

Police Service of Northern Ireland

# Research Into The Relationship Between Crime Rates And Bars In Northern Ireland

**Updated November 2018**

*The template for this report is based on documents published on the psni website. An example of a document that I have based this cover page on can be found here:  
<https://www.psnipolice.uk/globalassets/inside-the-psni/our-statistics/road-traffic-collision-statistics/documents/traffic-statistics-user-guide---2016-review---final.pdf>*



Keeping People Safe

## **Table of Contents**

### **Section One**

1.0 Context	Page 3
-------------	--------

### **Section Two**

2.0 Ethical and legal issues	Page 3
------------------------------	--------

### **Section Three**

3.0 Crime and bars correlation heat map	Page 4
3.1 Positive relationships discovered	Page 5
3.2 Average distance of closest bar	Page 6
3.3 Comparing two shopping centres	

### **Section Four**

4.0 Conclusion	Page 7
----------------	--------

## Section 1

### 1.0 Context

The goal of this report is to provide valuable information to my customer, the PSNI, that will help them in reducing crime in Northern Ireland. I began my research, preceding this report, by considering what could potentially have an influence on crime rates in Northern Ireland. I decided to investigate if there is any relationship between bars and crimes in Northern Ireland. Pub culture is a huge part of Northern Ireland and I'm sure that my customer, the PSNI, has a lot of experience dealing with the negative side affects that this can bring. That is why I have decided to make bars the topic of my research. I want to find out if the PSNI should be spending time and resources on tackling the effects of bars on the community and, if so, what crimes they should primarily by focusing on.

*I expect that police officers and other workers for the PSNI will be the primary people to read this report, and that is who It is targeted towards.*

## Section 2

### 2.0 Ethical and legal issues

This report does not contain any information or evidence that could potentially cause ethical or legal issues for the PSNI. There is no private information used and none of the data collected could be used to discriminate against a group of people.

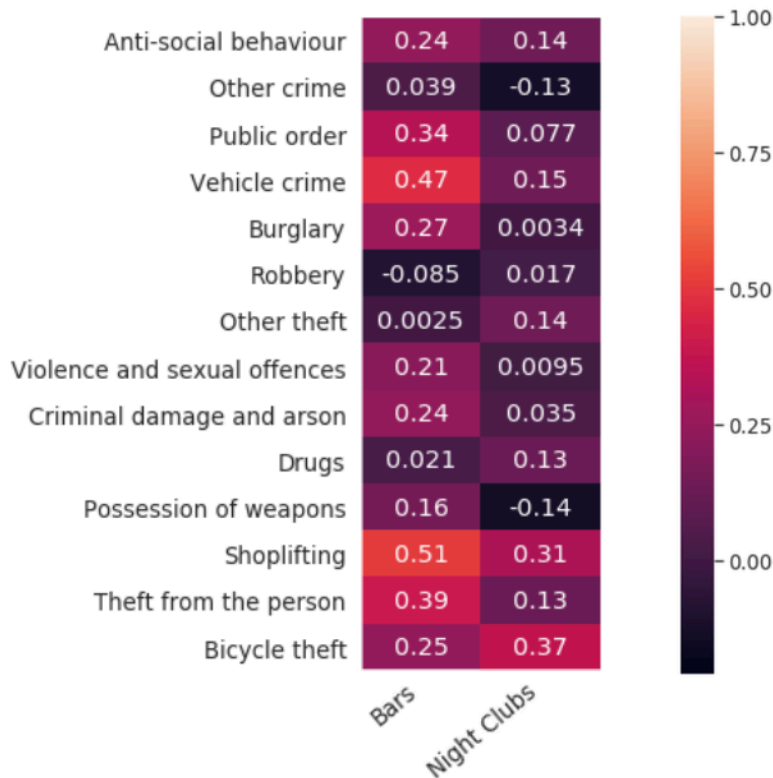
## Section 3

### 3.0 Crime and bars correlation heat map

I plotted a heat map which shows the correlation between the number of bars and night clubs with the number of each crimes type in a town. The data used was a sample of ten thousand crimes taken across the whole of Northern Ireland.

The numeric values in the heat map represent correlation. 1 represents maximum positive correlation, -1 represents maximum negative correlation, and 0 represents no correlation.

Correlation heatmap of number of crimes with number of bars and nightclubs in Northern Ireland



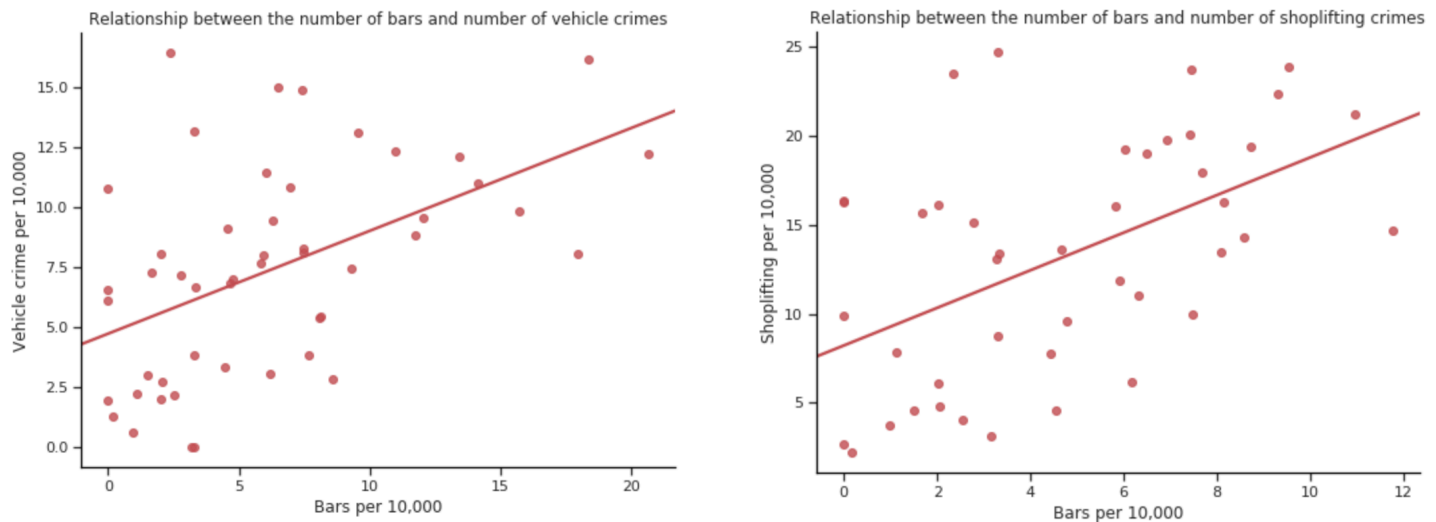
*I chose to display a correlation heat map because it is a useful way to show an overview of the relationships between the data that I chose to research. It also justifies why I went on to further investigate the areas that I did later in this report. The colour red is used to follow the colour scheme of reports that I found by the psni.*

This heat map shows that the crime types which have the strongest relationship with the number of bars are shoplifting, vehicle crime and theft from the person. It can also be seen, perhaps surprisingly, that whenever exclusively night clubs are compared, there is no significant rise in the correlations.

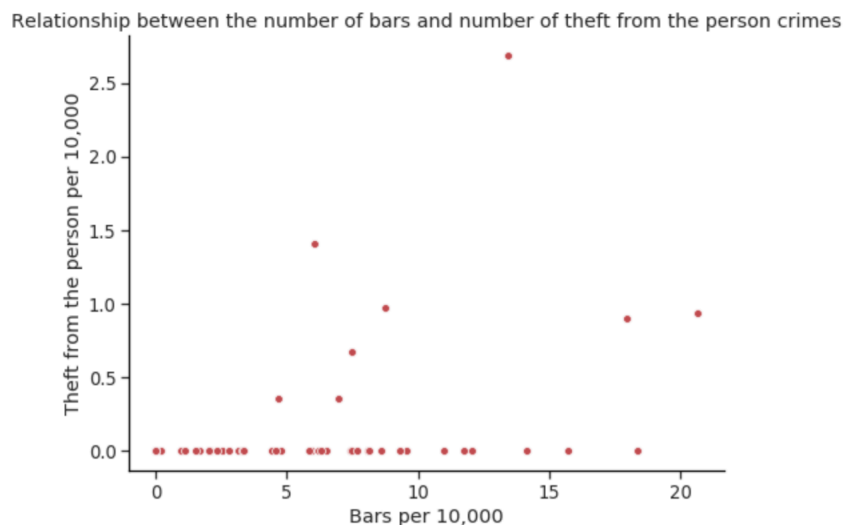
A surprising discovery made from these results is that crime types that one would expect to have positive relationships with the number of bars (i.e. Anti-social behaviour, Violence and sexual offences, and Criminal damage and arson) did not seem to much of a relationship. These findings could potentially show that when police officers are trying to reduce crime near bars, they should perhaps focus on shoplifting, vehicle crime and theft from the person, instead of other crimes that one may assume are linked with alcohol use.

### 3.1 Positive relationships discovered

The following scatter plots show the relationships between bars and both vehicle crimes and shoplifting. A regression line has been added to emphasise the relationship.



There is a positive relationship between the number of bars in a town and the amount of shoplifting and vehicle crime that occurs. This means that, in the sample data used, towns which have higher concentrations of bars tend to have higher proportions of shoplifting and vehicle crime.

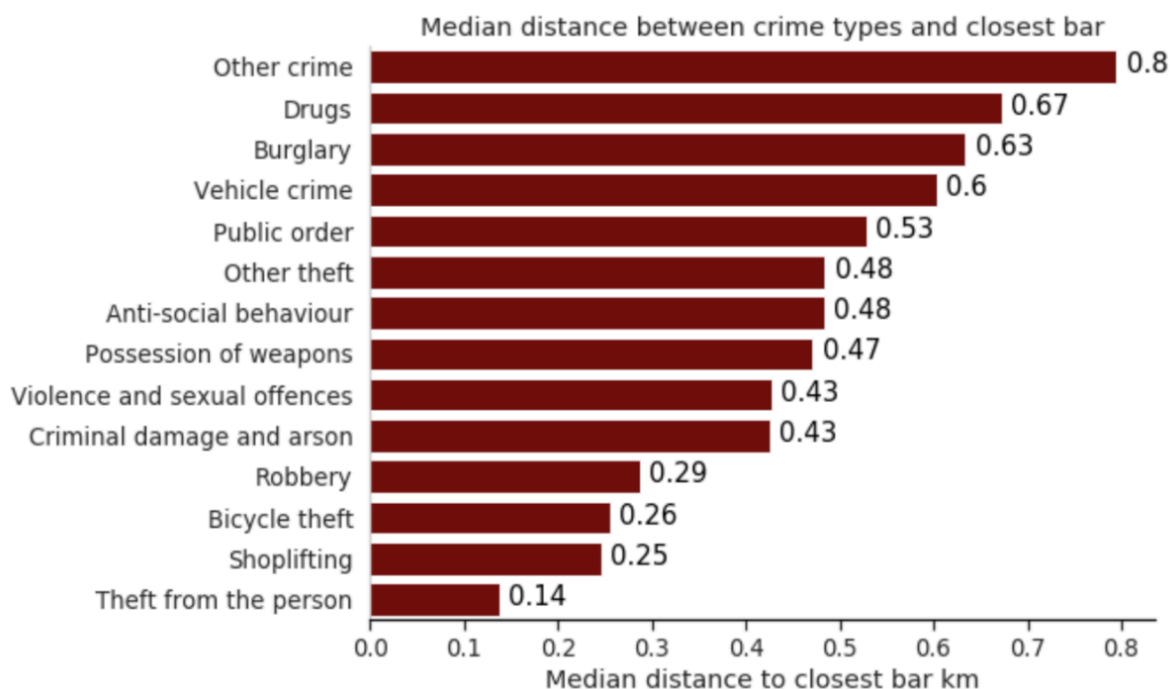


Although, in the heat map on page 4, there was a correlation between bars and theft from the person crimes, there was not enough data to show real evidence. Too many of the towns in the sample have zero theft from the person crimes to give an idea of any relationship.

*I chose cosmetic aspects of these plots based on plots from published documents on the psni website. The colours used, only displaying the left and bottom spines, and adding ticks to the spines are all inspired by psni plots. I continue these cosmetic features throughout the report. Although I didn't find any examples of scatter plots used by the psni, I chose to use them here because they best show the relationships that I have found.*

### 3.2 Average distance to closest bar

This section shows further investigation into the relationships between bars and different crime types. Using samples of 150 from each crime type, the median distance to the closest bar was calculated for each crime type.



*This bar plot is modelled after a bar plot found on page 5 of this published document from the psni website:*

<https://www.psnipolice.uk/globalassets/inside-the-psni/our-statistics/domestic-abuse-statistics/>

As shown in this bar plot, shoplifting crimes tend to occur closer to bars than nearly all other crime types. This is further evidence that there is a relationship between bars and shoplifting. Not only do the number of shoplifting crimes seem to positively correlate with the number of bars in a town, but those crimes also seem to take place relatively close to bars.

Vehicle crimes do not occur particularly close to bars relative to other crime types. This means that although there is correlation between the number of bars and the number of vehicle crimes. There is evidence that most do not actually take place near bars.

Another observation made from this visualisation is that theft from the person crimes occur, on average, much closer to bars than all other crimes. As the average distance is significantly lower than all other crimes, there is strong evidence that theft from the person crimes occur close to bars. This could mean that whenever criminals intend to rob people, they primarily target individuals that are around bars.

These results could assist the PSNI in determining areas which are at a higher risk of facing certain crimes. In particular areas in which people are at a higher risk of being robbed in the street and businesses are at a higher risk of having items stolen.

### 3.3 Comparing two shopping centres

This section further explores the relationship between bars and shoplifting. This graph compares the shoplifting crime associated with two different shopping centres in Belfast. One shopping centre, Victoria Square, has sixteen bars within two hundred metres. The other, Forestside, has zero. The graph shows all of the shoplifting that occurred in these two locations between April 2016 and April 2017.



*This line plot is modelled after a line plot found on page 4 of this published document from the psni website:*

<https://www.psnipolice.uk/globalassets/inside-the-psni/our-statistics/domestic-abuse-statistics/>

The graph shows that more shoplifting occurs in Victoria Square over the year and that Victoria square has much more intense peaks in shoplifting, while Forestside doesn't have much dramatic change throughout the year. This could perhaps back up the theory that there is a relationship between bars and shoplifting. Alone this is not much to go on, as many factors could cause differences in shoplifting rates. However, combined with the previous findings, there is significant evidence which shows that there is a relationship between bars and shoplifting crime.

## Section Four

### 4.0 Conclusion

The investigations carried out in making this report could be very useful for the PSNI in how they tackle certain crimes. This research shows that shops which are surrounded by a number of bars could be at a higher risk of suffering from shoplifting. I would encourage the PSNI to carry out further research into the relationship between bars and shoplifting, and to consider if they could reduce shoplifting in Northern Ireland by increasing security in and around shops in close proximity to bars. This research also shows that thefts from people tend to happen close to bars. I hope that the PSNI would consider this, and perhaps they could take further measures to tackle theft in bars, in order to reduce theft in Northern Ireland as a whole.