The association between residential arrangements and academic performance in UK university students

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Abstract

In contrast with many European nations, university students in the United Kingdom have traditionally relocated for their higher education (HE). However, with rising fees and diversification of the student body, an increasing number are remaining in their parental or own home whilst they attend a local university or commute to a HE provider. For these students, evidence suggests that future employability and earning potential may differ, relative to course mates who relocated. The impact of commuting and/or living at home on other key outcomes has received only limited attention amongst researchers, practitioners and policymakers. Here, we present novel analyses of academic performance data from a UK University, in which over 14,000 students were grouped according to whether they lived locally in an existing home, commuted from afar, or had relocated in order to study. Results indicate that students' residential profile does not impact their chances of passing modules but may influence whether they achieve the highest grades. Lower grades were consistently observed amongst commuter students. Of additional importance, a gender effect emerged, whereby the established trend for male underperformance was not observed for young men who remained in the parental home.

Introduction

Traditionally, university students in the United Kingdom relocate to term-time accommodation closer to their Higher Education (HE) institution (Parameswaran and Bowers, 2014). Different student profiles are increasingly common, however, with an estimated 30% of participants continuing to reside in their parental or own home whilst at university (Artess et al., 2014). This proportion is forecast to increase further (Taylor, 2011). There are several potential drivers for such behaviour. For instance, increased tuition fees and living costs incentivise cost-effective choices when selecting a university (Harrison et al., 2015). Furthermore, successful efforts at widening participation have increased representation from ethnic minorities and mature students, who are less likely to relocate during term-time (BIS, 2016; Davies et al., 2008). Despite these trends, research into the experiences and academic achievement of UK students who choose not to relocate is limited.

The small body of available literature jostles with different terms, which convey subtle but important nuances. For example, students who choose not to relocate have been described separately as 'Day Students' (Christie et al., 2005), 'Living at Home Students' (Artess et al., 2014), 'Stayeducation Students' (Pokorny et al., 2016), and 'Commuter Students' (Thomas and Jones, 2017). All such students remain in existing homes that differ from the accommodation typically taken up by 'Relocated Students' (e.g. university halls of residence, shared privately rented accommodation), where there may be easier access to peer support and university services. Under the first three definitions, students' existing home may lie in close proximity to their HE provider. Conversely, the term 'Commuter Student' infers significant journey time between home and university, which might render additional challenges or missed opportunities. There are also varied methods for defining students' residential status. For example, some authors have simply used identical term-time and vacation-time addresses to identify all students who had not relocated, without accounting for the distance/travel time between their home and university (Artess et al., 2014). Other researchers have sought to capture such information through asking students to self-report (e.g. Halpern, 2007; Kobus et al., 2015). The absence of distance/travel time data makes it difficult to isolate Commuter Students from Living at Home Students, who remain in an existing residence relatively close to the HE provider. On the flip side, the burden of asking students for data is likely to limit the sample size that can be gathered, and self-report may be

fallible. To strike a balance, the current paper used student postcode data as a proxy for distance/travel time. As this information was already on file, self-report was not needed and sample sizes were maximised. Under this approach, we were able to assign students to a more comprehensive range of categories than featured in earlier research: relocated students; those living *locally* in a parental or own home; and those commuting from a parental or own home located at distance from the university. Our analyses tested for any associations between this residential profile and students' academic performance, controlling for important demographic factors (e.g. gender, age, socio-economic status). We consider possible explanatory mechanisms behind such a relationship, and suggest recommendations for future research.

Residential profile and academic performance

Extant work has examined the association between residential profile and various outcomes, including persistence at university (Erb et al., 2015; Parameswaran and Bowers, 2014), degree aspiration (Pascarella, 1984), social capital (Coutts et al., 2018), psychological well-being (Martin and Kilgo, 2015), and employment prospects (Artess et al., 2014). Literature addressing where students live, and the grades that they achieve, is comparatively limited (Coutts et al., 2018; Halpern, 2007; Kobus et al., 2015). Whilst grades are not a perfect proxy for learning, they are a ubiquitous feature of HE and can profoundly influence students' lives after university. For example, in the UK access to high quality employment or postgraduate study is sometimes restricted to students with a 'good degree' (i.e. the two highest categories). The limited evidence regarding grades comes mainly from America, where researchers have reported little or no link with residential profile (López Turley and Wodtke, 2010; Parameswaran and Bowers, 2014; Simpson and Burnett, 2017). In an American context, social, cultural and geographical conditions may cancel any effects of residential profile on performance. For instance, compared with the UK, America has a longer history of high fees, which is likely to have encouraged and, to an extent, normalised living at home and commuting to university. Indeed, Commuter Students account for 85% of the US student body (Horn et al., 2006 in Gianoutsos, 2011). Consequently, American institutions have had longer to refine how they meet the needs of students who do not live on or near campus.

In the UK, Halpern (2007) found that living arrangements (i.e. with parents) and commute time (above/below 45 minutes) were not associated with academic achievement. However, the sample size was small (N=127) and drawn from a single module. Artess et al.'s (2014) analysis of UK Living at Home students involved much larger samples (>2500 students aged <21 years). The authors found that students who remained living at home had significantly reduced chances of finishing university with a good degree or attaining graduate-level employment, relative to counterparts who relocated. Importantly, the effects on employment dissipated once factors such as parental occupation and education were added to analyses, suggesting that they are driven, principally, by characteristics that Living at Home Students hold on entry to university. In contrast, the association between residential profile and good degree attainment persisted, even after these control variables were incorporated. As noted, however, Artess et al. (2014) did not account for the time/distance separating students' place of residence from their higher education institution. Consequently, their category of Living at Home Students also absorbed Commuter Students. Better understanding of where students live, in relation to their university, will help to unravel the underlying mechanism(s) through which residential profile may influence academic performance. For example, it would be useful to glean if negative effects are driven by the experience of commuting itself or, alternatively, by missed opportunities that affect all students living at home, irrespective of proximity (e.g. cohabitation with peers, engagement in academic and social aspects of university). Interestingly, a study from the Netherlands, where most university students remain living at home, found that those with a longer commute achieved lower average marks (Kobus et al., 2015). There are, however, fundamental contextual differences in the Dutch context (e.g. students receive free public transport). Consequently, there remains a need for UK-specific research into residential profile and academic achievement.

Methods

Ethical approval was granted by the host institution, a public university in Southern England that is recognised for having a teaching focus and the support it gives to students from widening participation backgrounds. In the 2015-16 academic year, 30% of students remained at home for their studies, with this figure consistent over the three previous years.

An anonymised data set was derived from the records of all undergraduate students registered with the university in the 2015-16 academic year. Individuals were excluded where they were not registered on a programme (i.e. those engaged in standalone modules for purposes of continuing professional development) or not domiciled in the UK. Non-UK students were excluded for two reasons. Firstly, they were likely to have missing data for a number of control variables measured using UK-specific frameworks (e.g. academic performance at entry, parental occupation). Secondly, little variation was anticipated in the residential status of this group, with virtually all members being categorised as relocated. Living at Home and Commuter Students might be younger individuals, typically residing in the parental home, or mature students residing in their own home. Responsibilities of young and mature students can vary (e.g. mature students are more likely to have caring responsibilities; Artess et al., 2014), as can the extent to which they engage in the university community (Kasworm, 2014). Likewise, academic outcomes are known to vary according to gender, with male students tending to underperform (Hillman and Robinson, 2016). Consequently, we followed previous researchers (e.g. Artess et al., 2014) by accounting for age and gender in our analytical approach.

For each individual, the data set included performance in all modules attempted during 2015-16. Typically, full-time undergraduates study six 20-credit modules per year, although this load can vary according to circumstances (e.g. resits, part-time study). The raw performance data were used to create two outcome measures. The first reflected whether individuals had passed 100% of the modules attempted. Most of the modules followed a UK norm, whereby students achieving ≥40% of the available marks were deemed to have passed. A much smaller proportion of modules were assessed on a simple 'pass/fail' basis (e.g. competency-based modules in health disciplines). Both module types were used to create this outcome. It has real-world relevance, as students who pass less than 100% of their modules are likely face some form of remediation (e.g. retaking the module or associated assessment).

The second outcome sought to provide more granular information on the association between residential profile and academic performance. In the UK, degrees in the first-class or upper second-class boundaries are described as 'good degrees'. Typically, first-class degrees require the average mark across a student's modules to be ≥70%. Upper second-class degrees

involve an average mark of 60-69%. The host institution follows sectoral norms, whereby students who fail a module have an opportunity to retake the assessment, albeit with the second attempt capped at the pass mark (40%). It can be difficult to compute average results for students who have failed and subsequently resat modules; two marks may be listed for a single module, one of which must be removed from calculations. For simplicity, the second outcome drew exclusively on the large proportion of students who had passed 100% of their modules on the first attempt. Within this sample, each students' module marks for the year were averaged to identify if their performance was consistent with a good degree (i.e. average mark ≥60%). For brevity, the respective outcomes are referred to as 100% Pass Rate and Good Degree Performance.

The predictor variable of chief interest was residential profile, which was established using the first three digits of individuals' term-time and vacation-time postcodes (alpha/numeric codes denoting the precise location of an address). Where these matched, and the postcode lay within the city postal boundary, individuals were categorised as Living at Home Students. Where both term-time and vacation-time postcodes lay outside the city boundary, individuals were categorised as Commuter Students. Individuals with a term-time postcode within the city boundary and a vacation-time postcode outside the city boundary were classified as Relocated Students. Another permutation was for students to have differing term-time and vacation-time postcodes, both within the city boundary, but no such instance occurred.

Alongside residential profile, several control variables were available, including age (<21 years/≥21 years), gender (male/female), and the year of the programme that each student was engaged in (0 [foundation year] - 5). In addition, students' academic performance on entry to university was included. In most cases, individuals had a UCAS (Universities and Colleges Admissions Service) score - a metric reflecting achievement in secondary education.[1] Students were categorised according to whether their UCAS score was above the institutional median, or at/below the median. A minority of students had no UCAS score. This can occur for mature students, whose education prior to HE maybe distant, incomplete, or based on atypical standards (e.g. vocational qualifications). Hence, a third category captured

[1] https://www.ucas.com/file/63541/download?token=uz826-Cb

individuals with missing/atypical data. Finally, information on parental occupation was used as a marker of socio-economic status. Each individual's record showed a value between one and eight, relating to the National Statistics Socioeconomic Classification (NS-SEC). Following Artess et al. (2014), the cohort was rationalised into four groupings: managerial/professional; intermediate; routine/manual; and unknown.

Given that life circumstances may differ between younger and mature students, we emulated Artess et al. (2014) by analysing the two age groups separately. In each case, a series of forced entry logistic regression analyses were conducted, in which one of the outcomes was inserted as the dependent variable (i.e. 100% Pass Rate or Good Degree Performance), alongside the independent variables (i.e. residential profile plus the control variables). Logistic regression generates an odds ratio (OR) and 95% confidence intervals (95% CIs) for each independent variable, signifying its relationship to the outcome. An OR above 1.0 indicates that an outcome is more likely for one group compared with a reference category, whilst an OR below 1.0 suggest the outcome is less likely. Where the 95% CIs include zero, the effect is not statistically significant. Importantly, under logistic regression the influence of each independent variable on the outcome is controlled for the effects of all other independent variables.

Results

Table 1 shows descriptive information. There was clear variation in residential profile, with Commuter Students and Live at Home Students accounting for 21.6% and 8.5% of the sample, respectively. These figures coincide closely with the 30% of students who Artess (2014) reported as lying in their homogenous category, which combined Commuter Students and Live at Home Students. Tables 2 and 3 group together the results from all logistic regression analyses performed on the respective outcomes. The sample size information, contained in the column headers, confirms that analyses of Good Degree Performance (Table 3) involved fewer students, as they drew exclusively on students who had passed all modules on the first attempt.

Students aged ≥21 years

Overall, performance in both outcomes appears lower relative to younger students (Figures 1 and 2), which supports the decision to analyse age groups separately.

The logistic regression analysis of students aged ≥21 showed no association between gender and 100% Pass Rate (Table 2), such that further gender-specific analyses were not warranted. The analysis also confirmed the impression given in Figure 1, that there was no significant difference in 100% Pass Rate depending on residential profile. There were some significant effects for the remaining control variables. Individuals whose academic performance at entry was above the median were 1.93 times more likely to have a 100% Pass Rate, compared with the reference category of those with a score at/below the median. The group with missing/atypical scores did not differ significantly from the reference category. In terms of parental occupation, students in the unknown category were significantly less likely to have a 100% Pass Rate compared to the managerial/professional reference category (OR= 0.80). Finally, those in years 4-5 of their programme were 1.34 times more likely to have a 100% Pass Rate relative to the reference category (0-1 years), with no significant difference between the reference group and those in years 2-3.

Turning to Good Degree Performance, logistic regression analysis again confirmed no gender effects (Table 3). Differences according to residential profile did not reach the common threshold for statistical significance ($p <.05$). Nonetheless, the proportion of Commuter Students with Good Degree Performance (68.1%) is at least 7.0% lower than the other groups (Figure 2), with the deficit to the reference category (Living at Home Students) approaching significance ($p =.06$). Regarding the other control variables, only parental occupation showed significant effects. Consistent with the analysis of 100% Pass Rate, those in the unknown category were significantly less likely to have Good Degree Performance than counterparts in the managerial/professional category (OR= 0.59).

Students aged <21 years

Overall, male students lagged behind females, with regard to both 100% Pass Rate (OR= 0.68, 95% CIs 0.62-0.75, $p <.001$) and Good Degree Performance (OR= 0.67, 95% CIs= 0.60-0.74, $p <.001$) (Figures 1 and 2). Consequently, each gender was analysed separately.

Starting with 100% Pass Rate, the respective regression analyses for males and females showed no influence of residential status (Table 2). These null effects are evident in Figure 1, where the respective groupings of shaded bars for males and females show no pronounced differences. For the remaining control variables, there were broadly consistent effects between sexes. Males and females whose academic performance at entry was above median were, respectively, 1.52 and 1.54 times more likely to have a 100% Pass Rate than counterparts in the reference category. Amongst females only, there was a further significant effect, whereby those with missing/atypical academic performance data were only 0.58 times as likely to have a 100% Pass Rate, relative to the reference group. There were consistent significant effects of parental occupation. In both groups, the likelihood of a 100% Pass Rate amongst students in either the routine/manual or unknown categories was lower the managerial/professional reference category (ORs= 0.73-0.80). Finally, significant effects were observed for year of programme. The likelihood of 100% Pass Rate for males and females in years 2-3 was, respectively, 1.45 and 1.36 times higher, compared with counterparts in the reference category (years 0-1). Even larger effects were observed for years 4-5, whereby males' and females' likelihood of a 100% Pass Rate was, respectively, 1.51 and 1.65 times higher than the reference group.

Analyses of Good Degree Performance showed significant associations with residential status (Table 3). Amongst males, Good Degree Performance was much more likely in Living at Home Students versus Commuter Students (OR= 1.89) (Figure 2). Figure 2 also suggests that male Living at Home Students outperformed male Relocated Students. A supplementary logistic regression, which took Relocated Students as the reference category, confirmed that this difference was statistically significant (OR= 1.56, 95% CIs= 1.06-2.30, p <.05). Turning to females, regression analyses also confirmed that the likelihood of Good Degree Performance was significantly higher amongst Living at Home Students versus Commuter Students (OR= 1.47). However, the pattern diverged from that seen for males (Figure 2), as a high rate of Good Degree Performance was also observed in Relocated Students (OR= 1.71). A supplementary analysis of females, which took Relocated Students as the reference category, found no significant difference in Good Degree Performance between Living at Home and Relocated Students.

The analyses of Good Degree Performance showed familiar effects for two control variables. Above median academic performance at entry was associated with greater likelihood of Good Degree Performance, both in males (OR= 1.77) and females (OR= 1.93). In females, the likelihood of Good Degree Performance was significantly lower amongst those with routine/manual (OR= 0.72) and unknown (OR= 0.71) parental occupations, relative to the reference category. In males, effects of parental occupation did not reach statistical significance. Results for the final control variable – year of study - showed an interesting contrast with the other outcome. To recap, younger males and females had shown a greater likelihood of 100% Pass Rate, the deeper they were into their degree programme. By contrast, the same students showed a significantly lower likelihood of Good Degree Performance in years 2-3 compared with years 0-1 (males, OR= 0.74; females, OR= 0.80). The ORs for years 4-5 were also below one for both genders, again suggesting reduced likelihood of Good Degree Performance relative to years 0-1. These effects did not reach statistical significance, however, possibly due to the smaller number of students in years 4-5 (Table 1), which confers less statistical power.

Discussion

The current study sought to evaluate the association between students' residential profile and academic performance, whilst controlling for other influential variables. A number of significant effects emerged for these control variables, highlighting the importance of including them in analyses. Moreover, the pattern of these effects was broadly consistent with existing literature, offering reassurance that the current data are credible. For example, younger females generally performed better, reflecting a trend for young male underperformance in HE that has been in train for some time (Hillman and Robinson, 2016). Broadly speaking, both Good Degree Performance and a 100% Pass Rate were also more likely amongst students with above median academic performance at entry and parents with managerial/professional jobs, resonating with previous research (Crawford et al., 2016; King and Aves, 2012).

With regard to the key predictor variable - residential profile - there was no significant association with 100% Pass Rate in any of the subgroups. These null effects could be considered positive. They suggest that students enjoy a consistent likelihood of passing the modules that they undertake, regardless of their residential arrangements. In contrast, there were significant associations between residential status and the second, more granular outcome of Good Degree Performance. These findings indicate that students' ability to access the highest marks may be influenced by their living arrangements. Consistent with Artess et al. (2014), the current study found that the association between residential profile and Good Degree Performance applied to students <21 years old, but not older counterparts. Our decision to extend previous literature, by clearly separating Living at Home Students and Commuter Students, proved important, as distinct patterns emerged for each of these groups. Good Degree Performance appeared particularly impaired amongst Commuter Students, who lived permanently outside the city boundaries. Living at Home Students, who resided at a permanent address within the city boundary and, therefore, faced shorter journeys onto campus, showed no evidence of impaired Good Degree Performance. For younger females, Good Degree Performance did not differ significantly between Living at Home and Relocated Students. Whilst amongst younger males, Living at Home Students actually showed the highest levels of Good Degree Performance, significantly outperforming both other groups. This intricate picture is obscured where all students who choose not to relocate are treated as a *"homogeneous group"* (Martin and Kilgo, 2015: 42). The current findings underscore the importance of moving beyond simplistic categorisations of students' residential arrangements, to find sophisticated ways of assessing students' journeys between home and university, in terms of geographical distance, travel time, and lived experience.

Whilst the current cross-sectional study cannot confirm causality, it is important to consider plausible mechanisms for an association between residential profile and Good Degree Performance. Traditional discourse in this area has focussed on how residential arrangements impact students' opportunities to engage with peers, faculty members, and university services. Thomas and Jones (2017) conceptualise three forms of engagement: academic (i.e. engaging in learning); enhancement (including engagement in representation and leadership positions); and social (e.g. formal and inform engagements with HE peers through sport or leisure). The format of some of these activities appears particularly problematic for Commuter Students; enhancement and social activities primarily occur in evenings, and may

involve alcohol, potentially deterring participation (Meehan and Howells, 2018; Thomas and Jones, 2017). Daytime activities should be less problematic for Commuter Students, but obstacles to informal social engagement may persist. For example, this cohort has little option but to meet friends and associates on campus, where there may be competition for space (e.g. libraries), or in commercial settings (e.g. cafés), where financial costs are incurred. The null effects for older students are consistent with the hypothesis that residential profile affects academic performance by influencing students' opportunities for engagement. Older students have higher levels of intrinsic motivation (Murphy and Roopchand, 2003) and less interest in social or extra-curricular engagement (Kasworm, 2014). These inclinations could explain why older students who choose not to relocate do not show significantly impaired academic performance. It is important to acknowledge that for some students low engagement is, to an extent, volitional and not wholly driven by unsurmountable logistical challenges. Irrespective of age, Commuter Students appear more likely to prioritise academic engagement over enhancement and social activities, which they may even perceive as a threat to the core objective of good academic achievement (Thomas and Jones, 2017). Aside from pure academic success, engagement with extra- and co-curricular activities has been linked to several positive outcomes, including psychological well-being, accrual of social capital, development of transferable skills, and lower departure intentions (Jackling and Natoli, 2011; Trowler, 2010). Consequently, to maximise the benefits of attending university, institutions must not only tackle tangible barriers to student engagement (e.g. timetabling, transport and space). In addition, they may need to communicate explicitly with students about the benefits of engagement that is not academic in focus (Thomas and Jones, 2017).

An alternative explanation for the current findings shifts attention from student engagement, to the direct effects of commuting itself. Commuter Students describe the experience as *"tiring, expensive and stressful"*, with many having *"not fully appreciated this before they became commuter students"* (Thomas and Jones, 2017:6). In the UK, the cost of commuting is particularly high; rail fares are expensive (Duranton et al., 2017) and the last two decades have seen declining car access amongst young adults (Chatterjee et al., 2018). It is probable that some Commuter Students engage in part time employment to help meet these costs. López Turley and Wodtke (2010) confirmed that Commuter Students engaged in over twice as much paid employment as those living on campus. Paid work that is not intrinsically linked to students' academic discipline(s) has been associated with reduced attendance

(Kelly, 2011) and lower academic performance (Halpern, 2007; López Turley and Wodtke, 2010). It is plausible that commuting distracts from educationally purposeful activities because it consumes time, necessitates more paid employment, induces fatigue, or via a combination of these effects. Thomas and Jones (2017) report that Commuter Students make 'value judgements' about scheduled academic activities, before deciding if a trip to university is worthwhile. Kobus et al. (2015) found that students with longer commutes compensated for sporadic attendance at university by spending more time on campus during their visits. The authors note that this pattern, featuring very long days studying on campus, may not be conducive to optimal learning or performance in assessment. Students are likely to become tired and, without easy access to university facilities, may delay important study-related tasks until their next visit to campus (Kobus et al., 2015). Of course, it is possible that residential profile impacts academic performance through a *combination* of direct commuting effects and different levels of student engagement. Indeed, in Khalil and Khair's (2018) study, GPA performance was weakest amongst individuals with both long commutes and few friendships.

Turning attention to Relocated Students, it is notable that academic performance was not enhanced relative to Living at Home Students. This contrasts with evidence – primarily from the USA – that campuses provide opportunities to enhance critical outcomes such as academic performance, as well as providing housing (Parameswaran and Bowers, 2014). Relocated Students in the current study were, however, living in a combination of purpose built university accommodation *and* privately-rented accommodation close to campus, where focussed interventions could not be delivered. Moreover, intensive residence-based initiatives described by Parameswaran and Bowers (2014) appear rare in the UK.

Our gender-specific analyses replicated established trends for lower academic performance amongst young men. Authors have previously highlighted males' slower path to psychological maturity (Hillman and Robinson, 2016) and heightened difficulties in organising time and study behaviours (Cotton et al., 2016). Alongside a main effect of gender, the relationship between residential profile and academic performance differed between the sexes. There is evidence that females are more anxious about relocating to university (Moogan and Baron, 2003). Nonetheless, amongst younger women in the current study, Good Degree Performance did not differ significantly between Relocated Students and

Living at Home Students, with both groups surpassing Commuter Students. Consequently, relocation for study and living at home might both be seen as positive learning environments for this group.

The pattern for younger males was fundamentally different. Good Degree Performance was highest amongst Living at Home Students, substantially exceeding both Relocated Students and Commuter Students, whose performance did not differ significantly. Whilst this study did not have data on who individuals lived with, one can assume that many younger Living at Home Students cohabit with parents or other relatives. The current results indicate that staying on in the parental or family home may be beneficial for young males, providing that it is located relatively close to the university where negative implications of commuting do not apply. Kelly (2011) suggests that living at home may help to mitigate the challenges of adjusting to university life, which are more pronounced for males versus females. Valliant and Scanlan (1996) report that young men living independently near to campus are at particular risk of alcohol misuse, relative to counterparts who remain living in the parental home. The current study adds to a body of literature around young male underachievement at university and in the years following graduation (Belfield et al., 2018).

A final, unanticipated finding relates to the pattern of academic performance across the student journey. Amongst men and women, there was evidence that the chances of 100% Pass Rate was higher in later years of study. Conversely, amongst the same students Good Degree Performance appeared to weaken in later years. The latter result may reflect difficulties in coping; in the UK, national frameworks require HE study to become progressively more intellectually challenging (QAA, 2014). Alternatively, the slump in performance may reflect a suboptimal academic environment in later stages of HE study. Webb and Cotton (2019) found that students in later years appraised aspects such as feedback and one-to-one faculty contact less favourably, relative to first years. This study chimes with evidence of a 'sophomore slump' in academic performance, and reminds HE practitioners not to focus exclusively on optimising the learning environment and outcomes for freshmen (Jeavons and Lindsay, 2018; Yorke, 2015).

Whilst the explanations above are plausible, they illustrate the need for further confirmatory research. In future studies, careful consideration should be given to how students' residential profile might be best calculated. The current approach, based around postcodes, avoided the need to collect information directly from students, and gave us access to a data set that was much bigger than previous studies (albeit drawn from a single institution in one academic year). However, given the nuanced relationship between residential profile and academic performance that appears to be emerging, it seems imperative to start collecting additional information. This could include students' views on factors that influence their travel experiences (e.g. time, distance, cost, convenience, comfort, safety; Snir, 2017), as well as their perspectives on the value of engaging with peers, faculty members and the wider university. Qualitative information like this will help unpick the extent to which any relationship between residential profile and academic performance is mediated by the experience of commuting itself, opportunities for student engagement, or a combination of both factors. With regard to future quantitative work, a number of variables were absent from the current analyses, which may have been influential in terms of academic performance (e.g. disability, ethnicity, cohabitation with family and/or significant others). Prospective researchers should seek to incorporate these.

This study set out to examine the association between students' residential profile and their academic performance – a little-addressed topic in the UK. Links emerged between students' residential arrangements and their likelihood of attaining academic performance consistent with a good degree. In particular, Good Degree Performance tended to be lower for younger students who commuted to university from outside the city boundaries. It is now important to replicate these findings on a larger scale and across multiple institutions. Moreover, qualitative research is required to clarify the mechanisms through which residential profile may impact students' academic performance. As it becomes more common to commute to university – often over considerable distances – it is incumbent on HE providers to monitor and respond to any evidence of an impact on students' outcomes.

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