CENTRE FOR EDUCATION POLICY
& & EQUALISING OPPORTUNITIES

Briefing note: Understanding the Impact of Childcare Ratios on Children's Outcomes

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Summary

- There is strong evidence that high quality early childhood education and care improves children's short- and longer-term outcomes, especially for those from disadvantaged backgrounds.
- One potential determinant of quality is staff-to-child ratios – the number of children each adult can care for. However, the causal link between childcare ratios, setting quality, and children's outcomes is difficult to establish. The UK government recently consulted on relaxing staff-to-child ratios in England from 1:4 to 1:5 for 2-year-olds and from 1:8 to 1:10 for 3-4-year-olds attending a setting for less than 4 hours per day.
- The best available evidence provides no strong indication that these ratio changes are likely to directly worsen children's outcomes, but the evidence available to inform decisions about optimal ratios is fragmented and generally of low quality.
- There may be indirect implications for children's outcomes, however: some research suggests the proposed changes in ratios may further damage workforce morale, which is already low, potentially leading to higher staff turnover, which has been shown to be detrimental to children's outcomes.
- The extent to which this change would make a material difference to the costs of childcare for many parents – one of the primary motivations underpinning the consultation – is also uncertain. Overall, implementing this policy would be a risk with uncertain rewards.

Recommendation

- Given the low quality of available research evidence on optimal staff-to-child ratios, together with a lack of evidence specifically from the UK, we recommend that if the government does decide to relax childcare ratios in England, these changes should be implemented in such a way as to make it possible to evaluate their effects, including cost effectiveness.

The Issue

The UK Government has recently consulted on changes to the statutory maximum staff-to-child ratios in early years settings in England in a bid to "improve the cost, choice, and availability of childcare" (DfE, 2022). Specifically, they have proposed altering the staff-to-child ratios for 2-year-olds from 1:4 to 1:5, bringing England into line with Scotland. The consultation also refers to wider options for reform, including changing staff-to-child ratios from 1:8 to 1:10 for 3-4-year-olds in settings for less than 4 hours per day, again in line with Scotland.

There is strong evidence demonstrating that attending high quality early childhood education and care settings has significant positive impacts on both short and longer-term child outcomes. However, there is little robust quantitative evidence, especially for the UK, on the impact of staff-to-child ratios in care settings – one determinant of setting quality – on children's outcomes. This severely limits our ability to inform decisions about the most appropriate childcare ratios.

Why might there be a link between childcare ratios and children's outcomes?

Staff-to-child ratios are a measure of 'structural' care quality – the more readily quantifiable aspects of care which are therefore relatively easier to regulate. Other measures of structural quality include staff qualification levels and group size. These structural aspects of care help to facilitate higher 'process' quality – the aspects of care experienced by children in a setting, such as interactions with staff (Pianta et al., 2006). In this case, reducing the number of children looked after by each staff member is hypothesised to improve the quality and quantity of time that each child spends interacting with an adult, which in turn might affect outcomes such as language development, emotional regulation, and peer interaction.

The challenge of estimating the impact of childcare ratios on children's outcomes

The policy lever available to regulators – which is what was consulted on in the UK – is changing the statutory or maximum staff-to-child ratio. It is challenging to assess the impact of changes to statutory ratios on children's outcomes, because changes happen only rarely, are typically only relatively small, and are often implemented hand-in-hand with other reforms, such as changes to staff qualification levels. Comparing across countries (or regions within a country) that use different ratios is also challenging because, similarly, many other aspects of the early years education and care systems differ across countries, not just the ratios used (Love et al., 2003).

This means that much of the available evidence relies on variation in observed ratios across settings facing the same statutory maximum. This is important in practice, as it is what matters for a child's experience on the ground, but it also means that there may be other differences between settings with lower and higher observed ratios, such as different pedagogical practices or different staff qualification levels. This means we can't pin down whether any differences in outcomes between children attending settings with different observed staff-to-child ratios is because of the difference in ratios or something else.[1]

What does the evidence say about the impact of childcare ratios on children's outcomes?

Overall, the evidence base on the impact of staff-to-child ratios is fragmented. A recent Campbell Systematic Review of the evidence on the link between childcare ratios and children's outcomes concluded "there are surprisingly few quantitative studies exploring the effects of changes to adult/child ratio and group size in ECEC [early childhood education and

1 For example, if settings with lower ratios also adopted more effective pedagogical practices, then this could lead to the importance of lower ratios for children's outcomes being overstated.

care] on measures of process quality and on child outcomes. The overall quality of the included studies was low" (Dalgaard et al., 2022, pg. 2, Authors' Conclusions). The extent to which this evidence – which is primarily from outside the UK – would apply in an English context is also unclear, making it challenging to extrapolate from these results to inform ratio decisions in England.

The most robust evidence comes from a small number of experimental studies which randomly vary the ratios in operation in education and care settings. For example, a US study found that reducing class sizes from 20 to 15 3-4-year-olds per teacher over the course of a year had positive effects on children's literacy achievement at the end of that year (Francis & Barnett, 2019). There is also evidence of significant effects on longer-term outcomes, including college attendance, college quality and savings behaviour (Chetty et al., 2011) from another US study in which 5-year-olds were randomly allocated to classes of 13-17 or 22-25 students for four years. However, the extent to which these results can reasonably be extrapolated to help us understand the implications of small changes in ratios for 2-year-olds from a much lower base is highly uncertain.

Studies attempting to vary ratios for younger children typically only change the ratios for very short periods of time. For example, de Schipper et al. (2006) observed 10-minute play sessions in settings in the Netherlands using staff-to-child ratios of 1:3 and 1:5. Results showed that the observed quality of caregiver-child interactions, and children's wellbeing and cooperation, were higher during sessions with staff-to-child ratios of 1:3 than in those with staff-to-child ratios of 1:5, but it is unclear to what extent these effects would persist if such changes were implemented permanently.

Research which compares settings with observed differences in staff-to-child ratios shows a more mixed picture, with studies accounting for the largest range of other ways in which the settings differed tending not to find evidence of a strong relationship between childcare ratios and children's outcomes. For example, large-scale data from the Netherlands shows that variation in staff-to-child ratios between 1:3 and 1:8 was not significantly related to emotional and educational outcomes in 0-3-year-olds when controlling for other structural quality factors, such as staff qualification levels, setting type, and group sizes (Slot et al., 2015). Similarly, a meta-analysis (summary) of three studies with 3-4-year-old children found no significant relationship between ratios ranging from 5 to 14 children to one adult on short- or medium-term receptive language outcomes (Perlman et al., 2017).

Evidence on other reasons for increasing childcare ratios

The consultation on increasing childcare ratios is at least partially motivated by a desire to reduce parents' childcare costs. However, it is not clear that implementing the changes under consideration would reduce the childcare costs faced by many parents, especially if the reforms for 3-4-year-olds were to be considered. This is for two reasons:

1. First, because a substantial minority (40%) of families of 3-4-year-olds pay nothing for their formal childcare, with two thirds paying less than £20 per week (Farquharson & Olorenshaw, 2022). This is because many families only access formal childcare as part of the funded early education entitlements – the 15 hours of care per week paid for by the government for all 3-4-year-olds in England during term-time – meaning they don't spend anything, or only a small amount for 'extras' not covered by the government funding.

2. Second, because not all providers are constrained by the existing limits, with around 40% of providers operating below statutory limits for 3-4-year-olds (SCEYP, 2021). This may be a deliberate decision on the part of providers or may reflect the challenge of operating with the maximum number of children in every session, given that most families do not access a full-time childcare place.

There is greater scope for a relaxation of ratios to reduce childcare costs for families of 2-year-olds, as those who use formal childcare tend to pay considerably more – on average around £80 per week (Farquharson & Olorenshaw, 2022) – and fewer providers (22%) operate with ratios below the current statutory limits (SCEYP, 2021). Even these benefits are not certain, however, for at least three reasons:

1. First, less than 60% of families of 2-year-olds currently use formal childcare, limiting the number of families who would potentially benefit from such a reform.[2]

2. Second, many early education and care providers are reluctant to reduce staffing levels, because of fears it could both directly and indirectly affect care quality (e.g., Haux et al., 2022) by reducing staff morale and thus increasing staff turnover, which itself is negatively associated with children's outcomes (e.g., Markowitz, 2019).

3. Third, even if providers were to increase staff-to-child ratios, there is no guarantee that the associated reductions in delivery costs would be passed on to parents in the form of lower fees. They could instead be used to increase staff wages or be invested in the business in other ways – or taken in the form of higher profits. Moreover, the benefits of passing on to parents any reductions in delivery costs are likely to vary significantly across providers, with the largest potential reductions relying on the rate paid by the government for funded entitlement hours not being reduced in line with the reductions in delivery costs (Paull et al., 2022). This is because the funding rate paid by the government for funded entitlement hours is lower than the true delivery cost for at least some providers, and below the market rate that might otherwise be charged for these hours of care for many more. As a result, providers tend to 'cross-subsidise' between publicly and privately funded hours of care – in other words, they charge higher fees to parents to compensate for the lower fees paid the government. If the government were to continue paying the same rate – i.e., not to reduce funding levels in line with the ratio changes – then this incentive to cross-subsidise would be reduced, potentially creating a 'double dividend' for parents.

The need for a UK-specific evaluation

Given the low quality of the existing evidence base, together with a lack of evidence from the UK, it is challenging to draw robust conclusions about the likely implications of changes to childcare ratios from current research. If the government did decide to go ahead with the proposed reforms to ratios, it would be extremely valuable to do so in a way that was amenable to robust evaluation of the implications and cost-effectiveness of the policy for providers, parents, and children. This could be achieved, for example, by a phased roll-out of the policy across areas.

Summary and Implications

It is challenging to identify the impact of staff-to-child ratios on children's outcomes. The existing international evidence is fragmented and of low quality overall. The most robust existing research provides no strong evidence to suggest that changing the minimum staff-to-child ratios for 2-year-olds or 3-4-year-olds will lead to a significant worsening of children's outcomes. But nor is it likely to significantly reduce childcare costs for many parents, and there are risks that it could negatively affect staff morale, potentially leading to higher staff turnover, which could in turn worsen children's outcomes. Implementing this policy would therefore be a risk with uncertain rewards.

2 Of course, it is possible that more families may be encouraged to use formal childcare if the costs were lower.

References

Chetty, R., Friedman, J., Hilger, N., Saez, E., Schanzenbach, D.W., & Yagan, D. (2011), How does your kindergarten classroom affect your earnings? Evidence from Project Star, The Quarterly Journal of Economics, 126(4), 1593-1660.

Dalgaard, N. T., Bondebjerg, A., Klokker, R., Viinholt, B. C., & Dietrichson, J. (2022). Adult/child ratio and group size in early childhood education or care to promote the development of children aged 0–5 years: A systematic review. Campbell Systematic Reviews, 18(2), e1239.

De Schipper, E. J., Marianne Riksen-Walraven, J., & Geurts, S. A. (2006). Effects of child–caregiver ratio on the interactions between caregivers and children in child-care centers: An experimental study. Child Development, 77(4), 861-874.

Department for Education. (2022). Drive to reduce the cost of childcare for parents. Available from: https://www.gov.uk/government/news/drive-to-reduce-the-cost-of-childcare-for-parents.

Farquharson, C., & Olorenshaw, H. (2022). The changing cost of childcare. IFS Report R120. Available from: https://ifs.org.uk/sites/default/files/output_url_files/R210-The-changing-cost-of-childcare.pdf

Francis, J. & Barnett, W. (2019). Relating preschool class size to classroom quality and student achievement, Early Childhood Research Quarterly, 49(4), 49-58.

Haux, T., Butt, S., Rezaian, M., Garwood, E., Woodbridge, H., Bhatti, S., Woods Rogan, R., & Paull, G. (2022). The early years workforce: recruitment, retention, and business planning, Department for Education Research Report RR1205.

Love, J. M., Harrison, L., Sagi-Schwartz, A., Van IJzendoorn, M. H., Ross, C., Ungerer, J. A., ... & Chazan-Cohen, R. (2003). Child care quality matters: How conclusions may vary with context. Child development, 74(4), 1021-1033.

Markowitz, A. (2019). Within-year teacher turnover in Head Start and children's school readiness, EdPolicy Works Working Paper Series No. 70. Available from: https://curry.virginia.edu/sites/default/files/uploads/epw/70_Teacher_Turnover_in_Head_Start.pdf

Paull, G., Fitzpatrick, N., & Badger, T. (2022). How much could relaxing regulations on staff ratios reduce the cost of childcare? Available from: https://www.frontier-economics.com/uk/en/news-and-articles/articles/article-i9832-how-much-could-relaxing-regulations-on-staff-ratios-reduce-the-cost-of-childcare/

Perlman, M., Fletcher, B., Falenchuk, O., Brunsek, A., McMullen, E., & Shah, P. S. (2017). Child-staff ratios in early childhood education and care settings and child outcomes: A systematic review and meta-analysis. PloS one, 12(1), e0170256.

Pianta, R., Howes, C., Burchinal, M., Bryant, D., Clifford, R., Early, D., & Barbarin, O. (2005). Features of pre-kindergarten programs, classrooms, and teachers: Do they predict observed classroom quality and child-teacher interactions?. Applied Developmental Science, 9(3), 144-159.

Slot, P. L., Leseman, P. P., Verhagen, J., & Mulder, H. (2015). Associations between structural quality aspects and process quality in Dutch early childhood education and care settings. Early Childhood Research Quarterly, 33, 64-76.

SCEYP (2021), Official statistics from the childcare and early years providers survey: 2021. Available from: https://www.gov.uk/government/statistics/childcare-and-early-years-providers-survey-2021

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