



Department
for Education



Education
Funding
Agency

Understanding costs of A level provision via the decision making process behind class sizes

Research report

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Social Science in Government

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Executive summary

Over the last three years, A level providers have experienced a period of considerable change. This change has centred on the way in which post-16 provision is funded, the levels of per-pupil funding and expectations around qualifications and how they are structured. In this context, in July 2015, the Department for Education (DfE) commissioned Isos Partnership to undertake research to explore the decision-making process about A level class sizes and to understand the impact that class sizes have on the cost-efficiency of A level provision.

The research team undertook fieldwork visits to 24 A level providers, covering a mix of school sixth forms, sixth-form colleges, further education (FE) colleges and a university technical college (UTC).¹ The sample, although small, was well-balanced in terms of geography, size, deprivation and attainment. As well as the qualitative data gathered through the fieldwork, each provider completed a template setting out key information on the structure of A level provision in their institution, class sizes across six key subjects and the cost of delivering their A level provision. Both the qualitative and quantitative data have been used to inform the findings in this report.

Key findings

Understanding the variation in class sizes (sections 3.1 to 3.4)

- **There was considerable variation in average A level class sizes across the institutions in our sample.** At one end of the spectrum an FE college was delivering average classes of 24 students across all of its A level provision. At the other end of the spectrum a school sixth form had an average class of eight. The biggest difference can be seen between FE colleges and sixth-form colleges, which operate at an average class size of just under 19 students, and school sixth forms, which operate at an average A level class size of just under 11 for all A levels.
- **There were also considerable differences in average class size in the six subjects that formed a focus for this research.** Unsurprisingly, providers were able to sustain consistently higher class sizes in core subjects, such as English and mathematics, than in less popular subjects such as modern foreign languages.

¹ For the purposes of reporting data, the UTC has been counted as a school.

- **All the providers in the sample experienced significant decreases in class size between years 12 and 13 in some subjects.** To some extent this is an inevitable consequence of the current structure of A level provision, in which students often intentionally move from four subject choices at AS level to three at A2 level. However, in a minority of providers it also reflects a high proportion of students dropping out of A level provision altogether before embarking on their studies in year 13.
- **The minimum viable A level class size was judged, on average, to be 11.7 students by the providers in the sample.** This was based on responses from four FE colleges, three sixth-form colleges and nine schools. The colleges, on average, judged the minimum viable size to be slightly larger than schools but there was a considerable range in both groups. It is interesting that average A level class sizes in 10 of the providers fell below the average reported minimum level. Delivering a large number of classes below a minimum financial threshold will ultimately affect whether the A level provision in the institution overall is affordable. Where the costs of delivering A levels exceeded the income there tended to be cross-subsidisation from other learning areas. **Around half of the schools that took part in the research believed that they supplemented their post-16 funding from their pre-16 funding but very few could quantify this precisely.**
- **There is a strong correlation between the number of A level learners in an institution and the average A level class size.** For example, there was a striking difference between the four sixth-form colleges, which all had more than 1,200 A level learners and average class sizes of around 20, and the school sixth forms, which have learner numbers ranging from 120 to just over 400 and an average class size of around 11. All but one of the school sixth forms that had more than 200 students delivered average class sizes of more than 11. Only one of the seven school sixth forms with around 150 or fewer A level learners delivered average class sizes of more than 11.
- **The breadth of the curriculum offer in relation to the size of the student body is also a key factor in determining class size.** In general, those providers that are offering fewer A level subject choices in relation to the number of students taking A levels are able to maintain bigger class sizes.
- **There appears to be a reasonably strong negative relationship between the cost of A level provision per student and average class size (i.e. the smaller the class size, the higher the average cost).** Certainly per student costs of more than £5,000 were predominantly (although not exclusively) found in those institutions delivering average A level class sizes of fewer than 12. Unsurprisingly, there is a much looser relationship between A level outcome, as measured by average point score per student, and average A level class size. A myriad of

factors influence achievement at A level, not least the quality of teaching and the prior attainment of students. However, the relationship between larger A level class sizes and better student performance appears to be stronger in school sixth forms than other types of provider.

The factors that providers take into consideration in determining subject breadth and consequently class size (sections 4.1 to 4.2)

- **Providers take into account a wide range of factors in determining the breadth of their A level provision and consequently the size of classes that they can deliver.** These are student choice, student progression, the provider's curriculum or educational vision, its staffing profile, financial considerations, pedagogical principles and physical constraints.
- **All the providers that took part in this research, without exception, said that responding to students' subject choices played an important part in determining the breadth of their curriculum offer.** For some, this was the principal, or indeed only, consideration. For almost all providers, a focus on student choices went hand-in-hand with trying to match the pattern of provision on offer to their current staffing profile. Developing a curriculum offer that supported student progression was also described as an important factor by about half of the providers.
- **While the majority of institutions made reference to financial considerations as part of their decision-making process around subject breadth and class size, finance was a determining factor for only around a third.** In fact only one provider out of the 24, an FE college, said that finance was the primary consideration in whether or not to offer a subject.

The barriers faced by providers in maximising class size (section 4.3)

Providers see the benefit, both pedagogically and financially, of achieving larger class sizes but a number of barriers prevent them from doing so.

- **Competition for students is a key barrier to increasing class sizes for providers that are operating below their capacity.** These providers often deemed it essential to continue to run very small classes in minority subjects in order to retain existing students or attract new ones. Many institutions in such circumstances felt that it was more financially advantageous to run a small class than not to attract the students in the first place.
- **Inflexibility of staffing made it difficult for many providers to discontinue A level classes with very low take-up.** Where stopping an A level subject did not allow a provider to release teaching staff, redeploy their time to other teaching or

leadership responsibilities or reduce their paid hours, it made much more sense to ask that teacher to teach a small A level class than to have unused teacher capacity. This issue was particularly acute for school sixth forms for which there was little benefit in discontinuing an A level subject if the teacher was still required to teach GCSE.

- **Unpredictability of student numbers hampered the efforts of some institutions to maximise their class sizes.** The first point of unpredictability was centred on student admissions. Students typically apply to multiple institutions and may not decide until after their results which offer they will take. This can leave providers with significantly smaller classes than they had anticipated. The issue was most prevalent among FE colleges and sixth-form colleges, but also affected a small number of school sixth forms. The second point of unpredictability was in the transition from year 12 to year 13. The reduction in class sizes caused by students moving from four to three subject choices was distributed unevenly across subjects. A minority of institutions, particularly those catering for more mixed ability intakes, were also contending with challenges in retaining students for the whole A level course, which represented a large inefficiency in provision.
- **A large number of providers, of every type, cited their organisational status or brand as a barrier to discontinuing some minority subjects and thereby increasing class sizes.** The subjects that were most often cited as falling into this category were modern foreign languages, further mathematics, music and some sciences. The latter tended to be in institutions that did not have a strong track record in delivering sciences but nonetheless aspired to offer an academic curriculum that paved the way to university.

Action already being taken by providers (sections 5.1 to 5.6)

Just under half of the providers in the sample had begun to make changes with a view to increasing class size and thereby efficiency. In some cases this was as a direct result of cost pressures. In other cases it was about strategically reshaping their A level offer in response to changes in their cohort, in student demand, or in the performance of their institution. Providers have begun to take action in the following key areas:

- a) More systematic application of thresholds
- b) Collaboration with other institutions to deliver A level in subjects with low demand
- c) Increasing retention of students
- d) Responding to the changing qualification structure to linear A levels
- e) Marketing and market analysis of student demand
- f) Different teaching methods and use of IT to aid teaching.

- **Although the majority of providers referred to minimum thresholds for A level class sizes, few applied these rigorously and systematically.** Where providers applied minimum thresholds conscientiously and based their decisions on evidence, this clearly contributed to maintaining larger class sizes. Typically, those institutions had worked out their financial break-even point for delivering A levels. This meant that they had a clear understanding of the smallest class size they could afford to run, without cross-subsidising either from other subjects or other age groups. **However, many providers did not routinely review the cost of delivering A levels.** The majority of providers viewed their budget as a whole and would carefully review spending at an institutional level. But only a minority had systems in place for separating out the cost of A levels and scrutinising these.
- **Just over half of the providers interviewed were collaborating in some form, and four of the providers collaborated in ways which were at a relatively large scale and involved delivering learning across more than one institution.** In those institutions where collaboration had really taken off, there were a number of common factors: they were located in areas where transport between institutions was straightforward and cost-effective; they had invested significantly in overcoming the logistical barriers associated with common timetabling and subject blocking; and they all stressed the importance of communication at all levels.
- **Over half of the institutions were innovating in their approach to teaching and learning at A level; however, none of them thought this would enable them to increase class size or reduce teaching time significantly.** Providers were unanimous and adamant that while there was a wide range of innovative, challenging and cutting-edge approaches to teaching and learning that could be, and were being, tried, these were essentially to complement and enhance core teaching, not to replace it.

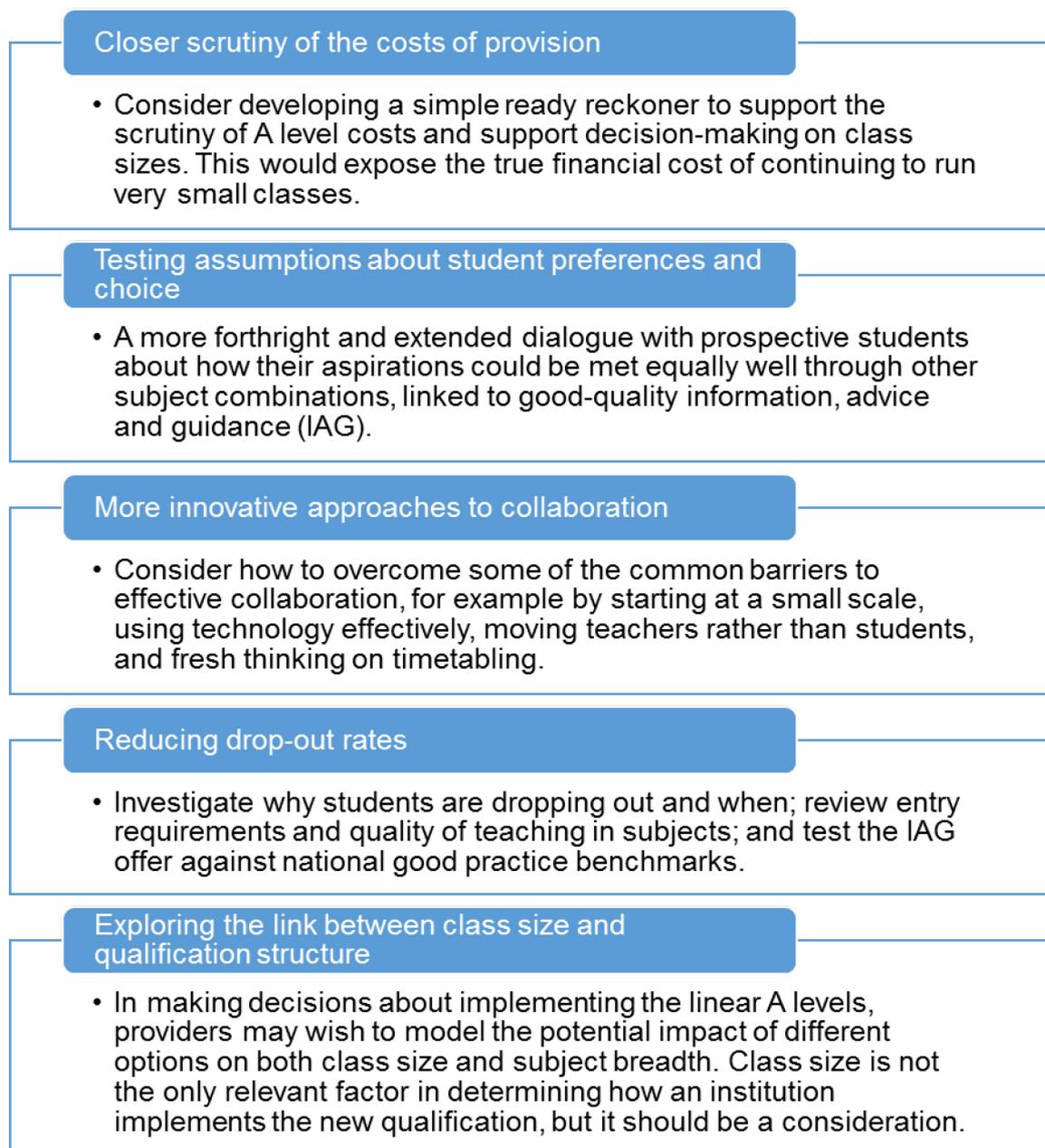
Opportunities and considerations for the future (sections 7.1 to 7.2)

The national context in which providers of A levels are working is one of financial pressure, competition for students in the higher ability range, and evolving demands in terms of both the structure and rigour of qualifications. In this challenging context, the debate about class sizes becomes very relevant. However, taking action to increase class sizes is not a simple matter. There are very real trade-offs that need to be taken into account. Systematic action to increase class sizes is likely to require some consolidation in the range of subjects available, or the range of providers offering those subjects, or both.

Options for providers

As providers come under increasing financial pressure over the next few years they may wish to review the issue of class size as one means of lowering the costs of delivery. There is scope to learn from good practice across the sector.

Figure 1: Summary of options that providers may wish to consider



Options the Department for Education and Education Funding Agency may wish to consider

At present the A level system has been set up in a way that maximises student choice – choice in terms of subjects, choice in terms of subject combinations, and choice in terms of the range of providers delivering A levels. This degree of choice is valued by students

and may contribute to their progress and the educational outcomes they achieve. However, the inevitable corollary of such a degree of choice is a greater prevalence of small classes and therefore higher costs. The question for policy-makers is the extent to which, in a period of both reducing national funding and a reducing 16 to 19 population until the 2019 to 2020 academic year, the higher costs of a choice-driven system can continue to be supported.

Figure 2: Summary of options that the Department for Education and Education Funding Agency may wish to consider

More active market management

- The Department for Education (DfE) and Education Funding Agency (EFA) may wish to consider whether there is a role for more active management of the A level market. For example, the DfE could impose more stringent criteria for demonstrating the viability of new A level provision in an area; schools, or some schools, could be asked to take a more proactive part in local area-based reviews of provision; or the DfE could request that very small A level providers submit evidence of their financial sustainability and, should this not be sufficient, help to broker collaborative or other arrangements to resolve the issue or attach conditions to future funding.

Reducing the range of A level subjects on offer

- Action could be taken nationally either to reduce the number of possible A level qualifications or, in partnership with universities and employers, provide a clearer indication of which A levels are deemed to be of national importance.

Promoting collaboration between institutions

- For smaller institutions wishing to maintain a broad A level offer during a period of falling rolls and financial constraint, seeking out strategic collaborations may be a necessary step. In that case there is a role for the DfE in making more information available on what successful collaboration looks like and publishing good practice guidance that more actively promotes this form of working. This is also an issue that multi-academy trusts may wish to consider in relation to reviewing sixth form provision across their schools.

A more managed system of post-16 applications

- A significant minority of providers, and particularly FE colleges and sixth-form colleges, found the uncertainty of translating student applications into confirmed places a key barrier in planning class sizes. A UCAS-style application system for A level provision, in which students would declare a first and second choice offer, could alleviate some of these tensions and allow institutions to plan their provision with greater certainty.

Section 1: Purpose of the research

1.1 Objectives of the research

1. The purpose of this research is to enable a better understanding of the decision-making process behind class sizes in 16 to 19 settings, and the impact this has on the cost of provision. The explicit objectives of the research were to:
 - a. Collect information about the costs faced by a range of providers for different qualifications in different settings and compare this with their funding.
 - b. Examine the drivers of class sizes in a variety of 16 to 19 institutions and whether a minimum class size is needed to offer academic qualifications and assess the implications for improving efficiency in delivery.
 - c. Examine the extent to which providers cross-subsidise between different qualifications to ensure they have what they regard as a sufficiently wide offer for their students.
 - d. Assess the extent to which decision-making processes vary between provider types (school sixth forms, sixth-form colleges and FE colleges) and whether other factors such as location, other local 16 to 19 provision and size of provider are important.
 - e. Assess the relationship between class size and curriculum breadth.
 - f. Assess the extent to which class sizes differ for year 12 and year 13.
2. The research focused on A levels to enable meaningful comparisons across different types of institution delivering education to students aged 16 to 19 years old.

1.2 Context of the research

3. This research was carried out during a period of considerable change, both in terms of qualifications and funding.
4. The Isos research team visited providers in the autumn term of 2015. This coincided with the introduction of the first tranche of new AS and A levels in some subjects. Changes to A level content, the removal of modules, moving exams to the end of the qualification period and uncertainty about demand for the new qualifications were all adding a new degree of complexity for institutions making decisions about their curriculum offer and the consequent implications for class sizes.
5. In parallel, the funding received by institutions delivering education to 16- to 19-year-olds has been subject to significant change. In August 2013, the Education Funding

Agency (EFA) introduced a simplified formula for post-16 funding, moving away from a cash rate per qualification to a rate per student. To help manage this change, formula protection funding was introduced to ensure that funding per student did not change for three years. As this institution-level funding protection is due to end after the academic year 2015 to 2016, it was an important focus for this research to understand how institutions are planning to manage this potential instability in budgets and the impact this may have on their curriculum breadth and decisions about class size.

Section 2: Methodology

2.1 Research design

6. In order to fulfil the research objectives set out above, the Isos team carried out fieldwork visits between September 2015 and January 2016 to 24 institutions delivering A levels. During each visit we conducted a semi-structured interview, generally with the headteacher or principal, the head of sixth form or curriculum and the finance lead to ensure a rounded perspective. The provider was also asked to complete a short template to gather common information about each institution in terms of its funding, performance, structure of qualifications and class size, in order to make statistical comparisons. Templates were returned by 23 out of the 24 providers. In addition, four hypothetical 'future scenarios' were used to explore how institutions might respond to changing circumstances and the impact these might have on class sizes. These were:
 - a. Future scenario 1: The planned changes to A level qualifications and structure.
 - b. Future scenario 2: The opening of new A level provision in a local area resulting in increased competition for students.
 - c. Future scenario 3: The closing of a large, mixed-ability post-16 provider in the local area resulting in increasing demand for provision for students with varied prior attainment.
 - d. Future scenario 4: The need to find additional funding efficiencies and to reduce costs of A level provision in the future.
7. The interviews with the providers and the analysis of the data collected were used to explore the following five key questions:
 - a. **How do 16 to 19 institutions make decisions about class size when delivering academic qualifications?** It was important to understand the criteria institutions use to make decisions as well as the factors outside the institution's direct control. It was also important to test the impact of new A level and standalone AS level qualifications on institutions' decisions and to explore the different drivers for class sizes in year 12 and year 13.
 - b. **What drives class size and financial efficiency?** It was critical to understand not only the relationship between class size and cost but also to explore with providers whether there are ways they could deliver courses in larger classes, whether there are thresholds beyond which this would become impractical, and whether this would have a knock-on impact on student choice, progression and performance. The research aimed to gather any evidence about the best

balance in class size between efficiency and impact in terms of student outcomes.

- c. **Do providers cross-subsidise between different study programmes, between different qualifications and between different phases?** Within individual institutions, it was important to explore whether different programmes have different class sizes, costs and potential efficiencies, and whether institutions subsidise more expensive qualifications from other parts of their budgets.
- d. **Are there varying patterns in the cost of provision across different types of provider?** It was important to explore the differences in approach and costs across different types of providers, and whether the most efficient approaches are applicable to all or specific to some types of institution.
- e. **Are there other factors that affect cost and class size?** These contextual factors could include the size of provider, location (e.g. urban or rural), other local provision, deprivation and students' prior attainment. It was also important to identify any other drivers, such as the capacity of the institution to use its budget flexibly or difficulty recruiting certain subject teachers.

2.1.1 Sample of institutions

8. A detailed analysis of the institution-level data held by the EFA was carried out by the National Foundation for Educational Research (NFER) Centre of Statistics in order to identify the most relevant characteristics on which to base the sample. The sampling strategy produced a random sample of institutions based on:
 - institution type – school with sixth form, including one UTC (15), sixth-form college (four), FE college (five)
 - geography – to have a regionally representative sample of institutions
 - different levels of size, competition, deprivation and attainment
 - Ofsted grade 2 or above.
9. The majority of providers visited were distributed across different regions of the country. However, five providers in a single local area with a high degree of local competition were also targeted in order to explore some of the dynamics between neighbouring institutions that might influence decision-making on class sizes.

2.1.2 Subject focus

10. The research focused in detail on six A level subjects to ensure that valid comparisons about class size and the cost of provision could be made between institutions but without making the process of collecting evidence too onerous for

schools and colleges. The choice of subjects – English, mathematics, chemistry, business studies, art and design and any modern foreign language – was informed by an intention to cover the following:

- the core subjects of English and mathematics
- at least one science subject
- a comparison between more traditional academic subjects and those with a more vocational focus
- a comparison between subjects that are very popular and tend to attract large numbers and subjects that are chosen by a smaller number of students nationally
- subjects that require different types of teaching techniques, such as subjects that:
 - require equipment or are more technical
 - have a hands-on/practical dimension
 - require a large amount of conversation or dialogue
 - are more 'traditional' in their teaching approach.

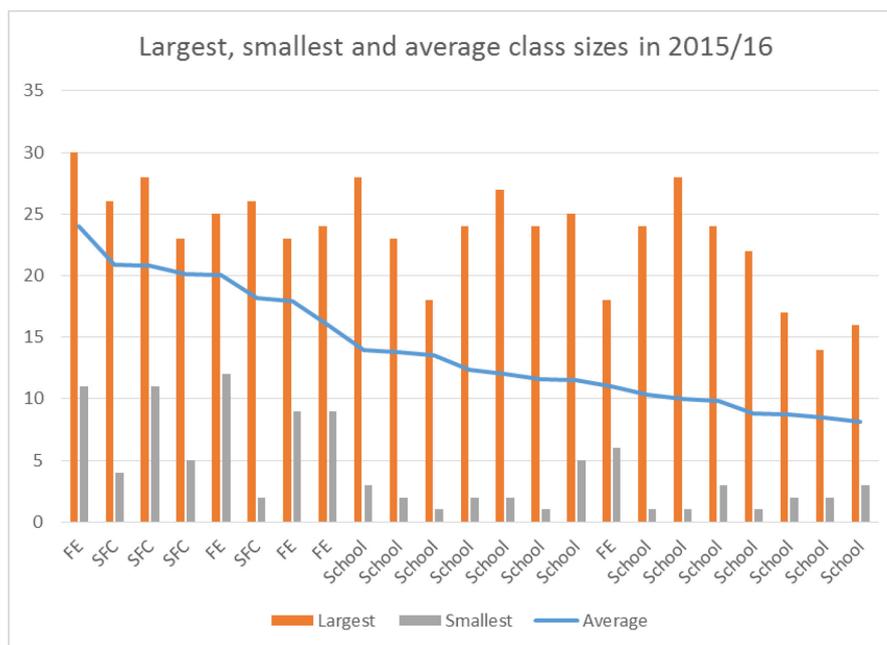
Section 3: What does the data show about average class sizes, the factors which influence these and the cost effectiveness of delivery?

11. As set out in the methodology section above, the research collected class size and financial data from the providers that took part. This section explores how average class sizes vary across providers and across different subjects. It goes on to investigate whether there is a relationship between class size and different institutional-level factors. Finally, it raises the question of whether class size has an impact on either the cost or effectiveness of delivering education. Given the small size of the sample relative to schools and other post-16 providers, the data and conclusions set out here should be treated with some caution.

3.1 Average class size and range across the providers visited

12. Figure 3 shows the largest, smallest and average (mean) A level class sizes, across all A level subjects, delivered in the 2015 to 2016 academic year by the four sixth-form colleges, five FE colleges and 14 school sixth forms that returned data.²

Figure 3: Largest, smallest and average A level classes in 2015 to 2016



Sample size: 23 providers. Four providers were not able to provide average class size figures across their whole 2015 to 2016 A level cohort. In those cases, the average has been taken across the six subjects that formed the in-depth focus for this research.

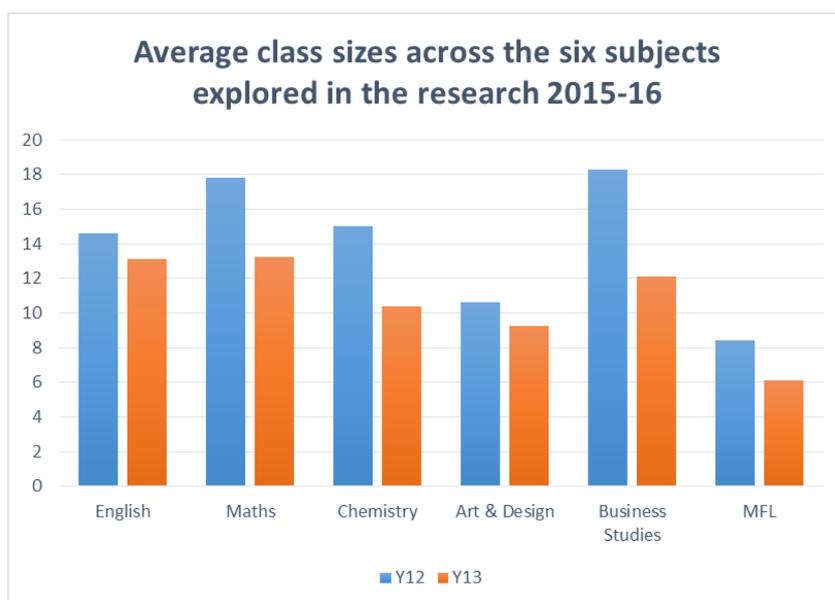
² For the purposes of reporting the data, the one UTC included in the sample has been referenced as a school in the charts and tables.

13. This data shows a substantial difference in average A level class sizes across the sample group. At one extreme there is an FE college delivering average class sizes across all A level subjects of 24 students. At the other extreme is a school sixth form with an average of eight students across all subjects. In general, the biggest difference can be seen between the FE colleges and sixth form colleges, on the one hand, operating at an average class size of just under 19 students, and school sixth forms, on the other hand, operating at an average A level class size of just under 11. However, even within the school sixth forms there is considerable variation, from the lowest average class size of eight to the highest of 14.
14. Largest and smallest A level class sizes are similarly varied (ranging from 30 students to one student) but are less uniformly distributed across types of provider. Seventeen providers delivered an A level class of five students or fewer. Three of these were sixth-form colleges and the remainder were school sixth forms. Many of these very small class sizes were year 13 classes – a phenomenon explored in greater detail in the next section. Nine providers delivered an A level class of 25 or more students, four of which were school sixth forms and the remainder were sixth-form colleges or FE colleges.

3.2 Average class sizes across the six subjects explored

15. Six subjects formed an in-depth focus for this research: English, mathematics, chemistry, art and design, business studies and a modern foreign language (French, Spanish or German). Figure 4 illustrates how average class sizes in year 12 and year 13 differed across these six subjects in the providers in the 2015 to 2016 academic year.

Figure 4: Average class sizes across the six subjects explored in the research, 2015 to 2016



Sample size: 23 providers

16. Two salient features are immediately apparent from Figure 4. The first is the difference in average class sizes in the core subjects, such as English and mathematics (13.9 and 15.5 respectively across both years 12 and 13), and less popular subjects such as modern foreign languages (an average of 7.3 across years 12 and 13). What these averages cannot reveal is the high student numbers in some subjects for some institutions versus the paucity in other subjects. Table 1 below shows how the number of year 12 classes in each of the six subjects offered by providers in 2015 to 2016 is spread.

Table 1: The distribution of numbers of classes across providers and subjects

Percentage of providers offering subjects – range by numbers of classes	0 classes	1 class	2 to 4 classes	5-7 classes	8-10 classes	More than 10 classes
English	0%	26%	61%	4%	9%	0%
Mathematics	0%	17%	52%	13%	4%	13%
Chemistry	0%	39%	43%	4%	0%	13%
Art and design	13%	52%	30%	4%	0%	0%
Business studies	4%	48%	39%	9%	0%	0%
Modern foreign language	48%	30%	17%	4%	0%	0%

Sample size: 23 providers

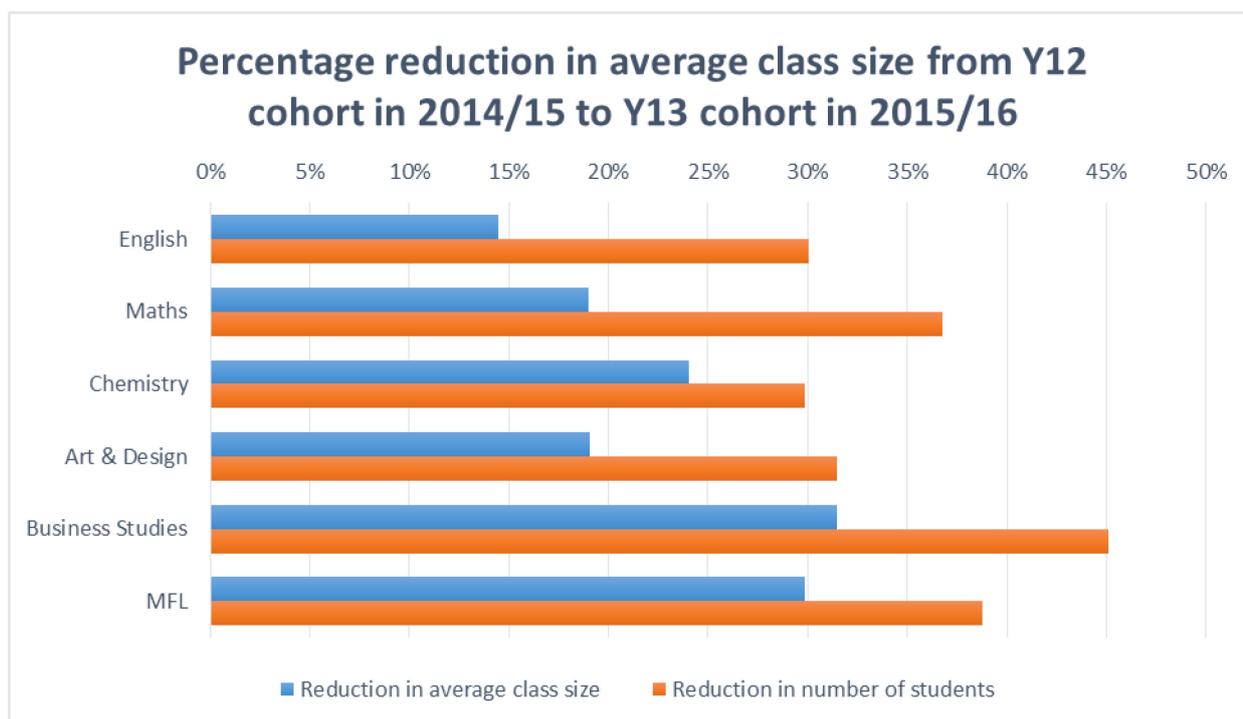
17. In subjects such as English, mathematics and chemistry, a minority of institutions, all of which were sixth-form colleges, had sufficient numbers of students to be able to run five or more classes simultaneously. In English and mathematics, the majority of providers were running between two and seven classes. Even the majority of school sixth forms, on average the smallest providers, were able to run more than one English or mathematics A level class. By contrast, only 21% of providers were able to run more than one class in a modern foreign language and 34% in art and design. Those providers able to run multiple classes in these less popular subjects were a mix of schools and sixth-form colleges, determined perhaps more by the focus of their curriculum than the size of the institution.

18. The second striking feature of the average class sizes across subjects (Figure 4) is the considerable drop in class sizes between years 12 and 13. This is driven by two factors. The first is the structural break that currently occurs between year 12 and year 13, at which students move from four AS subjects to three A2 subjects. The second is the fact that the transition from year 12 to year 13 is a time when relatively large numbers of students drop out for other reasons – for example, many students get to the end of the first year of their course and either do not get the results they

wanted, have completed a one-year AS course and have no plan for progression or have changed their minds about what they want to do and want to start again. It is not possible to quantify from the data collected in this research what proportion of the reduction in class size from year 12 to year 13 is due to the reduction in the number of subjects that students study and what proportion is due to students dropping out of A level provision or the institution entirely. Anecdotally, it varied considerably between providers. Some reported very few students discontinuing their studies, but emphasised that it was not always possible to predict which subjects students would choose not to continue beyond AS level. Three FE colleges and one large school sixth form, in contrast, anticipated that between 10% and 20% of their students might drop out of A level learning before commencing year 13.

19. The two subjects that, in the chart above, show the greatest fall-off in numbers between years 12 and 13 are mathematics and business studies. One can hypothesise why this is. Many providers explained that, unsurprisingly, in the transition from year 12 to year 13 students were most likely to discontinue their studies in subjects which they either found difficult, and in which they had not performed as well as other subjects, or in subjects which they did not deem to be critical to their further progress into higher education. Mathematics is an example of a subject where many students find that there is a considerable jump between GCSE and AS level in terms of the intellectual rigour it demands. They may therefore find the transition from AS to A2 similarly challenging. Business studies may be an example of a subject choice that is often taken as a fourth AS level, but which students may not always consider as critical as some other subjects in supporting entry to University. Students may therefore discontinue it at A2 level. A number of providers also reported seeing a pattern of more students taking economics in preference to business studies.
20. A clearer picture of what is happening between year 12 and year 13 can be gleaned by looking at the data on the cohort of students who studied a subject in year 12 in 2014 to 2015 and therefore went on to become the year 13 cohort in 2015 to 2016. The chart below shows the percentage reduction in average class sizes and number of students for all six subjects across the providers from 2014 to 2015 to 2015 to 2016.

Figure 5: Percentage reduction in average class size from year 12 cohort in 2014 to 2015 to year 13 cohort in 2015 to 2016



Sample size: 23 providers

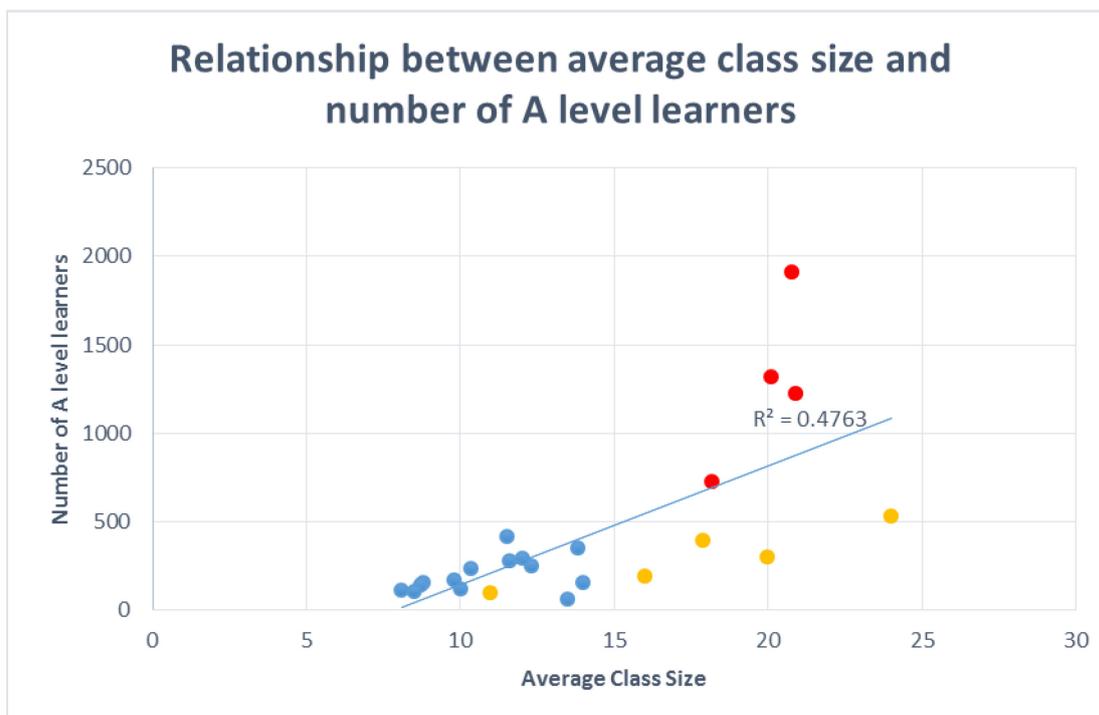
21. Again, the variation in how subjects are affected by the transition from year 12 to year 13 is striking. It is also apparent that those subjects that typically run with higher numbers of classes in an institution are more able to absorb a fall in student numbers without this having such a significant impact on average class size. This can be seen by comparing English and chemistry. In both subjects the average reduction in student numbers between 2014 to 2015 year 12 and 2015 to 2016 year 13 was around 30%, but in chemistry this translated into an average class size reduction of 3.3 students (or 24%), whereas in English the reduction was limited to 2.2 students (or 14%). This stands to reason – reductions in student numbers can be more easily managed across multiple classes, for example by reducing four classes to three and keeping average numbers high. To illustrate this, one large sixth-form college reported that it had 174 students studying English in year 12 in 2014 to 2015, which dropped to 128 in year 13 in 2015 to 2016. The number of classes needed for English reduced from eight to five, and the average class size consequently increased from 22 to 26 students. The number of full-time equivalent teaching staff required to teach those classes reduced from 2.5 to 1.25.

3.3 Institutional factors that affect average class size

22. The data explored so far reveals very marked differences in average class sizes between different institutions, different subjects and different year groups. This section explores some of the factors that influence the differences in average class

sizes between institutions. The first factor that appears to have a very significant impact on average class size is the size of the provider, as measured by the number of students studying at least one A level. The chart below shows the relationship between these two variables (the trend line shown is a statistical line of best fit with an R squared value of 0.48).

Figure 6: Relationship between average class size in 2015 to 2016 and number of learners

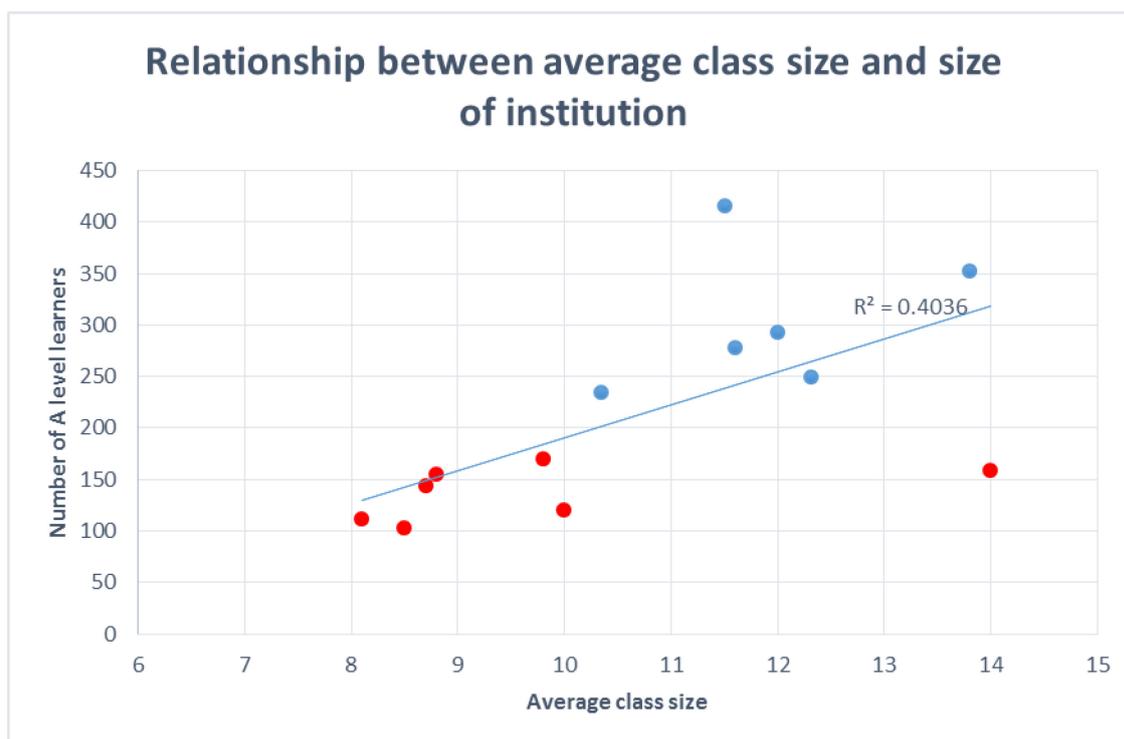


Sample size: 23 Providers. Sixth form colleges = red; FE colleges = yellow; school sixth forms = blue. Three providers did not submit the number of learners studying at least one A level in 2015 to 2016. In those cases the number of A level learners in 2014 to 2015 provided by the EFA have been used. Four providers were not able to give average class size figures across their whole 2015 to 2016 A level cohort. In those cases, the average has been taken across the six subjects that formed the in-depth focus for this research.

23. The chart shows a relatively strong correlation between the number of A level learners in an institution and the average class size that is delivered. For example, there is a very obvious difference between the four sixth-form colleges, which all have more than 1,200 A level learners and average class sizes of around 20, and the school sixth forms, which have learner numbers ranging from 120 to just over 400 and an average class size of around 11.

24. The chart below (Figure 7) looks in detail at just the school sixth forms. Here there appears to be quite a marked difference in average class size between those sixth forms with around 150 learners or fewer (in red) and those with around 250 or more (in blue), as illustrated below. There are, however, a couple of notable outliers. Again, the trend line shown is a statistical line of best fit with an R squared value of 0.40.

Figure 7: Relationship between average class size (2015 to 2016) and size of institution – school sixth forms



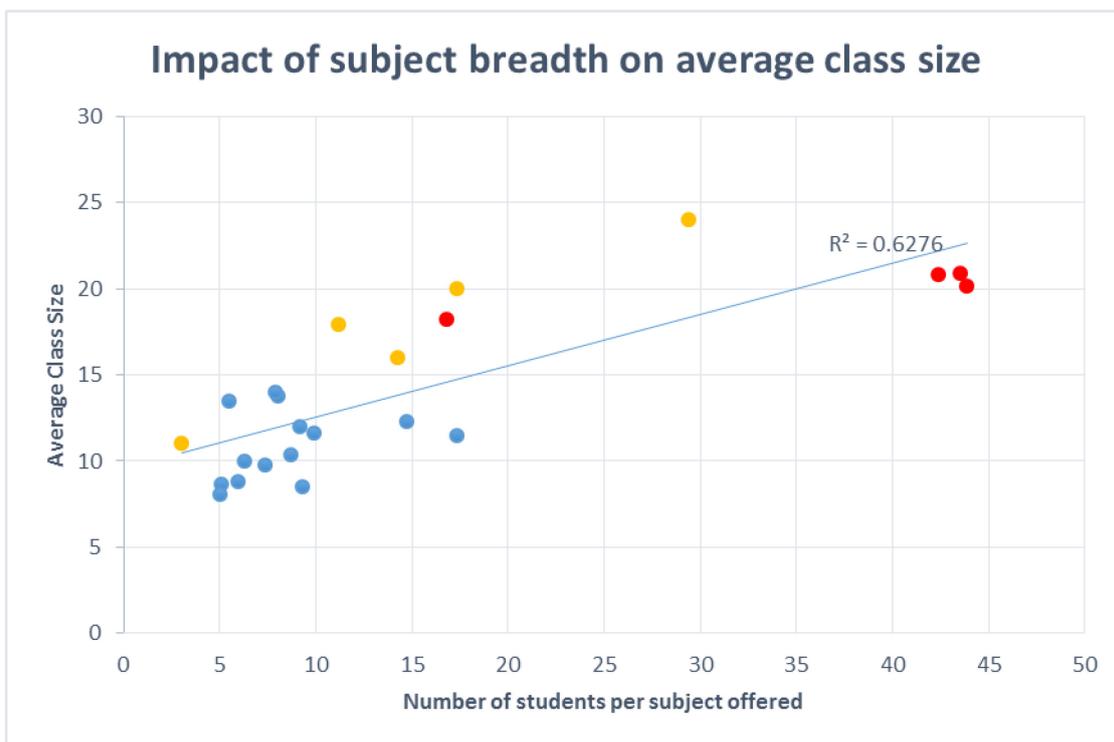
Sample size: 13 providers. One provider did not submit the number of learners studying at least one A level in 2015 to 2016. In this case, the number of A level learners in 2014 to 2015 provided by the EFA have been used. Three providers were not able to give average class size figures across their whole 2015 to 2016 A level cohort. In those cases, the average has been taken across the six subjects that formed the in-depth focus for this research.

25. The chart shows that all but one of the school sixth forms with more than 200 students delivered average class sizes of more than 11. Only one of the seven school sixth forms with around 150 A level learners or fewer did so. This threshold may be significant. According to the providers that took part in this research, the average minimum class size required to cover costs was 11.7 (albeit there was a significant degree of variation in the 16 providers that responded). Interestingly, guidance for schools and colleges published by the Association of School and College Leaders (ASCL) suggested that in 2013 to 2014 a minimum of 11 students would be needed per post-16 class to cover teaching costs, rising to 20 students for full cost recovery.

26. However, Figure 6 also shows that the size of institution is not the only variable related to average class size. The experience of the FE colleges in the sample is informative in this respect. For example, one FE college had an A level cohort of 186 – very similar to the size of many school sixth forms – yet it delivered an average class size of 16, somewhat larger than any of the school sixth forms in the sample. Similarly, another FE college with just under 300 learners delivered an average class size of 20 – on a par with sixth-form colleges four times the size. Part of the explanation lies in the breadth of subjects offered by providers in relation to the size of the student body. Figure 8 shows the relationship between average class size and the number of students for every A level subject offered (based on the number of

students taking at least one A level divided by the number of subjects). It does not explain all the differences seen between institutions, but generally it shows that providers which are offering fewer subjects in relation to the size of their student body are able to deliver larger average class sizes. The trend line is a line of statistical best fit, with an R squared value of 0.63, suggesting a strong correlation.

Figure 8: Impact of subject breadth on average class sizes (2015 to 2016)



Sample: 23 providers. Sixth-form colleges = red; FE colleges = yellow; school sixth forms = blue. Three providers did not submit the number of learners studying at least one A level in 2015 to 2016. In those cases, the number of A level learners in 2014 to 2015 provided by the EFA have been used. Four providers were not able to provide average class size figures across their whole 2015 to 2016 A level cohort. In those cases, the average has been taken across the six subjects that formed the in-depth focus for this research.

27. The analysis here suggests that the number of A level learners and the breadth of the A level curriculum offered (in relation to the size of the student body) can explain a large part of the variation in class size by institution, but they cannot explain all the variation. To do this one needs to understand the different motivations that inform decisions about class size and how these relate to both the type of institution and the context in which they are found. This is explored in greater detail in section 4.

3.4 The impact of class size on per student cost and effectiveness

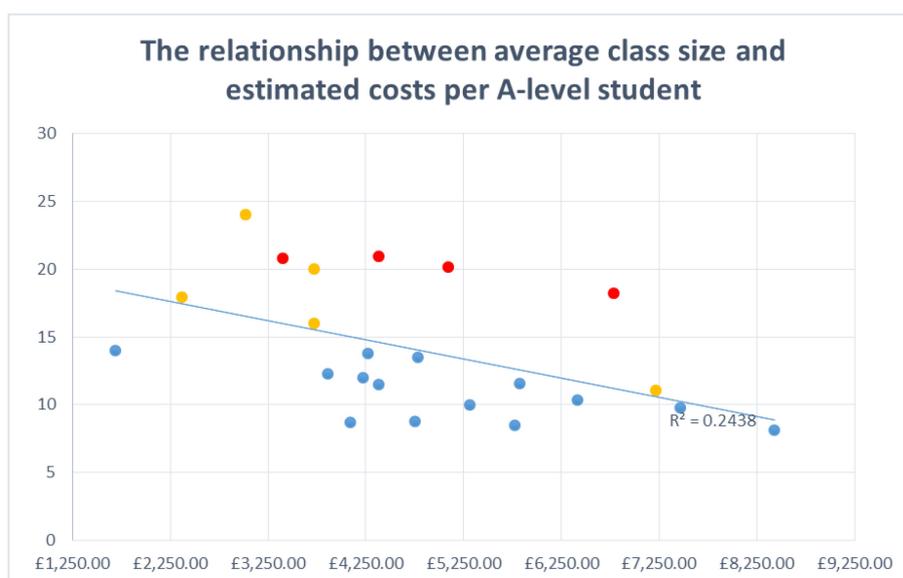
28. This final section of the data analysis attempts to tease out whether there is a relationship between average A level class size and either the cost or effectiveness of A level provision.

29. Looking first at the costs, Figure 9 plots the average class size of the providers in the sample against their estimated 2015 to 2016 per student costs for A level. The data on costs needs to be treated with some caution. No data is held nationally for the amount of post-16 funding which is allocated purely for the delivery of A levels. Data is held in relation to funding on an institutional basis, but for the majority of post-16 providers this includes funding for learners following a variety of different qualifications. As part of this research, providers were therefore asked to estimate their A level spend. This was based on three elements:

- a. estimated 2015 to 2016 A level teaching staff costs (calculated by multiplying the number of full-time equivalent teaching staff for A level by the average A level teacher salary within the institution)
- b. estimated support staff costs (calculated by multiplying the number of full-time equivalent support staff for A level students by the average A level support staff salary)
- c. estimated other costs (calculated by estimating a percentage of buildings, management, administration, assessment, equipment and other back-office costs that would be attributable to A level.)

30. The total estimated spend for 2015 to 2016 was divided by the number of students in the institution taking at least one A level or AS level in the 2015 to 2016 academic year, in order to derive an annual per student A level cost.

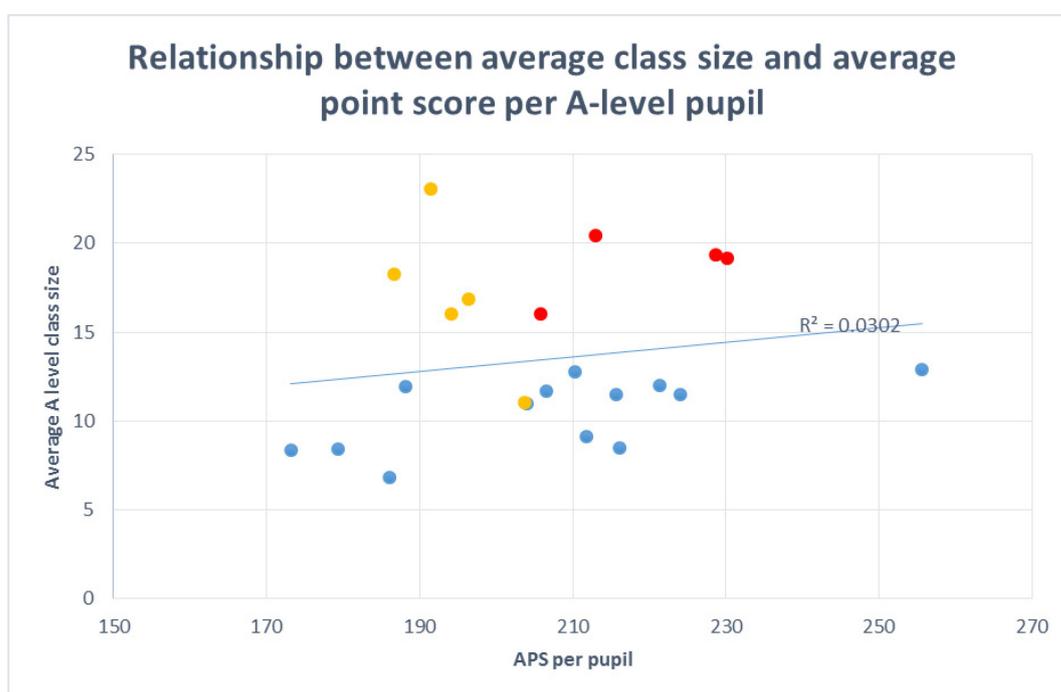
Figure 9: The relationship between average class size (2015 to 2016) and estimated costs per A level student



Sample size: 23 providers. Sixth-form colleges = red; FE colleges = yellow; school sixth forms = blue. Three providers did not submit the number of learners studying at least one A level in 2015 to 2016. In those cases, the number of A level learners in 2014 to 2015 provided by the EFA have been used. Four providers were not able to give average class size figures across their whole 2015 to 2016 A level cohort. In those cases, the average has been taken across the six subjects that formed the in-depth focus for this research.

31. Although the data on costs must be treated with caution, the chart suggests a reasonably strong negative relationship between cost of A level provision per student and average class size (i.e. the smaller the class size, the higher the average cost). Certainly per student costs of more than £5,000 were predominantly (although not exclusively) found in those institutions delivering average A level class sizes of fewer than 12. Section 4.3 of this report attempts to examine some of the barriers to increasing class sizes, which may in turn explain the apparently higher per student costs in institutions with low average A level class sizes. The next chart compares the average point score per A level student (based on 2013 to 2014 published results) with the 2014 to 2015 average class size.

Figure 10: Relationship between average class size (2014 to 2015) and average point score per A level pupil



Sample size: 22. Sixth-form colleges = red; FE colleges = yellow; school sixth forms = blue. Five providers were not able to give average class size figures across their whole 2014 to 2015 A level cohort. In those cases the average has been taken across the six subjects that formed the in-depth focus for this research.

32. Unsurprisingly there is a much looser relationship between A level outcome, as measured by average point score per student, and average A level class size. However, looking just at school sixth forms there appears to be a stronger positive relationship between class size and performance than across the sample overall (with an R squared value of 0.38 compared with 0.03). Obviously, average point score (APS) is significantly affected by the prior attainment of students at the institution, and this calculation does not take account of that. The A level value added measure does take account of prior attainment, and may therefore be a more comprehensive test of the relationship between class size and effectiveness. Interestingly across the sample as a whole there is almost no correlation between value added at A level and class size (R squared of -0.01). However, again, the picture is very different for school sixth

forms compared with other institutions. For school sixth forms there is a weak but *positive* correlation between class size and value added (R squared of 0.17), suggesting in sixth forms larger class sizes are weakly correlated with both higher attainment and better progress.

33. A myriad of factors influence achievement at A level, not least the quality of teaching and the prior attainment of students. It is nonetheless interesting to observe that all but two of the providers achieving an average point score (APS) of more than 200 also delivered average class sizes of more than 11. In addition all but two of the school sixth forms with a negative value added score for A level also delivered average class sizes of less than 11. It is, however, hard to tease out the causality in this statement. There is research evidence to support the hypothesis that teaching at A level is more effective in larger classes. However, it is also undoubtedly the case that providers with a less secure reputation for delivering good A level results will not attract the same number of applicants as those with a much stronger reputation. These providers are, therefore, likely to be smaller and less likely to offer large class sizes. Interestingly, across the sample there was no clear relationship between APS and cost per student.

Section 4: How institutions make decisions about class sizes

34. The previous section of this report highlighted the range of factors, from the size of institution to subject breadth and degree of competition, that appear to have an impact on the size of A level classes delivered in the providers who took part in this research. It also began to draw inferences about the relationships between some of these factors and both the cost and effectiveness of provision. This section of the report aims to explore what is happening to drive these data trends. It looks at how providers make decisions about class sizes, and why they make those decisions.

4.1 The principles that guide decision-making about class size and subject breadth

35. It is very clear from the data analysis that there is a strong correlation between average class size and the number of subjects offered. In short, the more subjects that are offered in relation to the size of the student body the lower the average class size tends to be. It is therefore not surprising that when providers were interviewed about how they made decisions about class sizes their answers invariably started with a description of how they determined their A level curriculum offer in terms of the range of subjects available and then moved on to consider minimum and maximum class sizes. From the discussions, a number of core principles emerged which providers referred to in helping to guide their decisions about the curriculum offer and class size. These were remarkably consistent across the range of providers.

4.1.1 Responding to student choice

36. All the providers that took part in this research, without exception, said that responding to the subject choices made by students played an important part in determining the breadth of their curriculum offer. For the large majority of providers it was the most important principle that they referred to and for a few it was the only thing that they emphasised. However, it was clear that the principle of responding to student choice meant quite different things to different providers.

37. Some providers, particularly those operating under capacity and in areas of high competition for students, saw offering a broad range of subjects that would attract students as essential to their ongoing viability. One school sixth form said “breadth is important to our success” and another stated “If a student wants to do a subject we will try and find a way to offer it”. A number of school sixth forms also felt a strong moral obligation to try to support the aims, aspirations and choices of their existing pupils. One school was adamant that its educational philosophy as an institution was based on offering students the option to study any subject in which they had been successful at key stage 4 on to key stage 5. In another school sixth form they

described how their moral obligation to support the choices of their existing students was allied closely with their Christian ethos.

38. One sixth-form college and one FE college emphasised the importance they attached to offering students from across the community the opportunity to study A level subjects or combinations that were simply not available from other local providers. They saw themselves as complementing a local offer that had become too narrow in some respects. The sixth-form college described the importance it afforded to offering minority subjects such as Latin, classics, physics and German, which were not widely available in other local sixth forms or colleges. The FE college described the social value of its relatively small and focused A level offer in catering for those students who were increasingly finding themselves unable to meet the entry criteria of local sixth forms but who nonetheless had an aspiration to study A level and had the aptitude to do so.
39. In one FE college, responding to student demand took quite a different form. For this institution, it was less about meeting the demands of a pre-identified body of students than about using sophisticated market analysis techniques to predict subjects in which demand was rising (or falling), looking at how well these demands were catered for in neighbouring institutions, and analysing learner travel times to develop a profile of subjects and a curriculum offer to which they aimed to recruit.

4.1.2 Supporting student progression

40. The second principle that providers referred to as guiding their decision-making, and which often went hand-in-hand with efforts to respond to student choice, was the need to support effective student progression. Five out of the 24 providers in the sample strongly emphasised how student progression influenced their initial subject offer and described how they aimed at the outset to guide students into combinations of subjects that both suited their individual abilities and gave them the right platform for progression to their destination of choice. It was a factor mentioned by around half of the providers. All but two of the providers described an ongoing process with potential applicants, which extended up to results day and beyond, to negotiate, shape and influence their choice of subjects.
41. About half of the providers in the sample also described the trade-offs they made around both setting, and enforcing, entry requirements. All the providers recognised the importance of getting the right students on to the right course to maximise the chances of good student progression and achievement. However, many were also aware that in setting entry requirements too high they risked diminishing potential student numbers and recruiting class sizes that were well below capacity. Despite this trade off, the general trend tended to be towards rising rather than falling entry requirements. Nine providers described how they had raised entry requirements recently, for example to reshape provision away from Level 2 and towards Level 3, by

setting higher entry requirements for students wishing to study four A levels rather than three, or by more rigorous application of entry requirements which had been set previously, but generally not adhered to.

4.1.3 Curriculum aspirations as an institution

42. In addition to providers' commitment to offering a range of subjects that met student demand, some also described how they nurtured a particular institutional identity which frequently found its expression in the curriculum and range of subjects offered. In these cases, the providers in question might be less driven by year-on-year changes in student preferences and might instead seek to attract students who subscribed to their specific educational vision. These might be influenced by perceived national importance, strengths in teaching or insights into the needs of local communities and local and regional employers.
43. Two sixth-form colleges and two school sixth forms, for example, described their offer as strongly academic, with a focus on supporting progression to Russell Group universities. Their core subject offer, therefore, was focused on the facilitating subjects. One school sixth form and one UTC had carved out a specific niche in science subjects with a view to supporting progression, on the one hand, into the study of medicine at university and, on the other hand, into science and engineering related careers. One FE college described its role as being an important player in the local and regional economy and how its offer had been influenced by identified regional skills priorities. One other school sixth form described their passion for continuing to offer a strong arts-based curriculum, including music and performing arts. In serving a very deprived community they felt this was essential to provide a 16 to 19 educational offer that would compensate for some of the opportunities that would not be readily available in local community settings. These institutional aspirations helped to guide providers in making sometimes difficult to decisions about which subjects to continue and which to stop.

St Dominic's Catholic Sixth Form College in Harrow, London, has increased student numbers by more than 300 since 2012. The college has managed to maintain a very broad A level programme, with 28 different subjects on offer. There is a strong emphasis on mathematics and science, but they have also seen a growth in humanities, English and psychology as well. They see this breadth as critical to their success as it allows them to offer combinations of subjects that may not be on offer elsewhere. For example, students can study more unusual combinations such as physics, Latin, classics and German – a combination not widely available locally.

4.1.4 Staffing profile

44. For all but one of the providers involved in the research, consideration of their current staffing profile went hand-in-hand with their efforts to support student choice, student

progression and their adherence to an educational vision. Only a few examples were given of institutions which had, in the recent past, recruited a new member of staff specifically to deliver a subject that had not previously been offered. However, the influence that the staffing profile had on the institution's approach to recruiting students and determining subject breadth differed quite considerably.

Woodhouse College, an oversubscribed sixth-form college in Barnet, described how they recruited students, as far as possible, in the right subject combinations to meet the profile of their teaching staff. They would not necessarily offer the place to the applicant with the highest points score if the subject combination of another strong applicant enabled them to better fill teachers' capacity. Over the longer term, the college aims to modify its cohort of teachers so that it reflects student demand for subjects. In **Barnet and Southgate College**, an FE college also in Barnet, they set a tariff for each subject, based on market trends and existing staff capacity. They would then seek to recruit to that tariff. Daily phone calls and monitoring enabled them to track progress towards their targets.

45. For other institutions, the interplay between subject breadth at A level and staffing was more complex. Around a third of school sixth forms described the importance of offering teachers the opportunity to teach A level as a way of attracting the best staff, with subject specialist teaching from 11 to 18, and retaining existing staff. One coastal school, which was relatively isolated, said they would not be able to recruit teachers without offering the opportunity to teach A level. Another school gave an example of a teacher deciding to apply for posts in other schools because he did not have the opportunity to carry out sufficient A level teaching. For school sixth forms, subject breadth at A level was also often driven by the quality of teaching at key stage 4. For the many of the school sixth forms interviewed, the subjects that attracted the most students at A level were those delivered by the teachers who were the most engaging and achieved the best exam results at GCSE. This provided the school with areas of curriculum strength that were the core pillars around which they would base their A level offer.

4.1.5 Financial considerations

46. It was striking that while the majority of institutions made reference to financial considerations as part of their decision-making process around subject breadth and class size, this was a driving factor for only around a third. In fact only one provider out of the 24, an FE college, said that finance was the primary consideration in whether or not to offer a subject. In this case, the FE college said that it would only offer subjects at A level that could make a minimum 25%, and normally 50% contribution, to the costs of the college; in other words, the funding received for the students taking that subject would be sufficient to pay for the costs of delivery and make a further contribution to the overall running costs of the institution. For this

provider, their average A level class size, across the six subjects explored in depth for this research, was 16.

47. In contrast, two providers, one school sixth form and one FE college, said that they would only discontinue subjects for pedagogical reasons, for example if the teaching was of poor quality, the class size was not sufficient to stimulate debate and dialogue or the course requirements were not appropriate for their students. They would not discontinue a subject purely for financial reasons. One other school sixth form said “Our focus is on the students. If that means we have to take a financial hit then we will do so.”

4.1.6 Pedagogical considerations

48. The four factors, or principles, outlined above which providers told us guided their decision-making relate, in the main, to the range of subjects that providers offered and therefore by implication to the size of classes. Around half the providers also reported that, for pedagogical reasons, they believed that there was an optimum range for A level class size. Again, around half of the providers in the sample believed that A level classes of just three or four students did not deliver the best learning experience. Most described the importance of dialogue and small group work that would be frustrated in such a constrained learning environment. Five providers had looked in-depth at the research and were able to cite from an increasing evidence base that student progress at A level tended to be better in larger classes. Having said this, many providers felt that offering a subject, even at very low take-up levels, was better for the students than not offering it at all. Between 2014 and 2016, around a third of the 24 providers ran a year 12 A level class with fewer than five students in one of the six subjects explored as part of this research. Clearly, in the hierarchy of decision-making, for many providers student demand trumps all else.

49. Pedagogical considerations also apply in relation to the top end of A level class sizes. The vast majority of providers felt that A level classes became harder to teach when class sizes reached somewhere between 25 and 30 students. This was dictated by factors such as the ability of teachers to get to know all the students well, the fact that typically A level classes would be taught by one member of staff without any classroom support (unlike pre-16 teaching where typically class sizes are bigger but the ratio of adults to learners in the classroom is smaller), and the volume of marking and assessment that a large class would generate. A few providers suggested that maximum class sizes might differ between subjects. One provider, for example, said that they would be willing to accept larger classes in subjects such as English, sociology or psychology than they would in science subjects because of the common-sense restrictions of how many students could safely conduct practical experiments in a laboratory at one time, or in modern foreign languages due to the need to factor in practice in speaking and listening.

50. One large sixth-form college expressed a very clear pedagogical principle that it was not so much a large number of students in a particular class that might impair the relationship between teacher and student, so much as the total number of students a teacher needed to get to know well across their entire teaching portfolio. In this instance most teachers taught five A level classes and it was felt that teachers would struggle to know more than 120 students, in total, really well. The sixth-form college therefore aimed to limit class sizes to a maximum of 24 and would either split classes that were around 26 or 27 students or would put additional support into the classroom, for example through a teaching assistant. Another school sixth form said their decision-making on maximum class size was based on student feedback – some groups of students were very happy in a class of 30 and teachers were obviously delivering a good learning experience. In other classes they started getting complaints when numbers went above 20. They had to act to protect their brand and stop students leaving so would move immediately to two classes.

4.1.7 Physical constraints

51. A further constraint that frequently applied to maximum class size was the physical capacity of the rooms available. This differed quite a lot between institutions. Some of the larger colleges and schools that used key stage 4 and key stage 5 room capacity interchangeably could comfortably accommodate up to 30 in a classroom. However, just under half of providers had classrooms for post-16 students which would not take more than 24. Even in some of the largest FE colleges they only had one or two rooms that could take more than 24 or 25 students, and these served the whole college so simply could not be used on a regular basis for A level classes. Indeed, one school sixth form pointed out that the Learning and Skills Council used to impose maximum class sizes on new-build classrooms, which means that many rooms are now restricting class sizes, sometimes to 22 students or fewer.

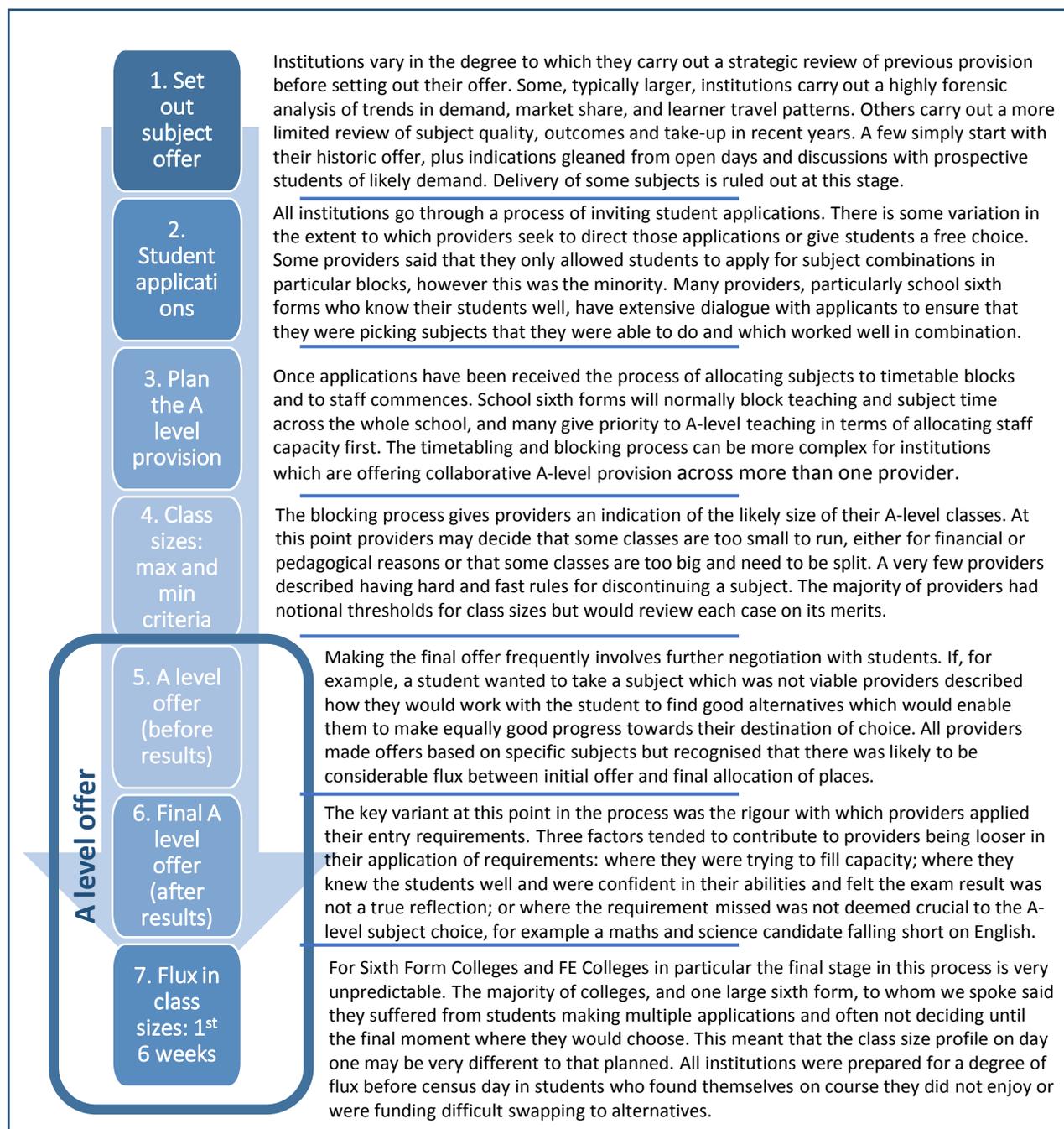
52. For a few providers, the physical constraints imposed by their building related not so much to individual class size as to their ability to offer more subjects. In these providers, a lack of free classroom space at peak times meant that they could not offer additional A level subjects even if they had the demand and the teaching staff needed to deliver them.

4.2 The process that determines eventual class size

53. It is clear that there is a wide range of principles that guide institutions in making decisions about their A level offer and the size of classes that they will deliver, and the interplay and trade-offs between these can be quite complex. This complexity is reinforced by the process that institutions go through to get from an initial A level offer to an eventual profile of students in classes. This process tends to be highly iterative and to span several months. While providers employed a range of different tactics in

how they approached this process of establishing class sizes, the core elements of the process were very consistent across all types of provider that were interviewed. This is described in Figure 11.

Figure 11: Process for establishing A level class sizes



4.3 Barriers that impede providers in achieving the most efficient class size distribution

54. The preceding sections have set out the range of different considerations that institutions apply in reaching decisions about class size (and its corollary, subject breadth). They have also described the process in which these decisions are lodged.

However, one clear issue that arises out of the complexity is that providers see the benefit, both pedagogically and financially, of achieving larger class sizes but a number of barriers prevent them from doing so.

55. Through the research, providers were asked whether they had a figure for the minimum viable class size needed to cover the costs of delivery. Sixteen providers were able to answer that question and, although there was quite significant variation in their responses, the average minimum viable class size was 11.7, and 11 of the 14 providers answered between nine and 13. However, in around two fifths of institutions taking part in the research their average A level class size in 2015 to 2016 was lower than the average viable minimum. This suggests that for a large minority of institutions there are significant barriers preventing them from delivering as efficient an A level offer as they might wish. This section explores the most commonly experienced barriers to maximising class size.

4.3.1 Competition for students

56. For some providers, the need to attract additional students is acute. These providers can be categorised in two main ways. The first group are responding to external factors that determine the degree to which they have to compete for students. Providers operating in areas where there is a high density of provision, often with new sixth forms having opened in recent years, where travel between institutions is relatively straightforward and where there is a culture of seeking out the best provision rather than simply opting for the nearest provider find themselves very clearly competing for students. The second group are providers, most often school sixth forms, which are contending with internal factors which leave them significantly below capacity. These might be providers seeking to grow a sixth form from a low base without an established track record of post-16 provision to point to, or schools whose pre-16 intake is at the lower end of the ability spectrum and which consequently experience a much lower throughput of students from their key stage 4 to key stage 5 provision, leaving them short on student numbers overall.

57. For those providers that do not have the luxury of being oversubscribed, or even at capacity, decisions around whether or not to continue a very small A level class become very difficult to make. Many providers that found themselves in this situation explained that they felt they had to do everything they could to retain existing key stage 4 students (in the case of school sixth forms) or attract students to apply from elsewhere, and if that meant offering a minority subject or an unusual combination of subjects they would do so. Many institutions in such circumstances felt that it was more financially advantageous to run a small class than not to attract the student in the first place. The argument in favour of running small classes becomes more compelling when one considers that students typically come with four subject choices. One very small school sixth form, for example, described a situation in which they decided to run a geography class with just two students. This is because it enabled

them to retain two students who would otherwise have opted for a different provider and who, alongside choosing geography, also studied A levels in mathematics and the sciences. So by offering one very small class, they were able to boost class sizes by two students in three other core classes.

4.3.2 Inflexibility of staffing

58. The second key barrier that prevents providers from discontinuing subjects with very low take-up is the inability to turn staff capacity off and on as demand fluctuates. Typically, the ability to employ staff flexibly, on part-time or sessional contracts, is greater in the further education sector than in schools as teachers' terms and conditions are less stringent and teachers are more likely to be dedicated solely to A level provision than teaching across multiple age ranges. However, even in those providers with the most flexibility in their staffing model the decision to make a member of staff redundant in order to realise the savings from discontinuing an A level subject was difficult as they had to weigh up the potential savings against the possibility of incurring recruitment costs should they wish to run the subject again in future.

59. In those instances where discontinuing an A level subject did not allow a provider to release teaching staff, redeploy their time to other teaching or leadership responsibilities or reduce their paid hours, it made much more sense to ask that teacher to teach a small A level class than to have unused teacher capacity. Many school sixth forms, in particular, made the point that there is little benefit in discontinuing an A level subject if the teacher will still be required to teach GCSE as it does not allow you to remove a teacher from the staffing roll and therefore does not result in any cost savings. In such circumstances there is little financial impact in continuing to run a very small A level class.

4.3.3 Unpredictability of student numbers

60. The third key barrier to maximising efficiency identified through our research was the unpredictability of student numbers. There are two points in the A level lifecycle where this is most acute: in the conversion of A level offers to student take-up and in the transition from year 12 to year 13.

61. The fact that students make multiple applications to post-16 providers and may only decide at the last minute which offer to take up posed a challenge to a significant minority of the providers who took part in the research. This was typically a bigger issue for FE colleges than school sixth forms, which tended to recruit most of their students from their pre-16 cohort and consequently had better information than other providers on eventual destinations. However, it was not exclusively a further education issue. One school sixth form described how they received 500 applications for 200 places every year, which made it very difficult to plan accurately the numbers

of students per subject as they did not know which offers were likely to be accepted. Another provider explained that they could expect their eventual student numbers to be 20% lower than the number of A level places they offered. This could often be the factor that tipped a subject from being viable to non-viable. It is, of course, much harder to decide not to run a subject after an offer to specific students has been made than before.

62. The second point of unpredictability is the transition from year 12 to year 13, and this affected providers of every type. Across the sample, over two-thirds experienced a drop of more than 25% in class sizes between year 12 and year 13 in either English, mathematics or chemistry – and these are facilitating subjects in which one might expect retention of students to be relatively higher. Across the sample as a whole in 2015-16, average class sizes were 24% smaller in year 13 than in year 12. To some extent this is the inevitable arithmetical consequence of students moving from four subjects down to three. In year 12, a student body of 200 will generate 800 places in classes; however, in year 13, with only three A2s, the same 200 students would generate only 600 places in classes.
63. Typically, the 25% reduction in places is not felt evenly across the subjects. Those subjects that are deemed to be critical for entry to higher education or particular career paths are generally more likely to be retained than those which students deem to be less critical to their chosen pathway. It is of course very difficult, and in many cases impossible, to discontinue a subject in year 13 in which students have invested a year of study and have ambitions to continue, even if the class size becomes very small indeed. Although all institutions know that there will be an inevitable reduction in class sizes from year 12 to year 13 and can plan for this, providers suggested that it can be very difficult to predict which subjects are likely to be most affected in any single year. They explained that many students would embark on four AS qualifications without knowing which they would continue and which they would stop. Often they would make up their minds, or indeed change their minds, when they knew how well they had done in the AS examinations. Nonetheless, there is probably more that institutions could do to systematically model retention rates in different subjects over a number of years in order to improve their planning.
64. All providers had to contend with the uneven reduction in class size numbers from year 12 to year 13. However, some providers, particularly those that catered for a more mixed-ability intake, also had to contend with the unpredictability of students dropping out of A levels completely between year 12 and year 13, or indeed dropping out of their studies at other points in the year because they were unable to meet the demands of the A level syllabus. As quoted earlier, at least four providers in the sample planned on losing between 10% and 20% of their A level cohort before the end of the first year. This is a large inefficiency in the system and can, again, mean the difference between viable and sustainable class sizes becoming too small by the second year of study.

4.3.4 Organisational status or brand

65. The final key barrier that was highlighted by a large number of providers in the sample, of every type, was the need to continue to offer certain subjects, even if these did not attract high numbers of students, because of their importance to the institution's brand. The subjects which were most often cited as falling into this category were modern foreign languages, further mathematics, music and some sciences. The latter tended to be in institutions that did not have a strong track record in delivering sciences but nonetheless aspired to offer an academic curriculum that paved the way to university.
66. Of the six subjects that were explored in depth through this research, it is perhaps no surprise that modern foreign languages attracted the smallest class sizes across the sample. Sixteen providers out of the sample were offering at least one modern foreign language. Across these, average class sizes were eight in year 12 and six in year 13. The largest class was 19 and the smallest class was just one.

4.4 How opportunities and barriers vary by type of institution

67. The barriers to maximising efficiency through class sizes described above apply to institutions of all types. However, it is clear from the analysis that the way they are experienced, and the degree to which they fetter providers' decision-making varies between different types of institution. Figure 12 draws out how opportunities and barriers to maximising efficiency through class sizes vary between sixth-form colleges, FE colleges and school sixth forms.

Figure 12: Summary of opportunities and barriers by type of provider

School sixth forms	Sixth form colleges	FE colleges
<p>Opportunities:</p> <p>School sixth forms can redeploy teachers into other year groups in the school. This provides a mechanism to flex A level staff capacity from year to year.</p> <p>Recruiting extensively from their pre-16 cohort means that they have more opportunity to influence student subject choices and less unpredictability in numbers accepting offers.</p> <p>They can strongly influence student recruitment overall and into particular subjects by improving quality and outcomes at KS4.</p> <p>They can cross subsidise between pre and post-16.</p> <p>Barriers:</p> <p>They tend to be smaller institutions which makes it harder to deliver a broad curriculum and financially efficient class size.</p> <p>It is harder to make redundancies or reduce staff hours as staff teach other key stages and have more rigid terms and conditions.</p> <p>They often feel a strong moral and educational obligation to support their KS4 cohort in the subject choices they wish to make at A level.</p>	<p>Opportunities:</p> <p>Sixth form colleges are typically much bigger institutions than school sixth forms. This enables them to schedule around 10 classes in core subjects and six or seven blocks to enable maximum flexibility.</p> <p>They can recruit part-time and sessional teaching staff more easily and have greater opportunity to vary teachers' hours as staff are not deployed to other year groups.</p> <p>They often recruit students from a much wider catchment area which means they are less affected by changes in local competition.</p> <p>If they are over-subscribed they can recruit to their staff profile, maximising efficiency.</p> <p>Barriers:</p> <p>They cannot redeploy staff into pre-16 teaching if they have surplus capacity.</p> <p>Their intake, unless they are oversubscribed, is likely to be more unpredictable.</p> <p>There is very little opportunity to cross-subsidise across age-ranges or types of learning. A level funding is often the only major funding stream they have.</p>	<p>Opportunities:</p> <p>FE colleges are also typically much bigger institutions than school sixth forms. Again, this enables them to schedule around four classes in core subjects and six or seven blocks to enable maximum flexibility.</p> <p>A-level provision tends to be a smaller part of a larger budget, which means that the financial impact of small class sizes could be offset.</p> <p>FE colleges probably experience the greatest flexibility in recruiting staff including part-time and sessional contracts.</p> <p>Like sixth form colleges they often recruit students from a much wider catchment area so are likely to be less affected by local competition.</p> <p>If they are over-subscribed they can recruit to their staff profile.</p> <p>They have limited opportunities for cross-subsidising, for example from 14-16 provision, fees generated by private students or income from premises</p> <p>Barriers:</p> <p>They cannot redeploy staff into pre-16 teaching if they have surplus capacity.</p> <p>Their intake, unless they are oversubscribed, is likely to be more unpredictable.</p> <p>Often they have a more diverse intake in terms of ability. This can mean more mid-year starts and it can be harder to retain students.</p>

Section 5: Actions taken by providers to increase class size and reduce costs

68. Comparing average class sizes across the providers in 2014 to 2015 and 2015 to 2016, there was a modest increase – from an average of 13.3 in 2014 to 2015 to an average of 14.0 in 2015 to 2016. This appears to be driven by a slight increase in both the average minimum and average maximum class sizes. The first rose from 3.5 to 4.3 and the latter increased from 22.9 to 23.3, at a time of a decreasing 16 to 19 student population. Providers were asked whether their decision-making process in relation to class sizes had changed at all in recent years. Just under half responded that they had begun to make changes with a view to increasing class size and thereby efficiency. In some cases this was as a direct result of cost pressures. In other cases it was about strategically reshaping their A level offer in response to changes in their cohort, in student demand, or the performance of their institution.
69. This section explores some of the effective actions that providers have already taken which have begun to increase class sizes, and in particular in reducing the number of very small classes. It also looks at the potential risks of some of these approaches, and options that providers had considered but discounted.

5.1 More systematic application of thresholds

70. The majority of providers (all but six) had notional minimum thresholds for class sizes but not all applied these systematically, due to competing factors in the decision-making hierarchy as explored in detail in paragraphs 35 to 51. However, the systematic application of minimum thresholds in relation to class size was a common factor both in those providers that achieved larger average class sizes than might be expected given the size of their A level cohort and in those providers that have consciously looked to increase class sizes over recent years.
71. Typically those institutions that had really focused on their minimum thresholds for class sizes had worked out their financial break-even point for delivering A levels and therefore had a clear understanding of the smallest class size they could afford to run, without cross-subsidising either from other subjects or other age-groups. The example below describes how one sixth-form college had experimented with different approaches to applying minimum class size criteria over the last few years.

Cirencester Sixth Form College recognised that they needed to take action to increase their class sizes overall. They therefore experimented for a year with applying a very hard line on minimum class size and did not offer any subject that failed to meet their minimum criteria of 10. After one year they reviewed this approach and concluded that while it had contributed to increased class sizes it did not allow them sufficient flexibility to retain subjects that they felt were strategically important to their curriculum offer and institutional

standing. Now they have instituted a measured approach that combines some discretion over whether to discontinue a subject but still retains the rigour of questioning minimum thresholds in every case. Their current scrutiny of very small classes is carried out within the context of average class size across the whole A level offer. This enables them to use the more popular and larger classes to offset a small number of classes below their minimum of 10. This flexibility is reserved for subjects that they deem to be strategically important as an institution or for allowing a subject a period of grace while it grows – for example music technology is a subject they are looking to grow with a new teacher.

72. As discussed in sections 4.3 and 4.4, the barriers to applying minimum class size thresholds consistently are often more acute in school sixth forms, particularly those that are actively seeking to both recruit and retain students. However, the example below illustrates how one school sixth form was able to inject more rigour into its application of minimum thresholds without diminishing overall student numbers.

Notre Dame High School has a large successful sixth form, with around 500 students applying each year for 200 places. Applications to Notre Dame require students to make choices from one of four option blocks. The school will offer advice and guidance to students about their potential choice but are rigorous in the expectation that students stick to subjects within the blocks because they believe these are the combinations which work best and offer the best progression routes. The school says it listens to feedback from students and parents – if there is significant demand for a subject they do not offer they will consider putting it on, but they will not do this for just one or two students. They may also ask students to move their choices within the option blocks to try to create larger and more viable class sizes. On some occasions they will say that a subject cannot run. This approach has allowed them to operate a general rule that no class will run with fewer than 10 students (there has been the odd exception made to this rule if it is seen as a one-off).

73. The data analysis in paragraphs 23 to 24 showed a clear relationship between the size of the institution and its ability to consistently offer classes of a good size. However, there were some institutions which, according to the data, were able to “punch above their weight” in terms of class size – they appeared able to deliver larger classes across the board than might be expected purely on the basis of the number of A level learners. There were three FE colleges, in particular, whose average class sizes were significantly larger than other institutions of similar size. All of these made clear reference to how they applied minimum class size criteria during the interviews, but their approaches were not always consistent. The vignette below contrasts the strategies of Bracknell and Wokingham College and Lincoln College.

Lincoln College described an annual curriculum planning process that takes place across the college to determine both their A level offer and the offer in vocational subjects. They described needing to balance quality, cost and student numbers to make these decisions. They have determined a viable number for every course that they run, but they have also set a general rule for staff that they should be aiming for 17 to 18 students for every A level class. They will look very closely at any subject that falls below this number. They have stopped running a number of subjects over the last three years, although they also continue to offer some subjects that fall below this number if it is seen as a strategic priority for the college or for the local economy by the local economic partnership.

Bracknell and Wokingham College ensures that the majority of A levels make a 50% contribution to their budget – for example, if the college were to assign £1,000 (or one quarter of £4,000) per student per A level, the class should cover its own costs (teaching time) and contribute 50% to the running costs of the college. Where subjects drop to 25% or 30% contribution, the college’s senior management team looks at whether to continue them. There is no hard or fast number for minimum size but ideally the college does not have classes with fewer than 10 students. It only continues with A levels that contribute less than 50% if they are in the strategic interest of the community, learners are progressing to A2 or they serve a function no one else locally delivers.

5.2 Collaboration

74. The second very common approach to increasing class sizes while maintaining curriculum breadth was through collaboration. Just over half of the providers interviewed were collaborating in some form, and four of the providers collaborated in ways which were at a relatively large scale and involved delivering learning across more than one institution. Of those who were not actively collaborating, just under half had tried it in the past but had stopped because it had not proved effective.
75. The range of ways in which collaboration was expressed differed between provider types. Around a quarter of the schools visited had partnerships with other schools or local colleges giving students a wider choice of subjects and delivered in more viable class sizes. These examples ranged from long-term partnerships between girls’ and boys’ grammar schools to more recent strategic collaborations often driven by financial considerations.
76. In sixth-form colleges, there were some interesting examples of working with other schools or sixth-form colleges to build capacity but rarely to share A level students. Examples included delivering language A levels in twilight sessions outside of timetabled lessons and developing new qualifications with other institutions.

77. All of the FE colleges that took part in the research collaborated with other institutions. The focus of this collaboration varied from one-off agreements with schools around providing some limited teaching for specified pupil groups, formal partnership or consortiums with schools to deliver some A levels, right through to fully aligned timetabling and delivery of an A level offer across a town.
78. In those institutions where collaboration had really taken off and was making a big strategic contribution to the A level offer, there were a number of common factors. Typically, these providers were located in areas where transport between institutions was straightforward and cost-effective. They had all invested significantly in overcoming the logistical barriers associated with common timetabling, and were continuing to put in the resources necessary to align subject blocking. Finally, they all stressed the importance of communication at all levels – on strategic issues, on the progress made by individual pupils, and on quality of provision.
79. For some of the smaller institutions, micro-level collaborations – which involved active, focused partnerships between two providers – often appeared to fare better than more ambitious schemes to align provision and options across a whole area. Indeed, many school sixth forms pointed to historic examples of larger-scale collaboration that had been instituted as part of the 14 to 19 reforms and had ultimately foundered through complexity and lack of commitment. By contrast, the smaller-scale collaborations in which some school sixth forms were now engaged were focused, practical and in many ways vital to the ongoing sustainability of the providers in question.

St John Fisher, a very small Catholic school sixth form in Peterborough, has established a very effective collaboration with a large, academically successful, neighbouring school sixth form. The agreement is that a student from either school can go to the other school to study one A level subject so long as they meet entry criteria in that subject, the subject is not offered at their 'home' school (or not offered in combination with other subjects the student is taking) and the receiving school has a place in the relevant class. The receiving school is paid £1,000 per student they take. To support this agreement, the two schools have developed the same timetable structure (four periods a day) and work through their subject blocking together. For St John Fisher, the agreement enables it to offer students a much broader range of subjects than it would otherwise be able to offer, and significantly improves its retention of students from key stage 4 into A level. In 2015 to 2016, 23 students from St John Fisher were taking one A level subject at the neighbouring school sixth form.

Brigshaw High School and Language College in Leeds is a local authority community school with a sixth form. It has a well-established joint sixth form provision with another local secondary school – Temple Moor High School – which is a similar size. Each school has about 1,300 students in total, with 170–200 students in each sixth form. A levels are delivered jointly by the schools. Both schools have six option blocks in year 12 and year 13, three of which are partnership blocks. Once students have made their A level choices, the two schools work together to look at the total class sizes in all subjects and identify the subjects with small class sizes in each school, which are typically modern foreign languages, music, some vocational courses. These subjects with small numbers in individual schools are offered in partnership. Partnership blocks are taught in two lots of two hours of time, for example Block A might be on Tuesday from 1pm to 3pm and Thursday from 3pm to 5pm. The A levels are delivered at either institution, with most subjects being delivered half at one school and half at the other depending on the strengths of the schools and teacher availability. Students use a free bus service to travel to the other school, which the schools jointly fund. This enables both schools to maintain a broad curriculum and have more efficient class sizes both in terms of financial efficiency and student experience and attainment.

80. In contrast to the school sixth form experience, two of the FE colleges had instituted larger-scale collaborations across a wider network of schools. This spoke to the capacity of the college, as the largest provider in the group, to provide some of the organisational impetus needed to initiate and then maintain such a system. The examples below describe two of the more fully fledged collaborations that were encountered through this research:

Bracknell and Wokingham College previously aligned their A level blocks with local schools in Bracknell so that they can send students to local schools for subjects they do not offer and vice versa. The college believes this has succeeded because people were willing to work at it together – “it’s taken blood sweat and tears” – and because they are close enough geographically for students (who are sufficiently motivated) to travel. For learners who are placed in another institution, the ‘home’ provider pays £1,000 per A level – this amount has been agreed locally. However, with changes to the A level syllabus, many schools are running their A levels in a linear fashion (over two years) and this will prevent collaboration between institutions.

Westminster Kingsway College has developed a collaborative A level offer with schools in Camden and Westminster that allows students to access a wider range of subjects than they would otherwise be able to. The college itself has an A level offer of only 18 subjects but it allows students to access other A level courses, in languages, geography and art for example, at local schools. In return, schools are able to send their students to the college to study A level subjects such as politics and economics where the college has a well-developed and successful offer. The college has around 20 students out of a total cohort of 450 accessing this collaborative offer this year.

81. In a few of the examples of collaboration set out above, providers have independently arrived at the figure of £1,000 per A level per year as a fair cost for provision. This was broadly based on one quarter of the average £4,000 per student funding rate. The rate did not always recognise the fact that the 'home' institution might bear more costs in relation to tutorial time or enrichment provision. However, it was generally felt that the overall economic advantage to institutions participating would outweigh any more minor discrepancies and that there was real benefit in a clear, simple and transparent rate that could be understood by all.
82. Despite many of the positive examples of collaboration that were encountered, it would be wrong to dismiss the very real barriers to doing this effectively in some areas. In particular, those areas that are either sparsely populated or where public transport links do not facilitate easy travel between institutions collaboration often fell at the first hurdle. It is also worth noting that those partnerships which were both the most enduring and which appeared to have the greatest strategic impact had grown up out of necessity.

5.3 Increasing retention

83. Paragraphs 39 to 40 described how many providers focused on student progression as one of the factors in shaping their A level offer, and the use that was made of entry requirements, interviews and guided decision-making to try to ensure that students chose the right course. However, issues around retaining students, particularly, although not exclusively, at the point of transition from year 12 to year 13, were raised as common barriers to maintaining cost-efficient class sizes, as set out in paragraphs 59 to 63.
84. Some institutions in the sample were going beyond the norm in setting up effective systems and processes to retain students. The main impetus for doing so was of course to improve the progression, success and life chances of their students. But an important corollary of these actions was the beneficial impact it could have on maintaining class sizes from the beginning of year 12 to the end of year 13. The two examples below show different approaches to supporting progression and improving retention in a large sixth-form college and a small school sixth form.

The Xaverian Mind-set at **Xaverian Sixth Form College** is a programme of activities, materials and tutorials enabling students to look at their own engagement, effort and time on study. It helps them develop skills and capability to ensure their success during their time at Xaverian and for their future education and careers. For subject areas each student also has an individual learning plan - the college has an Association of Colleges beacon award for this work – and the college employs a team of 20 specialist course advisors to work with young people throughout year 11 and during enrolment to tailor their study programme based upon the ability of the student, their aspirations and

their choice of A levels..

Whitefield School has focused on bringing good practice in assessment for learning and student monitoring from key stage 4 into its A level classes. Now every Director of Learning (heads of department) of every subject will hold raising achievement (RAP) meetings at which the progress of each A level student in each subject will be discussed and specific actions agreed. This is based on a forensic analysis of the data and is allied to a shift in teaching style at A level from a more didactic “lecture” style approach to greater emphasis on formative assessment within lessons.

5.4 Changing qualification structure

85. The current structure of A level qualifications, from four AS subjects to three A2 subjects, presents a significant barrier to providers, particularly smaller providers, sustaining class sizes. As set out in detail in paragraph 61, the simple arithmetic of moving from four subject choices to three, with a static (or in some cases shrinking) student cohort and little flexibility around discontinuing subjects that students have chosen makes it almost inevitable that very small class sizes will result in some subjects. The changes to A level qualifications that are being introduced – with a greater focus on two-year linear A levels – therefore present an opportunity to address this structural barrier.
86. All the providers in the sample were considering what the A level changes meant for them and for their students. The majority were maintaining their current provision for the time being at least. However, around a quarter of the 24 institutions, a mix of schools, sixth-form colleges and FE colleges, had already made some changes in response to the new A levels. These included some providers that had implemented a completely linear two-year qualification structure across their entire provision, and other providers that were continuing with the model of four subject choices moving to three but were only proposing to enter students for AS level qualifications in the subject that they were not continuing. Some institutions were operating a mixed model provision as the new qualifications were introduced for different subjects.
87. In all cases, the decisions about which qualification structure to choose were based on providers’ own analysis of what was most likely to lead to good progress and attainment for their students. Those that were maintaining the four AS, three A2 structure argued strongly that the staging post between year 12 and year 13 provided an essential opportunity to take stock, to give students a sense of accomplishment by achieving a recognised qualification, and allowed them to try a broader range of subjects to help them find their niche. They were concerned that the “all or nothing” approach of a two-year linear qualification might lead to higher numbers of students failing to achieve any A level qualification at all.

88. Those providers which had already moved to the three linear A level structure argued equally strongly that it would provide their students with the greatest chance of success, as illustrated by the example below:

Brigshaw High School and Language College in Leeds is a local authority community school with a sixth form. In response to changes in funding and in A level assessment, they have taken action in order to increase class size and improve student attainment. In the past, students followed a traditional qualification structure of four AS levels in year 12 and three A2 levels in year 13. The school allocated slightly more teaching time to year 12 in order to support students to make the jump from GCSE to A level. From this year, many of their year 12 students will take three A levels plus an Extended Project Qualification (EPQ) as their fourth option. To ensure the success of this change, the school will be allocating additional teaching time to year 13, rather than year 12, in order to prepare students for taking an examination at the end of two years and to support them to achieve the best grades.

Whitefield School, a relatively small school sixth form in London serving a student population with high levels of deprivation, took the opportunity afforded by the qualification changes to reshape their A level provision. They felt that the burden of four subjects was too much for many of their students, and when they spoke to them about their subject choices they heard that many students were just “marking time” on their fourth AS level. After significant consultation with students, parents, teachers, governors and the universities, they have decided to move to a two-year linear A level qualification with the large majority of students taking three subjects. They believe that this structure will give their students the maximum chance of success, and will reduce the drop-off currently experienced between year 12 and year 13. To mitigate the risk of students being unable to complete their two-year qualification, they have increased A level teaching time and invested in stronger tracking and monitoring systems, including the use of AS papers as mock exams to support teacher predictions.

89. The examples above show that decisions about qualification structure were not, primarily, being taken for reasons of efficiency and class size. However, those providers that had either moved down this route, or were seriously contemplating doing so, were very clear that they expected it to bring class size benefits. They were equally clear about some of the potential downsides – as one sixth-form college contemplating making changes to their curriculum structure cogently explained, “linear A levels may help in addressing the inefficiency of A2 provision, but when linear A levels are fully implemented we are bound to rationalise our subject choice and go for the core. Some subjects will die.” Typically, the subjects that providers felt might be most at threat from a move to linear A levels and a consequent reduction in subject

breadth were practical arts-based subjects including art and design, photography and textiles, some modern foreign languages, particularly German, and music.

5.5 Marketing and market analysis

90. One way of increasing class sizes is to increase the number of students taking A levels. For schools this might mean aiming to increase the number of students staying on for A level – if that is the best decision for that student; improving their A level results so students stay rather than choose a more successful institution; or in some cases improving their GCSE results so that more students meet their A level entry requirements. For sixth-form colleges and FE colleges this means attracting students from local schools.
91. Some institutions are actively marketing their A level offer to prospective students – particularly those who are under capacity. All schools had open evenings for students and information on A levels available on their website. Ten of the 16 schools actively sought external students and they were mostly those who needed to increase their numbers. The FE colleges and sixth-form colleges are typically most proficient at marketing their offer but some schools are also significantly increasing their focus on marketing. The two vignettes below offer contrasting approaches that different types of institution have taken to analysing their potential student market and marketing their offer.

Barnet and Southgate College have invested in market intelligence software based on individual learner record data. This provides them with information on which students in their local area are studying which subjects with which type of provider. They are able to analyse travel to learn patterns and identify subject ‘hot spots’ and ‘cold spots’. This provides them with essential information on which to shape their curriculum offer and target their marketing. They contrasted this sophisticated and analytical approach with their practice a number of years ago of “putting up a curriculum offer and seeing who turns up...” As a result, they have already made a number of strategic changes. For example, they identified that a high proportion of schools in Barnet were offering performing arts A level and that the demand for the subject in the area was static. They therefore withdrew their performing arts provision.

Whitefield School, also in Barnet, have engaged a PR and marketing company to support them in filling their pre-16 places and growing their sixth form, which they believe is reaping real dividends. As a result of the advice they received, they have reached out more systematically to year 7 to year 11 students in their own school, and their families, to understand what they hope and expect from their sixth form experience; they have done more to promote and publicise the achievements of students on successful post-16 pathways; and they have changed the way in which they talk about the sixth form, making clear that it is an integral part of the school and

that every student is a potential member of the sixth form. In tandem, they have targeted invitations to students from other schools, particularly where they know that they can offer subjects or combinations not available elsewhere.

5.6 Different teaching methods and use of IT

92. All the institutions visited were asked whether innovative teaching and the use of IT could help with class size or financial efficiency. Over half of the institutions were using innovative approaches to teaching and learning; however, none of them thought this would enable them to increase class size or reduce teaching time significantly. They told us that, because of the increase in academic challenge from GCSE to A levels and due to the nature of the course requirements, there was little opportunity to cover the necessary syllabus in fewer teaching hours, or through a radically different teaching approach.
93. At the fringes of provision, there were ways that providers were innovating with their teaching and learning offer to address very small class sizes. There were several examples of co-teaching across year groups in practical A level subjects, for example art and music, or across A level and BTEC. A few institutions were teaching some A levels in twilight (out of hours) lessons for small class sizes or were offering students the chance to study minority subjects on a reduced (50%) timetable with the expectation that they would make up the rest of the time with self-directed study. Further mathematics was one of the subjects offered in this way.
94. Providers were pressed on whether there was a completely different way in which A level could be taught, for example through larger university-style lectures and smaller tutorial groups, or through more extensive use of technology. They were asked whether this might disrupt the accepted method of classroom-based teaching and learning and completely open up the cost-efficiency and class size debate. Providers were unanimous and adamant that while there was a wide range of innovative, challenging and cutting-edge approaches to teaching and learning that could be, and were being, tried, these were essentially to complement and enhance core teaching, not to replace it. The main objections raised to completely different approaches to teaching and learning at A level were pedagogical – that there was no real substitute for face-to-face contact time with a teacher for students developing the skills for the more independent style of study required at university. Most institutions felt that their students required a more structured teaching approach, as currently delivered by AS and A levels, as a means to equip them for university lecture-based learning as well as to cover the course content required for A level. However, almost all providers raised practical considerations too – with one or two exceptions, none had the size of

teaching space that would allow experimentation with lecture-style teaching on a large scale.

95. That said, there were a range of teaching and learning innovations that were complementing core teaching. There were examples of providers delivering additional lectures and aspirational speakers. Many had links to universities that either supported teaching and learning or allowed students to learn. One institution had started trialling 'reverse learning' – encouraging more preparatory reading before lessons. Another had a new offer of a full A level course alongside the football club so students could play for a club and do A levels. Previously, students had to drop out of education to join the football club. A quarter of institutions were using IT to support, but not replace, teaching time. Seven institutions used online resources to share A level resources or deliver part of their tutorial and enrichment input (via Moodle or other packages), and these were helping to reduce the amount of tutorial time required.

Cirencester Sixth Form College have developed banks of material that staff have produced and work that their students can do outside the class room. They have developed Moodle and an intranet structure in college, and students can access internal and external online resources that support the teaching their students receive during their time at college. The college believes that the fact that students can access all of its online resources remotely is the key to the success of the Moodle initiative. It means that students can work from home and if sick can access all of their course materials at any time. This is what students (and parents) like about the online resources. Equally, the online parental portal means that parents can access tracking and progress information about their children at times convenient to them. The feedback from parents for this is very positive.

Section 6: Future scenarios

96. As described in the methodology section, four 'future scenarios' were posed to providers to understand how their decisions about class sizes might change over time in response to particular circumstances. The ways in which providers are responding to changes in qualifications, which was one of the scenarios posed, has been covered in detail earlier in this report and is therefore not covered here. This section analyses how providers responded to the three scenarios that focused on increased competition, increased demand and further funding reductions.

6.1 Increased competition

97. The scenario posed – of a large and successful 11 to 16 school opening a new sixth form – had already happened in some similar form in just under half of the areas visited. Most providers thought it would have little or no impact either because they tended to recruit from their own pre-16 students or because their catchment area was much wider than the local geography.

98. Sixth form colleges and FE colleges tended to have larger numbers of students and recruit from a wider geography (in some cases as a result of active marketing and putting on free/subsidised transport) than schools. They were confident in their ability to retain students who had made a definitive choice to leave a school environment and to attend a bigger institution with a different offer. Those with a very large catchment area also felt that their reach was such that it would not be significantly affected by the addition of just one local provider. The fluctuation in numbers was one they believed they could manage should it impact on their recruitment. For example, in FE colleges their A level offer is one part of a much larger offer. For one college it was £1 million of an £11 million budget, so fluctuations in numbers had little impact on the overall finances of the institution.

99. Schools were already focused on recruiting students from their own school and the majority were largely successful in retaining most of their key stage 4 cohort who could meet the entry criteria for A level. Some acknowledged that they currently experienced quite intense competition from other local school sixth forms, particularly from sixth forms with better A level results attracting the highest-performing students. However, in contrast to existing levels of competition, a new institution without a proven track record of A level results was not seen as a threat to those with an established offer.

100. In the minority of schools that thought they would lose students as a result of a new provider opening, their response would be to reduce the number of different A levels they offered. When this scenario was explored in more depth with small sixth forms significantly below capacity, it was clear that a slight reduction in numbers of 20 to 50 students could have a big impact on their ability to deliver a financially

sustainable A level offer and maintain viable class sizes. While they recognised that, in the event of falling rolls, they may have to reduce the number of subjects offered in order to maintain class sizes, they expressed an anxiety that this would negatively affect their ability to retain students and teachers, which may exacerbate the problem of reducing student numbers still further. However, none of the providers thought increasing competition might force them to close – even in the very small institutions.

101. Nonetheless, there was concern from institutions about the growing excess capacity in the system for 16- to 19-year-olds. It was felt that this would be utilised with a growing cohort in several years' time but was not needed at the moment. The fact that no institution was considering closing, even those with very small student numbers or schools significantly subsidising their A level offer from their pre-16 budget, and faced with a scenario of falling student numbers, suggests there is likely to be some financial inefficiency across the A level system. The vast majority of providers would look to keep their A level offer even where it had an impact on their overall financial effectiveness.

6.2 Increased demand

102. The scenario posed – of a provider with a very mixed-ability intake ceasing to provide A levels – provoked three main responses.

1. Over half of the schools and sixth-form colleges felt they would be unaffected because the profile of students described would be unlikely to meet their entry requirements.

2. Roughly a third of institutions could take more students and would welcome students at the lower end of the ability spectrum but for vocational qualifications rather than A levels.

3. Some schools talked about increasing or starting a vocational offer in order to increase their numbers.

103. When institutions were asked whether they had capacity to take additional students roughly half could do so, if they met their entry requirements. There was no particular pattern in terms of size, the amount of local competition or attainment to differentiate these providers from the rest. Most of those providers solely offering A levels would not take students without a C at English and mathematics GCSE – although there were some exceptions that teach GCSE alongside A levels depending on the subjects the student chose. Many providers that were looking to grow would consider taking students without English and mathematics for vocational qualifications – either to study bridging courses or full level 2 or level 3 vocational study programmes. A couple of schools were considering starting vocational qualifications or expanding their vocational offer in order to grow their student numbers, for example

in subjects such as business administration, childcare or health and social care. These were typically subjects that could be accommodated fairly easily alongside the provider's existing offer.

104. Some institutions raised concerns about how lagged funding would impact on their ability to take a large increase in students. If a local A level provider were to stop offering A levels, they felt they might struggle to take a large number of additional students because they would not get the funding for their places until the following year. Obviously this was only a concern where providers anticipated an increase on a scale that could not be met through organic or incremental growth to existing provision. It may be worth the EFA re-emphasising to providers that there is, however, a process established whereby institutions can make a business case for exceptional growth.
105. The fact that there was additional capacity in 50% of the institutions interviewed, which were in areas of varying levels of competition, has implications for the overall system. The number of students aged 16 to 18 is forecast to grow over the next five to 10 years; however, carrying excess capacity in the system for the next five to 10 years will have financial implications for the whole system's financial efficiency, as well as individual institutions' ability to deliver high-quality A level programmes in a cost-effective way.

6.3 Additional savings of 3%

106. When faced with having to find a further 3% of savings, in addition to common back-office efficiencies the most frequent answers were:
- cut some A level subjects in order to increase class sizes, although this had to be offset against potentially reducing student numbers and therefore funding still further
 - teach fewer hours per A level
 - cut student support (both tutor time and additional support) and enrichment activity.
107. When institutions discussed their options for reducing budgets, many of the barriers were similar to those described in section 4.3 of this report. Institutions recognised that they could reduce the breadth of the A level offer but felt that this may impact on their student numbers (if students wanted a subject they would go elsewhere). School sixth forms, in particular, felt they would struggle to make cash savings from not delivering an A level subject as teachers in the vast majority of cases taught the subject across the whole school to students aged 11 to 18. They also feared that if A level teaching time was removed from a teacher's timetable they might

look for a role where they did teach A level. This would increase the risk of losing teaching staff and increase the difficulty of recruiting new teachers, as A level teaching is an attractive element of a teaching post.

108. Some institutions had already cut back the amount of teaching time from five hours to four and a half hours a week per A level or from four and a half to four hours. However, all institutions felt strongly that they could not save much money by reducing the taught time on individual A level subjects without it starting to impact negatively on student attainment. There was also a feeling that the new A level qualifications would be harder to deliver on fewer taught hours.
109. A large majority of institutions felt they had cut back on student support and/or enrichment in recent years due to funding becoming tighter. They thought further cuts to this would be detrimental to their students' ability to attain well at A level and progress into further education or employment. The student support and enrichment, in whatever form it was delivered, was about preparing them for not just A levels but their life in the workplace – CVs, interview skills, organisation and motivation. Schools, sixth-form colleges and FE colleges all strived to deliver, not just qualifications, but an educational experience that prepared young people for the next stage in their life.
110. Some of the institutions had already modelled varying levels of cuts and had clear plans to respond to the funding settlement; however, many had not done that work. Institutions also thought that more predictable and longer-term funding would allow them to better manage their finances. It would give them some more certainty and allow financial planning over several years rather than the current quite reactive response to changes in funding and student numbers which is difficult to manage.
111. Very few institutions would look to close, merge with other providers or collaborate at a relatively large scale to deliver A levels (although a few were already doing this) either to reduce the number of small classes or to increase the breadth of their A level offer. The reasons were the same as those set out in paragraph 81. Moreover, there are few incentives for institutions to work together currently – financially each local area works out its own payment system (which is generally £1,000 per A level) and success appears to be dependent on local relationships, ease of travel and the degree of financial pressure faced by institutions.

Section 7: Opportunities and considerations for the future

112. The national context in which providers of A levels are working is one of financial pressure, competition for students in the higher ability range, and evolving demands in terms of both the structure and rigour of qualifications. In this challenging context the debate around class sizes becomes very relevant. At the level of an individual institution, maintaining very small A level class sizes may be sustainable in the short term, either by offsetting the costs of delivery against other larger classes or by cross-subsidising from other areas of provision. However, when viewed from a national perspective, delivering multiple smaller classes rather than fewer larger classes is not the most economically efficient use of resources. As funding becomes increasingly tight over the next spending review period, those trade-offs at an institutional level may become harder to make and the investment at a national level may become harder to justify.

113. However, taking actions to increase class sizes is not a simple matter. There are very real trade-offs which need to be taken into account. As the evidence set out in the preceding sections makes clear, there is a strong inter-relationship between students' ability to choose from a wide range of subjects, their ability to choose from a diverse range of local institutions at which to learn and A level class size. Systematic action to increase class sizes is likely to require some consolidation in the range of subjects available, or the range of providers offering those subjects, or both. The following section sets out some options that both providers and the DfE may wish to consider in how average class sizes at A level might be increased, and how the number of very small class sizes might be reduced. It also attempts to expose some of the risks inherent in pursuing these options.

7.1 Options for providers to consider

114. As made clear in section 5, many of the providers that took part in the research have already taken effective action to scrutinise class sizes and to increase these to a point that is economically efficient and financially sustainable in the current funding climate. However, this research has also shown that such practices are not universal and there is good practice that may be shared more widely in the system. As providers come under increasing financial pressure over the next few years, they may wish to review the issue of class size as one means of lowering the costs of delivery. The options set out provide some suggestions that providers may wish to consider, and are based on some of the good practice seen in this research sample.

7.1.1 Closer scrutiny of the costs of provision

115. One of the striking aspects of the research was that many providers that took part did not routinely review the cost of delivering A levels. The majority of providers viewed their budget as a whole and would carefully review spending at an institutional level. However, it was only in a minority of providers that there were systems in place for separating out the cost of A levels and scrutinising these. This meant that in some cases the full financial implications of continuing to run very small class sizes may not have been fully understood. This makes it harder to make well-evidenced decisions about which small classes should be run (bearing in mind the financial impact across other areas of learning) and which might be discontinued.

116. Providers may wish to consider developing a simple ready reckoner to support the scrutiny of A level costs and support decision-making on class sizes. This could be based on relatively simple information: the average per pupil funding; the number of A levels being studied by each student; the size of the class; the salary and additional costs of employing the teacher; the percentage of the teacher's time dedicated to teaching that class; and the percentage contribution that A level provision needs to make to other overheads such as buildings, maintenance and administration. This would provide a good estimate of whether an A level class is financially sustainable on a stand-alone basis and would enable the costs of deciding to run a very small class to be offset against much larger class sizes in other subjects more accurately.

7.1.2 Testing assumptions about student preferences and choice

117. As described in section 4, many providers, and particularly those in areas in which competition for students was greatest, felt that they had no choice but to offer a very broad range of subjects, and in flexible combinations, in order to attract as many students as possible. However, there appeared to be a degree of variability in the extent to which providers really tested the subject preferences that students expressed and whether, in some cases, a more forthright and extended dialogue with the prospective student about how their aspirations could be met equally well through other subject combinations might bear dividends. Some providers who did this effectively linked the process very explicitly to the information, advice and guidance (IAG) that they offered, and in some school sixth forms it was the culmination of ongoing discussion and decision-making about future options which started much earlier in the school.

7.1.3 More innovative approaches to collaboration

118. The institutions which were actively collaborating on delivering A levels saw very real benefits. In one case it made the difference between maintaining a viable A level offer and not. Effective collaboration is not easy, but there are ways in which some of the perceived barriers might be overcome. Much more widespread collaboration could

enable institutions to deliver the broad curriculum they strive for more effectively – both financially and in terms of attainment.

119. There will be some institutions where the local geography makes it so time-consuming for either students or teachers to travel between institutions that collaboration at any degree of scale is not possible. However, these are in the minority. This research suggests that there may be many institutions not collaborating where travel is not an insurmountable barrier. As set out in paragraphs 77 to 78, some of the factors that appear to make collaboration effective are real commitment from both parties, which depends on a clear understanding of the benefits, starting at a small scale – probably just two providers working together initially with a view to growing to three or four, and investing significant time in communication. Other more innovative approaches that may be considered to boost the chances of collaboration succeeding include using technology to share some lessons and teaching between providers, teachers rather than students moving between classes, or timetabling so that whole days (or half days) may be spent at an alternative site rather than individual lessons. A better understanding of the financial costs of delivering A levels will help make the case for more collaboration to deliver subjects with small class sizes.

7.1.4 Reducing drop-out rates

120. As set out in paragraph 63, the low level of retention to some A level courses in some institutions poses a serious challenge to students' progress and a significant barrier to maximising efficiency through class size. For those providers experiencing high drop-out rates, it would be worth carrying out a thorough review of the issue to explore whether retention is higher in some subjects than others, investigate in greater detail why students are dropping out, track at what point in the year the highest numbers of drop-outs occur, review entry requirements and quality of teaching in subjects experiencing higher than average rates of drop-out, and test their IAG offer against nationally recognised benchmarks of good practice such as the new benchmarks proposed by Sir John Holman for schools and colleges.³ Allaying high-quality IAG with individual student tracking and high-quality assessment for learning is also likely to pay dividends.

7.1.5 Exploring the link between class size and qualification structure

121. The structure of A levels is changing, and there is a healthy debate in train about the pace and way in which the new linear qualifications are implemented at an

³ Holman, J, 2014, *Good Career Guidance*, Gatsby Charitable Foundation.

institutional level. As paragraphs 86 to 87 recognise, there are a number of different factors informing this debate and it would be wrong to reduce the multi-faceted nature of the decisions being made to a question of the impact on class sizes. However, the implementation of the new qualification structure does have implications for class sizes. Potentially, removing the expectation that students will move from four subject choices to three could alleviate the very prevalent issue of much smaller classes typically being offered in year 13 compared with year 12. However, the risk must be acknowledged that under a linear system more students may fail to complete their qualification if they do not have the opportunity to discontinue a subject in which they have not performed as well and without the reassurance of successfully gaining AS qualifications. Again, this may put pressure on the year 12 to 13 transition point and could place institutions under financial strain if more students drop out completely.

122. In making decisions about implementing the linear A levels, providers may wish to model the potential impact of different options on both class size and subject breadth. If, as some providers suggested to us, the immediate implication of moving to a two-year linear qualification with most students choosing three subjects from the outset is a reduction in student numbers in non-core subjects, this may provide a further impetus for providers to collaborate in delivering less popular subject choices.

7.2 Options for DfE and EFA to consider

123. The findings set out in this report pose a series of strategic questions for the DfE and the EFA. At present, the A level system has been set up in a way that maximises student choice – choice in terms of subjects, choice in terms of subject combinations, and choice in terms of the range of providers delivering A levels. The evidence from this research suggests that such a degree of choice is valued by students and may contribute to their progress and the educational outcomes they achieve. However, the inevitable corollary of such a degree of choice – of so many subjects and combinations spread across so many providers, without any overview or planning function across a locality – is that the prevalence of small classes will be higher, which leads to higher costs.
124. The question for policy-makers is the extent to which, in a period of both reducing national funding and a reducing 16 to 19 population until the 2019 to 2020 academic year, whether the higher costs of a choice-driven system can continue to be supported. The secondary question is the extent to which decisions which may be needed to resolve these competing priorities should be driven down to a local level, or taken nationally.

7.2.1 More active market management

125. This research suggests that some very small providers of A levels, for example those with 150 students or fewer, struggled to deliver average class sizes above the level which many providers indicated was the minimum viable to be financially sustainable. This was mainly school sixth forms, but not exclusively so – some FE colleges also offered a very small A level offer as part of their wider provision. Delivering a large number of classes below a minimum financial threshold will ultimately affect whether the A level provision in the institution overall can be afforded. In those providers in which the costs of A level delivery exceeded the income there tended to be cross-subsidisation from other learning areas. Indeed, around half of the schools that took part in the research believed that they did supplement their post-16 funding from their pre-16 funding but very few could quantify this precisely. This is a strategic decision that providers take, based on a view of what provision is needed in the local area to meet the needs of learners and what is likely to best contribute to their success as a provider of learning and education. However, as budgets across the education age ranges become tighter over the next few years, cross-subsidisation may become a less viable option for maintaining A level provision that is not financially self-sustaining.

126. In view of the anticipated pressures, the DfE and EFA may wish to consider whether there is a role for more active management of the A level market. This could take a number of forms. The DfE could:

- impose more stringent criteria around demonstrating viability on anyone proposing to open new A level provision in an area
- ask schools, or some schools, to take part more proactively in local area-based reviews of provision that are underway for other post-16 providers
- carry out its own reviews of areas in which there is a high concentration of very small A level providers to explore whether there are ways in which provision might be organised more efficiently, for example through collaboration or other partnership arrangements
- ask individual very small A level providers to submit further evidence on the steps they have taken to ensure their financial sustainability and, should this not be sufficient help, to broker collaborative or other arrangements to resolve the issue or attach conditions to future funding.

7.2.2 Reducing the range of subjects on offer

127. Some providers described a situation in which they felt they had to maintain a very broad suite of subjects from which students could choose in order to continue to attract sufficient numbers. The logical implication of this is that in areas of very high

competition there could end up being more and more dilution of class sizes as further subjects are added to the offer. A small number of providers suggested that action could be taken nationally either to reduce the number of possible A level qualifications or, in partnership with universities and employers, provide a clearer indication of which A levels are deemed to be of national importance. This could help to alleviate pressure on individual institutions to maintain a broader A level offer than may be desirable.

7.2.3 Promoting collaboration

128. The decision on whether or not to collaborate must ultimately be made by the individual provider. The evidence suggests that collaborations are only really likely to succeed if they have the full and unconditional commitment of all those taking part. Previous attempts by government to actively incentivise collaboration have not been straightforward, and many of the providers who took part in the research pointed to examples of wide-scale externally driven collaborations that foundered in the end through complexity and lack of buy-in.

129. However, this research argues that for smaller institutions, in particular, that wish to maintain a broad A level offer during a period of falling rolls and financial constraint it may be necessary to seek out strategic collaborations. In that case there is a role for the department is making more information available about what successful collaboration looks like and publishing good practice guidance that more actively promotes this form of working.

7.2.4 A more managed system of post-16 applications

130. As set out in paragraphs 59 to 63, a significant minority of providers, and particularly FE colleges and sixth-form colleges, found the uncertainty of translating student applications into confirmed places a key barrier in planning class sizes. One provider – a large school sixth form – suggested to us that a UCAS-style application system for A level provision, in which students would declare a first and second choice offer, could alleviate some of these tensions and allow institutions to plan their provision with greater certainty. This suggestion is worthy of serious reflection as it may enable a better and more planned distribution of students across institutions and reduce the instances of providers offering classes in the belief that they would be well subscribed only to find that during the application process they become unsustainable.



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