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The potential for personalized public transport solutions to enhance job seekers' access to employment sites

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Abstract

This paper examines the importance of the accessibility of employment locations to job-seekers' perceived work options. It investigates the potential of an employment site-oriented Personalised Collective Transport Service (PCTS) to help solve the limitations of public transport as a principal mode for accessing work. Attitudes to a PCTS for commuting as influenced by gender are also reported.

A quantitative survey (n = 254) was administered as a self-completed questionnaire by individuals attending three 'Jobcentre Plus' offices in Bristol, UK, during September 2017. The data were compared with 2011 census data on Bristol commuters.

Perceived transport-related barriers emerged as second only to jobseekers' qualifications and skills. Transport related barriers had been an inhibiting factor in attendance at both jobs and job interviews. We found that many jobseekers were looking for work proximate to their homes. Ambition to work in non-central locations in the city, that were distant from place of resident, was particularly inhibited. Whilst Public transport was an important mode amongst the sample studied, its users felt more limited than non-public transport users regarding which parts of the city they could work in. It was concluded that a PCTS could enhance equity in the labour market. In terms of desirability of the service, female respondents were found to be generally more positive, to be more likely than males to agree that travelling with colleagues would encourage them to use PCTS, and more likely to agree that being offered shopping vouchers would encourage them (differences significant at $p < 0.05$).

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1. Introduction

Many employment opportunities are located in non-central areas of cities. These opportunities can, in reality and/or perception, be hard to access. These issues, especially of perception, may be particularly heightened for job seekers.

We present data from a survey of job seekers undertaken both to enhance our understanding of these issues in their own right, but also to assist in the development of a Personalised Collective Transport Service (PCTS) being promoted as an initiative of the Mobility On Demand Laboratory Environment (MODLE) project in Bristol, funded by Innovate UK, and led by Esoterix (a technology company specialising in intelligent mobility solutions).

Hence, the research sought to assess the problem of accessibility issues that job seekers face, and the role PCTS might play. The two research questions were:

1. How important is transport as a barrier in seeking employment?
 - a. In what diverse ways is it a barrier?
 - b. How far do these barriers show a spatial component?
 2. How can innovative transport solutions such as a PCTS be an attractive and useful option for job seekers?
- Data were collected through a survey of attendees at three Jobcentre Plus offices in Bristol.

Section two presents a review of the literature on the job seeking process with particular focus on relevant transport factors. Section 3 presents the findings and Section 4 presents a discussion and conclusion.

2. Literature review

There are a number of economic models for the supply and demand for jobs (see McFadyen and Thomas, 1997, and Lippman and McCall, 1976, for summaries). Models tend to be focused on estimating the length of time for a job search and are based on the job seeker encountering a predicted number of job offers over time, the jobseeker's perception of what his/her services are worth, and the wages being offered for the various jobs. More complex models take account of the number of other workers, job supply and job demand.

Such models have however been criticised by Hanson and Pratt (1991) who argue that in many cases, certain 'types' of people end up with certain types of jobs. Gender is a particularly important type classification in this regard. Job searches are hence affected by many social, psychological and other factors beyond purely supply and demand considerations.

Transport considerations are among the practical factors that can affect job search and subsequent employment. These include the mode(s) of transport available to the job seeker. In the USA context, car ownership has been found to be strongly associated with the chance of finding employment (Cervero et al., 2002). Similarly Shen (1998) found automobility (as opposed to public transport use) to be a more important determinant of job accessibility than residential location.

Quinn (1986) investigated the importance of public transport and proximity to public transport stops or stations was found to be important for those without cars. Cervero et al. (2002) found that employment was higher where there was more housing near to bus and rail services. Other studies (e.g. Shen, 1998) found that users of public transport who live near to public transport benefit from higher accessibility compared to those living further away. The importance of public transport is contested by Holzer et al. (2003) based on its sharply declining benefit as the distance from the service's route to either home or workplace increases.

Some studies have found that job searches tend to be geographically constrained, with the popularity of jobs decreasing sharply the further away they are from the seeker's residence. Manning and Petrongolo (2017) modelled

8850 census wards in England and Wales, and found that in the case of two random jobs being offered, one of which was local and the other was 5km distant, the job seeker was predicted to choose the latter only one in five times.

This suggests a high ‘cost of distance’ (p.5) amongst job seekers. Manning and Petrongolo suggest this supports Bonhomme and Jolivet’s (2009, cited in Manning and Petrongolo, 2017) finding that European workers were willing to have substantially smaller salaries in order to have satisfactory commute distances. Whilst distances over 5km may be prohibitive for many, McQuaid and Lindsay (2002), in a small UK study based on 115 interviews, suggested only a very small minority (less than 5%) of job seekers would only look in their immediate neighbourhood for jobs.

The importance of location for job accessibility has often been defined in terms of a dichotomy between the central business district (CBD) and the outer suburbs. Green et al. (2005) found that not only were there objectively more jobs in the city centre of Belfast compared to other areas of the city, but that young people looking for work accurately perceived this fact. In the USA, Shen (1998) suggested that, despite employment becoming decentralised over preceding decades, workers living near to the CBD still had better accessibility to employment than suburban dwellers. However, the advantage of living near the CBD was less than that of owning a car.

Ricci (2016) reported that being employed on short shift work in Bristol can be perceived as of negligible financial benefit by public transport users. As cars may be prohibitively expensive, young people may need to rely on lifts, (which may be precarious,) especially in neighbourhoods or at times when walking is risky.

Prospective commute time has been a focus of a number of studies (Church et al., 2000, McQuaid et al., 2001, McQuaid and Lindsay, 2002). McQuaid et al. (2001) found that the time job-seekers would be willing to spend commuting was invariant with the number of bus services available, the availability of private transport, and the accessibility of employment sites. Green (1995) suggests that commute times tend to be much shorter than the maximum commute job seekers say they would be willing to undertake, although she does not provide evidence to support this. McQuaid and Lindsay (2002) found that 40% of jobseekers would be willing to commute more than one hour for a full-time job.

Quin (1986) argues that job vacancies in unfamiliar areas may fail to register interest, and that it is often neighbourhoods that are non-central, and on the far side of the city to place of residence, which are unfamiliar. This suggests accessibility to non-central areas should be improved, and that the existence of such jobs should be brought to the attention of job seekers. Quinn also found that almost 75% of journeys to job interviews were to districts familiar to the interviewee (districts covering substantially less than 75% of the city area) and that the existence of bus routes, and knowledge about them played an important role.

Characteristics of job searches can vary by ethnicity (Fieldhouse, 1999,) deprivation of neighbourhood (Clark and Whiteman, 1983, in Hanson and Pratt, 1991) and gender, (Hanson and Pratt, 1991.). Hanson and Pratt contended that, due to caring for children, women are more influenced by a job’s hours and location than men, who may be more focused on wage levels. They argue that women may thus be more likely to work nearer to their home. Through conducting interviews with residents of 620 households they found that the interviewed men’s commute times averaged 20.4 minutes whilst the women’s commute time was 15.5. Women who worked in ‘female-dominated occupations’ (p.242) had even shorter commutes, averaging 12.2 minutes.

Transport factors are amongst the factors then, that can exclude some job seekers from gaining employment. A Previous UK study reported that significant problem being addressed of job seekers finding lack of, and cost of, transport an inhibiting influence on their ability to find work. (Social Exclusion Unit, 2003). This report noted that employers could be more cognizant of, and ready to act upon, difficulties that staff and job seekers might have reaching the workplace. Eight years after this report it was noted that transport exclusion (of which exclusion from work can be a part) had become widely acknowledged amongst policy makers and researchers (Lucas, 2012). However, Lucas notes that, in the UK, local transport authority interest in such exclusion had been disappointing.

There is the potential for new kinds of flexible transport service to influence the constraints and perceptions as noted above. The effect of such flexible transport would be to change the perceived availability of work. There has been a growth in warehousing and work in distribution. The facilities have grown in size in recent years and are now often located at sites peripheral to built-up areas, and hence relatively far from housing. Jobs are low-paid, and low-skilled, and the likely applicants have low access to a car, and so would have particular access issues. A recent UK based report, focusing on transport barriers inhibiting employment for those living in deprived neighbourhoods, has suggested the importance of reliable and affordable public transport for increasing access to workplaces (Crisp et al. 2018).

The Personalised Collective Transport Service proposed as part of the MODLE project would provide collection and drop-off points that could be arranged by the passenger with the availability of checking service progress on an app. Similar services include Uber Smart Routes (Gray, 2015), which ran on a set route, and UberPOOL, which matches passengers with similar journeys (Watanabe et al., 2016). UberPOOL limits differs from PCTS in only accommodating passengers who have up to two different origin-destination requirements for each vehicle trip (Uber, 2014), whereas PCTS would serve multiple origins and destinations. ‘Slide’ is a Bristol-based service allowing commuters with similar journeys to share their journey (Slidebristol, 2016). The service is not focused on specific employment sites. Bridj (Techcrunch, 2014) was a US based service similar to ‘Slide’. The specific features of PCTS are novel and potentially could assist job-seekers.

3. Methodology

Data from 254 respondents were collected in three Bristol Jobcentre Plus offices (Easton, Shirehampton and Horfield) on 12 days during September 2017. One respondent completed on-line, with the remainder completing a paper form, assisted if required by an interviewer. Fig. 1 shows the job centre locations and the home postcodes of respondents.

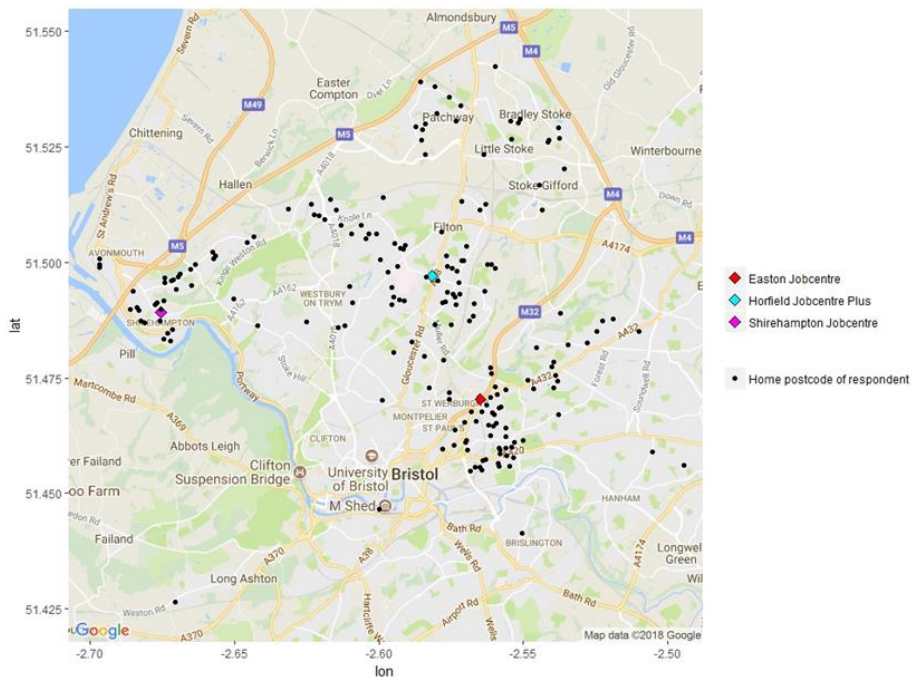


Fig. 1 Job centre location and respondents post codes.

Data collected related to the respondent's job search, including type of job, possible locations and working hours. Likert scale responses were collected relating to different types of commuting, access, cost and ease. Respondents were also asked about their socio-demographics and factors limiting their ability to get and keep a job. Opinions were sought on a PCTS with a major employment location at one end of the journey.

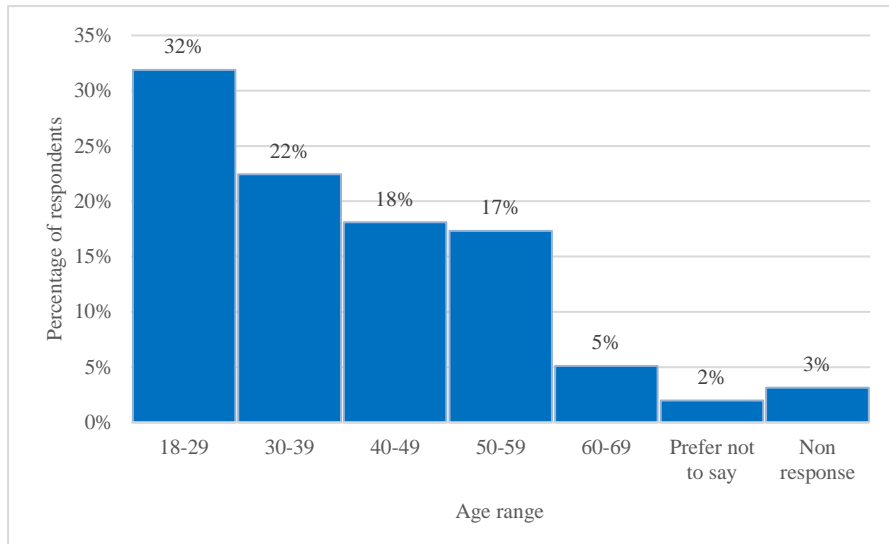


Fig. 2: Age group distribution of survey respondents

Overall 52% of respondents were male. Fig. 2 shows the age profile. Almost one third of respondents were aged 18-29. The majority of survey respondents (69%) identified as “White: English / Welsh / Scottish / Northern Irish / British”.

Table 1 summarises type of work being sought by gender.

Table 1: Type of work being sought by gender

Work type	Females	Males
Unskilled work	19%	38%
Skilled trades / manual	6%	32%
Retail, catering or leisure	34%	29%
Office / administrative work	30%	21%
Social care or health care work	32%	7%
Professional / managerial work	8%	14%
Other	20%	23%

A higher proportion of female respondents were looking for retail, office and particularly social/health care work. A higher percentage of male respondents were looking for unskilled, skilled trades or professional/managerial work.

4. Results and Analysis

The section is divided into analysis of the survey findings and further spatial analyses undertaken on the data.

4.1 Analysis of survey findings

Fig. 3 summarises perceived limitations on job accessibility.

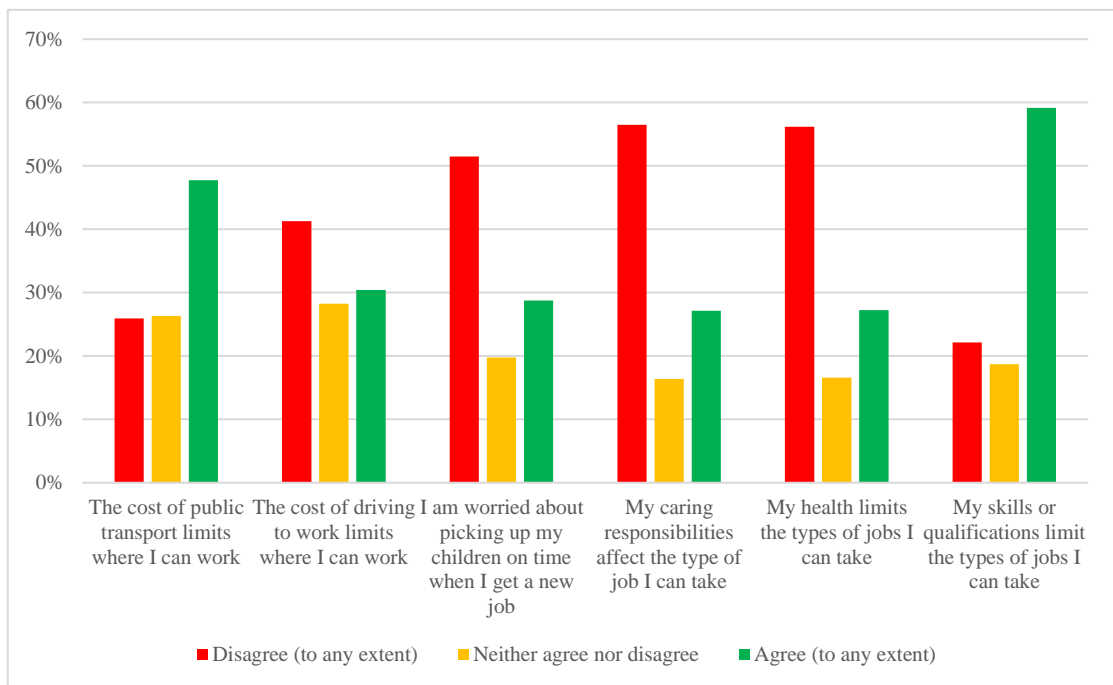


Fig. 3. Perceived limitations on job accessibility

The cost of public transport was one of only two factors that more people agreed with than disagreed with. The other factor was skills and qualifications. The importance of public transport costs suggests that transport was generally an important issue for in relation to job plans. The data support the findings of Quinn (1986) and Cervero et al. (2002) that public transport is an important constraint, and Ricci (2016) that public transport fares are an issue.

Fig. 4. summarises factors relating to the job search and work.

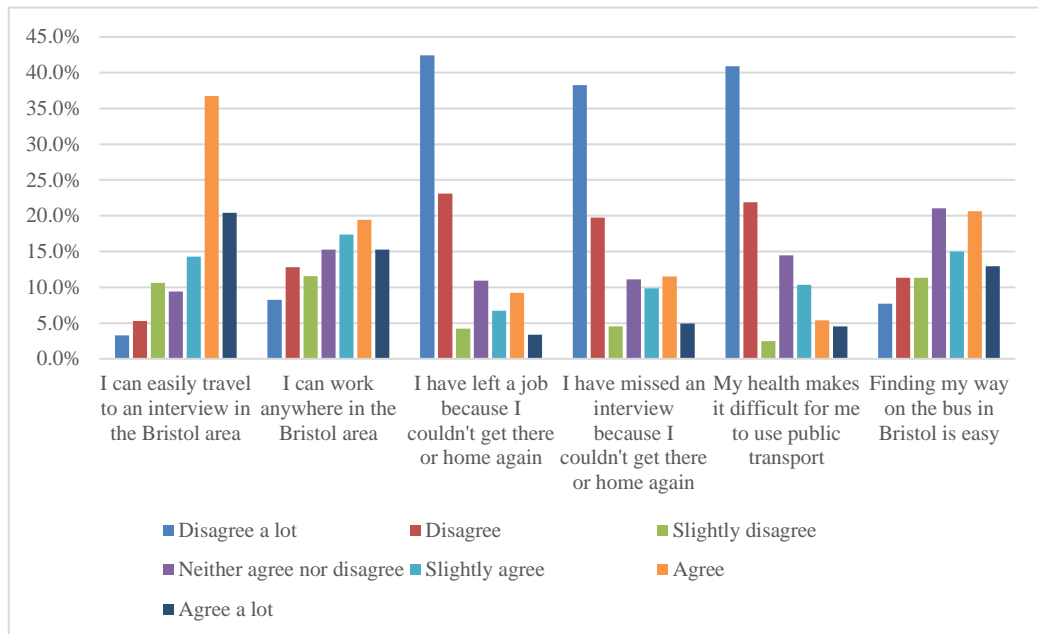


Fig. 4. Transport effects on job search and work.

Some respondents reported that transport factors had been barriers to elements of the job search, such as the job interview and the job itself. Of the respondents surveyed, 19% had left a job because they could not get to or from work and 26% had missed an interview for transport reasons. In total, 33% of respondents had either missed an interview or left a job because of transport issues. Female respondents were slightly more likely than male respondents to have missed an interview (30% compared to 23%) or left a job (23% compared to 17%) for transport reasons.

Overall 49% of respondents agreed that it was easy to find their way by bus in Bristol. Responses to this question differed between the group who normally used public transport (57% of these thought finding their way by bus was easy) and the group who did not (only 35% of these thought it was easy.)

Car ownership was often perceived as something that would improve job opportunities. Almost half of respondents (47.1%) agreed that the jobs they are applying for need them to have a car. Over half of the respondents (52.6%) agreed that travelling by car would enable them to have more than one job. Cervero et al.'s (2002) finding that car ownership is strongly beneficial for finding employment appears is also true in the Bristol context.

Of the 115 people who agreed, to a lesser or greater extent, that the jobs they were applying for needed a car, only 59% stated that they had access to a car for travelling to work. It was not clear whether the jobs themselves require a car, or whether the location and/or working hours necessitate a car in the respondent's opinion. A qualitative response by one respondent conveyed a feeling that when jobs stipulated a requirement for a driving licence, in reality such employers were requiring car ownership.

Public transport was also of high importance for a group of job seekers, as they depend on it for potential work journeys. Indeed, car use was not an option for most respondents: 47% had a driving licence and 33% of respondents stated that they had access to a car for travelling to work. 2011 Census data shows that in 2011, 45% of commuters resident in the Easton area commuted by car, as did 60% of those in Horfield area and 69% of those in the

Shirehampton area (Office for National Statistics, 2013). This suggests that job seekers have less access to car travel for work than employed people.

Qualitative responses indicate a range of views on car use, with some comments highlighting the convenience and perceived comparative punctuality of car use (compared to public transport). Others commented on parking being difficult in the city centre and cars being bad for the environment and expensive. As noted in Fig. 3, 30% of respondents noted the limits to job seeking due to car cost.

Fig. 5. shows the modes available to respondents for commuting.

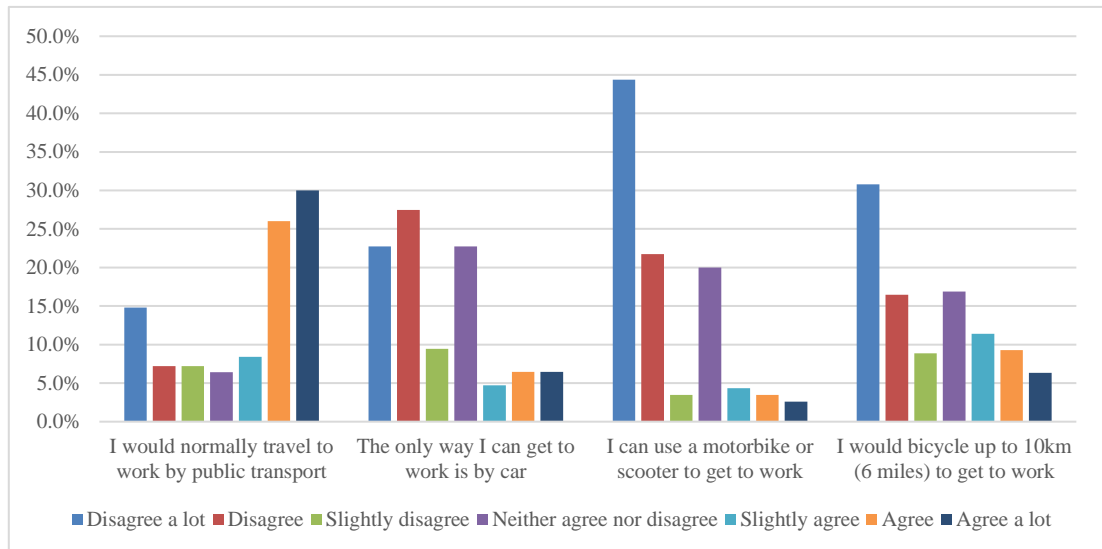


Fig. 5. Modes available to respondents

Substantially more respondents (63%) agreed (to some extent) that they would normally travel to work by public transport compared to the 2011 census public transport proportion of 11%. As expected, the more respondents agreed that they would normally travel to work by public transport, the less likely they are to have access to a car for work. This suggests that, for many, travel to work by public transport is not a choice. More respondents normally travel by public transport than by motorbike, scooter or bicycle.

Female respondents were more likely to say that they would normally travel to work by public transport (71% compared to 59% for males). This equates to 1.2 females for every male (compared with 1.3 females to every male for all bus passengers nationally, DfT, 2017). Females were less willing or able to use some of the alternatives to public transport: 3% could use a motorbike or scooter, compared to 17% of males, and 16% would cycle up to 10km to work, compared to 35% of males.

Overall, 49% of respondents agreed to some extent that finding their way on a bus in Bristol is easy. Responses to this question were related to whether the person had agreed that they would normally travel to work by public transport.

Fig. 6. presents data on perceptions of safety and preferences in relation to travelling companions.

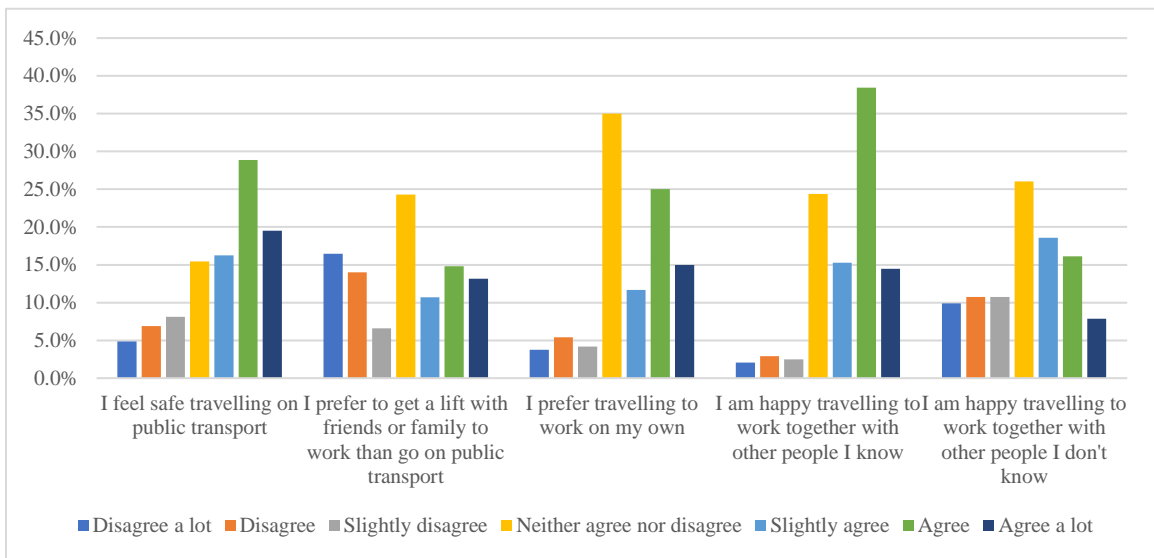


Fig. 6. Perceptions of safety and preferences relating to travelling companions

The majority of respondents (65%) agreed that they felt safe using public transport. A lower percentage of females (58%) agreed than males (72%); a statistically significant finding ($\chi^2=4.9$, $p=0.03$). This may partially explain why female respondents were more likely to agree that they prefer getting a lift from friends or family rather than travel on public transport (41% female compared to 36% male).

Approximately half of people prefer travelling to work alone, although the dominant response was ‘neither agree nor disagree’. More respondents reported being happy travelling to work with people they know (68%) than with people they do not know (43%).

Male respondents were more likely to prefer travelling to work alone than females (55% compared to 47%). Male respondents were also less likely to agree that they are “happy travelling to work together with other people” they knew (64% compared to 73% for females), although when considering travelling with people they did not know, the gender difference narrows to just two percentage points (44% for males and 42% for females). Qualitative survey comments on the present bus services in Bristol focused on their insufficiency, unreliability, and poor frequency.

4.2 Further Spatial Analysis

Fig. 7 shows from 2011 Census data that the further a person lives from the centre, the more likely he or she is to rely on a car to commute. This suggests that public transport is providing insufficient coverage to job sites outside of the city centre.

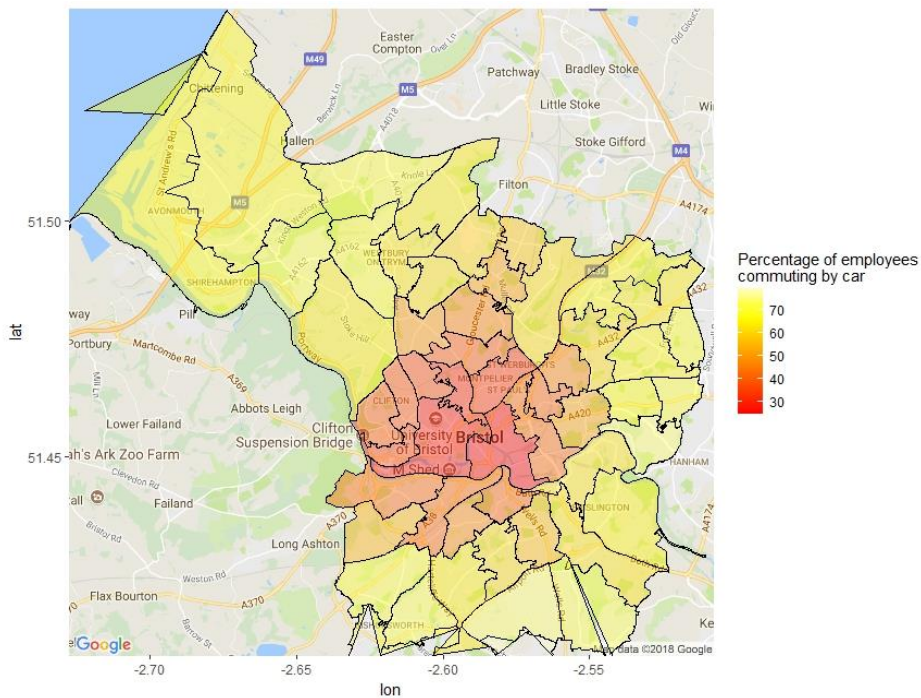


Fig. 7. Percentages of residents commuting by car for medium-level super output areas

Only 52% of the respondents stated that they could work anywhere within the Bristol area. The respondents who agreed with this statement were less likely to state that they normally used public transport to get to work (57% compared to 71% disagree and 76% neither agree nor disagree). This implies public transport users have greater limitations on areas of the city in which they can work.

Census data from 2011 indicate that 19% of workers in Shirehampton and Horfield travelled less than 2km to work, with the equivalent figure for Easton being 25%. To investigate the spatial distribution of their job searches, the job seekers at the three job centres were asked if they would be willing to work in six specific areas of Bristol and its surrounding area. These six areas are shown in Fig. 8.

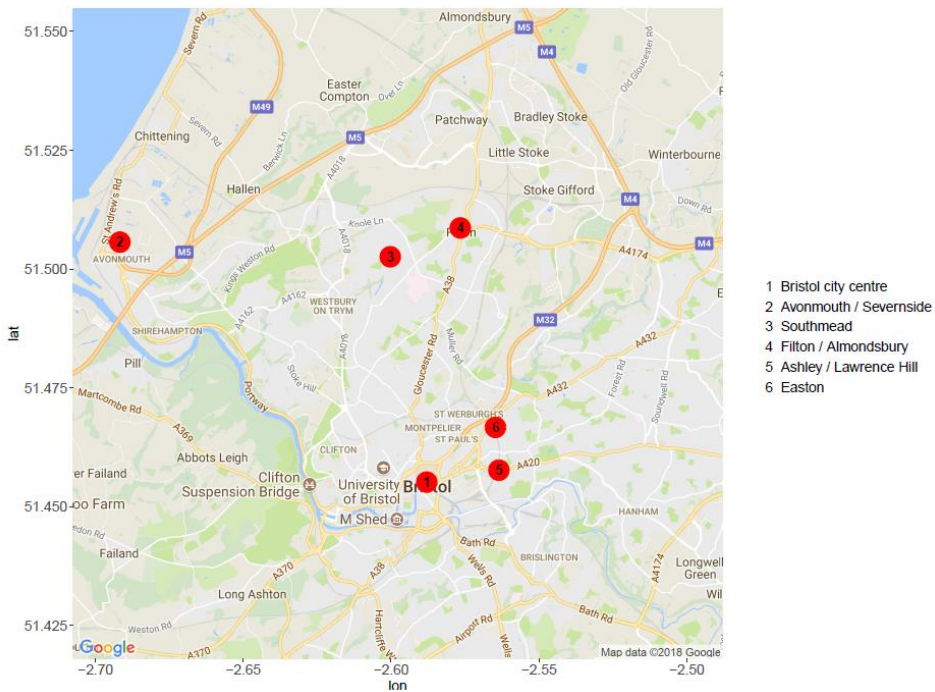


Fig. 8. Six areas that respondents would or wouldn't consider working in

As shown in Fig. 9, there are two main findings in relation to where people would be willing to work. The first is the consistent popularity of the city centre as a place to work from each job centre. This finding supports previous studies suggesting that city centres are, both objectively and in job seekers' perceptions, important places for viable employment opportunities (Green et al., 2005, Shen, 1998). The second is the popularity of seeking employment close to the job centre in which the survey was completed (which is likely to have been near to the respondent's home address, in the majority of cases). Thus more respondents in the Easton Jobcentre Plus offices than in the other job centres were likely to consider working in Easton and the adjoining Ashley/Lawrence Hill area. Similarly, those answering in the Horfield jobcentre plus offices were more likely to consider working in the nearby Southmead and Filton/Almondsbury areas and those answering in the Shirehampton jobcentre were more likely than others to consider working in the nearby Avonmouth/Severnside.



Fig. 9. Likelihood of considering working in different areas of Bristol

These findings support Manning and Petrongolo's (2017, p.5) claim that job seekers attribute a 'high cost to distance'. Fig. 9 undermines or qualifies, to some degree, McQuaid and Lindsay's (2002) suggestion that most job seekers will search for jobs beyond their own neighbourhood and also Green's (1995) finding that job seekers are willing to undertake long commutes.

Four of the work destinations will be used to illustrate the patterns arising. Figs. 10 to 13 show the propensity of respondents to suggest they would be willing to work in Avonmouth (to the West), Easton (near to a job centre), the city centre and Filton (to the North). These areas are marked on the figures using a star.

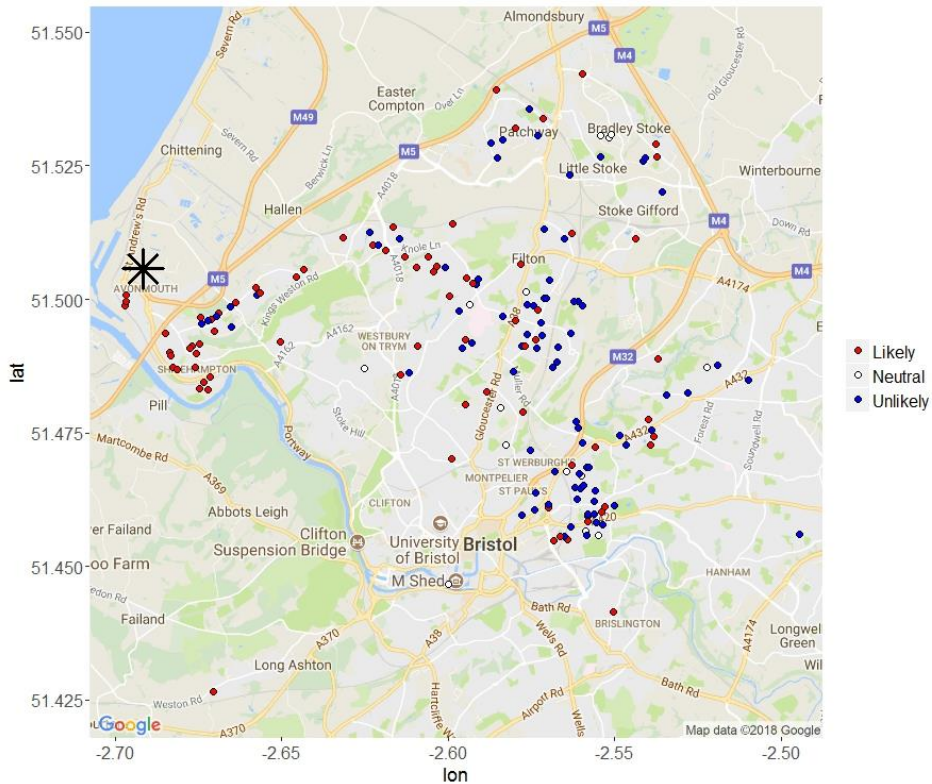


Fig. 10. Likelihood of working in Avonmouth

More respondents in the west than in the east consider themselves likely to work in Avonmouth. Qualitative survey responses indicate that poor public transport may be one reason why some destinations are not seen as likely locations for finding work. One respondent commented that although train services to Avonmouth were good, walking from the train station to a workplace took too long. Another respondent commented that travelling to Avonmouth for an early morning shift was particularly difficult. Other comments indicated that the present public transport services in Bristol, gave generally poor coverage. One respondent reported having had a choice between an hour's walk to work, or a two-hour journey by bus.

Fig. 11. shows that interest in working in Easton was also fairly localised to the Easton area.

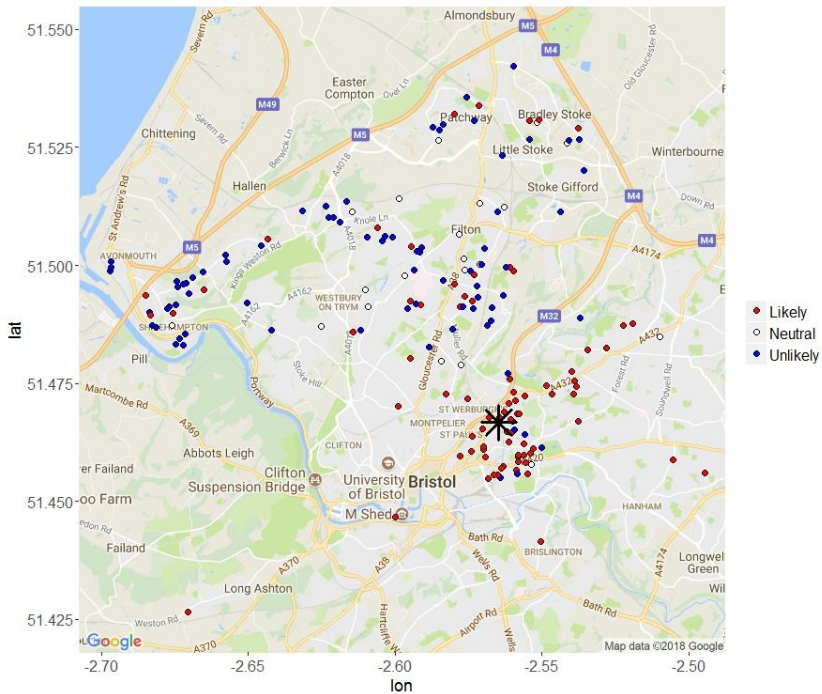


Fig. 11. Likelihood of working in Easton

In contrast to Avonmouth and Easton, Fig. 12 shows that the majority of respondents (76% in total) would be likely to consider working in the city centre.

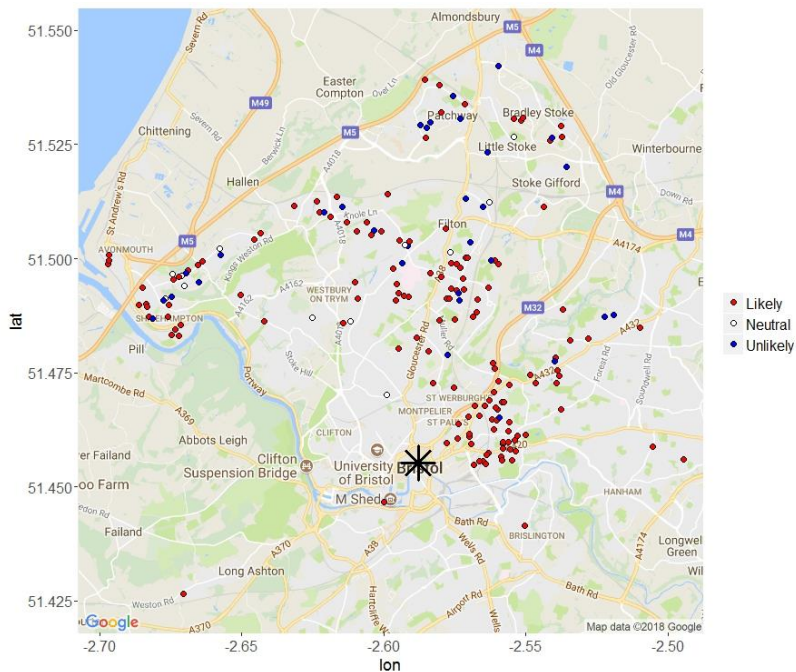


Fig. 12. Likelihood of considering working in Bristol city centre

Fig. 13 however shows that working in Filton, to the north of Bristol, also attracted significant interest from different parts of the city. However, many commutes to Filton, going via the centre, would be inefficient. Within our sample, 63% of people would consider working in Filton, compared to 46% in Avonmouth and 46% in Easton. This supports the evidence gathered from employers in Avonmouth during the MODLE project that it can be difficult to recruit and retain employees in Avonmouth.

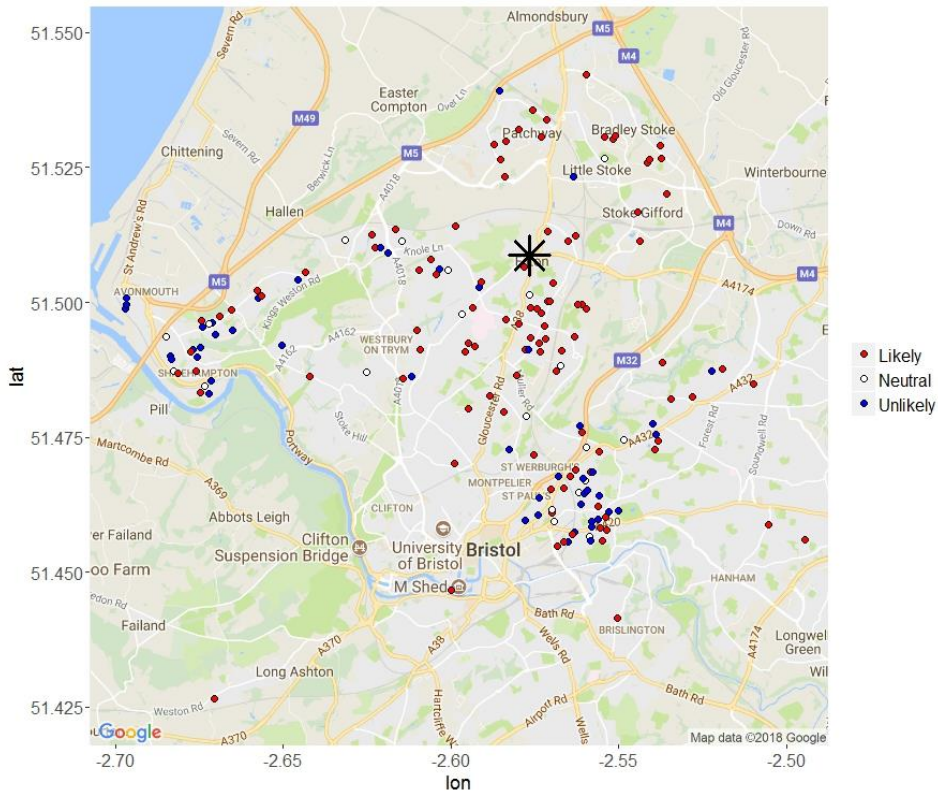


Fig. 13. Likeliness of working in Filton

Using the postcode data as shown in the maps above, average distances were gained between respondents' home postcodes and the six work destinations. Respondents were then disaggregated by whether they would/wouldn't work there, and whether or not they tended to depend on public transport. Averages for these subgroups were gained. These distances were 'as the crow flies', and do not reflect the reality of making the journey, by car or by bus for example (although respondents may have had this reality in their mind when answering).

Respondents more reliant on public transport were 'willing to travel' only shorter distances on average than non-public transport users. This is shown in Table 2 by the fact that for some areas average distances from home location (amongst both those who were willing to work there and those who were not) to the stipulated work locations were shorter for public transport users and for other locations were shorter for non-public transport users. However, average distances of respondents who would work at the destination were smaller for the public transport users than the non-users in every area. This gives an approximate rough indication that fewer public transport users than non-users would be willing to travel the longer potential commute distances.

Table 2: Differences in average distances between those who would or wouldn't normally use public transport to commute

Area	Respondents who normally commute by public transport			Respondents who would not normally commute by public transport		
	Average distance (respondents who would or would not travel to work) (meters)	Average distance respondents will travel to work (meters)	Number of respondents will travel to work (meters)	Average distance (respondents who would or would not travel to work) (meters)	Average distance respondents will travel to work (meters)	Number of respondents will travel to work (meters)
Bristol City Centre	5,500	5020	116	5,580	5,090	41
Avon	7,520	5230	54	8,370	7,280	29
South	4,180	3540	83	4,290	4,260	40
Filton	4,500	3790	70	4,190	4,030	45
Ashley	5,350	3380	57	5,260	4,500	33
Easton	4,780	2670	56	4,600	3,960	30

The argument that public transport dependent job seekers may feel more spatially limited in their job search is further supported by responses to a question asking whether people could work anywhere in the Bristol area. The percentage of people who would normally use public transport to get to work was lower amongst people who said that they could work anywhere in Bristol (57%) compared to those who stated that they could not work anywhere in Bristol (71%).

The PCTS was posited as a solution to the limitations that inadequate accessibility, as described above, can impose on job seekers. The survey asked questions to elicit attitudes specifically about PCTS in relation to a number of statements. Table 3 presents the results. Note that for the survey we used the name 'Buzz' for the PCTS.

Table 3: The percentage of respondents agreeing with statements about Buzz

Statement	Overall	Female	Male	Chi Squared test by gender: p-value	Chi Squared test by gender: Statistically significant difference (at 5% significance level)
1 I am more likely to choose a job if the employer has Buzz available	52%	55%	50%	0.403	No
2 I would use Buzz if it took me to a job I couldn't get to any other way	75%	78%	74%	0.481	No
3 Buzz needs to fit with work shifts/hours for me to use it	74%	78%	71%	0.209	No
4 I am happy with the idea that payment goes direct from my wages/salary	50%	59%	42%	0.007	Yes
5 Buzz could give me access to more job opportunities	63%	69%	59%	0.084	No
6 I would use Buzz if I could collect shopping vouchers or points each time I used it	50%	60%	41%	0.003	Yes
7 I would use Buzz if I couldn't park my car at work	51%	64%	41%	> 0.001	Yes
8 Recommendations from friends or colleagues would encourage me to use Buzz	60%	64%	57%	0.277	No
9 Travelling with colleagues who live in my area would encourage me to use Buzz	58%	66%	53%	0.047	Yes

The majority agreed generally agreed with most statements. The most positive responses suggest the importance of where and when a PCTS service runs: 75% would use Buzz simply if it was the only way to reach their place of employment, and 74% agreed with the importance of the service fitting with their shift/work hour times. These 'when' and 'where' factors appear more important than recommendations from colleagues or the opportunity to travel with colleagues.

There were differences in response by gender, with females appearing generally to agree more with the statements than males. Women were statistically significantly in agreement more in respect of paying directly out of wages, being given shopping vouchers or points, using it if it was not possible to park a car, and the social norming effect of others using it locally.

Further testing was undertaken to determine whether there is evidence of an association between gender and the full range of responses provided for each Buzz statement, which included a seven-point scale between 'disagree a lot' and 'agree a lot'. Goodman and Kruskal's gamma was calculated for each of the Buzz statements. Some evidence of association was identified between gender and agreement with Buzz statements 4-9. Attitudes towards PCTS service

were also examined by type of work (manual, office/administrative etc.) but no substantial differences by types of work were identified.

Qualitative responses from the job seekers surveyed suggested that some had unanswered questions about a PCTS service. For some individuals before assessing the service they would like to know: the cost of fares, whether the service would be subsidised by the employer, how PCTS would work with agency jobs, the route that would be taken, and travel time. One respondent raised a concern about personal safety, asking what information would be available about fellow passengers.

5. Discussion and Conclusion

So far as the first research question is concerned, the data suggest that transport issues were perceived as important barriers to employment opportunities by many of the respondents, emerging second (amongst those offered) to skills and qualifications as a limitation.

Public transport, specifically, has been shown to be an important mode for two-thirds of the sample studied. Whilst many in the sample did consider working outside the city centre, public transport and a 'high cost of distance' (Manning and Petrongolo, 2017, p.5) seemed to limit this aspiration. At the same time, half of respondents acknowledged the jobs they were applying for were 'car-dependent'. The gap between current public transport use and possible future car use is partly explained by discretionary public transport use. It also implies that job seekers feel compelled to seek work without having identified a means of accessing that work in the long-run in a financially and time effective way, and with no knowledge of reliability or a relaxed confidence in the mode. The risks that the employee seeks alternative employment, or loses the job through poor punctuality and attendance, are likely to be heightened in a situation where a suitable commute option does not exist.

As far as the second research question is concerned, both the literature review and the survey findings support the view that the PCTS could offer a solution to connect public transport-dependent job seekers and work opportunities. The benefits are likely to be particularly important for trips from residential suburbs to peripheral locations, and which do not necessarily pass through the city centre public transport hubs.

The study's findings are of relevance to those wishing to operate a PCTS. They have highlighted job seekers moving into employment as a potential group who may be interested in the service. Respondents were generally positive about the proposed service type. 'Familiarity' is important because it may inspire confidence in the user and thus extend his/her cognitive map of the city. Making the PCTS as easy as possible to use is therefore a good strategy. Female job seekers appear to be, on average, more sympathetic to such a service, and in addition they are more likely to be frequent public transport users than men.

Marketing messages around safety of the PCTS for female workers could be important. Marketing may also be informed by the types of businesses at the employment site which may attract a preponderance of either male or female workers.

The study has implications for employers who might wish to advertise a local PCTS as part of an employment package, thus making the job explicitly feasible to public transport users who might otherwise not have considered working in the area. Local authorities may also be interested in PCTS as a solution that can address both unemployment and transport issues, including congestion. In light of Hine and Mitchell's (2001) argument that transport systems accessible to all are important for equity within society, a PCTS can also be seen as benefitting society more generally.

The most important limitation of the study was the small sample size. Whilst a respectable sample of the job seeking population at the Jobcentre Plus offices was recruited, the absolute number nonetheless precluded disaggregation at the analysis stage into age or desired occupation.

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