LONDON HIGHER

Supporting Higher Education in London

Commuter Students in London:

Results of a pilot project on factors affecting continuation

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London Higher
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1. Executive Summary and recommendations

Continuation is defined as the proportion of entrants who continue their studies, with full-time students being counted between their first and second year of study (Department for Education, 2017a). It is the single most heavily weighted indicator in the Teaching Excellence and Student Outcomes Framework (TEF), at 25% of the metrics, but commuting or travel time is not a variable which contributes to the benchmarking factors. Hence, higher education institutions (HEIs) with large numbers of commuter students need to understand how this diverse group may affect their TEF metrics. Our findings suggest not only that students who commute in London may face barriers in their studies, but they may be less likely to pass their end of first year assessments, possibly also acting as an early signal in their prospects for retention and attainment.

Using a standard analysis framework we found travel time remained a significant predictor of student progression or continuation for UK-domiciled full time undergraduates at three of the six London institutions participating in our study, after accounting for the expected influence of subject and other factors such as entry qualifications. Bimodal distributions for travel time were observed at four of the participating HEIs, with an initial peak between 10 to 20 minutes followed by broader profiles between 40 to 90 minutes. Overall findings on student characteristics related to continuation or non-continuation agree with a recent analysis of students in London (Petrie and Keohane, 2019).

Understanding the effects commuting might have on student success may help HEIs to improve student continuation, which is important given its weight in TEF and which necessitates prompt identification for timely interventions to take place.

Finally, a key main issue for this and other studies is the lack of a recognised definition for a 'commuter student', with the term encompassing personal characteristics and motivations, type and location of term-time residence, as well as travel distance or time (e.g. Maguire and Morris, 2018).

Following this pilot project London Higher will seek to engage HE stakeholders, including the Department for Education, on the need to assess travel time for characterising commuter students and in continuation measures. We will promote the analysis framework among our members, and initiate a scoping study on commuting issues for HE staff in London with possible impacts on the student experience.

Recommendations

- Adoption of the standard analysis framework by HEIs outside of the pilot project group
- Extend the framework to relate travel time with attainment and/or graduate-level employment
- Methods needed to study the intersectionality between factors such as travel time and ethnicity
- Incorporate HEI-based analyses of continuation factors in TEF benchmarks and outcomes

2. Introduction and background

Overview of pilot project

To date attempts to examine the experiences and outcomes of commuter students have largely been qualitative (Thomas and Jones, 2017). The focus of this pilot exercise was on England-domiciled full-time first degree students in London travelling to campus *whether living at home or in other accommodation* (Maguire and Morris, 2018).

Quantitative analyses at six London HEIs were carried out to determine factors affecting pass rates after a first attempt at assessment or continuation of first year students. The participating HEIs were:

- Kingston University London
- Middlesex University London
- SOAS, University of London
- University of East London
- University of Greenwich
- University of West London.

Commuter students

Previous work by HEFCE (2017) showed many students in urban conurbations stayed within the area covered by their Local Enterprise Partnership[1] (LEP) or moved to a HE provider in an adjoining LEP. For the London LEP nearly 58% of students stayed within the LEP region to study for a first degree. High proportions of students remaining within a LEP were also found in Liverpool (45%), Greater Manchester (50%), Leeds (56%) and the North East (65%).

Since 2014/15, annually about 90,000 students at HE institutions (HEIs) in London were from London, and comprised nearly 50% of all full-time first degree undergraduates (London Higher, 2019).

Ethnicity, gender and social class were considered to be important factors for students when choosing an HEI, and students from the lowest socio-economic group were less likely to leave home for study (Donnelly & Gamsu, 2018). Other work has indicated there are four demographic groups which are more likely to be commuter students living at home: Asian students; mature students; working students, and students who are first in their family to take up HE studies (Neves and Hillman, 2018). This intersectionality makes it difficult to determine which key factors could help improve their continuation and study outcomes. Students living with other students close to campus were more likely report good value and satisfaction compared with commuter students living with parents or on their own (Neves and Hillman, 2019).

[1] https://www.lepnetwork.net/about-leps/location-map/

3. Methodology for quantitative analyses

Participating HE institutions

HE institutions taking part in the pilot study were:

- Kingston University London
- Middlesex University London
- SOAS, University of London
- University of East London
- University of Greenwich
- University of West London.

Standard dataset and analysis framework

A standard dataset was agreed on by the project participants, namely the annual data extract provided to HEIs in England from HESA Services Ltd., on behalf of the Office for Students (OfS), to evaluate the impact of their financial support measures. The dataset contains continuation outcomes for England-domiciled full-time (including sandwich) first degree entrants, along with course and personal information for individual students.

Several other fields were added to the datasets using a standardised coding format, including financial support provision, household income, entry through clearing, area of disadvantage indicators, and student end of year pass rates at first attempt at assessment. The cohorts for analysis varied between participating institutions but most included student entrants in 2015/16.

Travel times by public transport were computed for each student using term–time accommodation and campus postcodes, before being analysed using logistic regression with dependent binary variable being either pass rates at first attempt or continuation, depending on the academic rules concerning end of first year assessments. Common factors tested for significance included travel time, gender, ethnicity, subject of study and entry qualifications. The software packages used for analyses were either Alteryx, SPSS or R.

4. Key findings

Table summarising sample cohorts and significance of progression or continuation outcomes of England-domiciled full-time first year undergraduates using logistic regression.

	HEI One	HEI Two	HEI Three	HEI Four *	HEI Five	HEI Six
Cohort(s)	2015/16	2014/15 - 2015/16	2013/14 - 2015/16	2012/13 - 2014/15	2015/16	2015/16
No. student records	2,840	3,500	4,690	5,495	675	2,735
Travel time	+	-	+	+	-	-
Faculty/ subject area	+	+	+	+	+	+
Entry qualifications	+		+	+	+	-
Ethnicity	+	+	+	+	-	+
Gender	+	+	+	+		-
Clearing	+	+	+	-	-	
Age	-	+	+	+	-	+
Disadvantaged area	+	+	+	-	-	-
Household income	-		+	+		
Disability	+	+	-	-	-	-
1st gen. to HE	-	-			-	-

+ indicates significant effect in logistic regression model at $\alpha = 0.05$;

- indicates no significant effect;

Blank space indicates not reported;

* Outcomes for students aged 16-20 years old, 'Age' term is significant when all students are included.

Travel time

Histograms for travel time indicated bimodal distributions at four of the six participating institutions. Travel time at these institutions had an initial peak in frequency between 10 to 20 minutes then broader profiles between 40 to 90 minutes. Median travel times varied between 40 to 60 minutes depending on the institution.

Time spent commuting between term-time address and campus was found to be a significant factor affecting progression or continuation for full time first year undergraduates in three of the six institutions. At one HEI the likelihood of continuation dropped by 0.63% for every 10 additional minutes travelled. At another HEI likelihood to progress after the first attempt at assessment diminished by 1.5% for each 10 minutes of commuting.

Commuting, subject of study and ethnicity

Three institutions described a combination of recruitment at a national level in subjects such as creative arts, and local recruitment in subjects such as business studies. Nationally recruited students were more likely to be white, under 20 years old, from traditional HE backgrounds, with A level qualifications and were living in halls of residence near campus. Locally recruited students were more likely to be from BAME backgrounds and residing further away from campus. During 2017/18, BAME students made up 48% of all UK students in London, compared with 19.5% of UK students at all other HE providers outside of London (London Higher, 2019).

Four institutions reported that students from BAME backgrounds were less likely to pass at the first sitting or continue at four institutions compared to white students. At one institution Asian students showed consistently higher continuation rates than all other ethnicities, and another institution reported ethnicity was not a significant predictor for continuation.

Other characteristics

Disadvantage: It is unclear whether students are less likely to progress if they are residing in disadvantaged areas, assessed using either POLAR, Index for Multiple Deprivation (IMD) or a combination of measures.

Gender: Female students were more likely to progress or continue their studies compared with male students at four of the six participating institutions.

Entry qualifications: Students with BTEC qualifications rather than A levels for entry or who arrived through clearing were significantly less likely to progress at three institutions.

Disability: Students with a reported disability were less likely to progress at two institutions.

5. Summaries of data analyses by project HEIs

5.1 Summary outputs for HEI One

Descriptive statistics for travel times

A histogram of student travel times showed a bimodal distribution with a peak at around 10-20 minutes and then at around 60-80 minutes (Figure 1) with the median commute time of 57 minutes (*M*=54.3 min, *SD* = 36.5 min).

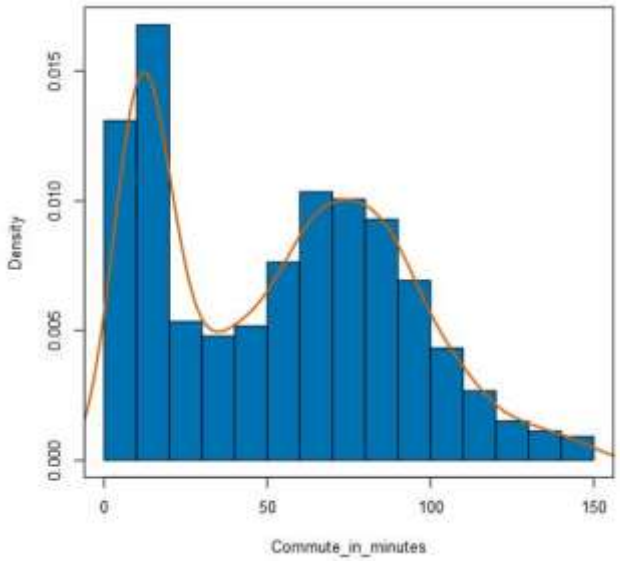

Figure 1. The distribution of travel time to campus in minutes for 2015/16 full-time first degree entrants.

Main findings from logistic regression

1. Accounting for the individual effects of the 11 control factors in the model, travel time significantly predicted student progression outcomes at first attempt. The results suggested that with each 10 minutes of commute, the likelihood to progress after the first attempt at assessment diminished by 1.5%.
2. Subject of study and entry through clearing were significant predictors of student pass rates at first attempt.
3. Entry qualifications were the strongest predictor of student pass rates at first attempt, all else being constant. Specifically, the results suggested that the likelihood to progress after a first attempt at assessment was significantly lower for students with BTEC as the highest qualification on entry relative to students with 'A' level qualifications.

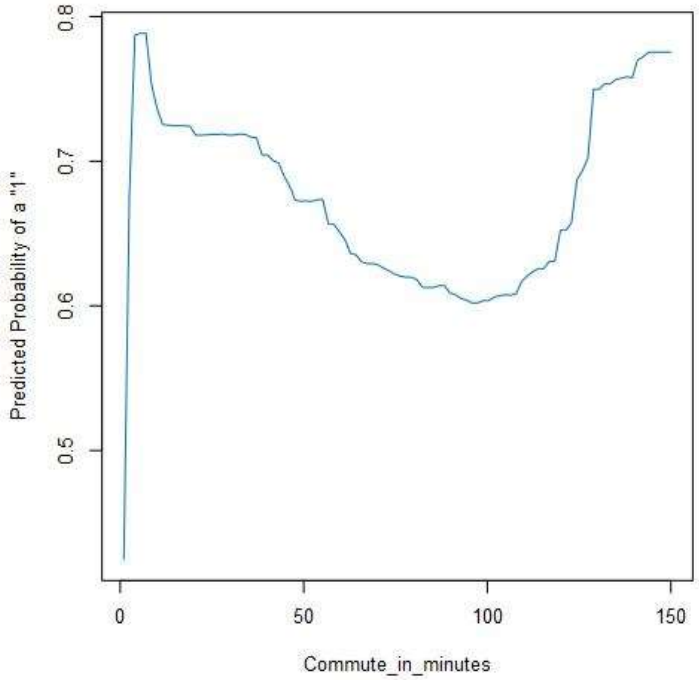

Figure 2 Marginal effect plot of student commute in minutes.

4. Black students and those from mixed or other ethnic backgrounds had a significantly lower likelihood of early pass rates relative to white students.
5. Males had significantly lower chances to pass at first attempt relative to females.
6. Clearing entrants were 17% less likely to pass at first attempt relative to students who did not enter through clearing.
7. Student age or being the first in the family to attend HE did not significantly predict the ability to pass at a first attempt.
8. Students from disadvantaged areas (neighbourhoods under-represented in HE; POLAR3 quintiles 1 and 2) and those within the multiple deprivation quintiles 1 and 2 were significantly less likely to pass at first attempt.
9. Low household income initially predicted a lower likelihood to pass at first attempt, but the effect was no longer significant after including the financial support factor into the model. Receiving financial support increased the likelihood to pass by 13.5%.
10. Students with a learning difficulty or other disability were significantly less likely to pass at a first attempt relative to their peers who did not report a disability.

5.2 Summary outputs for HEI Two

Descriptive statistics for travel times

Travel times for students showed a bimodal distribution (Figure 3). A large group of students were found to have commutes of 10 minutes or less and another group of students experienced commute times of around 40-50 minutes. The median commute time was 43 minutes (M = 41 min; SD = 32 min).

When splitting travel times by Faculty and different demographic dimensions, several patterns begin to emerge (Figure 4):

- Fifty percent of students in Faculty 4 have travel times of six minutes or less.
- Travel times for students who were 20 years old or less on entry have a median of 42 minutes, while median travel time for students 30 or older was 53 minutes.
- Half of all white students have travel times of 25 minutes or less, while three quarters of our BME students have travel times of greater than 25 minutes.
- Travel times by IMD quintile show that students from areas of greater deprivation have longer travel times than those from the least deprived areas.

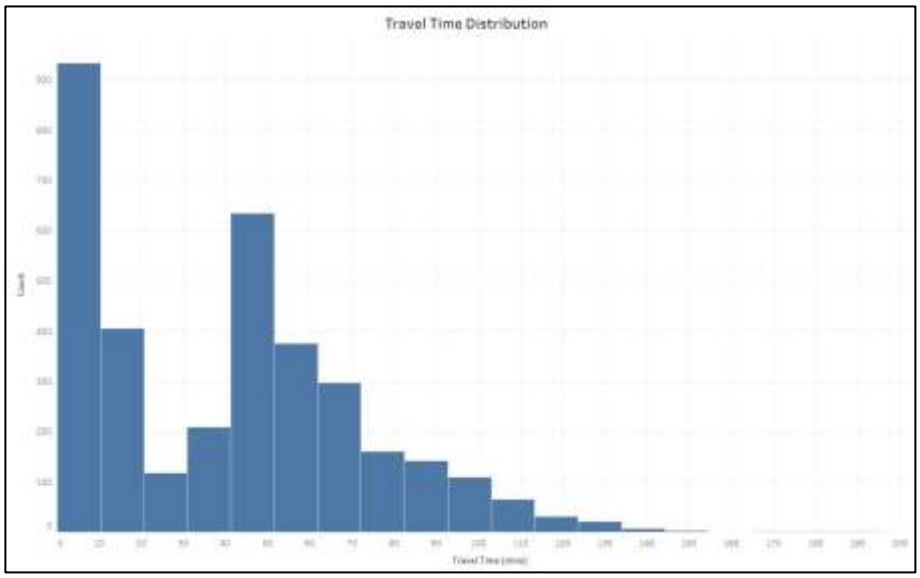

Figure 3. The distribution of travel time to campus in minutes for 2014/15 and 2015/16 full-time first degree entrants

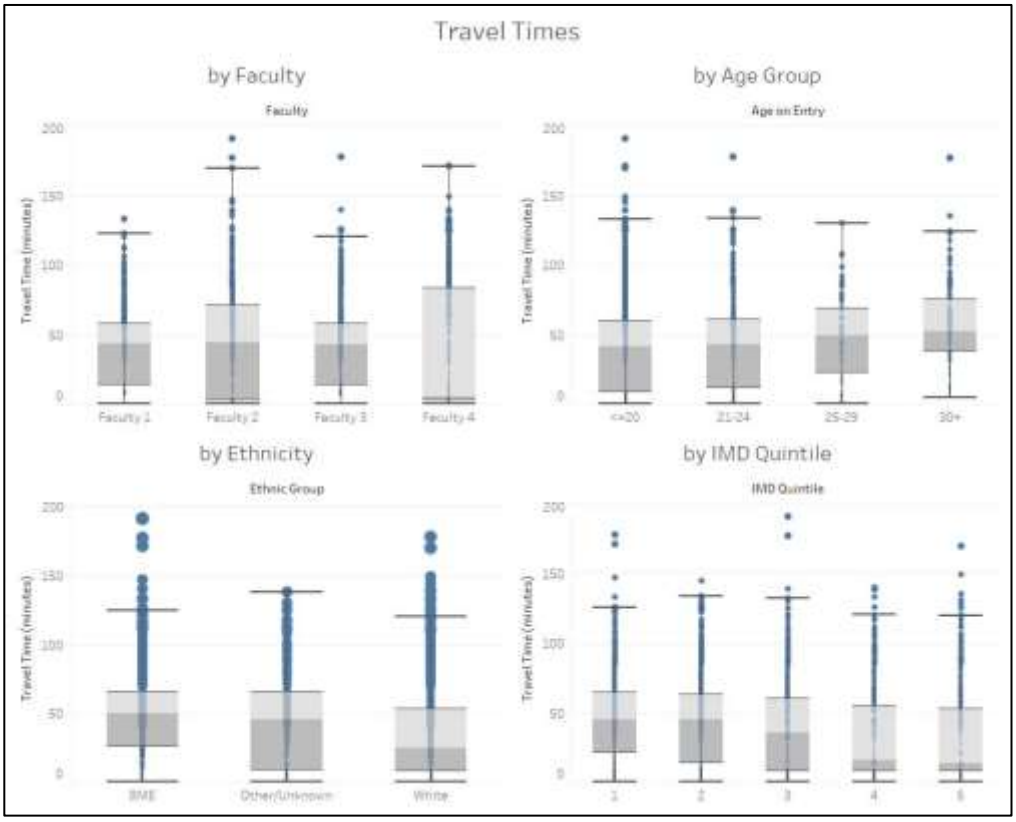

Figure 4 - Distribution of travel times by Faculty and demographic factors

Main findings from logistic regression model

1. Accounting for the effects of the control factors in the final model, travel time was not found to be a significant predictor of progression.
2. Progression varied significantly between Faculties with students in one Faculty showing rates of progression at first attempt 11-13 percentage points lower than students in other Faculties.
3. Students of black and minority ethnic backgrounds were significantly less likely to progress at a first attempt relative to white students.
4. Male students were significantly less likely to progress compared with female students by seven percentage points.
5. Clearing entrants were less likely to progress than those students who enter via main cycle applications.
6. Students entering at 21 years or older were less likely to progress than younger students.
7. Students whose home address is located in more deprived areas (as measured by the Index of Multiple Deprivation) are less likely to progress than students from less deprived areas.
8. Students with a reported disability were significantly less likely to progress compared with those without a reported disability.
9. Being the first in the family to attend HE did not significantly affect progression.

5.3 Summary outputs for HEI Three

Descriptive statistics for travel times

The distribution of commute times followed a similar pattern across the three cohorts studied, with a very large single peak at about 20 minutes and a smaller, broader peak around 60 minutes (Figure 4). The median commute time was 50 minutes (mean = 52.5 min; SD = 30.7 min).

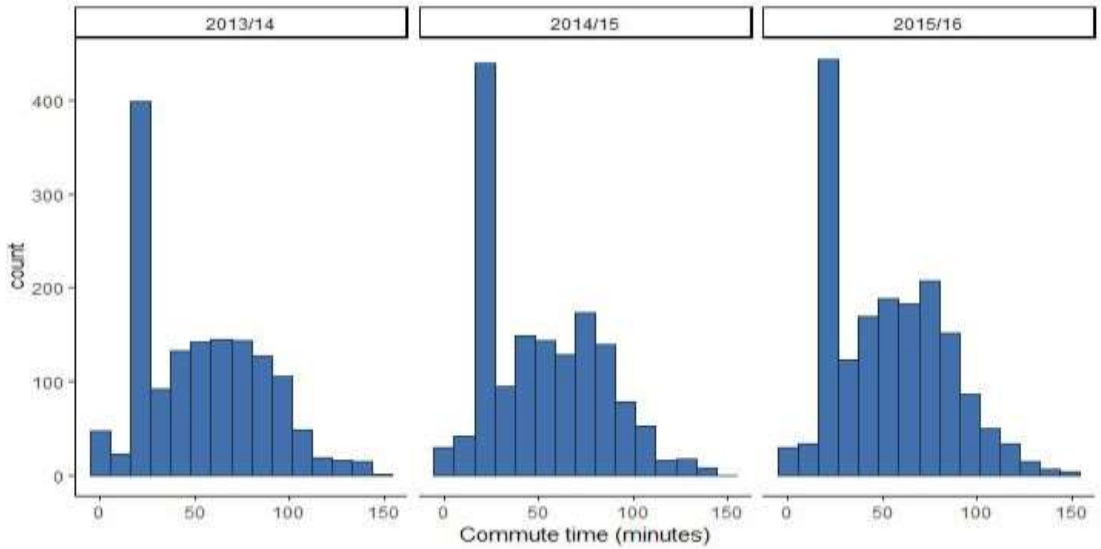

Figure 5. The distribution of travel time to campus in minutes for full-time first degree entrants

Main findings from logistic regression model

1. There were no differences in continuation for student cohorts in 2014/15 or 2015/16 compared with students in 2013/14. Travel time was found to have a significant effect on likelihood to continue. After controlling for the other variables in the model the likelihood of continuation dropped by 0.63% for every 10 additional minutes travelled.
2. Continuation was affected by subject area.
3. The majority of students enter the university with BTEC or other vocational qualifications as their highest qualification. Compared to this group only those who entered with Access qualifications were significantly more likely to continue and only students who entered with prior HE experience were less likely to continue.
4. Black students were significantly less likely to continue compared to white students but no other significant difference between ethnic groups were found.

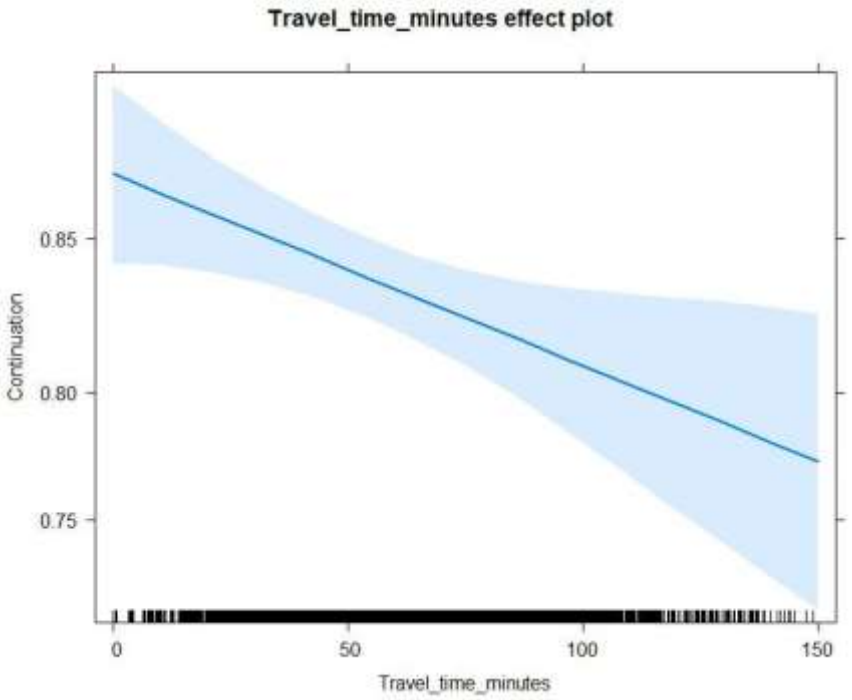

Figure 6. Effect of travel time on likelihood of continuation with 95% confidence intervals

5. Female students were significantly more likely to continue their studies than male students.
6. Students who entered through clearing were significantly less likely to continue compared to those who entered through the main application cycle.
7. Students aged 21 to 24 on entry to the university were significantly less likely to continue to their second year compared to students aged 20 or under. There was however no significant difference between other age groups.
8. Students in quintile 2 of POLAR3 were more likely to continue compared with students from quintile 1 but there were no differences with other quintiles.
9. Of those students who had provided evidence of their household income to the Student Loans Company, there was no difference in continuation between those who had household incomes above £25,000 p.a. and those below £25,000. There was, however, a significantly lower likelihood of continuation for those who had provided no evidence of household income to the Student Loans Company.
10. Students with a reported disability or with prior family experience of HE were not significant factors for in continuation.

5.4 Summary outputs for HEI Four

Descriptive statistics

The dataset consisted of three cohorts from 2012/13 to 2014/15. Around half of students lived 50-90 minutes from campus (Figure 8), with the majority of these living in their parental home. The median commute time was 63 minutes (mean = 60.6 min; standard deviation=27.8 min).

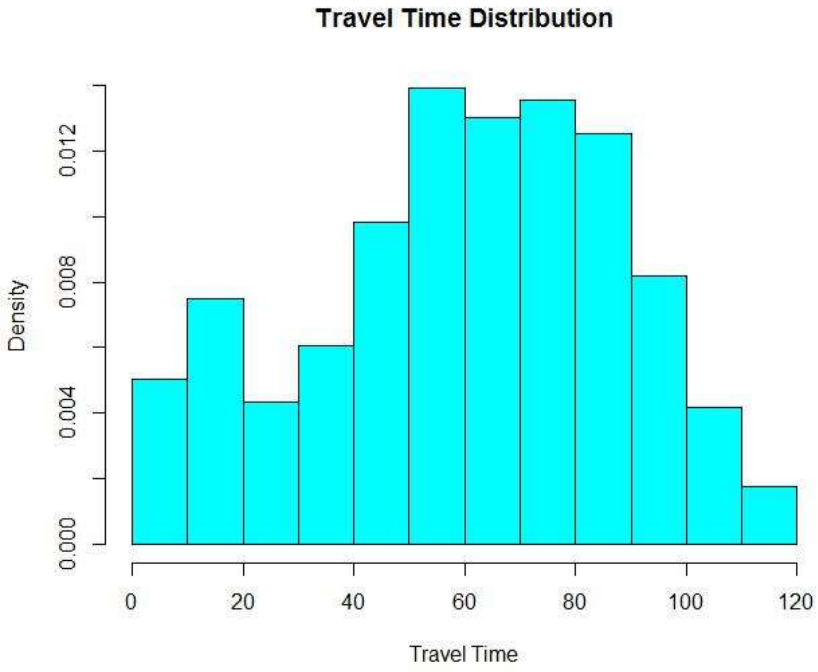

Figure 8. The distribution of travel time to campus in minutes for full-time first degree entrants

Main findings from logistic regression model

For the regression models, younger (16-20 years old) and mature (21 years or older) students were analysed separately for several reasons. Mature students in these cohorts tended to have much worse continuation rates than their younger counterparts. The decrease in their continuation rates as travel time increases is also much more linear than for younger students, whose continuation rates first decrease and then pick up sharply around 80 -120 minutes.

Younger students

1. Travel time was a negative and statistically significant indicator of continuation, with a one minute increase in travel time corresponding to a 0.6% reduction in the odds of a student continuing. However, given the erratic manner in which continuation rates change as travel time increases for younger students (Figure 9), this interpretation is slightly problematic.
2. Belonging to one School was a positive indicator overall for continuation for the cohorts studied. However, school continuation rates varied considerably year on year.

3. Students entering with A level qualifications as opposed to BTECs was a strong predictor of continuation.
4. With all other factors taken into account, being of Asian ethnicity was a highly significant indicator of continuation. Young students of black ethnicity were also slightly more likely to continue compared with white students.
5. Male students were less likely to continue compared with female students. Other analysis shows that this relates to ethnicity, with the gender gap being much wider for non-white ethnicities.
6. Not giving the university household income information was a negative indicator of continuation, and this is likely to relate to other factors unquantified in the model. Those with higher household income performed slightly better than those with low income.
7. Having a disability, entering university through clearing or residing in disadvantaged areas (IMD decile 1 or 2 or POLAR quintile 1 or 2) had little impact on continuation with other factors taken into account.

Mature students

1. Travel time was also a significant negative indicator of continuation for mature students with a one minute travel time increase corresponding to a 0.6% reduction in odds of continuing.
2. Studying in one of the Schools was also a significant indicator for non-continuation.
3. Non-white students had much lower levels of continuation for these academic years, and being of black, mixed, other or unknown ethnicity were negative indicators of continuation rates.
4. Unlike the findings with younger students, mature students residing in areas with low IMD and/or low POLAR scores were significantly less likely to continue from their first year of studies.
5. Gender was not a significant predictor for continuation.
6. As with younger students, disability had very little impact on continuation rates.

Comparing travel times between young and mature students

Figure 9. Moving averages of travel times and continuation rates of groups of 250 students sorted by travel time, from shortest to longest, and split by age group

A clearer, more linear relationship between travel time and continuation rate exists for mature students (blue line). Generally, the longer mature students have to spend travelling to campus, the more likely they are not to continue.

In contrast, continuation rates for young students (orange line) initially decline as travel times increase to around 20 minutes, but are then mostly quite static, other than between 55-85 minutes where continuation is particularly low. The poor continuation rates of students in this travel time bracket may relate in part to the areas these students are travelling from and the level of disadvantage they experience

5.5 Summary outputs for HEI Five

Descriptive statistics

A histogram of student travel times produced a peak at around 15-20 minutes, outside of a plot for a normal distribution of frequencies. There was a broader peak at around 40-50 which was within the margins of the normal distribution (Figure 9). The median commute time of students was 38 minutes (mean = 39.9 min; SD = 20.5 min).

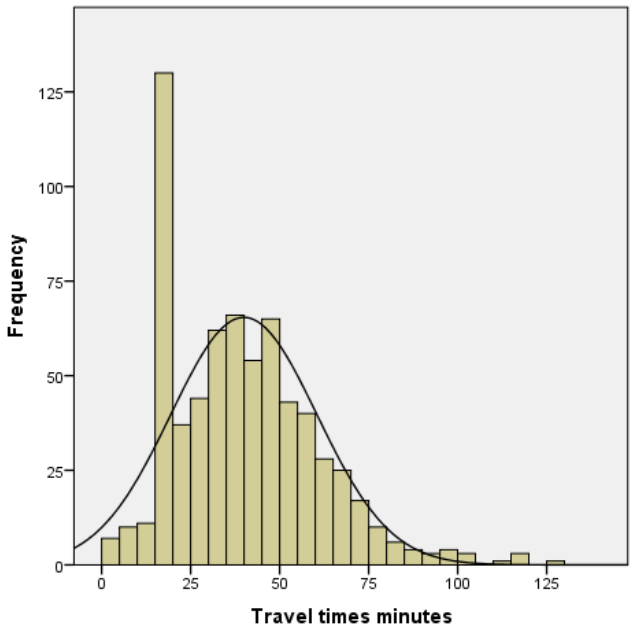

Figure 10. The distribution of travel time to campus in minutes for 2015/16 full-time first degree entrants

Main findings from logistic regression model

1. Although progression at first attempt was negatively affected by travel time, this was not a statistically significant predictor in the final model.
2. Entry qualification was a clear predictor of student progression and was significantly lower for students with BTECs as the highest qualification on entry relative to students with A level qualifications.
3. Progression at first attempt was significantly dependent on subject of study.
4. Other factors such as ethnicity, gender, entry through clearing or reported disability were not significant predictors for progression.

5.6 Summary outputs for HEI Six

Descriptive statistics

A histogram was produced and indicated a relatively normal distribution, with a positive skew. Travel time peaked at around 40-60 minutes (Figure 11). The median length of commute was 54 minutes (mean = 55.6 min; SD = 27.6 min).

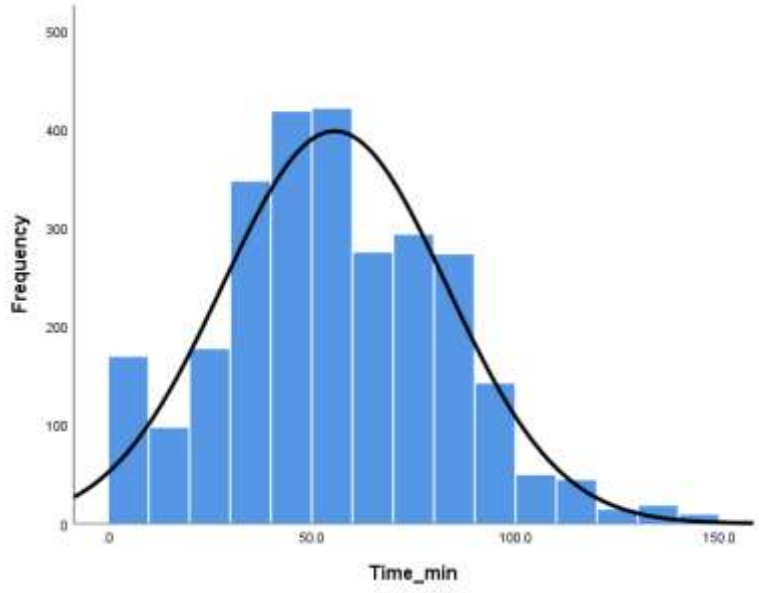

Figure 11. Distribution of travel time to campus in minutes for 2015/16 full-time first degree entrants.

Main findings from logistic regression model

1. After controlling for the effects of the nine student characteristics variables, travel time did not significantly predict progression at first attempt.
2. Progression was significantly dependent on subject of study.
3. Students who entered with prior higher education experience (below full degree) were 33% less likely to progress at first attempt than BTEC students.
4. The strongest predictor variable of progression at first attempt was ethnic group. This finding reflects an ongoing difficulty with attainment gap that the institution has recognised, and been committed to tackling in recent years. Based on the odds ratios, students from Black and Asian minority ethnic backgrounds were 38% and 47% less likely to progress at first attempt, respectively, than their White peers.
5. Mature students were 26% less likely to progress than younger students.
6. Gender, receiving a bursary, living in a disadvantaged neighbourhood, being the first generation to go to university, or having a disability did not significantly predict progression at first attempt.

Travel times to campus and associated factors

Based on the present analysis, travel time was not found to have a direct impact on progression outcomes. When reviewing descriptive statistics alone, it is evident that students who lived within 20 minutes of campus progressed at a rate of approximately 80%, compared to students who travelled for one hour who progressed at a rate of approximately 71%. However, the relationship between commute and progression then reversed, with progression rate rising again (Figure 12).

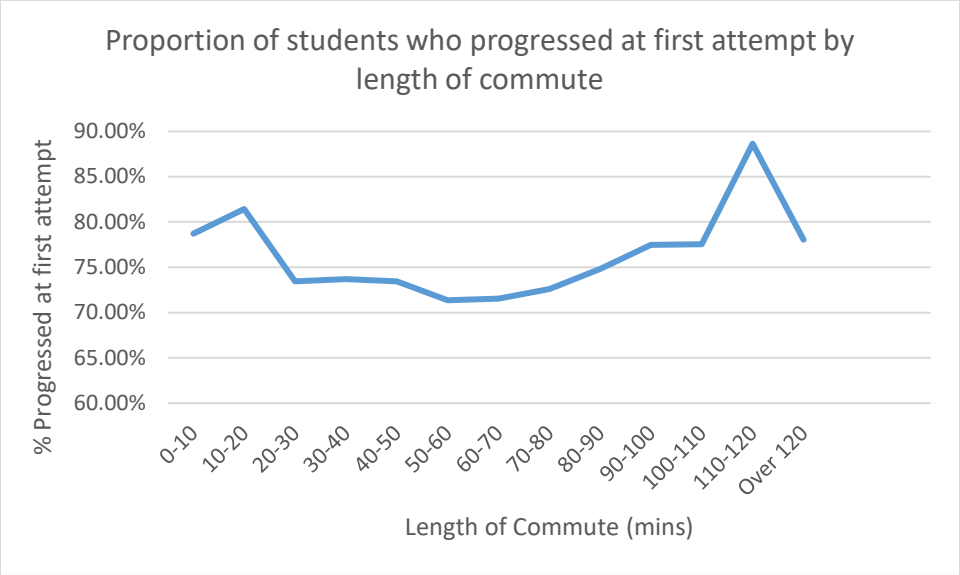

Figure 12. Percentage of students who progressed at first attempt by length of commute

It may be that any differences found in progression rate were due to chance, or accounted for by student characteristics included within the regression model. For instance, students who lived on-campus were much more likely to be young students, and the model found that younger students were significantly more likely to progress at first attempt.

Similarly, it may be that the peak towards the upper commuting time threshold was due to the subject areas that happen to take place at one campus and which is difficult to reach by public transport, but the subjects are also more popular with younger students, and which were positively associated with progression outcomes for students.

Future research may consider running individual analyses by campus, as it may be that differences between campuses are influencing results.

6. Concluding remarks

The pilot project found travel, or commuting, time remained a significant predictor of student progression or continuation for England-domiciled full time undergraduates at three of the six London institutions participating in the study, after accounting for the expected influence of subject and other factors such as entry qualifications.

Since continuation is the single most weighted indicator in TEF, accounting for 25% of the metrics, then factors influencing continuation need further investigation. Travel time does not currently contribute to the benchmarks in TEF. In the current TEF specification a student is defined as 'local' if their home address is within the same Travel to Work Area[2] (TTWA) as their location of study (Department for Education, 2017a), and London is considered to form a single travel-to-work area where students can travel for more than an hour for study (Maguire and Morris, 2018). In an analysis of TEF awards HE providers with a large proportion of 'local' students were more likely to obtain the lowest (Bronze) rating (Department for Education, 2017b).

London Higher will seek to engage HE stakeholders, including DfE, on the need to assess travel time for characterising commuter students and in continuation measures. We will promote the analysis framework among our members, and initiate a scoping study on commuting issues for HE staff in London with possible impacts on the student experience.

Recommendations

- Use of the standard analysis framework by other HEIs outside of the pilot project
- Extend the framework to relate travel time with attainment and/or graduate-level employment
- Methods to study the intersectionality between factors such as travel time and ethnicity
- Incorporate HEI-based analyses of continuation factors in TEF benchmarks and outcomes

[2] http://arcg.is/1mq4bu

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