Draft Report September 2018

What impact does rurality have on the life chances of young people?

Autumn 2018

Rurality CUSPE team

1. Introduction

1.1 Project Brief

There is an increasing recognition that rural communities may be overlooked when policy decisions on poverty, deprivation and health are being made. Recent research, such as Public Health England's 2017 report in conjunction with the local Government Association, looking at health in rural areas, highlights a number of issues affecting the health and wellbeing of rural communities, including: low-paid work, unemployment of young people, high costs of housing and fuel poverty. This research highlighted the need for statistics that look more closely at conditions experienced by those living in rural locations, and at different areas within it. There is a risk that the current approaches are not sufficient to identify small pockets of deprivation, and often measures more relevant to urban areas are applied equally to urban and rural areas.

We narrowed down the question 'What impact does rurality have on the life chances of young people?' by defining 'life chances', 'rurality' and 'young people' (table below).

Life chances	The opportunity each individual has to improve their quality of life, these can be separated into tangible and intangible resources.
Rurality	We will use the Cambridgeshire Insight data platform to categorise Cambridgeshire Lower Super Output Areas (LSOAs) by their rurality ('Urban town and city', 'Rural town and fringe', 'Rural Village and Dispersed').
Young people	16-24 year olds

Life chances are defined as the opportunity each individual has to improve their quality of life. These opportunities can be separated into tangible and intangible resources. Tangible resources include food, shelter, transport and the internet. Intangible resources include opportunities for education, work and quality of wellbeing.

This report aims to address the interests of the Children and Young People's Committee. Consequently we chose to focus on the intangible resources, addressing the opportunities for education, work, and health, as well as exploring the implications of rurality for internet and mobile connectivity.

1.2 Report outline

This report begins with a discussion of the approach taken during the project, and then proceeds to look in-depth at the key areas of interest identified as potential

metrics of the impact of rurality on young people's lives. It is broken down into three main sections 'Education and Work', 'Health' and 'Connectivity'. Within 'Education and Work' we discuss differences between urban and rural schools in terms of the careers advice, work experience opportunities and breadth of pre/post-16 options for young people as well as differences in educational attainment. Within health we discuss childhood obesity rates in rural and urban areas and their relationship to deprivation. The third section highlights the importance of connectivity in terms of access to the internet and briefly summarises ongoing work undertaken by Cambridgeshire and Peterborough Combined Authority in this area.

In each section, a brief overview of the area is given, followed by an explanation of the method, data and results used to assess the impact of rurality, given that metric. Each section concludes with a discussion and potential recommendations. These recommendations are grouped together for the conclusion of the report, alongside an evaluation of the study and proposals for future work and data to collect.

1.3 Methods

We sought to review the existing data at the national level, which explored the impact of rurality on young people for the measures of opportunity that we chose. While extensive, this data is limited for this study by the size of the area categories. Consequently, we supplemented this data with quantitative data analysis from pre-existing data held by the Cambridgeshire County Council's Business Intelligence team. We spoke with members of the County Council, gaining insights from qualitative data from previous focus groups in rural communities.

2. Educational and Work

2.1 Careers advice, choice of A-level subjects, and other post-16 training

Background

Aspirations of young people and their ability to pursue their ambitions is strongly affected by the choices they make as they leave school. As reported by Cambridge Assessment, the advice available to students and the curriculum on offer in schools are important aspects of the changes needed to widen participation. There are fewer secondary schools available in rural communities and the careers advice available in rural schools has been suggested to be of lower quality, as reported by the commission for rural communities.

We first set out to assess the spread of secondary and post-16 education between rural and urban areas according to their LSOAs across Cambridgeshire. We then set out to look if schools in rural vs urban areas had different patterns in quality of careers advice, utilisation of resources, and education options.

Methods

Data on schools in Cambridgeshire was kindly provided by Michael Soper. We further used school websites to then assess if schools had a dedicated careers adviser, provided careers “events” and quantify the breadth of their curriculum. As all schools put in place some measure of careers programme, we ruled events relating to these out, e.g. a PSHE lesson would not be counted, but a talk by an external speaker/company/alumnus would. We also only counted careers advisers whose job description was to manage the careers programmes in schools, deputy heads (or equivalent) with responsibility for careers were not included in our count. Finally, the breadth of curriculum was determined by looking at academic and non-academic subjects on offer pre and post 16 years old. Extra-curricular clubs were not included in this as it is difficult to ascertain if a qualification can follow from membership, however these may offer increased breadth to what is available for students to engage with in schools. Collected data is available as an appendix (amalgamated with the data provided by Michael Soper) and the analysis was run in RStudio.

Results

The spread of schools in urban/rural LSOAs showed the vast majority to be in urban city and town areas, followed by rural town and fringe (Figure 1). One school appeared as urban major conurbation however closer inspection revealed this as Kingsmere school, which in fact is just outside Ely, the headquarters of the independent authority which manage it are based in Hammersmith. The greater

number of schools in urban city and town areas provides more choice of school to young people and agrees with background research.

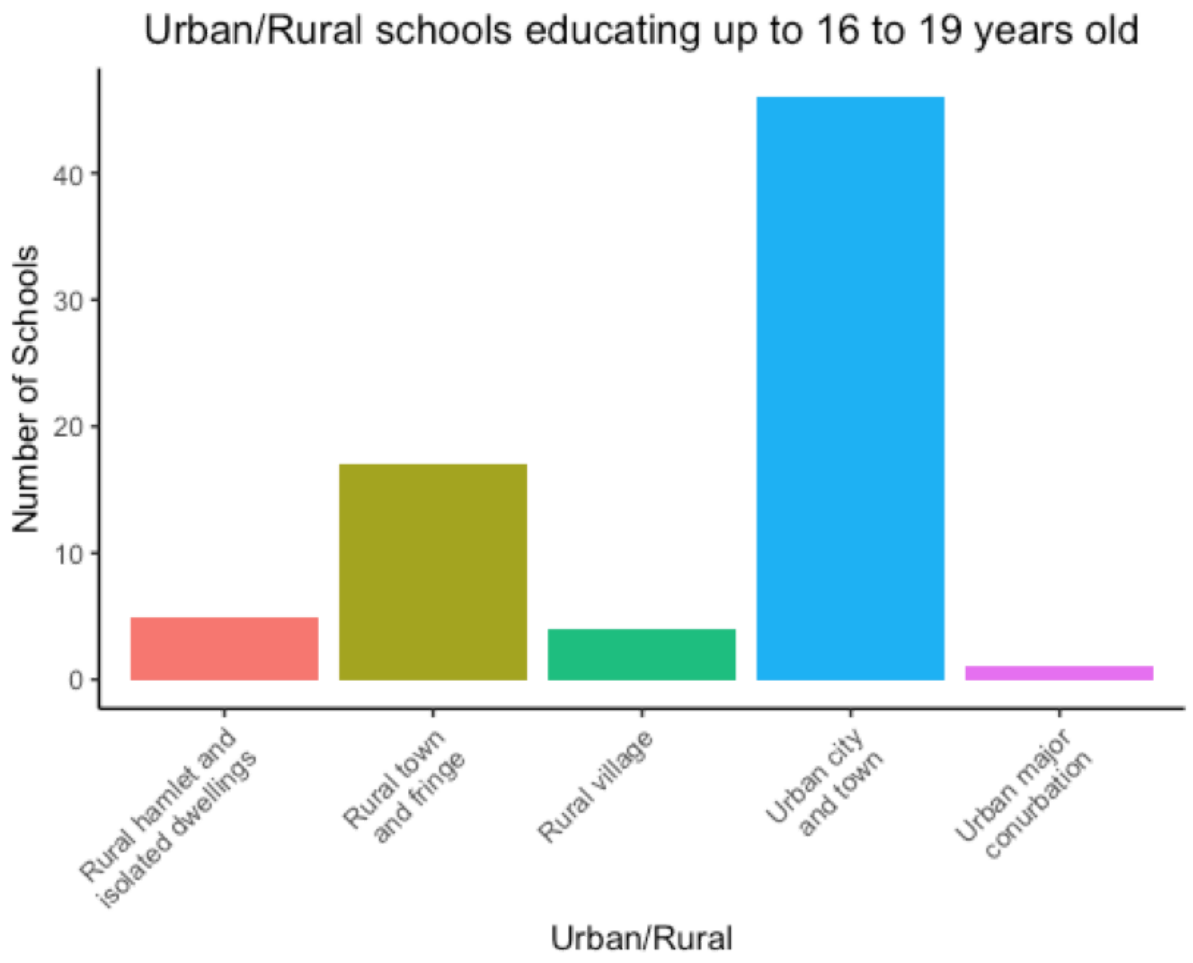

Figure 1: Spread of schools educating young people across LSOAs in Cambridgeshire.

NB: Further work to broaden the limits of our data in the following results is being done. At the moment we have only looked at schools listed as "secondary", this does not include all the schools educating 16-18 year olds (as above) and we will add this data in once we have finished collecting it.

A simple means to assess the quality of schools in urban vs rural LSOAs is to compare their Ofsted ratings (Figure 2). This was done using the most recent Ofsted reports available, schools were grouped together where they had been listed as inadequate then converted to academies, or where a report was not yet available. A possible hypothesis that schools in urban areas are better due to increased size and connectivity to locals has to be rejected as it is clear the majority of outstanding schools are in rural LSOAs, whilst those requiring improvement are in urban city and towns. This may be affected by further data collection including independent schools which are usually highly rated and predominantly in urban city and town LSOAs.

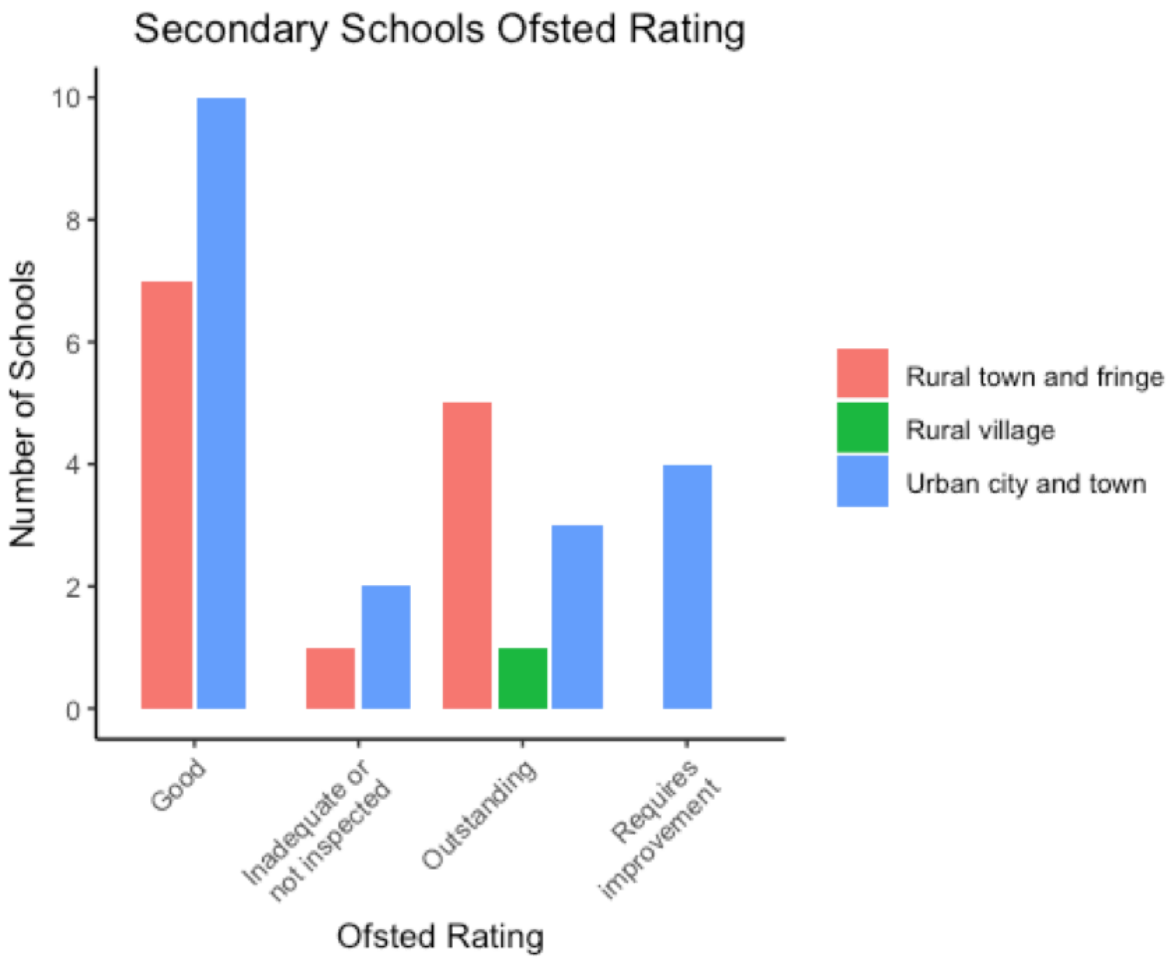

Figure 2: Quantification of Ofsted ratings in urban vs rural LSOAs.

The number of careers advisers working in a given school was quantified by looking through available staff lists on school websites and careers pages (Figure 3). This showed that where no careers adviser seemed to be available, the majority of these schools where in urban city and town LSOAs. We also then considered if schools offer careers events other than in PSHE lesson time, for example external speakers (Figure 4). School websites may be a poor reflection on what is actually available and so a simple yes/no question was answered on whether any events could be found and again, rural schools appeared to do better than urban ones.

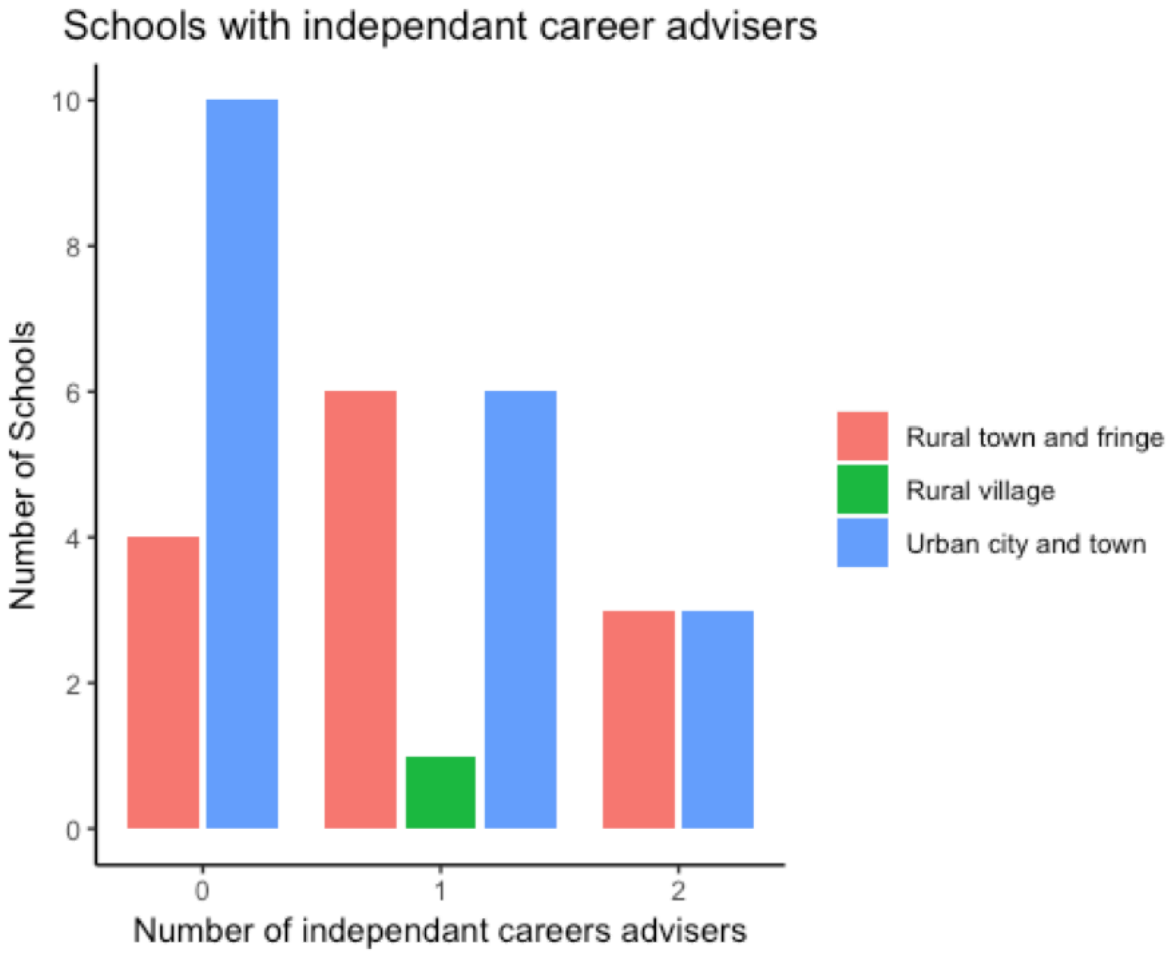

Figure 3: Quantification of personnel in schools whose job description solely focuses on careers, according to urban vs rural LSOAs.

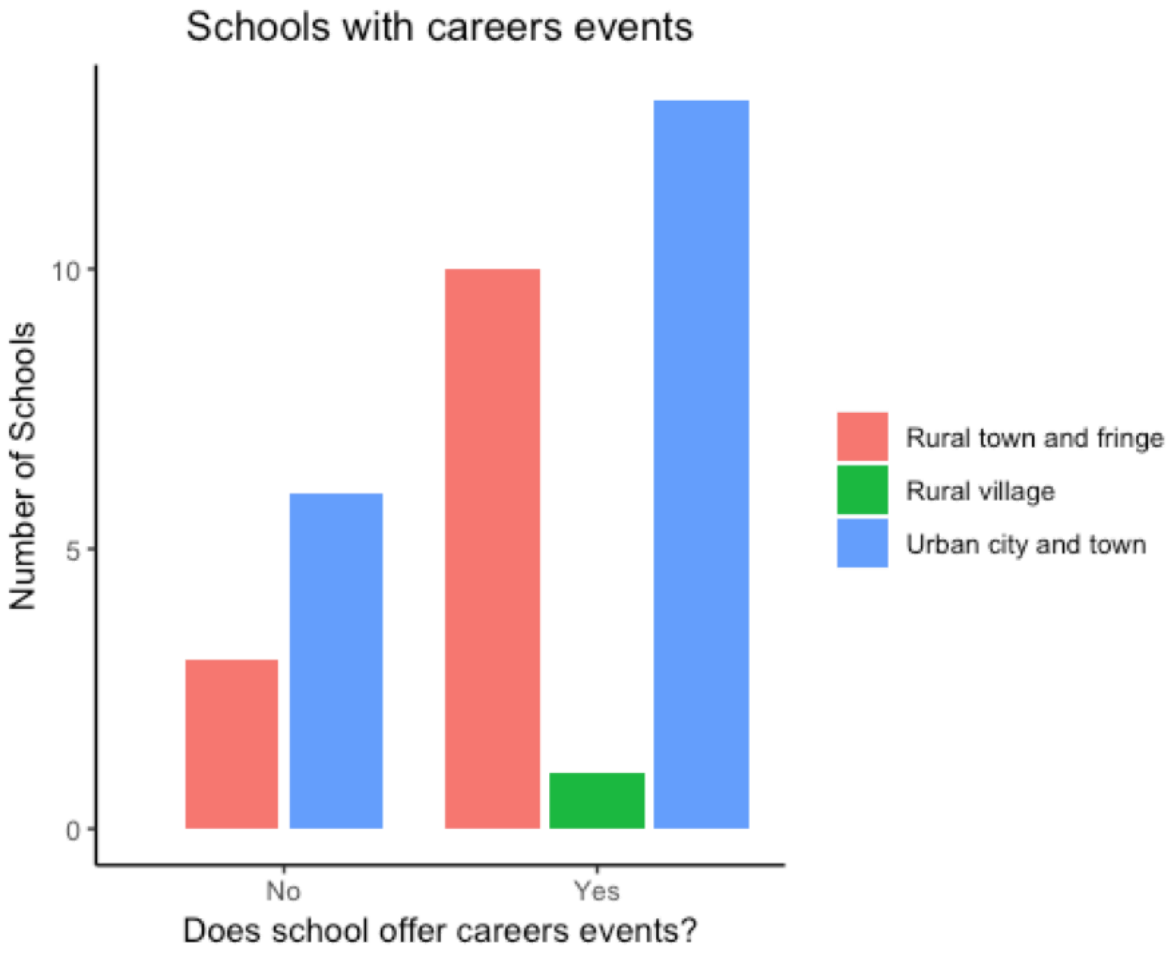

Figure 4: Quantification on schools offering careers events outside of lesson time. Sorted by rural vs urban areas.

Finally, in this section we considered the types of qualifications open to students in urban vs rural LSOAs. In both areas traditional academic qualifications (those where a GCSE or A level are awarded) greatly exceed vocational qualifications of the same standard (e.g. BTEC). Further analysis is being done to assess any statistical significance in the numbers of qualifications on offer as at first glance rural schools appear to offer more traditional course whilst a strength of urban schools is a greater diversity and increased number of non-academic qualifications on offer (Figure 5).

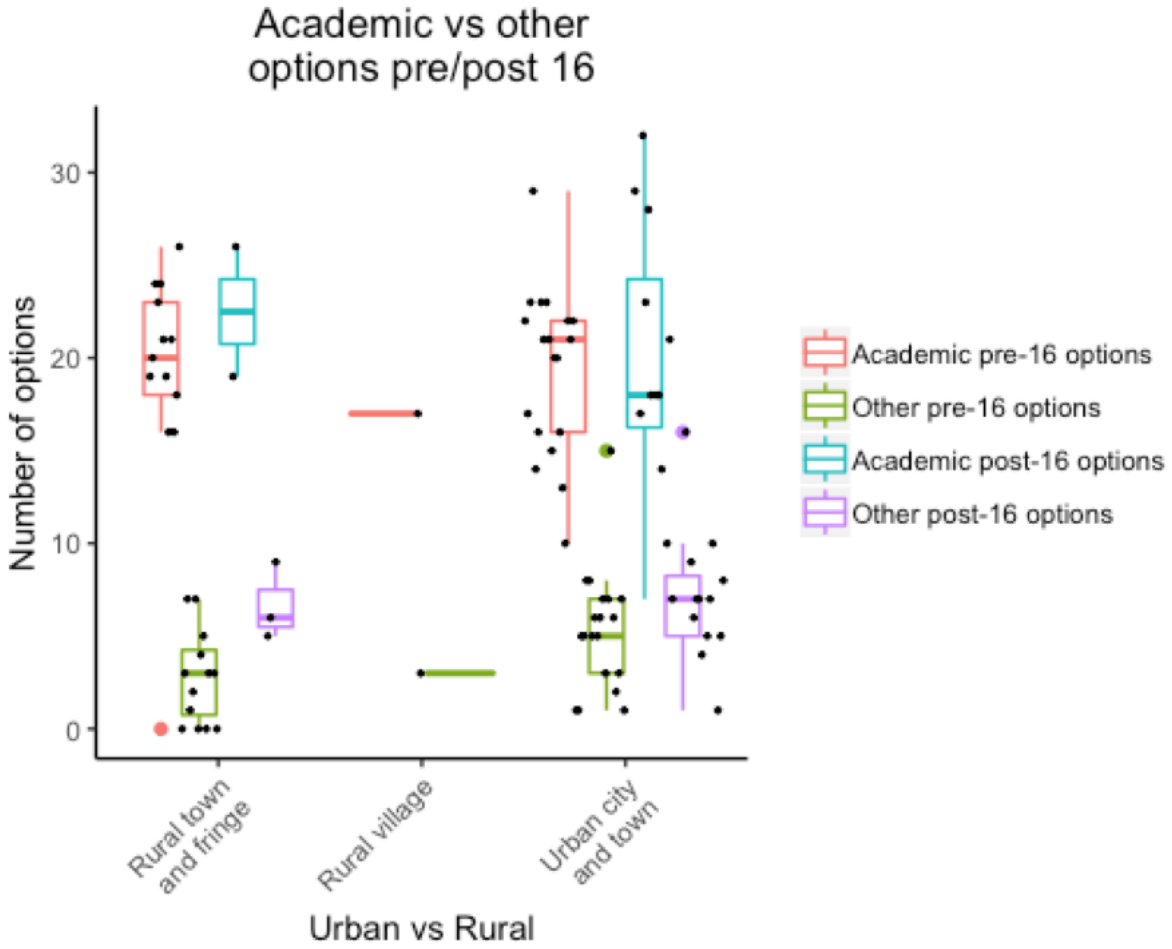

Figure 5: Boxplots of types of qualifications offered in urban vs rural LSOAs. Separated into pre and post 16 years old. The box contains the median value encased in the interquartile range (IQR), whiskers indicate values at most 1.5 away from the IQR and data points further than this are individually plotted as coloured outliers. Individual data points are overlaid in black for each boxplot.*

Conclusions

The majority of schools educating young people are indeed in urban city and town LSOAs. However, these do not necessarily provide the best education and an inequality appears to be evident where rural schools have better Ofsted ratings and are more likely to have careers advisers and events. Urban schools may have a better diversity of qualifications on offer and further analysis is being done to ascertain the substance of this. Overall, it does not appear likely that any reason for decreased aspiration in young people from rural environments can be attributed to their most recent schooling experiences.

Following our research, we would like to recommend the council requests schools to accurately report the employment of careers advisers with no other role in the school and make this information publicly accessible. Additionally, it would be helpful if

schools also reported the number and type of careers events, some were exceptionally good at advertising on their website and providing a calendar for students/parents whilst others relied on “one size fits all” external websites, for their entire careers provision, that would not factor in the local demographics. It should also be simple for schools to report on the types of qualifications students attain, here we have only considered what is on offer, it may be more useful for the raw numbers to be published alongside exam results e.g. 150 students achieved a pass in GCSE in Maths, 12 students achieved a BTEC in construction etc. This will allow the council to ascertain if there is a real difference in the skillsets of young people leaving urban vs rural schools. Schools should also be encouraged to advertise their careers programmes in a set framework allowing easier comparison between schools. As some schools offer a broader and more frequent range of careers events, a centralised database of events in schools may also be useful for students to visit and consider attending in nearby schools that are not their own, thus exposing more students to different options without using much extra resources.

2.2 Educational Attainment

Background

Attainment and educational level has a significant influence on future career options of young people. Although academic qualifications are not necessarily the best measure of potential, they are often used as an initial job requirement, prior to character and personality traits. A-level and other 16 to 18 results are published at the national level by the Department of Education and are broken-down by local authority and school-type. As a whole, Cambridgeshire compares favourably with the national averages, with data from 2017 showing that 19.1% of students achieved AAB or higher in at least 2 facilitating subjects, compared with 17.0% nationally. Here we assess whether the education attainment of young people differs between rural and urban areas of Cambridgeshire.

Method

Educational attainment - by rurality - was identified through the Government’s school comparison website for Cambridgeshire. In Cambridgeshire, 52 schools and colleges are listed as providing 16 to 18 qualifications; these cover a range of types including: Academy, College and Independent Schools. From these 52 schools, there is data for a variety of measures of education attainment from 32 schools or colleges. Each school or college was allocated a rurality measure and the data is presented broken down by: rural village and dispersed; rural town and fringe; and urban city and town.

Does education attainment of young people (at 16-18) differ between rural and urban areas of Cambridgeshire?

The majority of schools and colleges in Cambridgeshire have over 90% of students completing their main study programme (Figure 6). Schools and colleges in the ‘rural

village and dispersed' category have the highest completion rate as a whole. 'Urban city and town' schools and colleges consistently perform best for the average result points (Figure 7) and the points for student's best 3 A-levels (Figures 8). 'Rural town and fringe' schools and colleges perform worst.

Other factors such as school and college type play an important role in these data. Independent schools are predominantly located in the 'urban city and town' category and so this potentially accounts for the widespread of data seen in the A-level results. Further study could be completed focusing solely on state schools and academies.

Conclusions

These data suggest that students who are less able to travel to urban cities and towns in Cambridgeshire will be at an educational disadvantage. It is important that students enrolling in programmes of study for 16-18 years olds understand their options and have access to comprehensive advice on choosing the right centre for their further study.

We recommend that advice regarding schools' and colleges' subject specialisations should be provided and any barriers, such as mobility, should be reduced as much as possible.

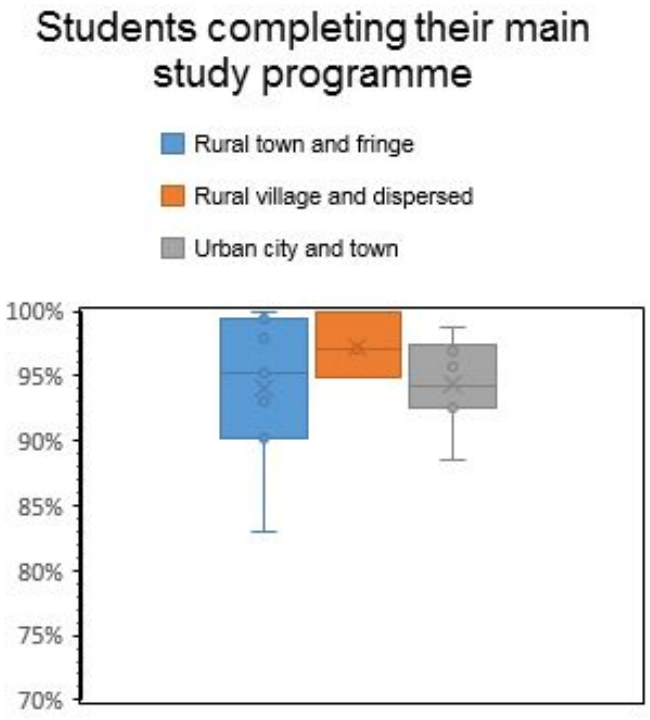

Figure 6. The percentage of students completing their main study programme, for each school and college offering 16-18 education in Cambridgeshire, separated by location. The solid line crossing the coloured rectangle shows the average result for each location.

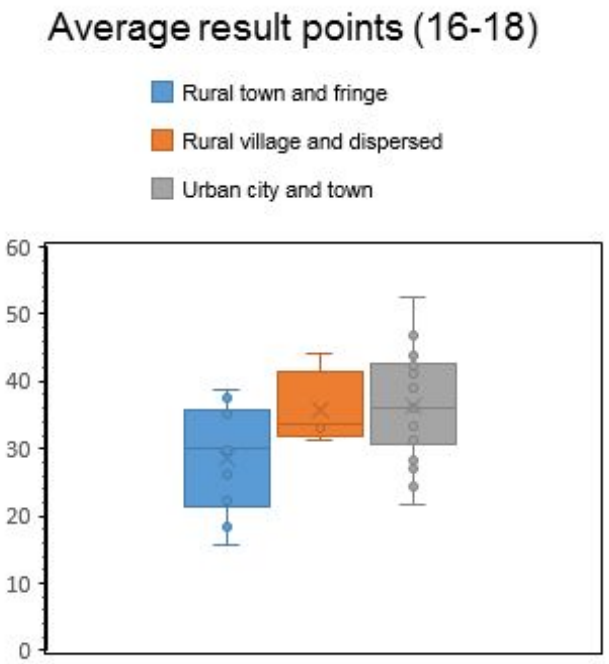

Figure 7. The average A-level results, converted to numerical values (points), for each school and college offering 16-18 education in Cambridgeshire, separated by location. The solid line crossing the coloured rectangle shows the average result for each location.

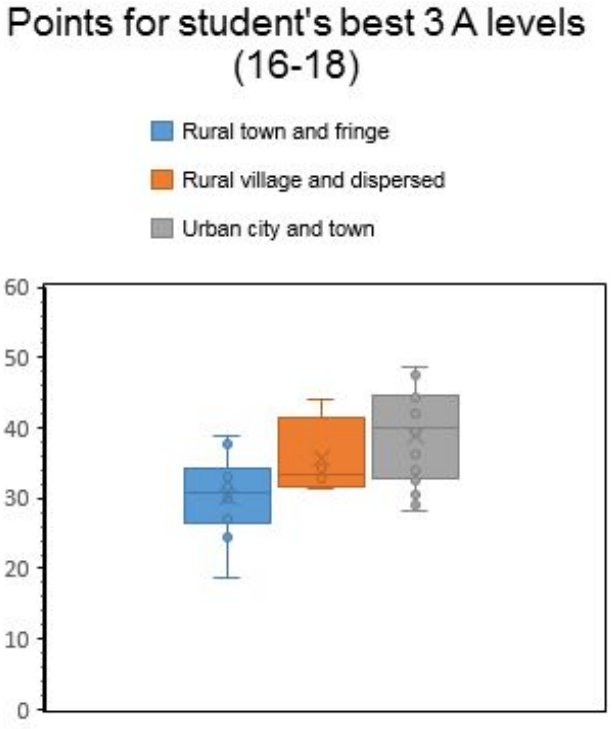

Figure 8. The student's best 3 A-level results, converted to numerical values (points), for each school and college offering 16-18 education in Cambridgeshire, separated by location. The solid line crossing the coloured rectangle shows the average result for each location.

2.3 Work Experience

Background

Despite the government ending compulsory work experience, many schools continue to offer work experience both before and after 16 years old. For some it is compulsory and others optional. We wanted to look for variations in work experience availability across the county and differences in the type of work experience taken up by different students.

Method

Work experience is not well reported within schools and we resorted to looking at school websites for signs of an implemented work experience programme. A simple yes/no question on whether schools offered such a programme was then answered.

Results

The majority of schools do still offer work experience and little difference is evident between rural and urban LSOAs (Figure 9).

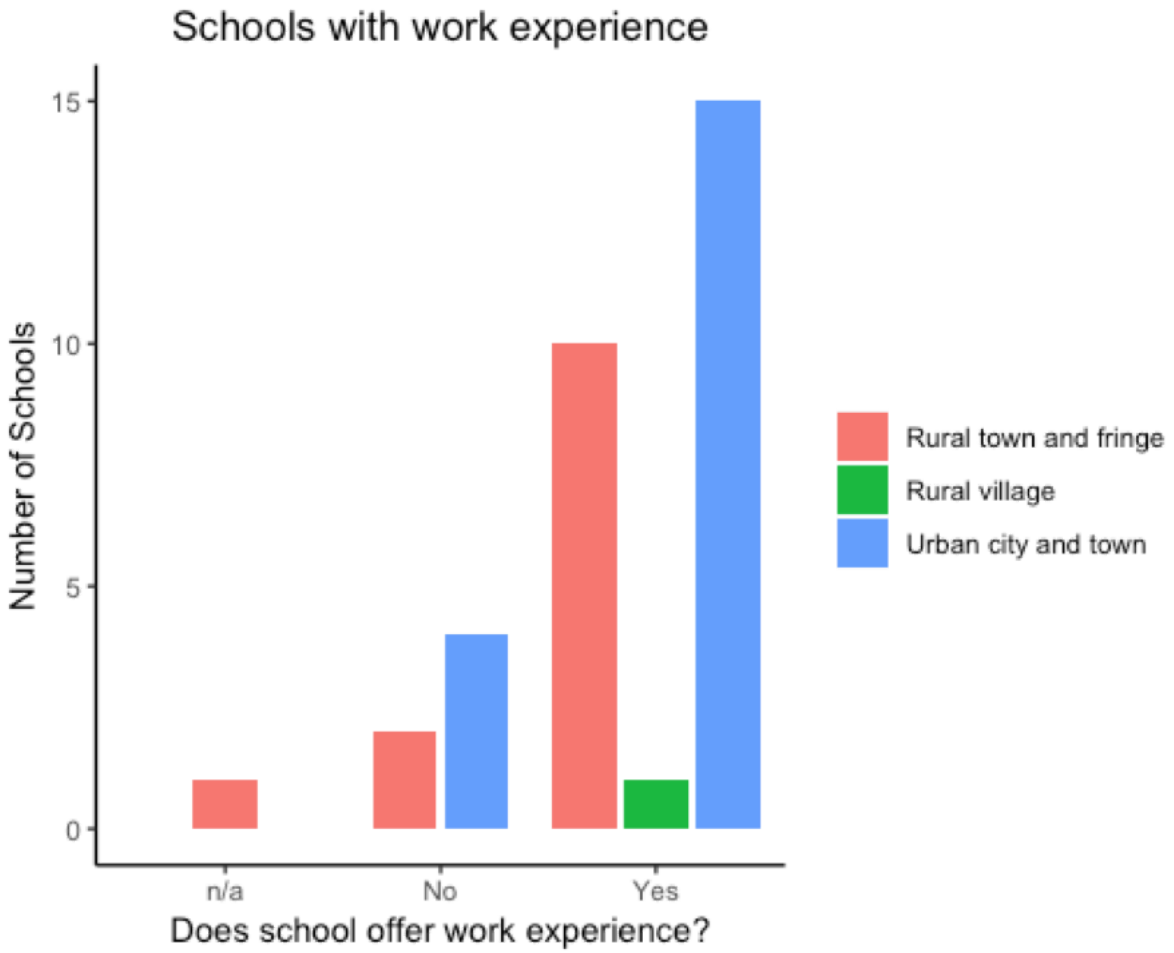

Figure 9: Spread of schools offering optional/compulsory work experience, sorted by urban vs rural LSOAs.

Conclusions

It is difficult to ponder on the effects of work experience as data on this is in poor supply. Schools should be encouraged to report on the numbers of their students that undertake placements and a system set up to classify the type of placement. Additionally, as with careers events, schools should be encouraged to work together and share resources, businesses equidistant from multiple schools could take students from different schools if information on contacts is shared.

2.4 'First generation' student applications to University

Background

'First generation' students to University is a term used when the parents of students do not have a higher level qualification (e.g. degree). Being a 'first generation' University student can, potentially, be a metric for educational aspiration and engagement; although it is argued that University should not be an aspiration for all. We sought to test whether there was a disparity between urban and rural areas of Cambridgeshire in the number of first generation applications to University. The data

for such a study comes from a non-mandatory UCAS question, so this only gives a partial picture of the whole cohort. Furthermore, the data from this UCAS question is only broken down by Local Education Authority, and this remains at the Cambridgeshire and Peterborough level. Consequently it has not been possible to assess this metric as a test of the impact of rurality on young people's educational aspirations.

University of Cambridge case study

At a smaller scale, data on the number of first generation applicants to the University of Cambridge were obtained through a Freedom of Information request. The applicable data was split into two categories: Cambridgeshire and Peterborough. There is a clear difference in application numbers to the University of Cambridge between the two: the number of applications is an order of magnitude lower for Peterborough between 2015-2017 inclusive. The percentage of acceptances into the University from first generation students is higher for Peterborough; between 2015 to 2017 this was 29%, 44% and 40% respectively. For Cambridgeshire, over the same time period, this was 4%, 7% and 13% respectively. This metric fails to normalise for the educational background of the students' parents in each area, and does not account for students who did not reach their full potential, or applied and were not accepted.

Conclusions

While potentially a good metric of student aspiration in rural areas, there are many conflicting explanations for the case study quantitative data. As such, we recommend that further qualitative studies, using focus groups, would provide more beneficial results, allowing a comprehensive assessment of student aspiration in differing regions. This could take the form of a short questionnaire, conducted during 16-18 study.

3. Health

3.1 Background

Obesity was highlighted in the 'Childhood Obesity: a plan for action, chapter 2' as an issue which profoundly affects young people's life chances. Research suggests that children who are classed as obese are five times more likely to be obese as adults (Simmonds, Llewellyn, Owen & Woolacott, 2016). Cambridgeshire has low rates of childhood obesity compared to other local authorities nationally (Public Health England, Public Health Dashboard 2016/17), however we were interested in whether there would be a disparity in obesity rates between the rural and urban areas within Cambridgeshire. The research literature investigating differences between obesity rates in rural compared to urban areas is very mixed with some studies suggesting that obesity is a greater problem for urban areas (Zou et al., 2015) and others suggesting the opposite is true (Liu et al., 2012). This makes it important to try to find out what the driving factors are for obesity in local areas. There is a known link between obesity and deprivation (Cetateanu & Jones, 2014; Kang et al., 2006). with rates of obesity in the most deprived areas being twice that of the least deprived areas (National Child Measurement Programme 2016/17). We were interested in whether this holds true within Cambridgeshire and in testing whether there is an interaction between rurality and level of deprivation.

3.2 Method and Results

Publicly available Public Health England data from the National Child Measurement Programme were used to assess rates of obesity in reception children and children in year 6 in the years 2014/15-2016/17. The obesity data is only available at the level of Middle Layer Super Output Areas (MSOAs) so Cambridgeshire MSOAs were broken down into their rurality categories (Rural town and fringe, Rural village and dispersed, and Urban city and town). No statistically significant difference in obesity rates was found between the rurality categories for children in reception or year 6 (See Figure 10 below).

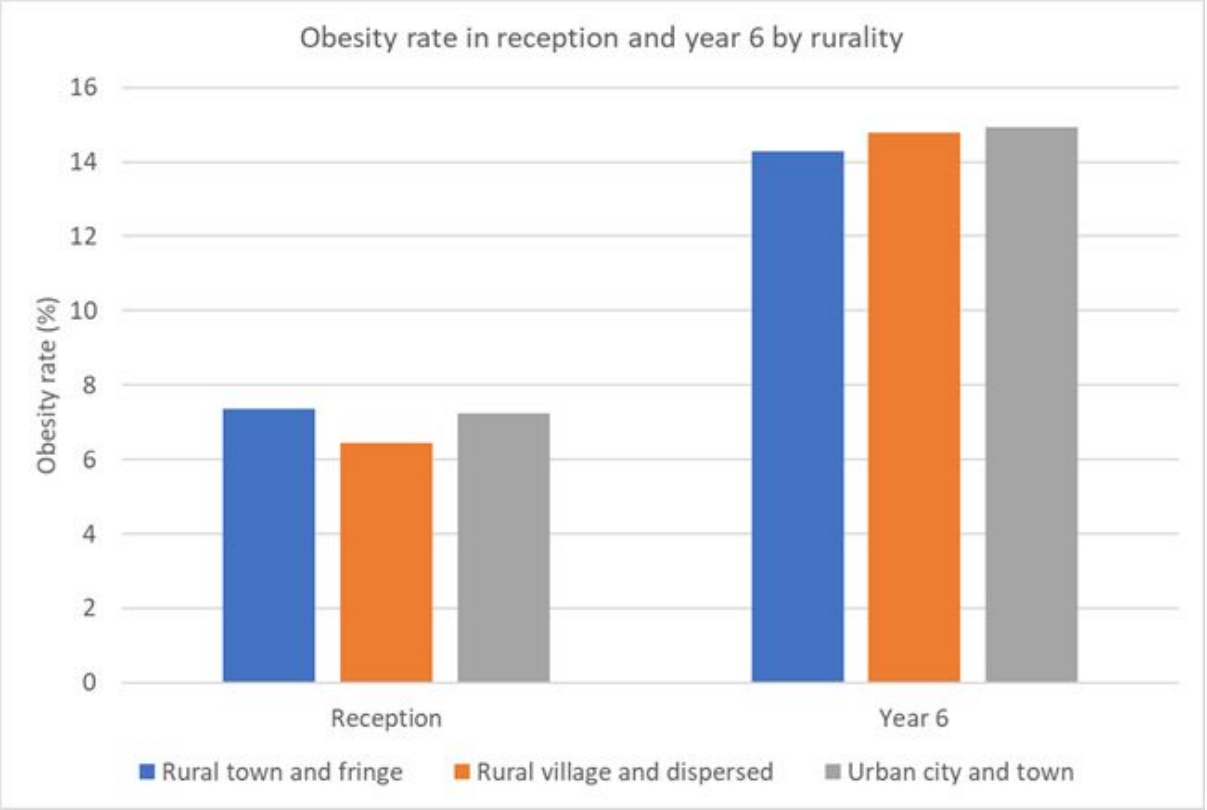

Figure 10. The rates of obesity in Reception and Year 6 in 2014/15 -2016/17, broken down by rurality category.

Cambridgeshire LSOAs were coded according to their rurality category and their level of deprivation as measured by the Index of Multiple Deprivation (IMD). A statistically significant difference between the IMD scores of LSOAs in the different rural categories was found, however there is a wide spread of deprivation scores across the LSOAs within each rural category (Figure 11).

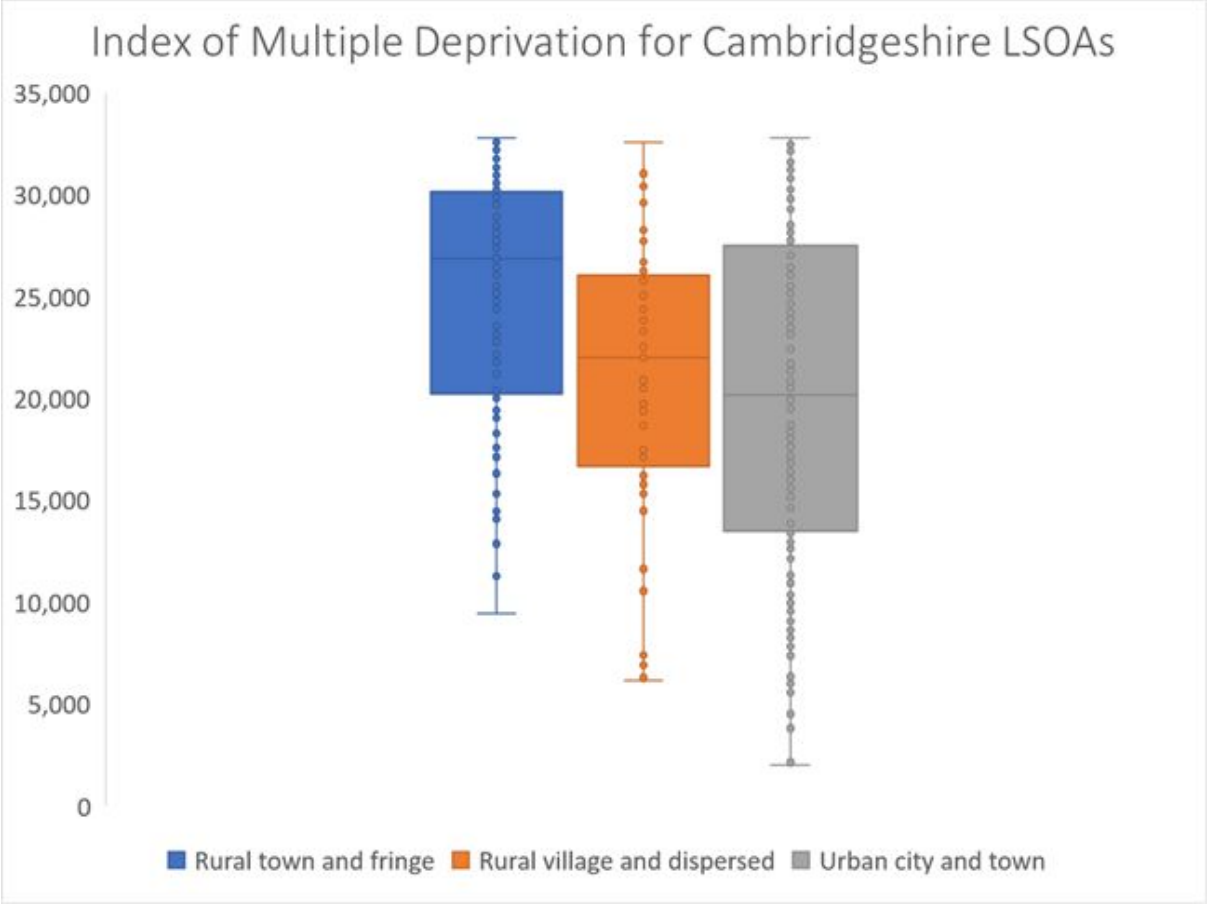

Figure 11. The Index of Multiple Deprivation (IMD) of Cambridgeshire LSOAs, broken down by rurality category.

In order to compare the relationships between obesity rates and deprivation, Cambridgeshire MSOAs were coded according to their rurality category and their *average* level of deprivation. There was a relationship between deprivation and obesity in Cambridgeshire with MSOAs that were more deprived (lower IMD scores) also having higher rates of obesity (See Figure 12).

Unfortunately, there were too few observations to provide conclusive results regarding there being a different relationship between obesity and deprivation in rural compared to urban areas. It appears that the positive relationship between deprivation and obesity is steepest in the MSOAs classified as ‘urban town and city’ and ‘rural village and dispersed’ with a weaker or no relationship between deprivation and obesity in areas categorised as ‘rural town and fringe’.

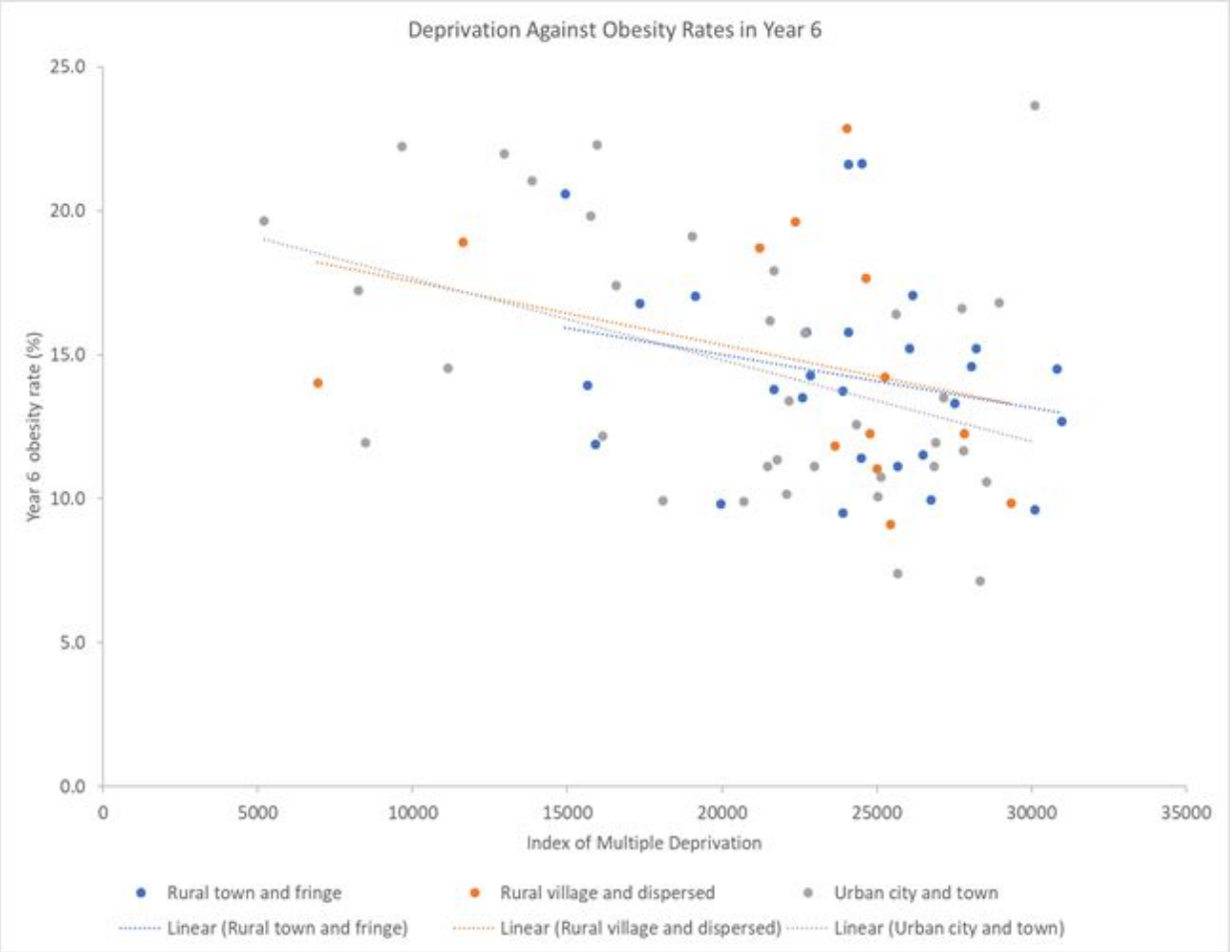

Figure 12. A scatter graph showing Index of Multiple Deprivation along the x-axis (lower score for higher deprivation) and the rates of obesity in Year 6 along the y-axis for Cambridgeshire MSOAs. The blue, orange and grey dotted lines show the trend lines for 'rural town and fringe', 'rural village and dispersed' and 'urban city and town' MSOAs.

3.3 Conclusions

While there was no difference found between childhood obesity levels between the three rural categories at the MSOA level, it may be worth seeking data at the LSOA level for a more detailed analysis of how rurality relates to obesity and levels of deprivation. Given the disparity between obesity rates between the most deprived and the least deprived areas, we recommend taking steps as suggested in the report 'Childhood Obesity: a plan for action, Chapter 2' to narrow the gap.

4. Mobile connectivity

4.1 Background

A recent survey showed that the most important device for rural businesses was a smartphone (82%), closely followed by a laptop (79%). Developments such as cloud computing, 5G mobile and flexible working are widely considered relevant to future business growth; without business growth there are fewer work opportunities for young people in rural areas, and fewer opportunities negatively impact on the life chances of young people.

Ofcom's annual connected nations report highlights that Cambridgeshire is below the national average for mobile coverage, including 2G and 4G services, in all areas excluding urban cities. This is a clear disparity between urban and rural regions, placing young people in rural communities at a disadvantage.

Young people require connectivity for a variety of reasons, from study to socialising. We aimed to assess if there was a disparity between rural and urban areas in terms of mobile coverage? What effect this has on the work opportunities for young people? And how rurality effects mobile internet (3G, 4G, 5G?).

4.2 Method and results

During the course of this project, the 'Connecting Cambridgeshire program' was launched and was subsequently awarded £4.15m funding from the government's Rural Broadband Infrastructure Scheme. This program comprehensively addresses the current state of Cambridgeshire's connectivity for: broadband, mobile coverage, fibre, 5G implementation and public WiFi access. It also looks at ways to increase business connectivity and suggests key areas for removing barriers to ensure all levels of the community benefit from increased connectivity.

This is needed to reduce disparities between urban cities and towns, and more rural areas: the data from the Ofcom's Connected Nations report (Spring 2018) show all areas of Cambridgeshire perform worse than Cambridge for mobile connectivity (figure 13). The Fenlands and East Cambridgeshire have a significantly lower percentage of signal coverage; this correlates with rurality. Consequently, young people in the Fenlands do not have access to the same services as those in urban areas. It also lowers the likelihood of new business investment in those areas, decreasing the number of work opportunities for young people.The 'Connecting Cambridgeshire program' aims to increase network coverage, by working with mobile operators. The program seeks to ensure that 4G mobile connectivity can be used across the county by 2022.

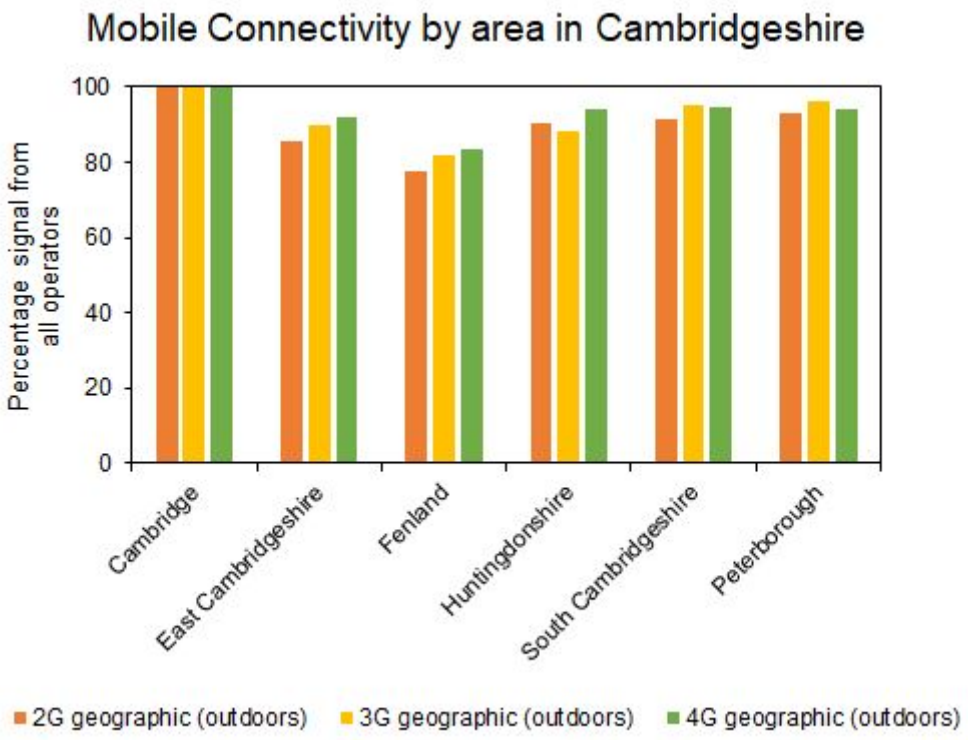

Figure 13. A bar chart showing mobile connectivity data by local authority, collected from all mobile networks operators by Ofcom for January 2018 for Ofcom's Connected Nations annual report.

4.3 Recommendations

It is important to ensure that approaches to increasing connectivity in rural areas include discussions with the residents; there is a risk in projects with Government funding input that the project has a top-down approach and few residents, or businesses, in the area impacted are aware of the changes.

5. Conclusions and Recommendations

5.1 Education and Work

- Advice regarding schools' and colleges' subject specialisations for A-levels should be provided to students at GCSE.
- Barriers to attending a 16-18 education institution best suited for the student's needs, such as mobility, should be reduced as much as possible.
- Qualitative studies, using focus groups, to assess student aspiration in differing areas of Cambridgeshire.
- Schools should improve reporting on their careers programmes, including employment of careers advisers and a centralised database for careers events and work experience.
- Reporting of types of work experience undertaken by students, and types of qualifications attained in different schools would allow the council to ascertain the variety of skillsets achieved by students across the county and between urban and rural communities.

5.2 Health

- If possible, seek childhood obesity data at the LSOA level for a more detailed analysis of how rurality relates to obesity.
- Take steps as suggested in the report 'Childhood Obesity: a plan for action, Chapter 2' to narrow the gap between childhood obesity rates in the the least deprived and most deprived areas of Cambridgeshire.

5.3 Connectivity

- Ensure that approaches to increasing connectivity in rural areas include discussions with the residents; there is a risk in projects with Government funding input that it becomes a top-down approach.

6. Evaluation and Further Work

This project has engaged with a wide number of potential metrics to look at the impact of rurality on the opportunities for young people. We have analysed national and county collected data sets, as well as examining the literature on the issues around rurality. Initial discussions with members of the council were invaluable and provided significant direction for narrowing down the focus of our question.

Some of the metrics we set out to assess did not deliver data suitable to answer the question posed, e.g. 'First generation' student applications to University; and well-being in rural communities. For the former, a more qualitative approach has been recommended, while for the latter, we recommend using other metrics or focus groups to, again, have a more in-depth, qualitative data set.

Moving forward, it could be valuable for the Cambridgeshire County Council to take note of any changes to how other councils are identifying and tackling issues of disparity in opportunities for young people in rural communities.

References

Cambridge Assessment: "A-level choice in England: patterns of uptake and factors affecting subject preferences". Taken on 19th September from http://www.cambridgeassessment.org.uk/Images/111069-a-level-subject-choice-in-england-patterns-of-uptake-and-factors-affecting-subject-preferences.pdf.

Commission for Rural communities: "Barriers to education, employment and training for young people in rural areas". Taken on 19th September from http://dera.ioe.ac.uk/15199/1/Barriers-to-education-employment-and-training-for-young-people-in-rural-areas.pdf.

Department for Education, 'All schools and colleges in Cambridgeshire', Retrieved from https://www.compare-school-performance.service.gov.uk/schools-by-type?step=phase&region=873&geographic=la&phase=16to18, accessed September 2018.

NHS Digital. (2017). National Child Measurement Programme 2016/17

Cetateanu, A., & Jones, A. (2014). Understanding the relationship between food environments, deprivation and childhood overweight and obesity: evidence from a cross sectional England-wide study. *Health & place*, *27*, 68-76.

Department of Health and Social Care: Global Public Health Directorate: Obesity, Food and Nutrition / 10800. 'Childhood obesity: a plan for action, Chapter 2' 2018. Retrieved from

https://www.gov.uk/government/publications/childhood-obesity-a-plan-for-action-chapter-2.

Liu, J. H., Jones, S. J., Sun, H., Probst, J. C., Merchant, A. T., & Cavicchia, P. (2012). Diet, physical activity, and sedentary behaviors as risk factors for childhood obesity: an urban and rural comparison. *Childhood Obesity (Formerly Obesity and Weight Management)*, *8*(5), 440-448.

Kang, H. T., Ju, Y. S., Park, K. H., Kwon, Y. J., Im, H. J., Paek, D. M., & Lee, H. J. (2006). Study on the relationship between childhood obesity and various determinants, including socioeconomic factors, in an urban area. *Journal of preventive medicine and public health= Yebang Uihakhoe chi*, *39*(5), 371-378.

Public Health England, Public Health Dashboard. Retrieved from https://publichealthmatters.blog.gov.uk/2018/07/12/an-introduction-to-the-public-health-dashboard/.

RStudio Team (2015). RStudio: Integrated Development for R. RStudio, Inc., Boston, MA URL http://www.rstudio.com/.

Simmonds, M., Llewellyn, A., Owen, C. G., & Woolacott, N. (2016). Predicting adult obesity from childhood obesity: a systematic review and meta-analysis. *Obesity reviews*, *17*(2), 95-107.

Zou Y, Zhang R, Zhou B, et al 2015 A comparison study on the prevalence of obesity and its associated factors among city, township and rural area adults in China BMJ Open 2015;5:e008417. doi: 10.1136/bmjopen-2015-008417.

Ofcom 2018, 'Connected Nations update: Spring 2018' report, accessed September 2018.

https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-update-spring-2018