

A response to the MPS Report on the s163 Road Traffic Act Ethnicity Recording Pilot

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August 2022

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From January to June 2021, the Metropolitan Police Service (MPS) Deputy Commissioner’s Delivery Group and Roads and Transport Policing Command conducted a pilot to record the ethnic background of drivers stopped by police under Section 136 of the Road Traffic Act.¹ This involved officers asking for and recording the self-defined ethnicity of every driver stopped under Section 163 of the Road Traffic Act.

In total 7,556 stops were recorded as part of the pilot. The MPS provided a breakdown of these stops according to the individual’s ethnicity. The report compared these percentages with 2016-based population projections for the year 2021 provided by the Greater London Authority.² These breakdowns and comparisons are presented in Table 1 as they are presented in the MPS report. Commenting on the comparison of the rate of Black drivers stopped and the estimated proportion of the population who were Black, the report states “there was no clear difference between the proportion of stops recorded on the pilot and the projections” (p. 2).

The report provided no indication as to how this inference was reached, and the reader can therefore only assume that this deduction was made by comparing the percentages in Table 1 by eye and making a judgement based on the similarity of the numbers (i.e., comparing the figures in columns 3 and 4). However, comparison of percentages in this way is not an accurate method for determining differences because it requires a judgement on *how different the numbers need to be* for a difference to be “noteworthy.” Such a judgement is usually not appropriate as it doesn’t take into account the different sizes of the populations of interest. For example, a 1% difference in a population of 100 equates to just one person, but a 1% difference in a population of 1000 equates to a difference of 10 people. Instead, researchers typically make use of statistical tests that take into account the differences in population sizes, and which enable them to quantify how big

¹Legislation.gov.uk, “Road Traffic Act 1988,” Text, accessed August 17, 2022, <https://www.legislation.gov.uk/ukpga/1988/52/section/163>.

²Greater London Authority, “Ethnic Group Population Projections - London Datastore,” accessed August 17, 2022, <https://data.london.gov.uk/dataset/ethnic-group-population-projections>.

Table 1: Number of stops broken down by ethnicity (reproduced from MPS report)

Ethnicity	Number of stops	Percentage of all stops	GLA Population Projection (%)
Asian	1515	20.1	19.1
Black	1246	16.5	13.5
Mixed	160	2.1	5.8
Not recorded	323	4.3	NA
Other	336	4.4	5.8
White British	2229	29.5	37.8
White Other	1747	23.1	18.0

Table 2: Number of people stopped and not stopped by ethnicity

	Black	white
Stopped	1246	2229
Not stopped	1251509	3509750

a difference is as well as whether that difference is noteworthy. When comparing the incidence of events such as how often people are stopped and searched, it is common practice to calculate the odds ratio, which describe how much more or less likely it is for a person from one group to be stopped compared to a person from another group. In the present context, the odds ratio makes it possible to compare the rate at which Black people were stopped in the pilot with the rate at which White people were stopped and quantify how much more or less likely it was for a Black person to be stopped compared to a White person.

Here, we demonstrate how to do this, using the limited data and information that is available in the police report. Using the 2016-based GLA Population Projections³ for the year 2021 as the MPS report did, the population estimate for the Black population (including Black African, Black Caribbean, and Black other) was 1,252,755, and the population estimate for the White British population was 3,511,979. Using this information and the data in Table 1, it is possible to make a contingency table, which quantifies the number of Black people stopped, the number of Black people *not* stopped, the number of White people stopped, and the number of White people *not* stopped (Table 2).

This contingency table can then used to calculate the odds ratio; that is, how much greater or smaller the odds of being stopped are for the Black population compared to the White population. This is achieved by first calculating the odds for each group by dividing the probability of a stop occurring for that group by the probability of a stop not occurring for that group:

$$\begin{aligned}\text{odds of being stopped} &= \text{likelihood of being stopped} / \text{likelihood of not being stopped} \\ \text{odds of a Black person being stopped} &= (1246 / 1252755) / (1251509 / 1252755) = 0.000996 \\ \text{odds of a White person being stopped} &= (2229 / 3511979) / (3509750 / 3511979) = 0.000635\end{aligned}$$

So, the odds of a Black person being stopped in the pilot was 0.000996, and the odds of a White person being stopped in the pilot was 0.000635. It is then possible to calculate the *ratio* between these odds by dividing one by the other:

$$\text{odds ratio} = 0.000996 / 0.000635 = 1.57$$

The result shows that Black people were **1.57 times more likely** than White people to be stopped in this pilot. Using *R* - a statistical software - it is possible to determine whether this value is statistically significant. A result is statistically significant if there is a low probability (usually less than 5%) that the result could be observed by chance. The code below shows how this analysis was achieved; a contingency table was created as outlined above, and then passed to the *CrossTable()* function from the *gmodels* package. In this case, the probability (or “p-value”) of the result having been observed by chance was less than 0.01%, strongly suggesting that the result was not due to chance (Table 3).

```
# create contingency table
b <- data.frame("black" = c(1246,1251509)) # total population = 1252755
w <- data.frame("white" = c(2229,3509750)) # total population = 3511979
df <- cbind(b,w)
rownames(df) <- c("stopped","not stopped")
mat <- as.matrix(df)
```

³Greater London Authority.

Table 3: Statistics resulting from analysis

Odds ratio	95% CI Lower	95% CI Upper	p value
1.57	1.46	1.68	< 0.001

Table 4: Number of people stopped and not stopped by ethnicity (incl. all White categories)

	Black	White
Stopped	1246	2229
Not stopped	1251509	5182281

```
# run analysis
xtab <- CrossTable(mat, chisq = T, fisher = T, expected = T)
```

This analysis can be conducted again to compare the rates of stops for the Black population with the rates of stops for the *entire* White population, including White British, White Irish, and White other. The GLA population projection for this combined White population is 5,184,510. Table 4 shows the resultant contingency table using this number.

Using the contingency table above, the analysis can be conducted again with the combined population estimate.

```
# create contingency table
b <- data.frame("black" = c(1246,1251509)) # total population = 1252755
w <- data.frame("white" = c(2229,5182281)) # total population = 5184510

df <- cbind(b,w)
rownames(df) <- c("stopped","not stopped")
mat <- as.matrix(df)

# run analysis
xtab <- CrossTable(mat, chisq = T, fisher = T, expected = T)
```

The result of this second analysis shows that when the rate of stops of all Black people are compared to the rates of stops of all White people (as opposed to just White *British* people), the disparity in stops is higher; Black people were **2.31 times more likely** than White people to be stopped in the pilot. Table 5 shows the statistics from this analysis.

The results show that when appropriate analyses are conducted on the data, there was a significant disparity in the rates at which Black and White people were stopped in the MPS pilot. During the pilot, a Black driver was **1.57** times more likely to be stopped than a White British person, and **2.31** times more likely to be stopped than a White person of any origin. This finding runs contrary to what has been inferred in the report and at public meetings, where it has been implied that there was no evidence of disparities since there was “no clear difference between the proportion of stops [of Black people] recorded on the pilot and the [GLA population] projections.” We have highlighted how the method used to come to this conclusion was not

Table 5: Statistics resulting from second analysis (White categories combined)

Odds ratio	95% CI Lower	95% CI Upper	p value
2.31	2.16	2.48	< 0.001

appropriate for assessing whether disparities in stop rates exist, and we have shown that when appropriate analyses are conducted disparities are evident. We call on the authors of the MPS report to make revisions that include the statistical methods necessary to justify meaningful conclusions based on the data collected in the pilot. We also strongly encourage the authors to share their analyses and data so that others can reproduce their findings and have confidence in the assertions arising from them.