



Department
for Education

Impact of childcare provider characteristics on the cost of childcare for providers and parents

Research report

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Glossary

Hourly free entitlement funding rate: the average hourly amount that providers report receiving from local authorities in payment for hours delivered as part of the free early years “entitlement”.

Hourly parent-paid fees: the average hourly fee charged to parents by providers.

Unit cost: an approximate measure of a provider’s average cost per child per hour for all children in the setting.

Statistics are presented for five main types of providers defined in the following ways:

- **Private group-based** providers: Ofsted-registered providers operating on non-domestic premises that are run by private companies. These include employer-run childcare for employees.
- **Voluntary group-based** providers: Ofsted-registered providers operating on non-domestic premises that are run by a charity or voluntary management committee on a not-for-profit basis;
- **Maintained nursery schools:** Purpose-built maintained schools specifically for children in their early years with a qualified teacher present
- **Nursery class childcare settings:** These are other maintained schools, and non-maintained schools, offering nursery provision; and;
- **Childminders:** Ofsted-registered individuals providing early years care on domestic premises.

“All providers” includes a small group of “other” group-based providers (e.g. “private not-for-profit” providers) that do not fall into either the “private” or “voluntary” categories. The definition of “other group-based providers” changed between 2021 and 2022 (further details can be found in the 2022 Survey of Childcare and Early Years Providers¹).

¹ [2022 Survey of Childcare and Early Years Providers](#)

Executive summary

This report investigates whether some types of childcare providers are able to deliver childcare at a lower unit cost than other providers and, if so, whether these savings are being passed on to parents in the form of lower fees. It is based on an analysis of data from the 2022 Survey of Childcare and Early Years Providers².

Hourly parent-paid fees and providers' unit cost

The report starts by summarising evidence about childcare providers' costs and about the fees that providers charge to parents.

- The providers included in the analysis had median “unit costs” (the cost to a provider of delivering an hour of care) of £5.21 per hour. Nursery class childcare settings and maintained nursery schools had the highest median unit costs (£7.64 and £5.41 per hour, respectively). Private group-based providers had the lowest median unit cost (£4.57 per hour).
- The average fee providers charged to parents differed by provider type. Overall, childminders charged the lowest hourly fees (a median fee of £5.00 for all age groups) and private group-based providers charged the highest hourly fees (a median fee of approximately £6.00).
- The proportion of total income funded by parent-paid hours also differed considerably by types of provider. While 52% of total income across all providers was from parent-paid hours, it was 6% for nursery class childcare settings and 70% for childminders.

Impact of provider characteristics on providers' cost of provision

Next, the report looks at whether characteristics of a childcare provider, such as whether it was part of a chain, had an impact on its unit costs; and whether providers that had more children enrolled, employed more staff and delivered more hours of childcare achieved economies of scale. Where it identifies that providers achieved lower costs, the report looks at where savings were made (e.g., staffing costs, rent, training costs).

The analysis controlled for a range of other, geographical and socio-economic factors that might influence a childcare provider's costs.

² [2022 Survey of Childcare and Early Years Providers](#)

Providers being part of a chain

- Unit costs were a third lower for group-based providers in a chain than they were for group-based providers that were not part of a chain.
- However, this effect was only observed among private group-based providers. For voluntary group-based providers, whether or not a provider was part of a chain did not have an effect on its unit costs.
- 'Other' costs (such as administration and utilities costs) were lower for chains with more than twenty providers than they were for smaller chains. Otherwise, the size of the chain that they were in appeared to have little impact on a provider's costs.

Providers caring for more children or providing more hours

- Providers who provided care to more children had slightly lower materials and training costs (per hour of care delivered) than other providers; and providers who employed more staff had slightly lower materials, training and rent costs (per hour of care delivered) than other providers. However, these providers did not see savings in other areas.
- Providers who delivered more hours of care achieved much bigger economies of scale. A 10% increase in the number hours of care delivered by a provider was associated with a 3% decrease in its unit cost.
- All types of costs, for all types of providers, were significantly reduced where providers delivered more hours of care. Although providers had child to staff ratios that they were required to meet, increasing the number of hours provided significantly reduced staff costs. A 10% increase in the number of hours that children attended was associated with a 4.6% fall in staffing costs for school-based providers, a 2.3% fall in staffing costs for group-based providers and a 2.0% fall in staffing costs for childminders.

Impact of reduced costs on the fees that providers charge to parents

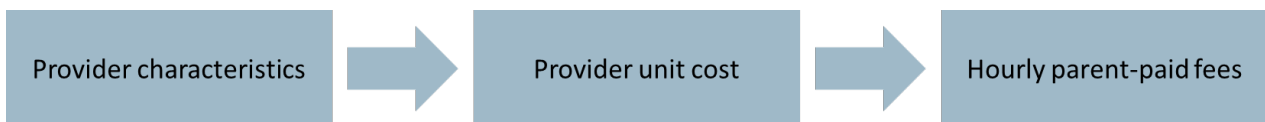
The report finishes by looking at whether these savings were passed on to parents in the form of lower fees.

- Only some of the savings achieved by providers were passed on to parents. Overall, a 10% decrease in providers' unit cost was associated with a 1.0% decrease in their hourly parent-paid fees.
- This relationship was driven by childminders, where a 10% decrease in unit cost was associated with a 1.4% decrease in hourly parent-paid fees. The impact of changes in group-based providers' unit costs was smaller – here a 10% fall in unit costs was only associated with a 0.4% fall in parent-paid fees.

1. Introduction

Childcare providers differ in many ways, and some of these differences may influence the cost of delivering childcare. This in turn may impact parents' costs, depending on the extent to which providers pass on changes in the cost of childcare in the form of lower fees as shown in Figure 1.

Figure 1: Provider characteristics and the cost of childcare provision



This report estimates the impact of these provider characteristics on the cost per hour of delivering childcare. For some providers there may be economies of scale (reduced average cost of childcare) resulting from the ability to achieve cost savings as a result of being part of a chain of providers, or a larger chain of providers. For stand-alone providers, there may also be economies of scale achieved because of expansion and the ability to spread fixed costs over a larger number of childcare hours (i.e., through increasing the number of hours provided, the number of staff employed, and/or the number of children enrolled).

In this report, this impact on the cost per hour of delivering childcare is broken down by type of provider and type of costs. There may be some types of costs that can be more easily spread across providers in a chain, across hours of care provided, across staff, and across children. For example, larger providers may benefit from lower costs due to the spreading of fixed costs or overhead costs across more children or more staff, bulk purchasing, and/or the ability to deploy staff more effectively to maintain relevant ratios; while chains may allow multiple providers to avoid potential fixed or “lumpy” costs (such as administrative or HR operations) through shared back-office functions (such as payroll, legal or marketing).

In this report, data on early years providers' finances, collected on the 2022 Survey of Childcare and Early Years Providers³, have been analysed. Further information about the survey and the methodology can be found in the accompanying Technical Report⁴. Further research on the finances of childcare providers is presented in an accompanying report – “Providers' Finances: Evidence from the Survey of Childcare and Early Years Providers 2022”. This explores providers' income and costs in more detail.

Age groups covered by the SCEYP

³ [2022 Survey of Childcare and Early Years Providers](#)

⁴ [2022 Survey of Childcare and Early Years Providers](#)

As the focus of the SCEYP is on early years childcare, the sample used in this analysis only includes providers who look after at least one preschool aged child (that is, a child who has not yet entered Reception class). Some of these providers will have looked after children who were of school age in addition to preschool children.

Free entitlement funding

As of May 2023, there were three programmes of “entitlement” funding, where the government funded free childcare places for certain groups of children:

- A universal offer of 15 hours per week, for 38 weeks of the year, for all three- and four-year-olds,
- An additional 15 hours per week, for 38 weeks of the year, for three- and four-year-olds whose parents work (where either the lone parent is working, or both parents are working, earning the equivalent of at least 16 hours at the relevant minimum wage per week, and both earning less than £100,000), and
- 15 hours per week, for 38 weeks of the year, for two-year-olds who have an education, health and care (EHC) plan, special educational needs (SEN), long-standing illness or disability, or whose parents are receiving certain benefits (such as Income Support and Universal Credit).

In March 2023, the government announced that, by September 2025, entitlement to 30 hours per week of free childcare, for 38 weeks of the year, would be extended to eligible working parents of all children aged from 9 months to four years.

Limitations

It is important to note the limitations of the analysis undertaken. The main report and the appendix explain these in more detail, but the most important limitations are:

- the accuracy of providers’ cost information (especially for components of costs such as training or rent costs),
- the relatively small sample sizes for some estimates (such as for the impact of providers being part of a chain or when looking at individual types of cost or providers),
- the extent to which estimated impacts can be interpreted as a causal link and whether they would apply to large changes (e.g., in hours of care delivered). For example, the additional impact of increasing hours of care delivered on unit cost may be smaller when the number of hours of care delivered is already large⁵.

⁵ For example, Figure 3 suggests that although unit cost initially decreases as the number of hours of care increases, this decrease levels off after around 500 hours of care provided per week.

2. Methodology

The analysis presented in this report investigates how the organisational structure of childcare providers impacts delivery costs (e.g., savings through economies of scale), and to what extent any cost savings achieved are passed on to parents through reduced fees.

The two outcomes of interest in this analysis are providers' unit cost of delivery and the hourly fees paid by parents to providers.

The impact of five provider characteristics on providers' unit cost are estimated through a regression analysis: whether the provider is part of a chain; if so, how large the chain is; the number of hours of childcare provided; the number of staff employed by the provider; and the number of children who are registered with the provider.

This section provides information about the two outcomes of interest (providers' unit costs and the hourly fees that they charge to parents) and the regression analysis that has been carried out. Further details about the methodology can be found in an Appendix to the report. This describes the heterogeneity analysis (i.e., the observed impact on different types of providers and different types of costs), the variables used to control for potentially confounding factors, limitations of the regression methodology, and a discussion of the data sources used.

In addition, further details about measures used in this report can be found in an accompanying report⁶.

2.1 Providers' unit cost

"Unit cost" is a measure of providers' average cost of delivering an hour of childcare. Unit cost is calculated as the total weekly cost incurred by the provider divided by the total weekly hours of care provided. Total weekly hours of care provided is the sum of the total weekly hours of childcare provided across different age groups and funding types.

Total weekly hours are estimated by dividing the total income associated with each age group for each source of funding by the average funding rate associated with that group of children e.g., dividing total parent-paid fee income for children under the age of two by the average parent-paid hourly fee for children under the age of two.

The derived unit cost was trimmed to remove unit costs of zero and those in excess of £40 per hour.

⁶ 'Providers' Finances: Evidence from the Survey of Childcare and Early Years Providers 2022'.

2.2 Hourly parent-paid fees

Hourly parent-paid fees are a measure of the average hourly fee charged to parents. Providers were directly asked on the SCEYP to estimate the average hourly parent-paid fee for children under the age of two, two-year-olds, three- and four-year-olds, and school age children. As with unit cost, the reported average hourly fees were trimmed to remove average hourly fees of zero and in excess of £40 per hour.

To have an hourly parent-paid fee variable comparable to the unit cost variable for purposes of analysis (and as unit cost could not be calculated for different age groups), average hourly parent-paid fees across all age groups for a given provider were calculated as a weighted average of parent-paid fees across each age group, weighted by the proportion of parent-funded hours provided for each age group. Parent-funded hours for each age group were estimated as a provider's total weekly income from parent-paid fees divided by its average hourly parent-paid fee.

2.3 Regression analysis

Impact of provider characteristics on providers' costs

The first stage of analysis is to calculate the impact of different provider characteristics on providers' cost of delivery per hour. Each analysis includes one of the key provider characteristics.

The analysis is undertaken using data relating to 2022. For a provider i in Local Authority l , the econometric analysis estimates a model in the following form:

$$\text{Outcome}_{il} = \alpha + \beta \text{Characteristic}_{ir} + \gamma \text{PC}_{il} + \delta \text{LC}_l + \varepsilon_{il}$$

Each term of the model is explained below:

- Outcome_{ir} is the outcome variable of interest. In the first stage of analysis, this is the providers' unit cost of delivery per hour. The logarithm of this variable is taken, to reduce the influence of extreme values.
- α is the constant term common to all providers.
- $\text{Characteristic}_{ir}$ in the first stage of analysis is a provider characteristic which may impact provider costs. The coefficient β therefore captures the impact of a change in each provider characteristic on providers' unit delivery cost. Each market characteristic and the interpretation of β in each case is discussed below. Each analysis includes one provider characteristic.

- PC_{il} is a vector of other provider characteristics that may also impact provider unit delivery costs beyond their market characteristics. These are discussed in the Appendix.
- LC_l is a vector of characteristics of the Local Authority within which the provider is based. These capture the demographic, economic, health, and geographic characteristics of providers' local areas which may influence their cost of delivery. The specific area-based controls used are also discussed in the Appendix.
- ε_{il} is the idiosyncratic error term, reflecting unobserved factors that influence providers' unit cost of delivery not captured by the previous terms of the model. Errors are clustered at the level of local authority during estimation to account for potential correlation between costs for providers located in similar areas.

The five provider characteristics investigated are as follows:

- Whether the provider is part of a chain: this binary characteristic allows the direct comparison of costs between chain and lone group-based providers. Specifically, the implied effect of a lone group-based provider moving to becoming part of a chain would roughly lead to a $\beta \times 100\%$ change in the provider's unit cost.
- Provider's chain size: the number of other providers in this chain may also influence the provider's delivery cost, with larger chains potentially seeing greater cost savings through greater economies of scale. The estimation of this model is restricted to the sub-sample of group-based providers who are part of a chain (i.e., the smallest value of chain size is two). As an alternative specification, a set of binary variables for three categories of chain size are included instead of the continuous (log) chain size variable. The size categories are two to four providers, five to nineteen providers, and chains with twenty providers or more. This will allow the exploration of non-linear effects (e.g., if economies of scale are only found in the very largest chains).⁷
- Number of hours: the number of childcare hours per week offered by each provider may impact the unit cost as larger operators offering more hours per week may be able to economise on certain costs that smaller providers could not (e.g., bulk order of meals or snacks).
- Number of staff: having more staff may reduce providers' unit cost of delivery by saving on certain expenditure related to staff, such as training⁸.

⁷ The categories are chain size of less than 5; chain size from 5 to 19; and chain size of 20 or more. The first category is the excluded variable. Consequently, the interpretation of the coefficient on the remaining categories is relative to being in a chain of fewer than 5 providers.

⁸ The number of staff does not include voluntary staff and apprentices.

- Number of registered children: finally, having more children may reduce providers' unit cost of delivery by saving on certain related expenditures, such as materials or meals.

The natural logarithms of chain size, number of hours, number of staff, and number of registered children are used in the analysis. This mitigates the potentially disproportionate influence on the results that outliers (such as chains that have hundreds of providers) may have. Consequently, the β coefficient can be interpreted as an elasticity: a one-percent change in the chain size/hours/staff/children would be associated with a $\beta\%$ change in the provider's unit cost.

Impact of providers' costs on hourly parent-paid fees

The second stage of the analysis evaluates the impact of providers' unit cost of delivery on parents' effective cost per hour.

This allows for the investigation of whether any cost savings associated with provider characteristics are passed on to parents. The second-stage model is set up exactly as the first stage, but now the (log) providers' unit cost of delivery is the explanatory variable of interest (instead of childcare market characteristics as in the first stage). The outcome variable is now hourly parent-paid fees, which is also log-transformed. All control variables are the same as the first-stage model. The second-stage model therefore sets out that a one-percent change in providers' unit cost is associated with a $\beta\%$ change in hourly parent-paid fees.

All specifications from both the first stage and second stage model are estimated using Ordinary Least Squares (OLS). Sample weights from the SCEYP 2022 data are used to ensure estimates are representative of the childcare market.

3. Trends in the cost of childcare

This section outlines trends in the cost of childcare (to providers and to parents). This includes unit cost (a measure of the cost of provision to the provider per hour of childcare delivered) and the average hourly parent-paid fees that providers charge.

Hourly parent-paid fees are fees paid for by parents for hours not covered by free entitlement hours. Information about trends in factors that may influence the cost of provision can be found in the Appendix.

3.1 Cost of childcare provision to providers

Table 1 presents mean and median unit costs by provider type. Unit costs have been estimated using a different methodology to reports based on previous waves of the SCEYP, as explained in the Appendix. As such, unit costs from 2022 are not directly comparable to those estimated for previous years. Both mean and median unit cost are presented. Unlike median unit costs, mean unit costs are sensitive to extreme values.

It should also be noted that cost measures differ slightly across types of providers. Specifically, childminders were not asked to report rent or mortgage costs, while their staff costs included (a) any amount that they paid to childminder assistants; and (b) the income that they personally earned (i.e., pre-tax amounts that they regularly draw from their business in the form of a “salary”).

In 2022, the mean unit cost across all providers was estimated to be £6.73 per hour. The median unit cost for all providers was £5.21 per hour. The mean unit cost for all providers was greater than the median (£6.73 per hour compared to £5.21 per hour, representing a 29% difference). The mean unit cost for all providers excluding childminders was approximately 33% greater than the median (£6.60 per hour compared to £4.95 per hour). This suggests that there are some providers with very large unit costs that increase the mean but not the median. 14.9% of providers, for instance, were identified to have unit costs greater than £10.00 per hour. This suggests that the median may be a better indicator than the mean of unit costs for the “typical” provider.

Table 1: Hourly unit cost by provider type (2022)

Provider type	Mean provider unit cost	Median provider unit cost	Number of providers
Private group-based providers	£6.24	£4.57	431
Voluntary group-based providers	£6.07	£4.97	389
Nursery class childcare settings	£7.92	£5.41	227
Maintained nursery schools	£9.04	£7.64	55
Childminders	£6.81	£5.42	372
All providers	£6.73	£5.21	1,520

Source: Survey of Childcare and Early Years Providers, 2022. Note: All providers includes 46 'other' group-based providers.

3.2 Cost of childcare provision to parents

Table 2 presents the average hourly parent-paid fee, by age of child, for each type of provider in 2022.

Table 2: Median hourly parent-paid fees by provider type and age (2022)

Provider type	Under two-year-olds	Two-year-olds	Three- and four-year-olds
Private group-based providers	£6.15	£6.00	£6.00
Voluntary group-based	£5.70	£5.35	£5.00
Nursery class childcare settings	£5.71	£5.24	£5.00
Maintained nursery schools	£6.50	£5.80	£5.50
Childminders	£5.00	£5.00	£5.00
All providers	£5.25	£5.25	£5.00

Source: Survey of Childcare and Early Years Providers, 2022.

Overall, childminders charged the lowest hourly fees (a median fee of £5.00 for all age groups) and private group-based providers charged the highest hourly fees (a median fee of approximately £6.00).

Many hours of childcare provided to two-year-olds, and especially to three- and four-year-old children, are not charged at the hourly fees listed above, but provided as a free “entitlement” funded by the government. As a result, understanding of the actual cost of childcare provision borne by parents can be aided by referring to the share of childcare hours funded by parent-paid fees. To provide an understanding of the significance of parent-paid hours, Table 3 sets out the average share of income from parent-funded hours by provider type.

Table 3: Share of total income from parent-paid fees by provider type (2022)

Provider type	Share of total income from parent-funded hours	Number of providers
Private group-based providers	47%	206
Voluntary group-based providers	26%	227
Nursery class childcare settings	6%	230
Maintained nursery schools	8%	43
Childminders	70%	185
All providers	52%	924

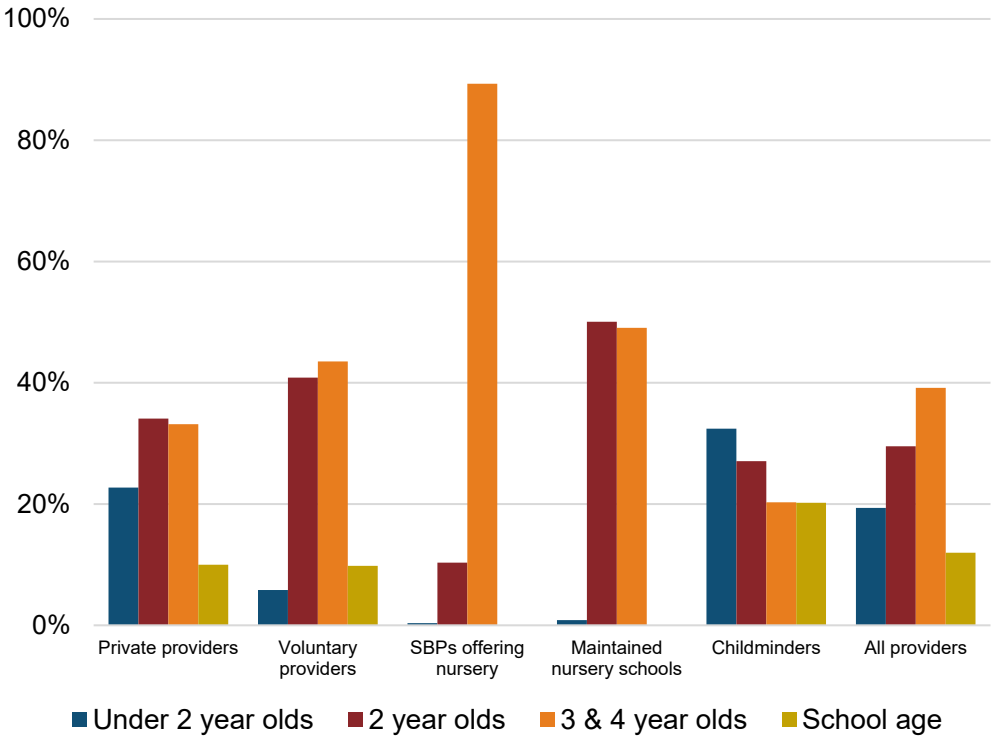
Source: Survey of Childcare and Early Years Providers, 2022.

Across all age groups and all providers, around half (52%) of total income comes from parent-paid fees. Childminders have the highest proportion of income funded by parent-paid fees (70%), with maintained nursery schools (8%) and nursery class childcare settings (6%) having the lowest proportions. In general, provider types with the highest average hourly parent-paid fees have the lowest proportion of total income funded by parents.

Provider types with relatively low shares of income from parent-funded hours (maintained nursery schools, voluntary providers, and nursery class childcare settings) tend to provide the highest share of total childcare hours for two-year-olds and three- and four-year-olds, the age groups eligible for free entitlements.

Figure 2 illustrates the shares of hours provided to each age group by provider type. This shows that while all group-based and school-based providers dedicate larger proportions of hours of childcare to the two-year-old and three- and four-year-old age groups, this is particularly true for school-based providers who provide for these age groups almost exclusively. This split also shows that childminders tend to focus more on younger age groups.

Figure 2: Share of hours provided for each age group, by provider type and for all providers



Source: Survey of Childcare and Early Years Providers, 2022

4. Impact of provider characteristics on providers' cost of provision

4.1 Main results

This section looks at the impact that being in a chain of providers has on provider costs (Table 4); and at the economies of scale achieved by providers with more children, more staff, and who deliver more hours (Table 5).

Table 4 suggests that being part of a chain is associated with significant economies of scale, but that the size of the chain is not⁹. There is a negative and statistically significant association (at the five percent level) between a provider being part of a chain and its unit cost. The coefficient of -0.33 implies that providers who are part of a chain have on average 33% lower hourly costs of provision than providers that are not part of a chain. However, as discussed in subsequent analysis, there are significant limitations to this finding that should be noted¹⁰.

Further, the impact of being part of a larger chain is not statistically significant (there isn't sufficient evidence to suggest that these estimates are not zero), whether comparing across categories of chains (in the second column) or chain size (the third column)¹¹. The size categories are two to four providers, five to nineteen providers, and chains with twenty providers or more.

⁹ Only group-based providers are included in the analysis of chains and chain size.

¹⁰ For example, subsequent analysis only identifies 'other costs' (e.g., administrative costs) as the type of cost that is impacted by providers being part of a chain. It may be the case that providers that are part of chains may not know and be less likely to report these costs if they are part of a head office cost.

¹¹ Only providers who are part of a chain are included in the analysis reported in the second and third columns.

Table 4: Estimated impact of being part of a chain and chain size on provider unit cost

	(1) % change in unit cost from being part of a chain	(2) % change in unit cost from being part of different chain size categories (relative to chains with 2, 3 or 4 providers)	(3) % change in unit cost per 1% increase in the chain size
Operating as part of a Chain - coefficient	-33.04**		
Operating as part of a Chain - standard error	(15.23)		
Chain size (between 5 and 19) – coefficient		10.30	
Chain size (between 5 and 19) – standard error		(26.46)	
Chain size (greater than 20) – coefficient		10.03	
Chain size (greater than 20) – standard error		(27.60)	
Chain size – coefficient			0.05
Chain size – standard error			(0.09)
Controls included	Yes	Yes	Yes
Provider types	GBPs	GBPs	GBPs
R-squared	0.09	0.39	0.39
Observations	631	91	91

Source: SCEYP 2022. Note: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology). *** p<0.01, ** p<0.05, * p<0.1.

The results presented in Table 5 suggest that there are significant economies of scale associated with providing a greater number of hours of care. The results reported in the first column show that for every 1% increase in the number of hours provided, there is an associated 0.3% in unit cost. This means that a 10% increase in the number of hours provided is associated with a 3% decrease in unit cost. This is consistent with Figure 3 (where the red line of best fit can be interpreted as an average cost curve), which

illustrates the decrease in unit costs with respect to hours of care provided each week. However, unit costs appear to level off beyond around 500 hours a week.

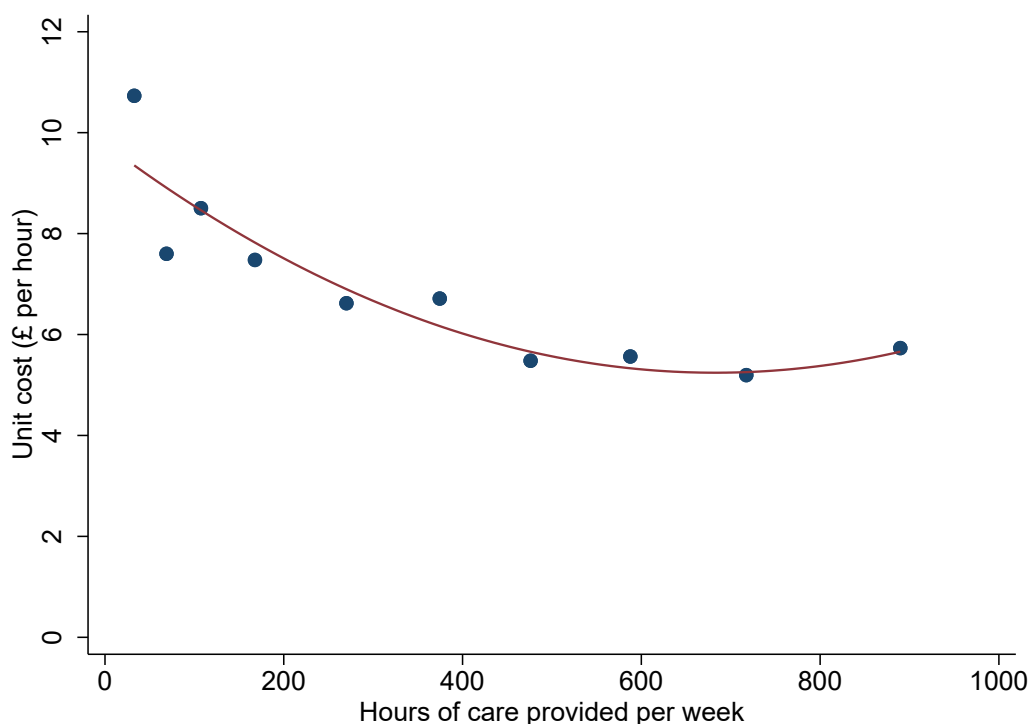
There is not a similar decrease in unit cost associated with an increase in the number of staff employed and number of children registered, with the impact not estimated to be significantly different to zero. The marginal cost of providing another hour of care may decrease for a variety of reasons. For example, providing care for a child for an additional hour may not require the provision of an additional meal. However, increasing the number of children or staff may not realise as many of these economies of scale, essentially because the costs associated with additional staff or children are ‘lumpier’. For instance, maintaining staff-to-child ratios, as well as “floor space per child” guidelines and other restrictions, may reduce the potential for economies of scale to be achieved. As discussed in more detail in subsequent sections, there are different types of costs that may or may not benefit from economies of scale when increasing the number of staff employed or children registered.

Table 5: Estimated impact of the number of hours, staff, and children on provider unit cost

	(1) % change in unit cost per 1% increase in provider hours	(2) % change in unit cost per 1% increase in provider number of staff	(3) % change in unit cost per 1% increase in provider number of children
Number of hours – coefficient	-0.30***		
Number of hours – standard error	(0.05)		
Number of staff – coefficient		0.07	
Number of staff – standard error		(0.08)	
Number of registered children – coefficient			0.05
Number of registered children – standard error			(0.07)
Controls included	Yes	Yes	Yes
Provider types	All providers	All providers	All providers
R-squared	0.20	0.08	0.12
Observations	1,071	825	1,080

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

Figure 3: Binned scatter plot and quadratic line of best fit for the average unit cost per hour for ranges of hours of care provided per week



Source: SCEYP 2022. Notes: This chart is a binned scatter plot of chain size and unit cost. This divides the range of chain sizes into ten bins, calculates the average chain size within each bin and plots the average other unit cost across the observations within each bin. The red line represents a quadratic line of best fit, which can be interpreted as an average cost curve.

4.2 Impact by type of provider

Economies of scale may differ across provider types, especially given other differences between provider types such as size. The average childminder, for instance, provides care for far fewer children than the average group-based or school-based provider.

Table 6 reports the estimated impact of being in a chain on unit cost for private providers and for voluntary providers.

These results suggest that the impact of being part of a chain presented in Table 4 is driven by private providers, with the coefficient of -0.37 implying that private providers who are part of a chain have on average 37% lower unit costs than private providers that are not part of a chain. Being part of a chain has no impact on voluntary providers' costs.

Table 6: Estimated impact of being in a chain on provider unit cost - private and voluntary group-based providers

	(1) % change in unit cost from being part of a Private GBP chain	(2) % change in unit cost from being part of a Voluntary GBP chain
Chain – coefficient	-36.74**	0.08
Chain – standard error	(18.09)	(20.47)
Controls included	Yes	Yes
Provider types	Private GBPs	Voluntary GBPs
R-squared	0.14	0.07
Observations	325	306

Source: SCEYP 2022. Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology). *** p<0.01, ** p<0.05, * p<0.1.

Table 7 presents the estimated economies of scale from providing a greater number of hours for different provider types. The first column presents the results for school-based providers, who exhibit the greatest economies of scale, for every 1% increase in the number of hours provided, there is an associated 0.7% in unit cost. This means a 10% increase in the number of hours of care provided is associated with a 7% decrease in unit cost. Group-based providers have the smallest estimated economies of scale associated with hours of care provided (a 2% decrease in unit cost for a 10% increase in hours). These results are highly significant, with all three results statistically significant at the 1 percent level.

An important caveat to note concerns what may be driving the low marginal costs of delivering an additional hour of care that are implied by a large decrease in average unit cost across all hours of care delivered. These estimates may include the impact of using available capacity in childcare provision. For example, there are child-staff ratios which allow for a maximum number of children for each staff member (depending on the age of the children and the qualifications of the staff member). This ratio ranges from three to one for children under the age of two to up to thirteen to one for three- and four-year-olds if led by a teacher¹².

For a given hour that a member of staff is working, if the maximum number of children has not been reached, then the additional staffing cost of providing care for another child by that member of staff in that hour is zero.

¹² [House of Common Library](#)

This lower marginal cost would not persist if the maximum number of children had been met. If these estimates reflect filling up unused capacity in child-staff ratios, then the estimates may overstate economies of scale from large increases in hours provided. However, there is evidence of some unused capacity in these ratios. For example, 21% of group-based providers (and 29% of voluntary group-based providers) had fewer than four two-year-olds to each staff member (the statutory ratio for two-year-olds)¹³.

Table 7: Estimated impact of the number of hours on provider unit cost

	(1) % change in unit cost per 1% change in provider hours SBPs	(2) % change in unit cost per 1% change in provider hours GBPs	(3) % change in unit cost per 1% change in provider hours CMs
Number of hours – coefficient	-0.70***	-0.20***	-0.36***
Number of hours – standard error	(0.12)	(0.06)	(0.07)
Controls included	Yes	Yes	Yes
Provider types	SBPs	GBPs	CMs
R-squared	0.63	0.11	0.29
Observations	145	625	301

Source: SCEYP 2022. Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

Table 8 presents the results of the same analysis for private and voluntary group-based providers. The estimated impact is statistically significant for both provider types. The difference in the estimated impact between provider types is relatively small compared to differences between broader provider types as presented in Table 7.

¹³ [2022 Survey of Childcare and Early Years Providers](#)

Table 8: Estimated impact of the number of hours on provider unit cost for private and voluntary group-based providers

	(1) % change in unit cost per 1% change in provider hours Private GBPs	(2) % change in unit cost per 1% change in provider hours Voluntary GBPs
Number of hours – coefficient	-0.17**	-0.28***
Number of hours – standard error	(0.08)	(0.09)
Controls included	Yes	Yes
Provider types	Private GBPs	Voluntary GBPs
R-squared	0.15	0.13
Observations	321	304

Source: SCEYP 2022. Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology). *** p<0.01, ** p<0.05, * p<0.1.

4.3 Impact by type of cost

Types of costs and chains

The analysis can be replicated for different types of cost (staffing costs, rent¹⁴ - which also include mortgage payments, food, materials, training, and “other” costs). More details about the different types of costs and what they include can be found in the appendix. This analysis provides a deeper insight into how and where economies of scale are achieved by providers, in particular through being part of a chain and increasing the number of hours provided. Aggregate estimates across all types of costs may mask differences between different types of costs that may or may not benefit from economies of scale.

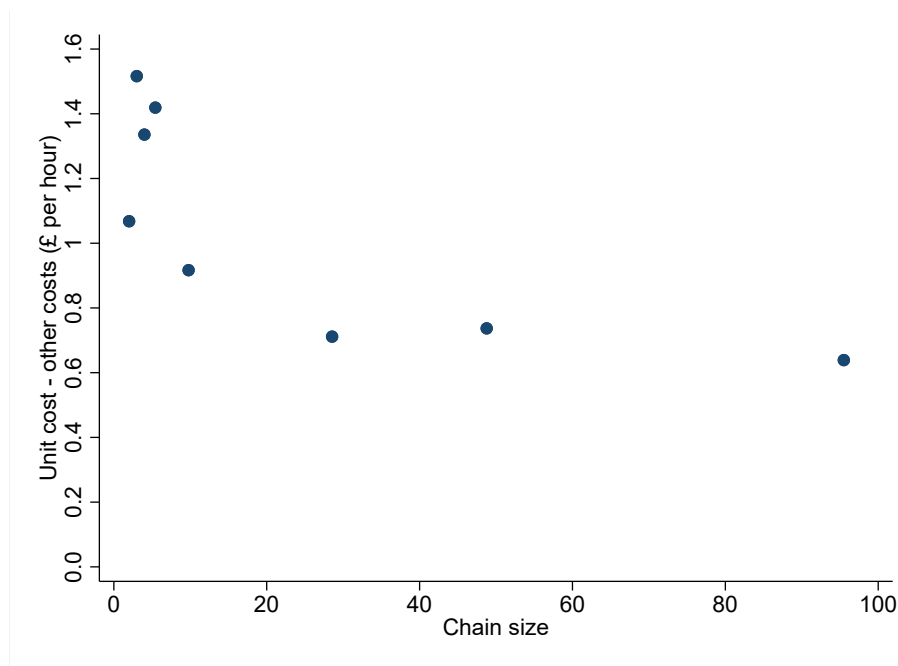
If a provider is part of a chain, the size of chain that it is in has a significant impact on its “other” costs (e.g. utilities and administrative costs). Figure 4 illustrates the impact of chain size on ‘other’ costs and shows a large decrease in ‘other’ unit cost per hour as chain size increases (in particular, between the chain having a few providers to around twenty providers).

However, this could in part reflect the way that providers report “other” costs. Chain providers, particularly if they are part of a big chain of providers, may be less likely to

¹⁴ Childminders do not provide mortgage/rent payments as part of their costs.

know, and therefore report, “head office” costs. Whether or not a provider is part of a chain, and, if so, the size of the chain that it is in, does not have a significant impact on any other area of its costs¹⁵. This is a significant limitation of the previous finding that being part of a chain reduces providers’ unit costs.

Figure 4: Binned scatter plot for the average “other” cost per hour for ranges of chain sizes



Source: SCEYP 2022. Notes: This chart is a binned scatter plot of chain size and “other” costs per hour (unit cost – other costs). This divides the range of chain sizes into eight bins, calculates the average chain size within each bin and plots the average other unit cost across the observations within each bin.

Economies of scale of hours, staff, and children across types of costs

While there appeared to be evidence of economies of scale solely through increasing the number of hours (and not through increasing the number of staff or children), it may be the case that the impact of increasing the number of hours, staff, and children differs by type of cost¹⁶. These factors may have a greater impact on different types of costs per hour.

¹⁵ Analysis of the impact that being part of a chain has on different areas of provider’s costs was hampered by a lack of data in this area – many of the providers who reported “total” costs on the SCEYP did not provide a breakdown of their costs and, in some cases where they did, these did not add up to the “total”

¹⁶ This analysis which focuses on types of cost uses a smaller sample of providers, as not all providers who reported total cost also reported component costs. As a result, findings using this smaller sample may not be fully consistent with the results presented when focusing on total costs.

Table 9 presents the estimated impact of hours (Panel A), number of staff (Panel B), and children (Panel C) on different types of costs.

The number of hours of care delivered by a provider has a consistently significant impact on all costs per hour.

The analysis illustrates that a 10% increase in hours of care provided is associated with a

- 2.2% decrease in staff costs per hour,
- 0.7% decrease in rent costs per hour,
- 0.9% decrease in food costs per hour,
- 1.0% decrease in materials costs per hour,
- 0.4% decrease in training costs per hour, and
- 1.7% decrease in “other” costs per hour.

The particularly large impact on staff and rent costs, despite guidelines about staff-to-child ratios and the provision of space per child, may reflect the potential spare capacity that providers may have. The statistically significant impact of hours of care delivered on food costs and material costs suggests economies of scale through bulk purchases (or the fact that food costs are more closely correlated with the number of children receiving rather than the number of hours of childcare). Savings from spreading overhead costs are found in the estimated impact of hours of care delivered on “other” costs. For example, providing a child with an extra hour of care may not require repeating the previously incurred costs associated with registering that child at the provider.

However, the impact of an increase in the number of staff employed or children registered at a provider is associated with only a subset of provider costs, with statistically significant estimates restricted to rent costs (for number of staff) and materials and training costs (for number of staff and number of children).

Specifically, a 10% increase in the number of staff employed by a provider is associated with a

- 0.9% decrease in rent costs per hour,
- 0.5% decrease in materials costs per hour, and
- 0.2% decrease in training costs per hour.

and a 10% increase in the number of children registered at a provider is associated with a

- 0.5% decrease in materials costs per hour, and

- 0.2% decrease in training costs per hour.

These estimates may reflect economies of scale associated with training costs (e.g., training materials may be shared across staff members) and material costs (e.g., bulk purchasing).

The number of staff employed by the provider has a significant impact on rent costs per hour delivered. However, the number of children registered at the provider does not have a significant impact on rent costs. This could reflect guidelines on floor space per child, in contrast to economies of scale that may be achieved in staffing costs. For example, communal areas such as kitchens and break rooms may be straightforwardly shared across a larger number of members of staff.

Table 9: Estimated impact of the number of hours, staff, and children, on types of costs for providers per hour of childcare

	(1) % change in staff costs per hour	(2) % change in rent costs per hour	(3) % change in food costs per hour	(4) % change in materials costs per hour	(5) % change in training costs per hour	(6) % change in other costs per hour
Number of hours delivered – coefficient	-0.22***	-0.07***	-0.09***	-0.10***	-0.04***	-0.17***
Number of hours delivered – standard error	(0.03)	(0.01)	(0.02)	(0.02)	(0.01)	(0.03)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.22	0.50	0.40	0.27	0.20	0.20
Observations	750	750	750	750	750	750
Number of staff employed – coefficient	0.05	-0.09***	0.01	-0.05***	-0.02**	0.01
Number of staff employed – standard error	(0.05)	(0.03)	(0.02)	(0.02)	(0.01)	(0.05)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.14	0.35	0.37	0.12	0.11	0.10
Observations	601	601	601	601	601	601
Number of registered children – coefficient	0.02	-0.02	-0.01	-0.05**	-0.02**	-0.03
Number of registered children – standard error	(0.07)	(0.02)	(0.03)	(0.02)	(0.01)	(0.06)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
Provider types	All	All	All	All	All	All
R-squared	0.13	0.46	0.36	0.16	0.09	0.15
Observations	752	752	752	752	752	752

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1

Economies of scale of hours on staff costs by type of provider

Table 10 presents the estimated impact of numbers of hours delivered by providers on staffing costs per hour of childcare delivered. This suggests that the impact of the number of hours delivered on providers' costs is driven primarily through reduced staffing costs. This is unsurprising in the context of staffing costs making up approximately 70% of providers total costs¹⁷.

The impact of hours delivered on staffing costs per hour of childcare delivered is greatest for school-based providers, which was also the case for unit cost per hour of childcare (Table 7). A 10% increase in the number of hours delivered by a provider was associated with a 4.6% decrease in staffing costs per hour for school-based providers, a 2.3% decrease in staffing costs per hour for group-based providers and a 2.0% decrease in staffing costs per hour for childminders (Table 10).

Table 10: Estimated impact of the number of hours on staff costs for providers per hour of childcare delivered by type of provider

	(1) % change in staff costs (per hour) per 1% increase in provider hours SBPs	(2) % change in staff costs (per hour) per 1% increase in provider hours GBPs	(3) % change in staff costs (per hour) per 1% increase in provider hours CMs
Number of hours – coefficient	-0.46***	-0.23***	-0.20***
Number of hours – standard error	(0.06)	(0.04)	(0.06)
Controls included	Yes	Yes	Yes
Provider types	SBPs	GBPs	CMs
R-squared	0.58	0.29	0.25
Observations	115	455	180

Source: SCEYP 2022. Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

Table 11 presents the results of the same analysis for private and voluntary group-based providers. The estimated impact is statistically significant for both provider types, with a larger impact on staff costs per hour found among voluntary group-based providers (both smaller than for school-based providers).

¹⁷ Providers' Finances: Evidence from the Survey of Childcare and Early Years Providers 2022

Table 11: Estimated impact of the number of hours on staff costs for providers per hour of childcare delivered for private and voluntary group-based providers

	(1) % change in staff costs (per hour) per 1% increase in provider hours Private GBPs	(2) % change in staff costs (per hour) per 1% increase in provider hours Voluntary GBPs
Number of hours – coefficient	-0.19***	-0.29***
Number of hours – standard error	(0.05)	(0.07)
Controls included	Yes	Yes
Provider types	Private GBPs	Voluntary GBPs
R-squared	0.30	0.39
Observations	223	232

Source: SCEYP 2022. Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

Table 12 presents estimates of the impact of number of hours of care delivered on different cost categories for different provider types. For example, the results in the first column suggest that a 10% increase in the number of hours of care delivered by school-based providers is associated with a 4.6% decrease in staff costs per hour. Apart from rent costs for school-based providers, an increase in the number of hours that a provider delivers is associated with significantly lower costs, across all cost types and all provider types¹⁸.

As shown in Table 7, school-based providers have the greatest decrease in cost per hour associated with increases in hours delivered (among provider types). Table 12 suggests that this is driven by economies of scale in staffing costs.

Table 13 presents the same analysis for different types of group-based providers. The estimated impact of number of hours on different types of cost per hour are similar for private and voluntary group-based providers and are statistically significant across all types of costs.

¹⁸ Childminders do not report rent/mortgage costs so no results are reported for childminders in Column 2.

Table 12: Estimated impact of the number of hours, per hour of childcare delivered by cost and provider type

	(1) % change in staff costs (per hour) per 1% increase in provider hours	(2) % change in rent costs (per hour) per 1% increase in provider hours	(3) % change in food costs (per hour) per 1% increase in provider hours	(4) % change in materials costs (per hour) per 1% increase in provider hours	(5) % change in training costs (per hour) per 1% increase in provider hours	(6) % change in other costs (per hour) per 1% increase in provider hours
Panel A. SBPs						
Number of hours – coefficient	-0.46***	0.03	-0.04*	-0.13**	-0.08***	-0.23*
Number of hours – standard error	(0.06)	(0.03)	(0.02)	(0.05)	(0.03)	(0.12)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.58	0.32	0.25	0.47	0.46	0.33
Observations	115	115	115	115	115	115
Panel B. GBPs						
Number of hours – coefficient	-0.23***	-0.17***	-0.05***	-0.07***	-0.04***	-0.18***
Number of hours – standard error	(0.04)	(0.03)	(0.01)	(0.02)	(0.01)	(0.04)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.29	0.39	0.28	0.17	0.23	0.16
Observations	455	455	455	455	455	455
Panel C. Childminders						
Number of hours – coefficient	-0.20***		-0.14***	-0.12***	-0.04***	-0.18***
Number of hours – standard error	(0.06)		(0.04)	(0.03)	(0.01)	(0.06)
Controls included	Yes		Yes	Yes	Yes	Yes
R-squared	0.25		0.36	0.32	0.24	0.32
Observations	180		180	180	180	180

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Childminders do not report mortgage/rent costs so estimates do not appear for childminders in Column 2. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1

Table 13: Estimated impact of the number of hours, per hour of childcare delivered by cost and provider type - private and voluntary group-based providers

	(1) % change in staff costs (per hour) per 1% increase in provider hours	(2) % change in rent costs (per hour) per 1% increase in provider hours	(3) % change in food costs (per hour) per 1% increase in provider hours	(4) % change in materials costs (per hour) per 1% increase in provider hours	(5) % change in training costs (per hour) per 1% increase in provider hours	(6) % change in other costs (per hour) per 1% increase in provider hours
Panel A. Private group-based providers						
Number of hours – coefficient	-0.19***	-0.18***	-0.05***	-0.06***	-0.04***	-0.20***
Number of hours – standard error	(0.05)	(0.03)	(0.01)	(0.02)	(0.01)	(0.06)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.30	0.44	0.30	0.21	0.29	0.18
Observations	223	223	223	223	223	223
Panel B. Voluntary group-based providers						
Number of hours – coefficient	-0.29***	-0.17**	-0.03*	-0.09***	-0.04***	-0.18***
Number of hours – standard error	(0.07)	(0.03)	(0.02)	(0.03)	(0.01)	(0.05)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.39	0.46	0.26	0.23	0.30	0.24
Observations	232	232	232	232	232	232

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Childminders do not report mortgage/rent costs so estimates do not appear for childminders in Column 2. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1

5. Impact of provider characteristics on the cost to parents

5.1 Impact by type of provider

This section investigates how changes in the cost to providers may influence the cost of childcare for parents. It measures the extent to which reductions in cost (whether because of economies of scale or otherwise) are passed on to parents in the form of a decrease in their hourly fees.

Table 14 presents the results of a regression analysis, estimating the impact that changes in provider unit costs have on hourly parent-paid fees. The regression analysis controls for demographic, geographic and socioeconomic factors that might impact on childcare costs (see the methodology section for more detail).

Table 14: Estimated impact of providers' unit cost on hourly parent-paid fees

	(1) % change in hourly parent- paid fees per 1% change in unit cost All providers	(2) % change in hourly parent- paid fees per 1% change in unit cost SBPs	(3) % change in hourly parent- paid fees per 1% change in unit cost GBPs	(4) % change in hourly parent- paid fees per 1% change in unit cost CMs
Unit cost – coefficient	0.10***	0.16	0.04**	0.14***
Unit cost – standard error	(0.02)	(0.11)	(0.02)	(0.04)
Controls included	Yes	Yes	Yes	Yes
Provider types	All providers	SBPs	GBPs	CMs
R-squared	0.46	0.39	0.28	0.47
Observations	906	102	532	272

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

The first column suggests that there is a small positive and statistically significant association between unit cost and hourly parent-paid fees (at the five percent significance level) for all providers. The coefficient estimate of 0.10 suggests that a 10% decrease in unit cost for a provider is associated with a 1% decrease in hourly parent-paid fees.

This impact is driven largely by childminders. As shown in the fourth column, a 10% decrease in childminders' unit cost is associated with a 1.4% decrease in hourly parent-paid fees.

In contrast, the coefficient estimate for school-based providers (in the second column) is large and positive but is not statistically significant. This is because of the relatively small sample of school-based providers which results in a larger standard deviation in hourly parent-paid fees compared to other provider types. The impact of unit cost on hourly parent-paid fees is smallest for group-based providers, where a 10% decrease in unit cost is only associated with a 0.4% decrease in hourly parent-paid fees. This suggests that decreases in costs for group-based providers from economies of scale found in the previous section are mostly not passed onto parents in the form of lower fees.

This pass-through to parents being highest for childminders may reflect a more competitive market for childminders than for other provider types. A more competitive market may result in greater pressure for childminders to pass on a larger proportion of their cost savings to parents. In comparison, the small (or lack of) pass through of cost savings observed for group-based and school-based providers may reflect either the lack of local alternative providers or parents using these providers having a greater proportion of their childcare covered by free entitlements, leading them to be less sensitive to hourly fees.¹⁹

Table 15 reports the estimates for private and voluntary group-based providers. While both estimates are positive, the estimated impact for private group-based providers (0.03) is not statistically significant and lower than the statistically significant estimate for voluntary group-based providers (0.08).

¹⁹ In reality, decreases to hourly fees may induce some parents to increase the number of hours of childcare they were purchasing, which would in turn impact the share of parent-funded childcare hours within providers.

Table 15: Estimated impact of providers’ unit costs on parent-paid fees for private and voluntary group-based providers

	(1) % change in hourly parent-paid fees per 1% change in unit cost Private GBPs	(2) % change in hourly parent-paid fees per 1% change in unit cost Voluntary GBPs
Unit cost – coefficient	0.03	0.08**
Unit cost – standard error	(0.02)	(0.04)
Controls included	Yes	Yes
Provider types	Private GBPs	Voluntary GBPs
R-squared	0.32	0.33
Observations	267	265

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1

To investigate impacts of changes in costs (other than passing it through to parents), the impact of changes in unit cost on income to cost ratios is also estimated. Income to cost ratios are a measure of profitability where providers’ weekly income is divided by weekly cost²⁰. Table 16 presents the results and suggests that a 10% decrease in cost per hour of childcare delivered is associated with an increase in the income to cost ratio of:

- 4.8% for all providers,
- 5.0% for school-based providers,
- 2.2% for group-based providers, and
- 5.7% for childminders.

²⁰ More detail can be found in the 2022 SCEYP Providers’ Finances report.

Table 16: Estimated impact of a change in unit cost on providers' income to cost ratio

	(1) % change in income to cost ratio per 1% change in unit cost All providers	(2) % change in income to cost ratio per 1% change in unit cost SBPs	(3) % change in income to cost ratio per 1% change in unit cost GBPs	(4) % change in income to cost ratio per 1% change in unit cost CMs
Unit cost – coefficient	-0.48***	-0.50***	-0.22***	-0.57**
Unit cost – standard error	(0.14)	(0.10)	(0.10)	(0.23)
Controls included	Yes	Yes	Yes	Yes
Provider types	All providers	SBPs	GBPs	CMs
R-squared	0.22	0.50	0.11	0.32
Observations	1,043	140	618	285

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

The impact is greatest for school-based providers and for childminders, whereas it is smallest for group-based providers (reflecting the previous analysis of pass through). Between 2018 and 2022, group-based providers (and in particular private providers) tended to have the highest income to cost ratios among provider types²¹. For example, in 2022, private providers had a median income to cost ratio of 1.15 (£1.15 of income for every £1 of cost) compared to 0.91 for nursery class childcare settings, 0.95 for maintained nursery schools, and 0.99 for childminders.

The higher income to cost ratios found among group-based providers may be consistent with group-based providers having greater market power than childminders. This is also consistent with group-based providers not passing through as much of the potential cost savings as childminders, which may contribute to the higher income to cost ratios observed among group-based providers.

Table 17 presents the results for private and voluntary group-based providers. While the estimate for private GBPs is greater in magnitude, the difference between the two types of group-based providers is not statistically significant.

²¹ This can be found in the 2022 SCEYP Providers' Finances Report.

Table 17: Estimated impact of a change in unit cost on providers' income-to-cost ratio for private and voluntary group-based providers

	(1) % change in income to cost ratio per 1% change in unit cost Private GBPs	(2) % change in income to cost ratio per 1% change in unit cost Voluntary GBPs
Unit cost – coefficient	-0.23**	-0.18**
Unit cost – standard error	(0.11)	(0.08)
Controls included	Yes	Yes
Provider types	Private GBPs	Voluntary GBPs
R-squared	294	291
Observations	0.16	0.08

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

5.2 Impact by type of cost

While the above analysis focused on the impact on hourly parent-paid fees of changes to total unit cost, it is possible to estimate the impact of changes to different types of costs on hourly parent-paid fees. Unlike the previous section, this analysis investigates the impact across all providers.

The aggregate impact of changes to unit cost on hourly parent-paid fees of childcare may mask differences across different types of costs. For example, a decrease in a certain type of cost may be more likely to be passed onto parents than others.

Table 18 reports the estimated impact on hourly parent-paid fees of changes to different types of cost.

Changes to rent costs do not appear to be passed onto parents, as the coefficient was positive but not statistically significant. This may be because relatively few school-based providers²² and no childminders reported rent/mortgage costs on the SCEYP (the latter were not asked for report/mortgage costs).

The impact on parent fees of changes to providers' staff costs, food costs, materials costs, and training costs, however, were all positive and statistically significant at the five

²² 339 out of 379 school-based providers the sample analysed for the breakdown of total cost in the 2022 SCEYP Providers' Finances Report had no rent or mortgage costs.

percent level (staff costs and food costs) and one percent level (materials costs and training costs).

This suggests that savings in these particular costs are associated with lower prices for parents. For example, as shown in the first column of Table 18a, a 1% increase in staffing costs per hour is associated with a 0.1% decrease in hourly parent paid fees. This means a 10% decrease in staffing costs per hour is associated with a decrease in hourly parent-paid fees of 1%,.

However, the estimates should be treated with caution. The coefficient of 0.81 in the fifth column suggests that a 10% decrease in training costs per hour is associated with an 8.1% decrease in hourly parent-paid fees. This suggests limitations to the causal interpretation of the findings as training costs are a relatively small part of total costs. The 10% decrease in training costs per hour may also be associated with other factors that decrease hourly parent-paid fees which the analysis is not able to control for.

Table 18: Estimated impact of different types of providers' cost on hourly parent-paid fees

	(1) % change in hourly parent-paid fees per 1% change in staff costs per hour	(2) % change in hourly parent-paid fees per 1% change in rent costs per hour	(3) % change in hourly parent-paid fees per 1% change in food costs per hour	(4) % change in hourly parent-paid fees per 1% change in materials costs per hour	(5) % change in hourly parent-paid fees per 1% change in training costs per hour	(6) % change in hourly parent-paid fees per 1% change in other costs per hour
Staff costs – coefficient	0.10**					
Staff costs – standard error	(0.04)					
Rent costs – coefficient		0.08				
Rent costs – standard error		(0.08)				
Food costs – coefficient			0.27**			
Food costs – standard error			(0.11)			
Materials costs – coefficient				0.35***		
Materials costs – standard error				(0.11)		
Training costs – coefficient					0.81***	
Training costs – standard error					(0.27)	
Other costs – coefficient						0.08*
Other costs – standard error						(0.04)
Controls included	Yes	Yes	Yes	Yes	Yes	Yes
Provider types	All	All	All	All	All	All
R-squared	0.48	0.47	0.49	0.49	0.49	0.48
Observations	632	632	632	632	632	632

Source: SCEYP 2022. Notes: Standard errors clustered at the Local Authority level in parentheses. Additional controls include provider fixed effects, share of hours provided for each age group, proportion of children with SEND, hours open each day, and other demographic, geographic, and socioeconomic controls (a full list can be found in the methodology) *** p<0.01, ** p<0.05, * p<0.1.

6. Conclusion

The report finds evidence of economies of scale within a provider's setting (through increases in the number of hours delivered) and that being part of a chain is associated with lower cost per hour of childcare delivered.

The cost of childcare per hour delivered was estimated to be a third lower for group-based providers in a chain, although this effect was driven by private providers rather than voluntary providers.

As the number of hours delivered by providers increased, significant economies of scale were identified. The impact of the number of hours delivered on cost per hour delivered was largest for school-based providers but was statistically significant across all provider types, and also across all types of costs. The impact of increasing the number of children registered and the number of staff employed by a provider on its cost per hour of childcare delivered was a reduction in cost in some types of cost but no significant impact on overall costs.

School-based providers are estimated to have the greatest economies of scale from increasing the number of hours delivered.

The report finds that changes in cost per hour delivered has some impact on the fees paid by parents with childminders passing the biggest share of potential cost savings on to parents.

Appendix

A.1 Cost measures and limitations

Providers were asked for their “current²³ total costs including staffing, premises, materials, administration costs and so on, that is, all of your outgoings”. Providers also reported the period covered by the amount reported and weekly cost was derived by dividing the reported amount by the number of weeks the reported costs covered.

The collection of information and calculation of the total cost differed for childminders in two ways.

- Firstly, the question asking for the total cost for childminders specifically omitted rent and mortgage costs and asked for their “current costs including staffing, materials, administration costs but excluding rent and mortgage payments”.
- Second, childminders were asked “how much childminding income do you currently personally earn including any pay for yourself and any amounts that you regularly draw before any tax is deducted?” and this was added to the total cost as a proxy for pay to themselves.

Six caveats should be noted about this measure of the total cost:

- This total cost measure covered actual amounts paid by the providers themselves and did not include costs paid by others or implicit foregone opportunity costs. Some group-based providers and many school-based providers use local authority venues free of charge, while others may own the venue outright (without any mortgage). In these cases, the cost measure does not include the foregone rent that could be generated by the owner of the venue or the opportunity cost of not being able to use the property for some other purpose.
- It is not clear to what extent providers included the costs of capital for investments (such as the payment of interest on loans or the payment of dividends or profits return for direct investment) in their reporting of their total cost.
- Childminders were told to exclude rent or mortgage payments from their total costs. Therefore, the costs reported by childminders do not include any payments that childminders may have explicitly paid in rent or mortgage for their business or the opportunity cost of using space in their home for childminding.

²³ In the 2018 and 2019 Surveys, providers were asked for “typical” amounts throughout the survey but this was amended to “current” for the 2021 survey as the situation in 2021 may not have been regarded as typical. The 2022 retained the same wording (i.e., “current”).

- The use of the response to the question on childminding income as a proxy for childminders' pay to themselves may lead to some overstatement of total cost in those cases where childminders also included the implicit payment to themselves in their reporting of total costs incurred. It is also likely that this measure will include any returns to the investments in the business, which may overstate the cost for childminders relative to other types of providers who did not include investment returns.
- For some providers, the total cost will include the cost of delivering additional and specialist services rather than simply childcare. Additional and specialist services can mean any service outside the core delivery of childcare and early education and covers a range of specialist support for children, family support and system leadership. Specific examples include specialist SEND child support, other specialist child support (such as English as an additional language), meetings with support professionals about children, specialist family support, general family support, family bonding, working groups and networking, and training and career professional development delivery. Hence, some of the differences in total cost across different provider types may reflect variation in the scope of services that they deliver.
- It should be noted that settings which are part of multi-site chains may not have included the costs of head office administration in their report of total cost. The total cost and unit cost may therefore be understated, and the income-to-cost ratio overstated for settings that are part of chains.

A.2 Cost decomposition and types of cost

In addition to reporting a total cost, providers were asked for the amounts they currently pay for staffing, rent or mortgage, food, materials and training costs. A residual “other” category was calculated as the difference between the total cost reported and the sum of the amounts reported for each of the five cost categories.²⁴ These were divided by the number of hours of care provided each week.

Additional checks were included in the 2022 survey to improve the accuracy of the cost information provided. This included a validation stage, where providers were called back and queried about total cost and components of total cost if

- the total cost of delivering provision is more than 10% greater than the sum of the component costs or
- any of the individual cost components are greater than the total reported cost.

Further details can be found in the Technical Report accompanying the 2022 SCEYP.

The breakdown of total cost into the proportions was calculated as the amount for each category divided by the total cost. To note:

- Staff costs include the amounts spent on staff salaries (including wages, taxes, national insurance, and pension contributions), covering all frontline carers and staff in supporting roles (e.g., cooks and cleaners), but does not include out-sourced services (e.g., outsourcing of cleaning to an external company).
- Childminders’ staff costs comprised (a) any amount that they paid to childminder assistants; and (b) the income that they personally earned (i.e. pre-tax amounts that they regularly draw from their business in the form of a “salary”).
- Childminders were not asked to report rent or mortgage costs.
- Food costs include meals, snacks and refreshments.
- Materials costs include items such as books, toys and art materials.
- Training costs include items such as classes, courses and materials.

²⁴ In 2018, providers were not specifically asked for the amount they spent on other items and the residual calculation was used for 2018, 2019, 2021, and 2022 for consistency. Other costs may include other venue or accommodation costs (such as for utilities, business rates and cleaning) and other administrative costs (such as for telephone and internet services, IT support, marketing, insurance, professional fees and licences).

A.3 Hourly parent-paid fees and free entitlement funding rate

Hourly parent-paid fees

The average hourly fee charged to parents.

The SCEYP asked providers for the average hourly fee they charged to parents for four age groups of children: children aged under two, two-year-old children, three- and four-year-old preschool children, and school children. Providers were asked to report the average hourly fee for each age group even though hourly fees may vary across children of the same age, including across those using different sessions.

The reported average hourly fees were trimmed to remove average hourly fees of zero or in excess of £40 per hour.

Free entitlement funding rate

The average hourly amount that providers report receiving from local authorities in payment for hours delivered as part of the free early education entitlement.

The SCEYP asked providers two questions about the free entitlement funding rate:

- “On average, what hourly rate do you receive from your local authority for the free entitlement for 2-year-olds?”
- “On average, what hourly rate do you receive from your local authority for the free entitlement for 3- and 4-year-olds, including any supplements such as those for deprivation, flexibility or rurality?”

It should be noted that these rates are different from the rates paid by the Department for Education to local authorities in the Early Years National Funding Formula. They may not correspond directly to the average rate paid by local authorities to providers as the reported rate may differ across providers within the same Local Authority. These differences may arise due to supplements available to providers, such as those related to deprivation, flexibility, and rurality.

A.4 Methodology

This section explains other aspects of the econometric methodology: heterogeneity analysis, the control variables that are included, limitations of the methodology, and the data sources.

Heterogeneity analysis

Beyond the baseline models highlighted above, estimation by more disaggregated groups is carried out to provide greater context and detail to overall results. This may lead to a deeper insight into how economies of scale influence providers' costs and the extent to which this is passed on to parents.

It is informative to break down analysis by type of provider to investigate differences between providers and to evaluate whether overall results are being driven by certain provider types.

Results by group-based providers, school-based providers, and childminders are investigated both for market characteristics' effects on unit cost, and for unit cost impacts on parent fees. Additionally, the impact of chain status on unit costs is calculated separately for voluntary and private group-based providers .

Further, breaking down analysis by type of cost allows the investigation of whether certain costs are more influenced by certain characteristics, or if only a subset of cost savings are passed on to parents. Breakdowns by cost type are explored for both the first- and second-stage models.

Control variables

As highlighted in Section 2.2.1, a number of variables were added to the model to control for provider characteristics that are likely to impact the variables of interest. This is to increase confidence that the causal impact of provider market characteristics on unit cost (or unit costs on hourly parent-paid fees) is estimated, rather than impacts caused by some unobserved factors not captured in the model. Further, the inclusion of suitable control variables may improve the precision of the estimated coefficient of interest.

The first set of controls are related to specific characteristics of providers that may affect their provision of childcare:

- Share of hours provided for each age group²⁵ – providing childcare for children of different ages is likely to lead to different unit costs, as free-entitlement funding

²⁵ The share of hours dedicated to children under the age of two is the excluded category.

rates differ by age group (and are not available for children under the age of two, or school-age children);

- Proportion of Special Educational Needs and Disabled (SEND) children – increased care needs for these children will likely impact costs; and
- Number of hours open per day provides a measure of providers' typical capacity.

Characteristics of the areas that provider operate are also likely to impact their costs. These area-based controls are included at the level of (upper-tier) Local Authority, being the lowest regional level of geography ascertained by the survey.

First, demographics are likely to affect the demand and supply of (formal and informal) childcare in different local areas, and therefore both costs of provision to providers and parents. This is captured by inclusion of the following controls:

- Proportion of households with dependent children, capturing local childcare demand; and
- Proportion of the population that is retired, capturing local (informal) childcare supply.

Second, economic characteristics of local areas are also likely to affect provider costs through the purchase of inputs, staff costs, and the type of care provided. Consequently, the following controls are included:

- Average household income, net of tax and transfers (but not housing or utility costs);²⁶
- The proportion of households not deprived in any dimension;²⁷
- The unemployment rate; and
- The proportion of residents over 16 with no qualifications.

Third, Health characteristics in the local area may affect the number or type of households that require certain kinds of childcare, in turn affecting provider costs of provision. The following control captures this:

- Proportion of population without a disability (under the terms of the 2010 Equality Act).

Finally, more general geographic characteristics of different areas may affect local markets related to childcare provision. The following characteristics of Local Authorities are therefore included;

²⁶ The logarithm of this variable is included.

²⁷ The four dimensions of [household deprivation](#) are based on education, employment, health, and housing. Indicators of deprivation under these characteristics are set out by the ONS

- Population density;
- Percentage of population living in rural areas; and
- Regional indicators,²⁸ to account for broader economic differences (such as in wages which may influence costs) across England.

Limitations

There are a number of limitations to this analysis that should be considered when interpreting its results:

- It is possible that there are unobserved factors influencing providers' unit cost or parents' fees which are not captured by the model, even when controlling for a number of provider and local authority characteristics. If these factors are correlated with (in the first stage) provider market characteristics or (in the second stage) provider unit costs, then estimates may be subject to omitted variable bias.
- Constructing unit cost and hourly parent-paid fees across all age groups involved using providers' cost and income data. This may be affected by providers who did not provide cost and income data. Only 1,169 providers (7.4% of the 15,838 providers in the sample from the survey) provided information about total income and cost. This is a smaller sample compared to 5,915 providers reporting information about their hourly parent-paid fees for children under the age of two, 8,495 for two-year-olds, and 9,778 for three- and four-year-olds.
- If certain types of providers are more likely to not provide cost and income data, then the results may not fully represent the provider market.
- Some estimated specifications are necessarily based on subsets of the sample, such as looking at size of chain effects and splitting by provider types. Therefore, some of the estimated impacts will be based on relatively small samples.
- Relatedly, most of the data used in this analysis are derived from the SCEYP. Some survey questions, such as those asking providers for a breakdown of their income and costs into different categories, may be difficult for them to answer. Measurement error in these responses may then feed through into the data and cause bias in resulting estimates.²⁹

²⁸ That is, a binary variable to indicate whether a Local Authority was contained within the higher geography Regions of East Midlands, East of England, London, North East, North West, South East, South West, West Midlands, or Yorkshire and the Humber. East Midlands was the excluded region variable.

²⁹ Specifically, this would lead to attenuation bias, where estimated coefficients would be biased toward zero.

- The analysis provides a single-year snapshot of provider market characteristics' impact on unit costs and hourly parent-paid fees in 2022. Where possible trends in the cost of childcare (for providers and parents) are presented in Section 3.
- Given the data available, it is not possible to accurately decompose unit cost by age group. For example, energy cost information is not available by age group as it is not practical to assign which heating costs are attributable to the care of each age group (without making further assumptions).

Data sources

Information about childcare providers' cost and income, as well as all controls relating to individual provider characteristics (provider type, share of hours for each age group, proportion of SEND children, and hours open per day) are included within the SCEYP 2022 data.³⁰

All variables relating to the demographic, economic, health, and geographic characteristics of Local Authorities, save for two exceptions, are taken from 2021 UK Census data.³¹ The first exception is the proportion of population living in rural areas, which is instead taken from 2011 Census data.³² The other exception is average household net income, which is taken from 2018 ONS Income Estimates for Small Areas.³³ At the time of writing, more recent data at the LA level was not available.

³⁰ More information about the survey itself and technical details can be found in the [2022 SCEYP and in the 2022 SCEYP Technical Report](#)

³¹ Published by [ONS](#). Data published in terms of raw numbers of households (or individuals), and so were divided by populations of households (or individuals) where appropriate to state variables in proportional terms.

³² ONS methodology for [classifications of rural and urban populations](#) used. Local authorities are mapped to 2021 boundaries.

³³ This dataset represents the most [recent estimates of household income at a suitable regional granularity](#). The dataset is given in terms of 2011 Middle layer Super Output Areas (MSOAs) and so is converted to 2021 Upper Tier Local Authorities, weighted using 2011 household numbers.

A.5 Childcare market cost factors

The following tables and figures provide descriptive statistics on different elements of the childcare market, tracking how these elements vary across time and between types of providers. These provide context for the analysis undertaken in the main report.

Table 19 reports that in 2022, 29% of group-based providers in England were part of a chain, slightly up from (but very similar to) the 28% reported in 2021. Within this figure, private providers are much more likely to be part of a chain (38%) compared to voluntary providers (10%). As the definitions of private and voluntary providers have changed slightly between 2021 and 2022, comparing figures across these years should be treated with caution. Nevertheless, these 2022 proportions are very similar to the previous year.

Table 19: Proportion of group-based providers part of a chain (2021 and 2022)

Provider type	Proportion	Number of providers
Private group-based		
2021	37%	5,542
2022	38%	5,325
Voluntary group-based		
2021	11%	771
2022	10%	654
All group-based		
2021	28%	6,629
2022	29%	6,208

Source: Survey of Childcare and Early Years Providers, 2021 and 2022. Note: The way voluntary, private and 'other' group-based providers are defined changed between 2021 and 2022. This means year-on-year comparisons for these categories should be treated with caution. Figures for the total 'all group-based provider' category are not affected. All group-based providers includes 317 and 229 'other' group-based providers in 2021 and 2022 respectively.

Chains have a mean of 38 providers (Table 20). Private provider chains have a mean of 42 providers compared to only 16 for voluntary provider chains. Therefore, voluntary providers are not only less likely to be part of a chain, but, when they are part a chain, that chain is on average smaller.

Table 20 also shows that there is considerable difference between median and mean chain sizes. The median private provider chain consists of 5 providers, and the median voluntary provider chain 4 providers, compared with mean chain sizes of 42 and 16 respectively. This suggests that mean chain sizes are driven by a small number of very large chains of private providers.

Table 20: Chain size of chain providers (2022)

Provider type	Mean chain size	Median chain size	Number of providers
Private providers	42	5	1,483
Voluntary providers	16	4	190
All group-based providers	38	5	1,736

Source: Survey of Childcare and Early Years Providers 2022. All group-based providers includes 66 'other' group-based providers.

Table 21 shows the distribution of chain sizes. For all group-based providers, the 10th percentile chain has two providers. much closer to the median provider (5 providers) than the 90th percentile chain (which has 74 providers). Private and voluntary providers have a very similar distribution until the 75th percentile- private providers at the top of the distribution are part of much larger chains. Overall, this shows that the majority of chain group-based providers are in relatively small chains, with a few very large private provider chains positively skewing the mean.

Table 21: Distribution of chain providers' chain size (2022)

Provider type	10 th percentile	25 th percentile	Median (50 th percentile)	75 th percentile	90 th percentile
Private providers	2	3	5	20	114
Voluntary providers	2	3	4	9	50
All group-based providers	2	3	5	19	74

Source: Survey of Childcare and Early Years Providers 2022.

Table 22 shows the total number of registered childcare places in England, and the average number of places per provider, in 2018, 2019, 2021, and 2022.

There were just over one million group-based provider registered places in 2022, with approximately three-quarters offered by private providers, the rest coming from voluntary providers. The average number of registered places per group-based provider was 48, with private providers on average offering more places (55) than voluntary providers (35).

The main trend that can be seen among group-based providers is that there has been a steady increase in both the total number of places (an increase of over 75,000 since 2018) and the average number of places per provider (an increase from 45 in 2018 to 48 in 2022). Both these increases are exclusively driven by private providers- the total number of places at voluntary providers has dropped by over 40,000 between 2018 and 2022.

School-based providers accounted for approximately 328,000 places in 2022, less than a third of group-based providers, and with a lower average number of registered places (35). Almost 90% of these places are in nursery class childcare settings, which have an

average of 32 places per provider. The remaining places are in maintained nursery schools, which, on average, have almost triple the number of registered places (95).

While the total number of registered places for school-based providers in 2022 is similar to 2018 (despite a spike in 2021), the average number of registered places per provider has decreased from 39 to 35. This suggests that there has been an increase in the number of providers over the period offering the same number of total places. This trend can be explained by nursery class childcare settings, where the total number of places offered is similar at the beginning and end of the period, but places per provider have declined from 36 to 32.

Finally, there were 170,561 total registered places offered by childminders in 2022 (representing an average of six places per childminder). In terms of total places, this represents more than a 50,000-place decline since 2018. Meanwhile, average numbers of places per provider have remained constant over the period (6). Statutory guidance in place since 2014³⁴ has permitted a maximum of six children under the age of eight being under a childminder's care, with a few exceptions, which likely explains the stability of this figure.³⁵ Overall, the decline in registered places suggests a decline in the number of childminders over this period rather than a decline in the average number of registered places at childminders.

³⁴ [Early years foundation stage \(EYFS\) statutory framework](#), 2014

³⁵ Almost 60% of sampled childminders look after exactly six children, and almost 80% look after six or fewer children. Childminders with assistants can look after more than six children.

Table 22: Total registered places in England and average registered places per provider (2018, 2019, 2021, & 2022)

Provider type	Year	Total registered places	Average registered places per provider
Private providers	2018	662,887	51
	2019	695,074	53
	2021	707,014	53
	2022	757,168	55
Voluntary providers	2018	273,091	35
	2019	274,727	35
	2021	265,236	37
	2022	231,439	35
All group-based providers	2018	968,939	45
	2019	1,003,259	46
	2021	1,008,575	47
	2022	1,044,490	48
Nursery class childcare settings	2018	290,746	36
	2019	287,807	34
	2021	313,915	35
	2022	292,256	32
Maintained nursery schools	2018	37,141	94
	2019	36,505	97
	2021	38,423	102
	2022	35,613	95
All school-based providers	2018	327,887	39
	2019	324,311	37
	2021	352,338	38
	2022	327,869	35
Childminders	2018	221,566	6
	2019	219,060	6
	2021	192,978	6
	2022	170,651	6

Source: Survey of Childcare and Early Years Providers, 2018, 2019, 2021 and 2022. Note: The figures provided for school-based providers are full-day registered places, and do not account for before- or after-school provision. Figures provided for group-based providers are any provision. Figures provided for childminders are based on all registered places. The way voluntary, private and 'other' group-based providers are defined changed between 2021 and 2022. This means year-on-year comparisons for these categories of provider should be treated with caution. Figures for the total 'all group-based provider' category are not affected and so are directly comparable. Please see 'further information' on Explore Education Statistics for the impact of this change on the figures in this table.

Table 23 sets out the average number of paid staff by provider type in 2018, 2019, 2021, and 2022. Group-based providers had an average of eleven members of paid staff in 2022, the same number as previous years. On average, private group-based providers had more paid staff members (13) than voluntary providers (9). These figures are also similar to previous years.

Table 23: Average number of paid staff per provider (2018, 2019, 2021, and 2022)

Provider type	Year	Mean number of paid staff per provider
Private providers	2018	12
	2019	13
	2021	12
	2022	13
Voluntary providers	2018	9
	2019	9
	2021	9
	2022	9
All group-based providers	2018	11
	2019	11
	2021	11
	2022	11
Nursery class childcare settings	2018	5
	2019	5
	2021	5
	2022	5
Maintained nursery schools	2018	18
	2019	19
	2021	18
	2022	17
All school-based providers	2018	6
	2019	6
	2021	6
	2022	5

Note: The way voluntary, private and 'other' group-based providers are defined changed between 2021 and 2022. This means year-on-year comparisons for these categories of provider should be treated with caution. Figures for the total 'All group-based providers' category are not affected and so are directly comparable. Voluntary staff and apprenticed are excluded.

School based providers had an average of five members of paid staff in 2022, less than half the number of group-based providers. This represents a decline of one staff member compared to previous years. Within school-based providers, nursery class childcare settings also had an average of five paid staff members, as was the case in the three previous survey years. Maintained nursery schools had an average of 17 members of staff in 2022, marking a slight decline from 18 in 2021 and 19 in 2019.

Finally, Table 24 shows the control variables used in the regression analysis. On average, childcare providers in 2022 have 10% of children under their care with SEND and are open just over nine hours a day. Amongst all providers, the majority of hours provided are to pre-school children of ages two, three, and four.

Table 24: Control variables and correlation with unit cost per hour

Control variable	Mean	Median	Estimated correlation with unit cost per hour	Standard error of the estimated correlation
Share of hours: under 2-year-olds	19%	0%	N/A	N/A
Share of hours: 2-year-olds	30%	25%	-0.43**	(0.20)
Share of hours: 3- & 4-year-olds	39%	30%	-0.34*	(0.19)
Share of hours: school age	12%	0%	-0.33	(0.22)
Proportion of SEND children	10%	5%	0.43*	(0.25)
Hours open per day	9.1	10	-0.02	(0.01)
LA Proportion of households: with dependent children	29%	28%	-0.90	(1.49)
LA Proportion of population: retired	21%	22%	1.79	(1.98)
LA: average household net income (£)	35,518	34,206	0.30	(0.97)
LA Proportion of households: not deprived in any dimension	49%	49%	-4.20	(3.90)
LA Unemployment rate	5%	4%	10.79	(10.06)
LA Proportion of residents over 16 with no qualifications	18%	18%	-7.90**	(3.47)
LA Proportion of population: not disabled	83%	83%	6.01	(4.47)
LA: population density	2,139	730	-0.23**	(0.11)
LA: rural population percentage	24%	16%	-0.91**	(0.39)

Source: Share of hours, proportion of SEND children, and hours open per day are from Survey of Childcare and Early Years Providers 2022. Average household net income data from 2018 ONS Income Estimates for Small Areas. Rural population percentage data from 2011 UK Census. All other local authority data is from 2021 UK Census. Note: All variables prefixed 'LA' are at the level of Upper-tier Local Authority (UTLA). There are 152 in England in total. Standard errors clustered at the Local Authority level in parentheses in the fourth column. Statistical significance levels are represented as *** p<0.01, ** p<0.05, * p<0.1. No estimates are provided in the first row as 'Share of hours: under 2-year-olds' is omitted from the regression to avoid perfect multicollinearity (as share of hours across the age groups is equal to one).

In addition, the third column presents the estimated impact of the variables on unit cost per hour across all providers. This is estimated using a regression that includes solely the control variables included in the table, dummy variables for region, and a constant variable, without the provider characteristics that the main report focuses on (such as number of hours of care provided per week).

It is important to note that these estimates are solely indicative and do not have a causal interpretation. The variables included are controlling for confounding factors when estimating the impact of factors investigated in the main report (e.g., hours of care provided per week).

Further, the statistical significance of the coefficients reported in the third column do not define whether the inclusion of a factor is useful or not. The purpose of their inclusion is to control for other confounding factors. A coefficient for a factor may not be statistically significant, but the factor should still be included if it is controlling for a factor that may otherwise bias the estimate of the impact of the factors that are investigated in the main report (e.g., hours of care provided per week).

Given the differences in the units of the control variables, the following provides the interpretation of the estimated correlations.

- Share of hours for each age group: the proportion of hours cared for by the provider for each age group (the sum across age groups is one), so shifting the equivalent of 10% of all hours (across all age groups) from children under the age of two to two-year-olds is correlated with a 4.3% decrease in unit cost per hour.
- Proportion of SEND children, LA proportion of households with dependent children, LA proportion of population retired, LA proportion of households not deprived in any dimension, LA unemployment rate, LA proportion of population not disabled, LA rural population: these measures lie between 0 and 1, so the interpretation of these correlations are similar. For example, a ten-percentage point increase in proportion of SEND children among those cared for by a provider is correlated with a 4.3% increase in unit cost.
- LA household net income and LA population density: given the positive skew in the distribution of these factors across Local Authorities, these factors were converted using a natural log transformation. As a result, the interpretation of the coefficients are different. For example, a 10% increase in population density in the Local Authority that the provider is correlated with a 2.3% decrease in unit cost for that provider.



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