. | 14.7 | 12.8 | Pre- and post-reform SASE compliant/no duration change |
| Improving Operational Performance            | n.a. | 14.7 | 15.9 | n.a. | 11.6 | 12.9 | Pre- and post-reform SASE compliant/duration change    |
| Laboratory and Science Technicians           | n.a. | 13.0 | 17.2 | n.a. | 15.6 | 15.1 | Pre- and post-reform SASE compliant/no duration change |
| Construction Specialist                      | n.a. | 21.0 | 21.6 | n.a. | 20.5 | 19.7 | Pre- and post-reform SASE compliant/no duration change |
| Construction Civil Engineering               | n.a. | 21.9 | 23.0 | n.a. | 20.0 | 18.3 | Pre- and post-reform SASE compliant/no duration change |
| HM Forces                                    | n.a. | 7.4  | 13.8 | n.a. | 9.4  | 15.6 | Pre-reform marginal/post-reform exceeding SASE         |

Source: Individualised Learner Records, 2009/10-2012/13

Table B.2: Intermediate apprenticeship starts affected by SASE reform and control as percentage of all 16-24 year old apprenticeship starts

|  | Post-reform (2012-2013) |          |          |         | Pre-reform (2011-2012) |          |         |         |
|--|-------------------------|----------|----------|---------|------------------------|----------|---------|---------|
|  | 16-18                   | 19+, BL2 | 19+, L2+ | Total   | 16-18                  | 19+, BL2 | 19+ L2+ | Total   |
| Pre- and post-reform SASE compliant/no duration change | 21,239                  | 20,067   | 18,784   | 60,090  | 22,619                 | 22,343   | 18,411  | 63,373  |
| Control group % of all starts                          | 50%                     | 44%      | 46%      | 47%     | 45%                    | 43%      | 41%     | 43%     |
| Pre-reform short/post-reform SASE compliant            | 9,296                   | 16,780   | 14,966   | 41,042  | 14,217                 | 19,665   | 18,416  | 52,298  |
| Treatment group % of all starts                        | 22%                     | 37%      | 36%      | 32%     | 28%                    | 38%      | 41%     | 35%     |
| Pre-reform marginal/post-reform exceeding SASE         | 842                     | 1,815    | 936      | 3,593   | 1,452                  | 1,672    | 870     | 3,994   |
| Pre- and post-reform SASE compliant/duration change    | 10,812                  | 6,762    | 6,493    | 24,067  | 12,281                 | 8,270    | 7,111   | 27,662  |
| Total  | 42,189                  | 45,424   | 41,179   | 128,792 | 50,569                 | 51,950   | 44,808  | 147,327 |

Source: Individualised Learner Records, 2010/11-2011/12

Table B.3: Effect of minimum duration on planned duration in frameworks analysed

|                               | Pre- and post-reform SASE<br>compliant/no duration change |        |        | Pre-reform short<br>post-reform SASE compliant |        |        |
|-------------------------------|---|--------|--------|--|--------|--------|
|                               | Sep-10  | Sep-11 | Sep-12 | Sep-10   | Sep-11 | Sep-12 |
|                               | 16-18   |        |        |  |        |        |
| % with planned duration < 12m | 0.182   | 0.164  | 0.017  | 0.669  | 0.749  | 0.092  |
| Average planned duration      | 18.3  | 18.5   | 18.4   | 9.6  | 9.3    | 12.9   |
| Average actual duration       | 14.7  | 15.9   | 15.5   | 8.1  | 8.3    | 11.3   |
| Average GLH                   | 635.9   | 635.5  | 611.6  | 433.1  | 410.9  | 431.5  |
|                               | 19+, low prior attainment                                 |        |        |  |        |        |
| % with planned duration < 12m | 0.309   | 0.403  | 0.055  | 0.711  | 0.847  | 0.198  |
| Average planned duration      | 15.7  | 13.7   | 14.9   | 9.6  | 9.6    | 11.9   |
| Average actual duration       | 13.0  | 12.5   | 13.2   | 8.5  | 9.3    | 10.9   |
| Average GLH                   | 596.8   | 513.1  | 512.1  | 417.3  | 382.8  | 407.9  |
|                               | 19+, prior attainment L2+                                 |        |        |  |        |        |
| % with planned duration < 12m | 0.452   | 0.472  | 0.107  | 0.746  | 0.837  | 0.281  |
| Average planned duration      | 13.7  | 12.8   | 13.7   | 9.2  | 9.6    | 11.0   |
| Average actual duration       | 11.3  | 11.9   | 12.5   | 8.4  | 9.0    | 10.0   |
| Average GLH                   | 469.0   | 421.2  | 408.8  | 395.7  | 368.0  | 381.7  |

Source: Individualised Learner Records, 2010/11-2011/12

Table B.4: Descriptives for treatment and control groups

| Age range   | Time | Outcomes                  | Obs   | Mean  | Std. Dev. | Min.   | Max.   |
|---|------|---------------------------|-------|-------|-----------|--------|--------|
| <i>Pre-reform short/post-reform SASE compliant (Treatment)</i>            |      |                           |       |       |           |        |        |
| 16-18   | Pre  | After 24 months achieved  | 14217 | 0.69  | 0.46      | 0      | 1      |
|   |      | After 24 months withdrawn | 14217 | 0.26  | 0.44      | 0      | 1      |
|   |      | Employed month 30         | 14025 | 0.80  | 0.40      | 0      | 1      |
|   |      | Annual earnings           | 10100 | 9111  | 5882      | 0      | 46564  |
|   | Post | After 24 months achieved  | 9296  | 0.56  | 0.50      | 0      | 1      |
|   |      | After 24 months withdrawn | 9296  | 0.36  | 0.48      | 0      | 1      |
|   |      | Employed month 30         | 8602  | 0.87  | 0.33      | 0      | 1      |
|   |      | Annual earnings           | 4812  | 10718 | 5775      | 0      | 55884  |
| 19-24 Low   | Pre  | After 24 months achieved  | 7913  | 0.65  | 0.48      | 0      | 1      |
|   |      | After 24 months withdrawn | 7913  | 0.27  | 0.45      | 0      | 1      |
|   |      | Employed month 30         | 7798  | 0.88  | 0.32      | 0      | 1      |
|   |      | Annual earnings           | 6421  | 11707 | 6640      | 0      | 127530 |
|   | Post | After 24 months achieved  | 7432  | 0.52  | 0.50      | 0      | 1      |
|   |      | After 24 months withdrawn | 7432  | 0.37  | 0.48      | 0      | 1      |
|   |      | Employed month 30         | 7005  | 0.89  | 0.31      | 0      | 1      |
|   |      | Annual earnings           | 5767  | 12328 | 6542      | 0      | 72690  |
| 19-24 L2+   | Pre  | After 24 months achieved  | 10643 | 0.70  | 0.46      | 0      | 1      |
|   |      | After 24 months withdrawn | 10643 | 0.23  | 0.42      | 0      | 1      |
|   |      | Employed month 30         | 10537 | 0.92  | 0.28      | 0      | 1      |
|   |      | Annual earnings           | 9546  | 12911 | 6288      | -2220  | 69951  |
|   | Post | After 24 months achieved  | 9417  | 0.61  | 0.49      | 0      | 1      |
|   |      | After 24 months withdrawn | 9417  | 0.30  | 0.46      | 0      | 1      |
|   |      | Employed month 30         | 8819  | 0.92  | 0.27      | 0      | 1      |
|   |      | Annual earnings           | 7909  | 12953 | 6203      | 0      | 54588  |
| <i>Pre- and post-reform SASE compliant/no duration change ("Control")</i> |      |                           |       |       |           |        |        |
| 16-18   | Pre  | After 24 months achieved  | 22619 | 0.64  | 0.48      | 0      | 1      |
|   |      | After 24 months withdrawn | 22619 | 0.25  | 0.43      | 0      | 1      |
|   |      | Employed month 30         | 21980 | 0.84  | 0.36      | 0      | 1      |
|   |      | Annual earnings           | 15637 | 10247 | 5911      | -18207 | 110704 |
|   | Post | After 24 months achieved  | 21239 | 0.62  | 0.49      | 0      | 1      |
|   |      | After 24 months withdrawn | 21239 | 0.25  | 0.43      | 0      | 1      |
|   |      | Employed month 30         | 17126 | 0.86  | 0.35      | 0      | 1      |
|   |      | Annual earnings           | 7584  | 11296 | 5691      | 0      | 46963  |
| 19-24 Low   | Pre  | After 24 months achieved  | 7210  | 0.64  | 0.48      | 0      | 1      |
|   |      | After 24 months withdrawn | 7210  | 0.26  | 0.44      | 0      | 1      |
|   |      | Employed month 30         | 6982  | 0.87  | 0.34      | 0      | 1      |
|   |      | Annual earnings           | 5723  | 12980 | 7119      | 0      | 70943  |
|   | Post | After 24 months achieved  | 7476  | 0.59  | 0.49      | 0      | 1      |
|   |      | After 24 months withdrawn | 7476  | 0.29  | 0.46      | 0      | 1      |
|   |      | Employed month 30         | 6492  | 0.88  | 0.33      | 0      | 1      |
|   |      | Annual earnings           | 5367  | 13053 | 7153      | 0      | 87322  |
| 19-24 L2+   | Pre  | After 24 months achieved  | 9064  | 0.72  | 0.45      | 0      | 1      |
|   |      | After 24 months withdrawn | 9064  | 0.21  | 0.40      | 0      | 1      |
|   |      | Employed month 30         | 8838  | 0.91  | 0.29      | 0      | 1      |
|   |      | Annual earnings           | 7890  | 13709 | 6427      | 0      | 71942  |
|   | Post | After 24 months achieved  | 10530 | 0.67  | 0.47      | 0      | 1      |
|   |      | After 24 months withdrawn | 10530 | 0.24  | 0.43      | 0      | 1      |
|   |      | Employed month 30         | 9445  | 0.91  | 0.28      | 0      | 1      |
|   |      | Annual earnings           | 8302  | 13471 | 6250      | 0      | 72815  |
| <i>Pre-reform marginal/post-reform exceeding SASE (Dropped)</i>           |      |                           |       |       |           |        |        |
| 16-18   | Pre  | After 24 months achieved  | 1452  | 0.69  | 0.46      | 0      | 1      |
|   |      | After 24 months withdrawn | 1452  | 0.26  | 0.44      | 0      | 1      |
|   |      | Employed month 30         | 1451  | 0.70  | 0.46      | 0      | 1      |
|   |      | Annual earnings           | 952   | 7944  | 6965      | -1018  | 43900  |
|   | Post | After 24 months achieved  | 842   | 0.64  | 0.48      | 0      | 1      |
|   |      | After 24 months withdrawn | 842   | 0.23  | 0.42      | 0      | 1      |
|   |      | Employed month 30         | 783   | 0.82  | 0.38      | 0      | 1      |
|   |      | Annual earnings           | 431   | 12971 | 7445      | 0      | 35651  |
| 19-24 Low   | Pre  | After 24 months achieved  | 545   | 0.70  | 0.46      | 0      | 1      |
|   |      | After 24 months withdrawn | 545   | 0.22  | 0.41      | 0      | 1      |
|   |      | Employed month 30         | 539   | 0.76  | 0.43      | 0      | 1      |
|   |      | Annual earnings           | 411   | 10123 | 7632      | 0      | 32617  |

|           |      |                           |     |       |      |   |       |
|-----------|------|---------------------------|-----|-------|------|---|-------|
| 19-24 L2+ | Post | After 24 months achieved  | 757 | 0.52  | 0.50 | 0 | 1     |
|           |      | After 24 months withdrawn | 757 | 0.24  | 0.43 | 0 | 1     |
|           |      | Employed month 30         | 641 | 0.85  | 0.36 | 0 | 1     |
|           |      | Annual earnings           | 530 | 13644 | 8260 | 0 | 53097 |
|           | Pre  | After 24 months achieved  | 461 | 0.79  | 0.41 | 0 | 1     |
|           |      | After 24 months withdrawn | 461 | 0.16  | 0.37 | 0 | 1     |
|           |      | Employed month 30         | 458 | 0.85  | 0.36 | 0 | 1     |
|           |      | Annual earnings           | 380 | 13842 | 8089 | 0 | 41900 |
|           | Post | After 24 months achieved  | 683 | 0.75  | 0.43 | 0 | 1     |
|           |      | After 24 months withdrawn | 683 | 0.17  | 0.37 | 0 | 1     |
|           |      | Employed month 30         | 650 | 0.87  | 0.34 | 0 | 1     |
|           |      | Annual earnings           | 550 | 15712 | 7598 | 0 | 45038 |

*Pre- and post-reform SASE compliant/duration change (excluded)*

|           |                           |                           |       |       |      |        |       |
|-----------|---------------------------|---------------------------|-------|-------|------|--------|-------|
| 16-18     | Pre                       | After 24 months achieved  | 12281 | 0.67  | 0.47 | 0      | 1     |
|           |                           | After 24 months withdrawn | 12281 | 0.24  | 0.43 | 0      | 1     |
|           |                           | Employed month 30         | 12014 | 0.82  | 0.39 | 0      | 1     |
|           |                           | Annual earnings           | 8654  | 10053 | 5922 | -15264 | 55628 |
| Post      | After 24 months achieved  | 10812                     | 0.64  | 0.48  | 0    | 1      |       |
|           | After 24 months withdrawn | 10812                     | 0.24  | 0.43  | 0    | 1      |       |
|           | Employed month 30         | 8660                      | 0.85  | 0.35  | 0    | 1      |       |
|           | Annual earnings           | 3793                      | 11435 | 5891  | 0    | 45842  |       |
| 19-24 Low | Pre                       | After 24 months achieved  | 3414  | 0.66  | 0.47 | 0      | 1     |
|           |                           | After 24 months withdrawn | 3414  | 0.24  | 0.43 | 0      | 1     |
|           |                           | Employed month 30         | 3307  | 0.84  | 0.36 | 0      | 1     |
|           |                           | Annual earnings           | 2618  | 13685 | 7692 | 0      | 50955 |
| Post      | After 24 months achieved  | 3101                      | 0.58  | 0.49  | 0    | 1      |       |
|           | After 24 months withdrawn | 3101                      | 0.28  | 0.45  | 0    | 1      |       |
|           | Employed month 30         | 2557                      | 0.86  | 0.35  | 0    | 1      |       |
|           | Annual earnings           | 2016                      | 12947 | 7358  | 0    | 43561  |       |
| 19-24 L2+ | Pre                       | After 24 months achieved  | 3638  | 0.78  | 0.42 | 0      | 1     |
|           |                           | After 24 months withdrawn | 3638  | 0.15  | 0.36 | 0      | 1     |
|           |                           | Employed month 30         | 3563  | 0.90  | 0.30 | 0      | 1     |
|           |                           | Annual earnings           | 3189  | 15701 | 7480 | 0      | 63121 |
| Post      | After 24 months achieved  | 3774                      | 0.73  | 0.44  | 0    | 1      |       |
|           | After 24 months withdrawn | 3774                      | 0.17  | 0.38  | 0    | 1      |       |
|           | Employed month 30         | 3159                      | 0.92  | 0.27  | 0    | 1      |       |
|           | Annual earnings           | 2798                      | 15181 | 7197  | 0    | 58727  |       |

Source: Individualised Learner Records, 2009/10-2012/13



Table B.5: Impact of the introduction of the 12 months minimum duration on apprenticeship starts by level of pre-existing qualifications

|                | Reform             |                    | Placebo reform  |                  |
|----------------|--------------------|--------------------|-----------------|------------------|
|                | (1)                | (2)                | (3)             | (4)              |
|                | BL2 qualifications |                    |                 |                  |
| Reform effect  | -105.0**<br>(37.6) | -184.2**<br>(44.2) | -43.3<br>(63.8) | -135.5<br>(89.7) |
| Observations   | 557                | 557                | 519             | 519              |
| R2             | 0.828              | 0.792              | 0.682           | 0.544            |
| Mean outcome   | 206.3              | 811.5              | 229.1           | 859.6            |
|                | L2+ qualifications |                    |                 |                  |
| Reform effect  | -100.2**<br>(27.9) | -242.0**<br>(36.3) | 5.0<br>(37.6)   | -63.6<br>(52.1)  |
| Observations   | 579                | 579                | 528             | 528              |
| Pseudo-R2      | 0.892              | 0.852              | 0.835           | 0.755            |
| Mean outcome   | 176.0              | 791.8              | 184.1           | 776.2            |
| Month of start | Yes                | Yes                | Yes             | Yes              |
| Framework FE   | Yes                | Yes                | Yes             | Yes              |
| Weights        | No                 | Yes                | No              | Yes              |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Models include framework fixed effects; Weights are calculated using the total number of starts by framework over the period Sep 2009-Aug 2013; Sep 12-Feb 13 data are used for the actual reform (compared to one year before), Sep 11-Feb 12 for the placebo. Source: Individualised Learner Records, 2010/11-2012/13

## C Results on restricted samples

Table C.1: Impact of the introduction of the 12-month minimum duration, conditional on being observed in HMRC data

|   | (1)<br>Achievement<br>within 24 m | (2)<br>Withdrawal<br>within 24 m | (3)<br>Employed<br>30 after start | (4)<br>Log Annual<br>Earnings<br>2 y. later |
|---|-----------------------------------|----------------------------------|-----------------------------------|---|
| A - 16-18 Apprentices                           |                                   |                                  |                                   |   |
| Reform effect                                   | -0.107**<br>(0.009)               | 0.048**<br>(0.008)               | 0.039**<br>(0.005)                | 0.127**<br>(0.021)                          |
| Observations                                    | 61429                             | 61407                            | 61410                             | 37265                                       |
| Pseudo-R2                                       | 0.050                             | 0.038                            | 0.043                             | 0.083                                       |
| Mean outcome                                    | 0.642                             | 0.283                            | 0.843                             | 10212.6                                     |
| B - 19-24 Apprentices with low prior attainment |                                   |                                  |                                   |   |
| Reform effect                                   | -0.075**<br>(0.012)               | 0.029**<br>(0.011)               | 0.005<br>(0.008)                  | 0.069**<br>(0.023)                          |
| Observations                                    | 28053                             | 28044                            | 28023                             | 22726                                       |
| Pseudo-R2                                       | 0.035                             | 0.031                            | 0.038                             | 0.067                                       |
| Mean outcome                                    | 0.607                             | 0.308                            | 0.878                             | 12487.8                                     |
| C - 19-24 Apprentices with L2+ prior attainment |                                   |                                  |                                   |   |
| Reform effect                                   | -0.047**<br>(0.010)               | 0.023**<br>(0.009)               | 0.000<br>(0.006)                  | 0.029<br>(0.016)                            |
| Observations                                    | 37462                             | 37462                            | 37338                             | 33201                                       |
| Pseudo-R2                                       | 0.031                             | 0.020                            | 0.023                             | 0.057                                       |
| Mean outcome                                    | 0.680                             | 0.248                            | 0.915                             | 13245.5                                     |
| Socio-demographic                               | Yes                               | Yes                              | Yes                               | Yes   |
| Framework FE                                    | Yes                               | Yes                              | Yes                               | Yes   |
| Time FE   | Yes                               | Yes                              | Yes                               | Yes   |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Sample is restricted to apprenticeships started between Sep 2012 and Feb 2013 and the same period a year before, and to those observed in HMRC data. Models include month of start and framework dummies, as well as socio-demographic characteristics (gender, age at start, level of prior attainment and disability status). Robust standard errors in parentheses.

Source: Individualised Learner Records, 2011/12-2012/13

Table C.2: Impact of the introduction of the 12-month minimum duration, conditional on having positive earnings

|   | (1)                        | (2)                       | (3)                        | (4)                                  |
|---|----------------------------|---------------------------|----------------------------|--------------------------------------|
|   | Achievement<br>within 24 m | Withdrawal<br>within 24 m | Employed<br>30 after start | Log Annual<br>Earnings<br>2 y. later |
| A - 16-18 Apprentices                           |                            |                           |                            |                                      |
| Reform effect                                   | -0.089**<br>(0.012)        | 0.044**<br>(0.010)        | 0.016**<br>(0.005)         | 0.127**<br>(0.021)                   |
| Observations                                    | 37264                      | 37245                     | 37145                      | 37265                                |
| Pseudo-R2                                       | 0.048                      | 0.034                     | 0.022                      | 0.083                                |
| Mean outcome                                    | 0.677                      | 0.248                     | 0.929                      | 10403.6                              |
| B - 19-24 Apprentices with low prior attainment |                            |                           |                            |                                      |
| Reform effect                                   | -0.070**<br>(0.014)        | 0.025**<br>(0.013)        | 0.009<br>(0.006)           | 0.069**<br>(0.0228)                  |
| Observations                                    | 22718                      | 22713                     | 22623                      | 22726                                |
| Pseudo-R2                                       | 0.035                      | 0.030                     | 0.020                      | 0.0670                               |
| Mean outcome                                    | 0.624                      | 0.291                     | 0.939                      | 12694.4                              |
| C - 19-24 Apprentices with L2+ prior attainment |                            |                           |                            |                                      |
| Reform effect                                   | -0.042**<br>(0.011)        | 0.017<br>(0.010)          | 0.004<br>(0.005)           | 0.029<br>(0.016)                     |
| Observations                                    | 33201                      | 33201                     | 33041                      | 33201                                |
| Pseudo-R2                                       | 0.031                      | 0.020                     | 0.015                      | 0.057                                |
| Mean outcome                                    | 0.696                      | 0.234                     | 0.952                      | 13362.5                              |
| Socio-demographic                               | Yes                        | Yes                       | Yes                        | Yes                                  |
| Framework FE                                    | Yes                        | Yes                       | Yes                        | Yes                                  |
| Time FE   | Yes                        | Yes                       | Yes                        | Yes                                  |

Standard errors in parentheses, \*5%/\*\*1% levels of significance. Sample is restricted to apprenticeships started between Sep 2012 and Feb 2013 and the same period a year before, and to those observed in HMRC data and who have positive earnings. Models include month of start and framework dummies, as well as socio-demographic characteristics (gender, age at start, level of prior attainment and disability status). Robust standard errors in parentheses.

Source: Individualised Learner Records, 2011/12-2012/13

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