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Public transport victimisation: SUMMARY (1 of 5)

Author: Lisa Tompson, UCL Jill Dando Institute

PURPOSE: Understanding who is likely to be vulnerable to becoming a victim of crime on public transport is a worthwhile exercise because it facilitates the protection and reassurance of such sub-groups.

THEORY: It has been known for many decades that not all targets are at equal risk of becoming a victim of crime. Some people are, by virtue of their socio-demographic qualities or lifestyle choices, more vulnerable to being selected by offenders. Two of the most influential theories relating to crime occurrence are the routine activity approach and the rational choice approach. A victim's routine activities can be particularly telling in explaining when and where they become vulnerable to crime. Appreciating that offenders make rational decisions when selecting their targets allows us to hypothesise what conditions increase the risk of crime happening. Profiling the victim population on public transport allows us to understand what these high-risk settings or socio-demographic characteristics are so that we can align crime reduction resources accordingly.

METHOD: The victimisation *rate* of the travelling population refers to the number of crimes per population at risk during a period of time in an area. Determining this figure for various modes of transport is possible through using passenger data sets for the population at risk (rather than the standard – yet inappopriate - resident population denominator common in rate calculations). These provide an approximation of the demographics of the travelling population. Surveys do though have the universal limitation of sample size, hence results from analysis using their data should be interpreted with caution.

Estimating the rate of victimisation involves comparing the victim population with the travelling population to determine the frequency of crime happening to different sub-groups. We can use index values to help us calculate how these populations compare. To do this we use the following formula: **(% victim population / % population at risk) * 100**. An index value of 100 indicates that the risk of victimisation is proportional to the sub-group, values under 100 mean that there is a lower than expected risk of victimisation and index values higher than 100 means there is a greater than expected risk of victimisation.

APPLICATION: This method is illustrated using crime and passenger survey data from London (UK). Index values were calculated that compared the bus-crime victim population to the bus-travelling population. Figure 1 shows the analytical results for different age groups for robbery/theft, sexual offences and violent offences. This shows that young people (under 18 years) are at a disproportionately high risk of victimisation for all crime types. In contrast, older people (over 65 years) have a lower than expected risk of victimisation. This information is useful for integrating into victim awareness campaigns.
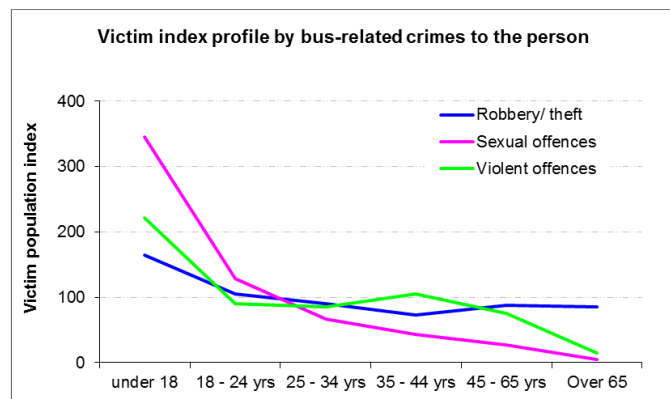

Figure 1 - Victim index profile by bus-related crimes to the person

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Public transport victimisation: PURPOSE & THEORY (2 of 5)

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PURPOSE: In order to protect and reassure people who use public transportation it is first wise to understand who are targeted as victims of crime and, if possible, why these people are targeted. Determining the risk of being a victim on various modes of transport is though challenging, due to there being no robust baseline on which to base calculations. Here we present a method which estimates the victimisation *rate* of the travelling population. A rate transforms data into an intelligible form, so that the risk of victimisation can be estimated.

Ascertaining which groups of people suffer disproportionately from victimisation of particular crime types is the first step in a problem-solving process such as SARA (see Figure 2 which illustrates the iterative nature of problem-solving). The method presented here therefore acts as a 'scanning' technique which identifies and begins to quantify concentrations of victimisation. This forms a basis on which hypotheses can be generated (e.g. why does *this* group suffer disproportionately from *x* crime type?). Testing hypotheses generates new knowledge about a problem and feeds into intelligent response formulation.

Figure 2 – the SARA problem-solving process

THEORY: One of the most influential theories relating to crime occurrence is the routine activity approach. This states that crime is a product of a motivated offender coming into contact with a suitable target (victim) in the absence of a capable guardian. How social life is organised determines the frequency and timing of these interactions between victims and offenders.

It has been known for many decades that not all targets are at equal risk of becoming a victim of crime. Some people are, by virtue of their socio-demographic qualities or lifestyle choices, more vulnerable to being selected by offenders. Some buildings and other properties have characteristics that make them more attractive to offenders than others. Identifying those people and products who are more likely to be targeted by offenders is a worthwhile exercise, because protecting them offers good prospects for crime prevention.

A victim's routine activities can be particularly telling in explaining when and where they become vulnerable to crime. Marcus Felson – the creator of the routine activity approach - once famously said that "Just as lions look for deer near their watering hole, criminal offenders disproportionately find victims in certain settings or high-risk occupations". It is important to profile the victim population so that we understand what these high-risk settings or socio-demographic characteristics are. We can then align crime reduction resources accordingly so that the risk of victimisation is minimised.

Rational choice theory has commonly been employed to explain how offenders select their targets. This approach states that offender decisions are often characterised by at least limited rationality. Cost-benefit analysis guides each stage of the offending decision-making process so that rewards are maximised and risks are minimised. Each specific crime will dictate what victim characteristics are important. For example, street robbers favour victims who are easy to subdue, either through their physical stature (e.g. affected by age or physical ability) or because they are somewhat distracted at the point of victimisation.

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Public transport victimisation: METHOD (3 of 5)

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POPULATION AT RISK: The victimisation *rate* refers to the number of crimes per population at risk during a period of time in an area. For generic crime the population at risk is commonly thought of as the area's resident population or the number of households. However in some cases, potential targets are more narrowly defined (e.g. in particular settings or targets that fit a specific profile).

The travelling population are not easily definable, and yet they are precisely the population at risk for victimisation on public transport. In addition to the resident population (who may or may not use public transport), there can be a number of tourists, both native and foreign, who need to be factored into calculations, in addition to the commuting population. This is an incalculable list, and one which is not captured in full in any known database.

In the absence of a reliable benchmark for the population at risk for public transport users, we suggest using – where available – passenger surveys. These provide an approximation of the demographics of the travelling population. Surveys do though have the universal limitation of sample size, hence results from analysis using their data should be interpreted with caution. They further limit analysis to the data variables collected in the survey (e.g. certain age categories).

CREATING INDEX VALUES: Estimating the rate of victimisation involves comparing the victim population with the travelling population to determine the frequency of crime happening to different sub-groups. We can use index values to help us calculate how these populations compare. To do this we use the following formula: **(% victim population / % population at risk) * 100**.

EXAMPLE: 5.7% of thefts on buses are found to be from persons over 65 years old. When surveyed, this age group make up 9% of the population of bus passengers. Using the formula we divide the proportion of the victim population (5.7%) by the proportion of the population at risk (9%) and multiply by 100. This produces an index value of **63** (see Figure 1).
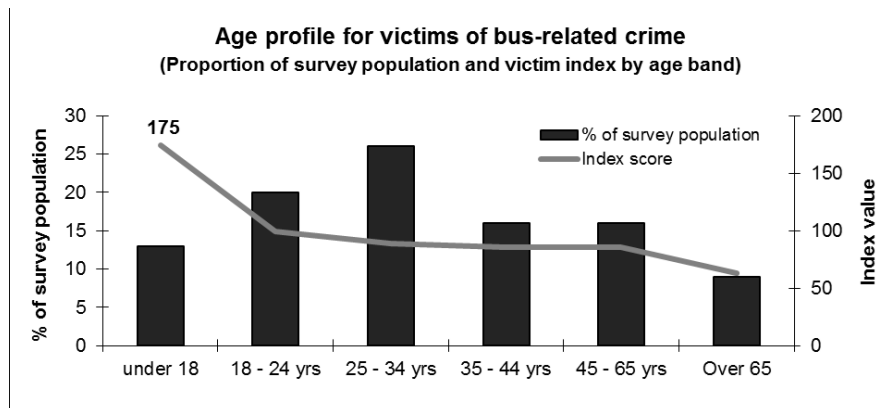

Figure 3 – Age profle for victims of bus-related crime. Lefthand axis represents the survey population (in bars), righthand axis represents index values (as a line).

INTERPRETING INDEX VALUES: If the victim population were directly proportional to the population at risk then all index values would be 100. Any index value higher than 100 indicates that there is disproportionate victimisation going on. For instance 200 would signify that a subgroup had twice the expected *rate* of victimisation. On the other hand, any index values below 100 represent a lower than expected risk of victimisation. So in our example above, persons aged over 65 are at a much lower risk of becoming a victim of theft than other age groups.

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Public transport victimisation: CASE STUDY (4 of 5)

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APPLICATION: Estimating the risk of victimisation of particular populations is a useful starting point in devising crime prevention activities which minimise victimisation. Here we present an example of analysis that was done for the travelling population by analysts working for Transport for London.

BUS PASSENGERS AND AGE: Bus-related crime is defined as an offence occurring either on a bus or at a related location (such as bus stop/shelter). When proportions of the victim population were examined singly it looked like both the under 18 category and the 25-34 year groups had the greatest share (22.7% and 23% respectively). This may have led to the assertion that these two age groups were had the same risk of victimisation. Index profiles were created with the most recent London Bus User's Survey data for crimes against the person. These revealed that under 18's were disproportionately targeted in these personal crimes compared to other age groups (i.e. all the index values were considerably over 100).
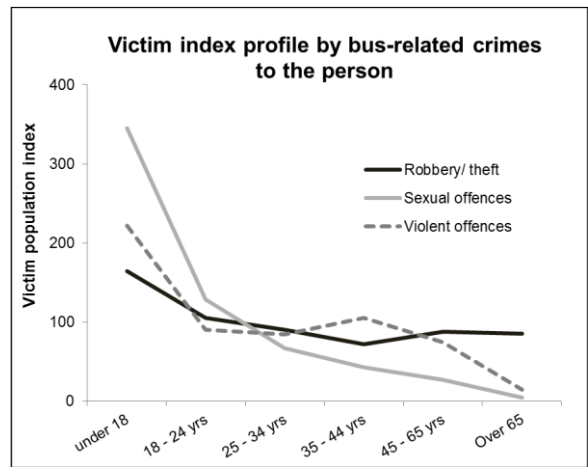

Figure 4 – Victim age index profile for bus-related crimes to the person

DLR/TUBE PASSENGERS AND ETHNICITY: the Dockland Light Railway (DLR) and London Underground (tube) passengers are a significant component of the travelling population. Figure 2 illustrates that nearly two-thirds of victims are from the White population, with Asian and Black ethnic groups comprising a further fifth of victims. When index values were created with the Tube User survey data, it emerged that only two ethnic groups – Black and Asian – suffer victimisation disproportionately (White, Mixed and other ethnic groups were at a risk comparable to their patronage on the DLR/Tube). These index values are shown in Figure 3. Of particular note is the high index for Black persons as victims of violent offences (index value over 200).
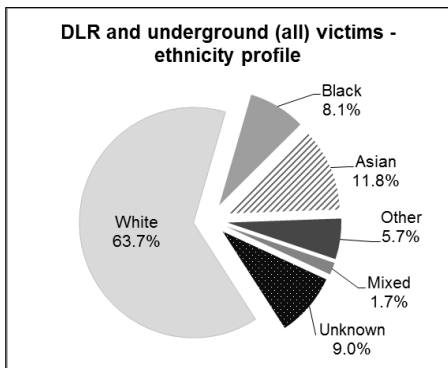

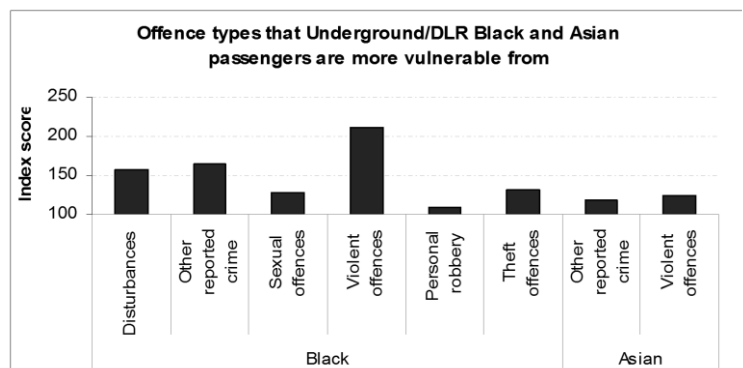**Figure 5** – The ethnic profile of DLR and Underground victims

Figure 6 – Victim ethnic index profile for DLR/Tube crimes (only those index values over 100 are shown)

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Public transport victimisation: RESOURCES (5 of 5)

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