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Private Tuition and Educational Attainment in Ireland

Laidlaw Scholars

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Abstract

Private tuition, commonly known in Ireland as ‘grinds’, is a prominent feature of the Irish education system, with participation disproportionately concentrated among students from more socioeconomically advantaged households. If grinds are associated with improved academic outcomes, unequal access may have important implications for educational inequality. However, existing evidence on the relationship between private tuition and academic attainment remains mixed.

This study examines the association between participation in grinds and Leaving Certificate attainment using longitudinal data from Waves 1-4 of the Growing Up in Ireland (GUI) Child Cohort '98. Regression analysis is used to examine whether students receiving grinds achieve higher Leaving Certificate results after accounting for prior academic ability, household income, gender and school type. The analysis also considers whether the relationship differs according to prior academic ability, household income and school type.

Ongoing participation in grinds was associated with Leaving Certificate attainment approximately 0.17 standard deviations higher than otherwise comparable students ($p < 0.01$), equivalent to approximately 11 points on the Leaving Certificate proxy measure, compared to a mean of 189. In contrast, block grinds undertaken during holiday periods were not significantly associated with attainment. There was also some evidence that the association between ongoing grinds and attainment was larger among students with lower prior academic ability, although this pattern should be interpreted cautiously. The findings provide evidence that sustained participation in private tuition is associated with higher Leaving Certificate attainment, while highlighting the need for further research capable of establishing whether this relationship is causal.

1. Introduction

Private supplementary tuition, commonly known as ‘grinds’ in Ireland, has become an established feature of secondary education. Such tuition is often described internationally as ‘shadow education’ because it mirrors the curriculum of the formal education system while operating outside mainstream schools (Bray, 1999; 2009). Private tuition is particularly prevalent in education systems characterised by high-stakes examinations and competitive transitions into higher education, where relatively small differences in examination performance can affect access to desirable courses and institutions (Bray, 2009; Guill & Lintorf, 2019).

Ireland provides a particularly relevant setting in which to examine private tuition. Entry to most undergraduate courses is determined by Leaving Certificate performance through the CAO points system, creating strong incentives for students and families to maximise examination results. Private tuition has consequently become a significant part of the educational experience of many Leaving Certificate students. Recent evidence suggests that approximately 55 per cent of Leaving Certificate students receive some form of supplementary tuition during their final year (Benz, Darmody and Smyth, 2024).

However, access to private tuition is not equally distributed. International research consistently finds that students from higher socioeconomic backgrounds are more likely to receive supplementary tuition than their less advantaged peers (Bray, 2009; Byun et al., 2018). The same pattern is evident in Ireland, where participation in grinds is substantially higher among students from more advantaged socioeconomic backgrounds (McCoy & Byrne, 2024). This raises an important question for educational inequality: does the additional educational investment represented by grinds actually translate into higher academic attainment?

Existing research provides no straightforward answer. A substantial international literature reports positive associations between private tutoring and academic performance, but these associations are difficult to interpret because students who receive tutoring differ systematically from those who do not. Families purchasing private tuition may have greater financial resources, while participating students may differ in motivation, educational

aspirations or prior academic performance. Consequently, a simple comparison between students receiving and not receiving grinds cannot establish whether differences in attainment are attributable to tuition itself.

Studies attempting to account for these differences have produced mixed results. Some international research has found positive associations between sustained private tutoring and attainment (Choi, 2018; Zhang et al., 2022), while other studies have found little evidence of an association after controlling for background characteristics (Li, 2023; Zhang et al., 2021). There is also evidence that the relationship may differ across students. Cullinan, Denny and Flannery (2021), for example, find that the estimated benefits of private tuition are concentrated among lower-achieving students.

Irish research presents a similarly mixed picture. Smyth (2009), using data from the 2004 School Leavers Survey alongside the 1994 Schools Database, found no significant association between grinds and Leaving Certificate outcomes once student background characteristics were controlled for. In contrast, Cullinan, Denny and Flannery (2021), using the 2007 School Leavers Survey, identified a positive association between private tuition and Leaving Certificate performance, with the largest estimated benefits concentrated among lower-achieving students.

These studies, however, rely on data from substantially earlier cohorts, before the more recent growth and normalisation of grinds within Irish secondary education. They also face limitations in accounting for students' prior academic performance. Cullinan, Denny and Flannery (2021) do not include a measure of prior attainment, while Smyth (2009) controls for Junior Certificate performance. The longitudinal Growing Up in Ireland (GUI) data used in the present study allow academic ability to be measured considerably earlier, using assessments conducted at ages 9 and 13, before students enter the Leaving Certificate cycle.

More recent research using GUI data has demonstrated the importance of accounting for differences that exist long before students sit the Leaving Certificate. O'Connell and Marks (2024), for example, found that prior academic ability and household income were among the strongest predictors of Leaving Certificate performance. Once these characteristics were

controlled for, the apparent advantage associated with attending a fee-paying school was substantially reduced. Their analysis, however, did not examine participation in grinds, leaving open the question of whether private tuition is associated with attainment once these earlier differences between students are taken into account.

This study therefore uses longitudinal GUI data to examine whether participation in private supplementary tuition is associated with Leaving Certificate performance after controlling for prior academic ability, household income, gender and school type. It distinguishes between ongoing tuition received throughout the school year and shorter blocks of tuition undertaken during holiday periods. It also examines whether the association between ongoing grinds and attainment varies according to students' prior academic ability, household income or school type.

The study addresses two principal questions. First, is participation in grinds associated with higher Leaving Certificate attainment after differences in student background and prior academic ability are taken into account? Second, does the association between grinds and attainment differ across particular groups of students?

2. Data and Methodology

2.1 Data and Sample

The analysis uses data from the Child Cohort of the Growing Up in Ireland longitudinal survey. GUI follows a nationally representative cohort of Irish children across multiple stages of childhood and early adulthood. The cohort was surveyed at approximately age 9 in 2007–08, age 13 in 2011–12, age 17–18 in 2015–16 and age 20 in 2018–19.

The longitudinal nature of the study is particularly valuable for analysing educational attainment because information collected earlier in childhood can be related to later Leaving Certificate outcomes. This makes it possible to account for differences in academic ability and household circumstances that existed before students participated in Leaving Certificate grinds.

As with most longitudinal studies, the sample declined between survey waves. The original cohort contained 8,568 participants at Wave 1, compared with 5,190 at Wave 4. The final analytical sample used in the regression analysis consists of 2,851 students with the information required to construct the outcome measure and the principal explanatory variables. This further reduction primarily reflects missing data across the variables required for the analysis, particularly the measures used to construct Leaving Certificate attainment and prior academic ability.

2.2 Measures

Leaving Certificate attainment is measured using the Leaving Certificate Proxy (LCP) developed by O'Connell and Marks (2024). Complete Leaving Certificate point totals are not available in the GUI Researcher Microdata File because of confidentiality restrictions. Exact results are, however, available for English, Mathematics and Irish. Points achieved across these three subjects are combined and standardised to produce a continuous measure of Leaving Certificate performance.

The principal explanatory variables measure participation in private supplementary tuition. Students were asked during Wave 3 whether they had received "any grinds or private tuition" in their school subjects and whether this occurred on an ongoing basis throughout the year or in blocks during holiday periods such as Easter or Christmas holidays. Ongoing and block grinds are therefore examined separately.

An important feature of the analysis is its ability to account for academic performance prior to Leaving Certificate grinds. Prior academic ability is measured using the Latent Ability Average (LAA) developed by O'Connell and Marks (2024). This combines performance across four standardised assessments administered at ages 9 and 13, Reading, Mathematics, Verbal Reasoning and Numerical Ability, into a single standardised measure of earlier academic ability.

Socioeconomic background is measured using equivalised household income. Income information from Waves 1 and 2 is used to capture household circumstances earlier in the student's life and reduce the influence of temporary fluctuations in income. Continuous measures of household income are taken from the two waves, and are logged averaged and

standardised. The models additionally account for gender and whether the student attended a fee-charging secondary school.

2.3 Analytical Approach

Ordinary Least Squares regression is used to examine the relationship between grinds and Leaving Certificate performance. Regression analysis allows differences in prior academic ability, household income, gender and school type to be taken into account.

The analysis proceeds progressively. Initial models examine the relationship between student background characteristics and Leaving Certificate performance. Grinds participation is then introduced to assess whether ongoing and block tuition are associated with attainment after these characteristics have been accounted for.

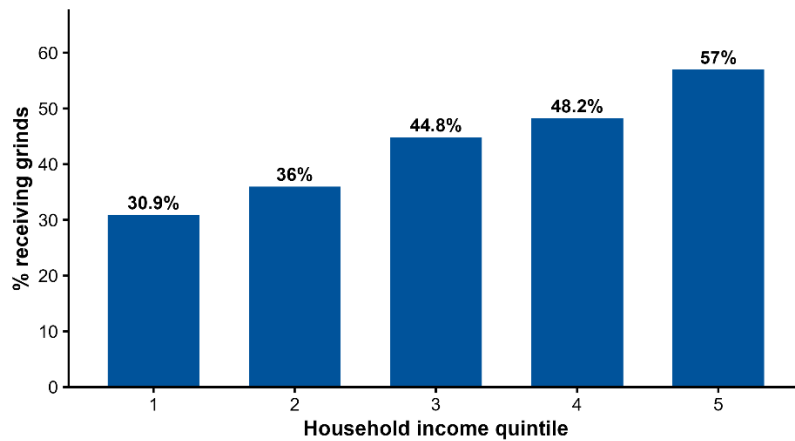
Finally, interaction effects are used to investigate whether the relationship between ongoing grinds and attainment varies according to prior academic ability, household income and school type. These analyses are particularly relevant to the distributional implications of private tuition: a stronger association among already high-achieving or affluent students would have different implications from one concentrated among students with lower prior attainment.

Because this is an observational study, the estimates should be interpreted as associations rather than causal effects. Although the longitudinal data allow important differences between students to be accounted for, students who receive grinds may still differ from other students in unobserved characteristics such as motivation, parental involvement or educational aspirations.

3. Results and Discussion

3.1 Who Receives Private Tuition?

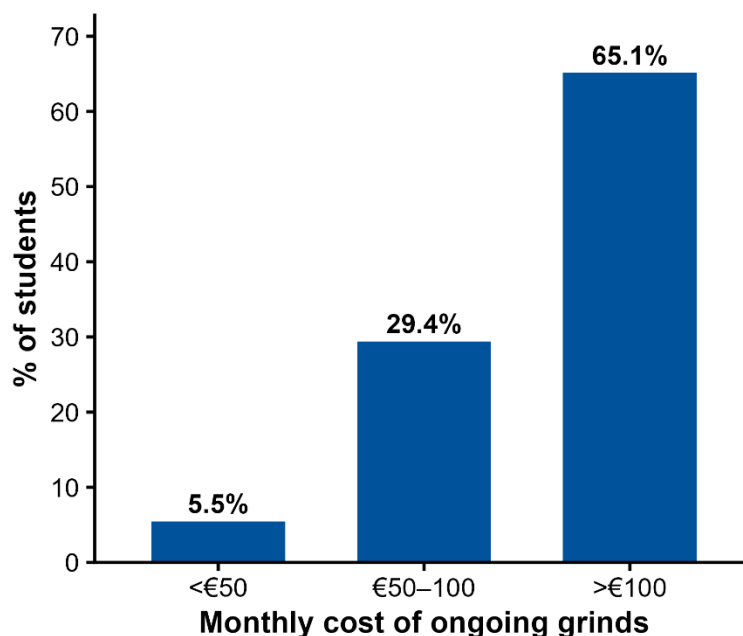
Participation in grinds was strongly associated with household income. Approximately 31 per cent of students in the lowest household-income quintile received grinds, compared with approximately 57 per cent of students in the highest quintile. The likelihood of receiving additional private tuition increased substantially with household economic resources.



[Figure 1: Tuition participation by household income quintile]

This pattern is consistent with previous Irish and international evidence showing that participation in shadow education is socioeconomically stratified (Bray, 2009; McCoy & Byrne, 2024). It is particularly important for interpreting the attainment results that follow. If access to an educational resource is substantially more common among affluent students, whether that resource is associated with higher attainment has implications beyond the students receiving it.

The descriptive data also show substantial expenditure among students receiving ongoing tuition.



[Figure 2: Cost of ongoing grinds]

However, descriptive differences alone cannot establish whether grinds are independently associated with academic performance. Students receiving grinds may already differ from other students in ways that predict Leaving Certificate results. The regression analysis therefore accounts for prior academic ability, household income, gender and school type before examining the association between private tuition and attainment. While causality cannot be established, the inclusion of these controls reduces potential confounding from observed differences between students.

3.2 Background Characteristics and Leaving Certificate Performance

Prior academic ability emerged as the strongest predictor of Leaving Certificate attainment. A one-standard-deviation increase in prior academic ability was associated with a substantial increase in later Leaving Certificate performance. Differences in academic achievement evident years before the Leaving Certificate remain strongly associated with eventual examination outcomes.

Household income was also positively associated with Leaving Certificate attainment, while female students achieved higher results on average than male students.

A notable finding concerns fee-paying schools. Students attending fee-charging schools initially appeared to have a substantial Leaving Certificate advantage. However, this association was greatly reduced once differences in household income and prior academic ability were taken into account and was no longer statistically significant in the fully adjusted model.

This replicates the findings of O'Connell and Marks (2024). The apparent academic advantage of fee-paying schools therefore seems to be explained to a considerable extent by differences in the students who attend them rather than by school fee status itself. This demonstrates why accounting for student background is essential when examining the effectiveness of grinds.

3.3 Is Private Tuition Associated with Higher Leaving Certificate Attainment?

After accounting for prior academic ability, household income, gender and school type, students receiving ongoing grinds achieved Leaving Certificate proxy scores approximately

0.17 standard deviations higher than otherwise comparable students who did not receive ongoing grinds. Translated back into the underlying Leaving Certificate proxy, this corresponds to approximately 11 points.

Final OLS Model	
	<i>Dependent variable:</i>
	Leaving Certificate Performance (standardised)
Fee-paying school	0.066 (0.046)
Female	0.252*** (0.028)
Household income	0.142*** (0.016)
Latent academic ability	0.627*** (0.016)
Ongoing grinds	0.171*** (0.030)
Block grinds	-0.030 (0.042)
Constant	-0.357*** (0.024)
Observations	2,851
R ²	0.433
Adjusted R ²	0.432
<i>Note:</i> * p<0.1; ** p<0.05; *** p<0.01	

[Figure 3: Regression estimates for ongoing and block grinds]

Although smaller than the association between prior academic ability and Leaving Certificate attainment, the estimated difference associated with ongoing grinds is educationally meaningful. In a points-based system in which relatively small differences in examination performance can determine access to particular university courses, an 11-point difference will have practical significance for many students.

In contrast, block grinds undertaken during holiday periods were not significantly associated with Leaving Certificate performance. This distinction suggests that the form and duration of supplementary tuition may matter. Ongoing tuition may provide repeated opportunities to address weaknesses, reinforce course material and receive individualised assistance over an extended period, whereas short periods of intensive tuition may offer less opportunity to influence overall attainment. The present analysis cannot establish that these mechanisms

explain the difference, but the contrast indicates that treating all participation in grinds as equivalent may obscure important variation.

The positive association for ongoing tuition is broadly consistent with Cullinan, Denny and Flannery (2021), who also found that private tuition was positively associated with Leaving Certificate performance. It differs from Smyth (2009), who found no significant association once student characteristics were controlled for. Differences between these findings may reflect changes in the prevalence and nature of private tuition in Ireland, differences in the underlying datasets or differences in the ability of the studies to account for students' previous academic performance.

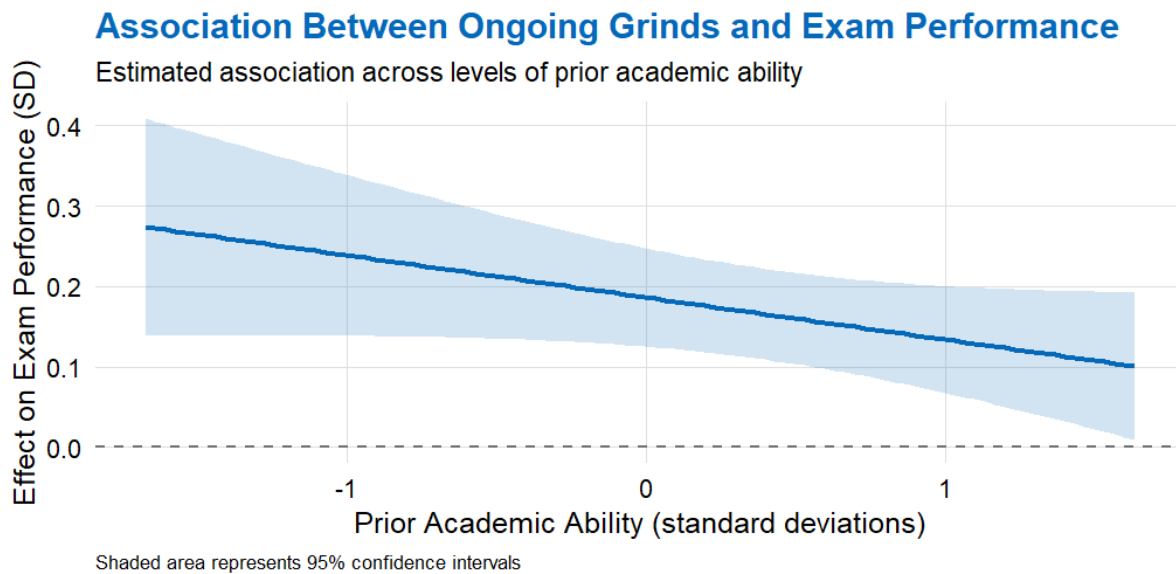
The longitudinal nature of GUI is particularly valuable in this respect. Because prior academic ability is measured using assessments undertaken at ages 9 and 13, the analysis can compare students with similar earlier academic performance rather than relying solely on characteristics measured around the time of the Leaving Certificate. Nevertheless, this does not eliminate the possibility of selection into grinds on characteristics that are not observed in the data.

3.4 Who Benefits Most?

The analysis also examined whether the association between ongoing grinds and Leaving Certificate performance differed according to prior academic ability, household income and school type.

There was no evidence that the association differed according to household income or whether a student attended a fee-paying school. In other words, while students from higher-income households were considerably more likely to receive grinds, there was no strong evidence that the association between grinds and attainment itself was greater among higher-income students after controls.

The relationship with prior academic ability was more suggestive. The estimated association between ongoing grinds and Leaving Certificate performance was larger among students with lower levels of prior academic ability and became smaller as prior ability increased.



[Figure 4: Estimated association between ongoing grinds and Leaving Certificate performance across levels of prior academic ability]

This pattern is potentially important because it is consistent with earlier Irish evidence from Cullinan, Denny and Flannery (2021), who found the largest benefits of private tuition among lower-achieving students. One possible interpretation is that students with weaker prior attainment have greater scope to benefit from additional instruction than students who are already performing at a high level.

However, this finding should be interpreted cautiously. The interaction between ongoing grinds and prior academic ability provides some statistical evidence that the association differs across the ability distribution ($p < 0.1$), but does not reach the conventional 5 per cent significance level. The margins estimates are therefore better understood as evidence of a suggestive pattern rather than as conclusive evidence that lower-achieving students benefit more from ongoing grinds.

The findings reveal an interesting distinction between access to and the apparent benefit of grinds. Access is strongly socially patterned, students from higher-income households are much more likely to receive private tuition. Yet there is little evidence that the association between grinds and attainment is itself stronger for affluent students.

This has potentially important implications for educational inequality. If sustained private tuition is associated with higher attainment, but access to it depends substantially on household resources, unequal participation may provide an additional educational

advantage to students from more affluent backgrounds. At the same time, the possibility that students with lower prior attainment may experience larger benefits suggests that supplementary tuition need not inherently widen achievement gaps. The distributional consequences depend partly on who is able to access it.

These conclusions remain subject to an important limitation. The analysis cannot determine whether ongoing grinds themselves caused the higher Leaving Certificate performance observed among participating students. Even after accounting for prior ability, household income, gender and school type, students choosing ongoing tuition may differ in unobserved ways from those who do not. Establishing causality would require a research design in which access to tuition varied for reasons unrelated to students' underlying characteristics, such as a programme providing tuition to otherwise comparable groups of students.

4. Conclusion

This study examined whether participation in private supplementary tuition is associated with Leaving Certificate attainment using longitudinal data from the Growing Up in Ireland study. It provides contemporary evidence on an increasingly prominent feature of Irish secondary education while accounting for important differences in students' socioeconomic backgrounds and academic performance earlier in childhood.

The central finding is that the type of private tuition matters. Students receiving ongoing grinds throughout the year achieved Leaving Certificate proxy scores approximately 0.17 standard deviations higher than otherwise comparable students, equivalent to approximately 11 points on the underlying measure. In contrast, block grinds undertaken during holiday periods were not significantly associated with attainment.

There was little evidence that the association between ongoing grinds and attainment differed according to household income or school type. There was, however, a suggestive pattern whereby the estimated association was larger among students with lower prior academic ability. This is consistent with previous Irish research but should be interpreted cautiously given the statistical uncertainty surrounding the interaction.

The findings are particularly relevant because access to grinds is unequal. Participation increased substantially across the household-income distribution, meaning that students from more affluent households were considerably more likely to receive ongoing additional educational support. If the association identified in this study reflects at least partly a genuine educational benefit, unequal access to private tuition could contribute to inequalities in educational opportunity.

However, the observational nature of the study means that causal conclusions cannot be drawn. Controlling for earlier academic ability and socioeconomic background reduces important sources of bias but cannot account for every difference between students who choose to receive grinds and those who do not. Future research capable of exploiting variation in access to supplementary tuition that is independent of student characteristics would therefore be valuable in determining whether the association identified here represents a causal effect.

Nevertheless, the findings indicate that ongoing private tuition is associated with meaningfully higher Leaving Certificate attainment and that access to this tuition remains strongly socially patterned. As grinds continue to form a significant part of Ireland's high-stakes secondary education system, understanding both their effectiveness and their distribution remains important for debates surrounding educational opportunity and inequality.

5. References

- Benz, R., Darmody, M. and Smyth, E. (2024) *Participation in shadow education and academic performance in Ireland and Germany*. ESRI Research Bulletin 2024/18. Dublin: Economic and Social Research Institute.
- Bray, M. (1999) *The Shadow Education System: Private Tutoring and Its Implications for Planners*. Paris: UNESCO International Institute for Educational Planning.
- Bray, M. (2009) *Confronting the Shadow Education System: What Government Policies for What Private Tutoring?* Paris: International Institute for Educational Planning, UNESCO.
- Byun, S.-y., Chung, H.J. and Baker, D.P. (2018) 'Global patterns of the use of shadow education: Student, family, and national influences', *Research in the Sociology of Education*, 20, pp. 75–105. doi:10.1108/S1479-353920180000020004.
- Choi, Y. (2018) 'The heterogeneous effects of shadow education on SAT scores', *Development and Society*, 47(3), p. 451.
- Cullinan, J., Denny, K. and Flannery, D. (2021) 'A distributional analysis of upper secondary school performance', *Empirical Economics*, 60(3), pp. 1085–1113. doi:10.1007/s00181-019-01756-8.
- Guill, K. and Lintorf, K. (2019) 'Private tutoring when stakes are high: Insights from the transition from primary to secondary school in Germany', *International Journal of Educational Development*, 65, pp. 172–182.
- Li, A. (2023) 'The marketization of educational resources and individual choice: Examining the heterogeneous treatment effect of private tutoring in middle schools', *Chinese Journal of Sociology*, 9(2), pp. 250–282. doi:10.1177/2057150X231169449.
- McCoy, S. and Byrne, D. (2024) 'Shadow education uptake in Ireland: Inequalities and wellbeing in a high-stakes context', *Irish Educational Studies*.
- O'Connell, M. and Marks, G.N. (2024) 'Why are students attending fee-charging second-level schools in Ireland more likely to progress to high-demand university degree courses? Evidence from the Growing Up in Ireland longitudinal survey', *Irish Educational Studies*, 43(4), pp. 827–842. doi:10.1080/03323315.2023.2174571.
- Smyth, E. (2009) 'Buying your way into college? Private tuition and the transition to higher education in Ireland', *Oxford Review of Education*, 35(1), pp. 1–22. doi:10.1080/03054980801981426.
- Zhang, Y., Cui, C., He, Y. and Wang, L. (2022) 'Does private supplementary tutoring matter in Chinese students' learning of mathematics: A longitudinal study', *ZDM – Mathematics Education*, 54, pp. 737–747. doi:10.1007/s11858-022-01346-6.

Zhang, Y., Dang, Y., He, Y., Ma, X. and Xia, X. (2021) 'Is private supplementary tutoring effective? A longitudinally detailed analysis of private tutoring quality in China', *Asia Pacific Education Review*, 22(2), pp. 239–259. doi:10.1007/s12564-021-09671-3.