OXFORD ECONOMICS

An analysis of police funding allocations

Summary

There is a wide variation in the amount of money police forces receive from central government. Whilst the formula used to allocate funding generally works well, some of the indicators struggle to justify their place and, in some cases, the formula could be improved with new indicators, for example for road or traffic densities, temporary visitors, and gross commuting movements. Further work should consider how the funding formula could take into account the risk of serious organised crime, and 'cross-border crime' committed by offenders from neighbouring police force areas.

Background: Current central government police funding allocations

Central government allocates funding to police forces according to need. As noted in the Home Office Police Grant Report[1], allocating funding on the basis of recorded rates of crime is problematic due to variations in recording practices and the risk of creating perverse incentives. Funding allocations are therefore based on the Police Allocation Formula, which estimates police workloads on the basis of the socio-economic and demographic characteristics of each force area.

The current approach results in a wide variation in the amount of funding police forces receive from central government: from over £160 per resident in areas such as London, Merseyside and the West Midlands, to less than £90 per person in Lincolnshire, Surrey and Dorset (Figure 1).

To the extent that crime rates are a reasonable indicator of workload, there is value in comparing the funding allocation per resident in each police force area to the crime rate in that area. This reveals a wide variation in the funding that goes to police forces with very similar crime rates (Figures 2 and 3). The size of these discrepancies is such that they cannot easily be explained by differences in forces' non-crime workload or costs of operation.

The Office of the Police and Crime Commissioner for Surrey asked Oxford Economics to review the Police Allocation Formula (PAF), and analyse the effectiveness of its components in predicting rates of crime. This short note summarises the main findings of the research.

1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/143840/grant-report-2013-14.pdf

Findings and recommendations

The research found that, whilst relatively complex, the current PAF is generally good at using socio-economic and demographic data to predict local crime rates, and thus the likely burden on police resources. However, some of the indicators in the current formula struggle to justify their place, and in some cases new indicators could help improve the formula (see Annex A). The main findings are:

1) There is significant scope to improve on the current practice of using population sparsity as a proxy for a police force's workload in dealing with road accidents. A measure of road and/or traffic densities would provide a much stronger indication of accident rates.

2) Some parts of the country receive a large number of visitors, which can place demands on police resources that are not recognised within the current funding formula. The research confirmed that areas that receive a large number of visitors relative to the size of their permanent population tend to have higher crime rates.

3) Some of the current deprivation indicators are poor predictors of crime. Alternative measures such as the Index of Multiple Deprivation or Child Wellbeing Index could offer an improvement.

4) Areas with larger shares of ethnic minority or foreign born residents tend to suffer higher crime rates. It is important to note that this result does not attribute causality, simply that residents living in areas with a high share of population in one of these groups are more likely to be victims of crime.

5) Consideration should be given to reflecting commuting flows on a gross basis to avoid unfairly penalising areas that see large daily commuter outflows. The research found that the total volume of daily population movement is typically as effective at predicting crime rates as the net flow variable used in the funding formula at present.

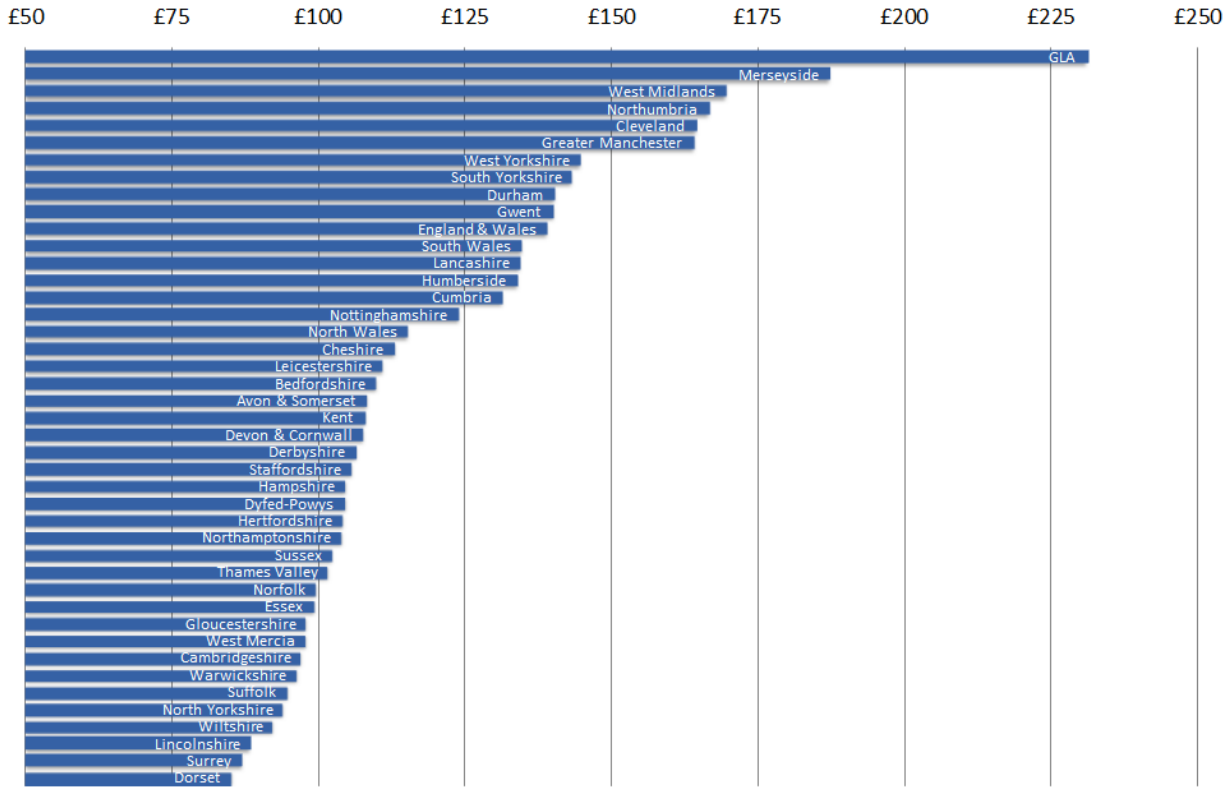
6) Police forces dedicate significant resources to tackling serious organised crime, and yet the funding formula does not currently make any provision for this. There is a need to develop a suitable indicator to enable a comparison of the risk of serious organised crime across police force areas, and give consideration to its inclusion in the funding formula.

7) Criminals frequently travel into other police force areas to commit crime. The research found that the prediction of certain types of crime could be improved through the inclusion of information about the characteristics of the population in surrounding areas. Further work should be undertaken to explore how the funding formula could be modified to reflect that police forces may face different demands in terms of such 'cross-border' criminality.

Changes to the funding formula will inevitably lead to 'winners' and 'losers'. Nonetheless, it is important that the formula is sufficiently flexible to enable funding allocations to adjust as evidence on the factors driving police workloads evolves. It may be helpful to set up a formal framework for periodically reviewing the effectiveness of the formula, and making changes in an objective and transparent fashion. This could include some form of 'smoothing mechanism' to ensure adjustments in the formula do not create large year-to-year changes in any force's funding allocation.

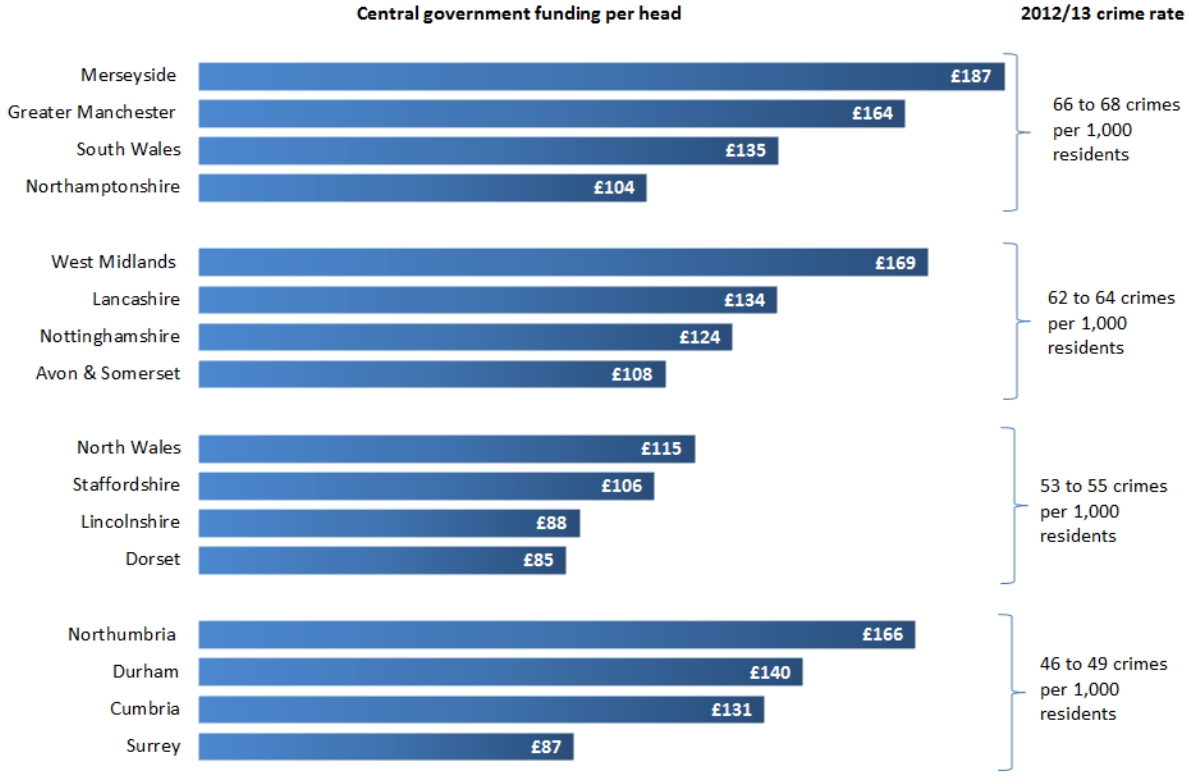
For further information contact Andrew P Goodwin (apgoodwin@oxfordeconomics.com)

Figure 1: Central government funding of police forces, £ per resident



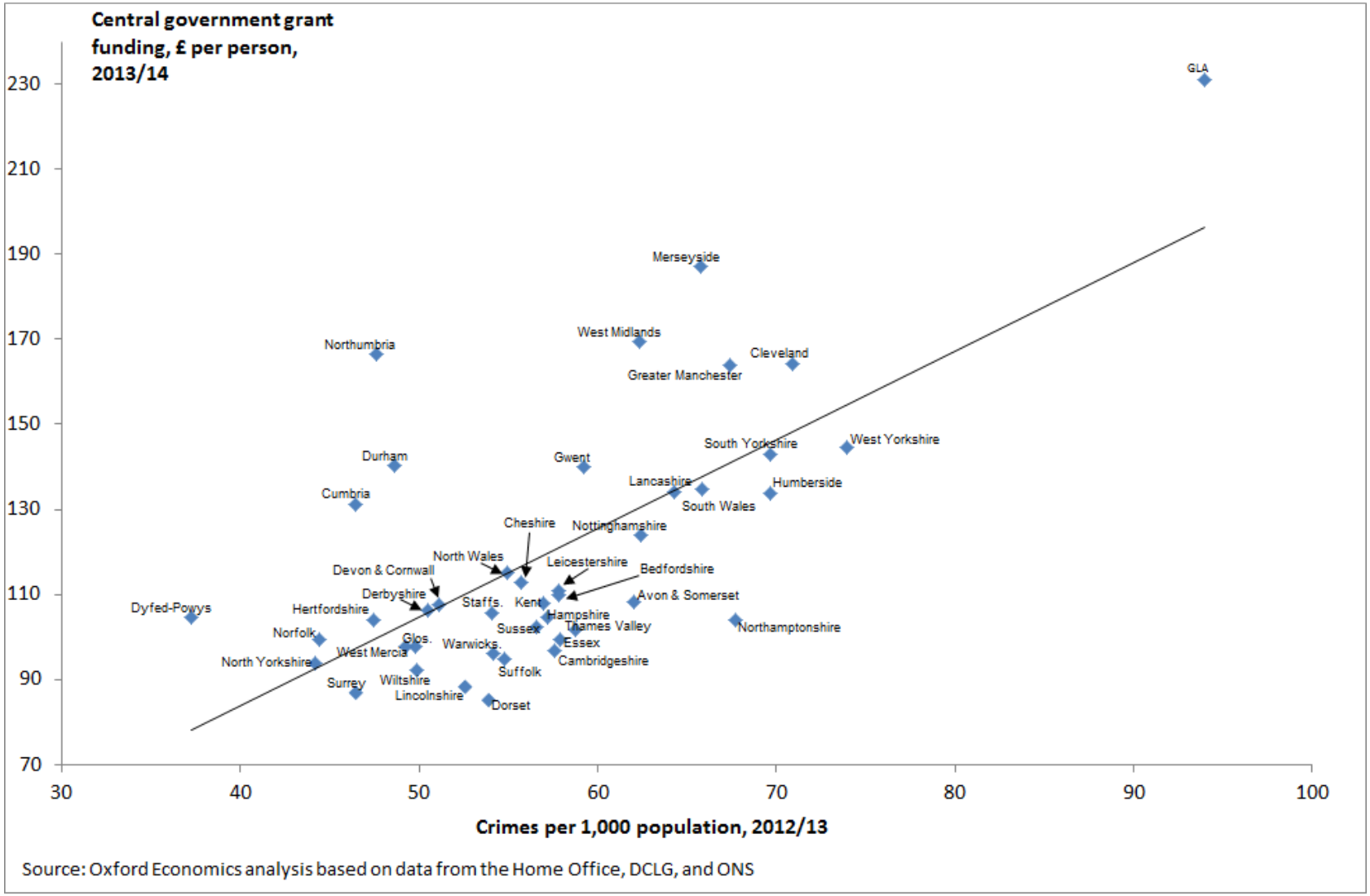
Source: Home Office, ONS population projections, Oxford Economics

Figure 2: Central government funding of selected police force areas with similar crime rates



Source: Oxford Economics anlaysis of Home Office and ONS data

Figure 3: Central government funding and crime rates across all police force areas



Source: Oxford Economics analysis based on data from the Home Office, DCLG, and ONS

Appendix A: Top three correlations for each type of crime

Variables in current Police Allocation Formula in amber
Potential new variables in green

Crime	Best predictive indicator	Second best	Third best
Burglary	Gross commuting flows per resident (0.58)	Daytime net inflows per resident population (0.58)	Wealthy achievers population (-0.56)
Criminal Damage	Child Wellbeing Index education score (0.73)	Young male unemployment related benefit claimants (0.67)	IS/PC/JSA Claimants (0.62)
Drug Offences	Daytime net inflows per resident population (0.87)	Gross commuting flows per resident (0.87)	Average (2009-2011) visitor nights per resident (0.81)
Fraud and forgery	Log of overcrowded households (0.65)	Gross commuting flows per resident (0.65)	Daytime net inflows per resident population (0.63)
Offences against vehicles	Log of overcrowded households (0.71)	Ethnic minority share of population (0.68)	Wealthy achievers population (-0.67)
Other miscellaneous offences	Daytime net inflows per resident population (0.86)	Gross commuting flows per resident (0.85)	Average (2009-2011) visitor nights per resident (0.81)
Other theft offences	Daytime net inflows per resident population (0.94)	Gross commuting flows per resident (0.93)	Average (2009-2011) visitor nights per resident (0.87)
Robbery	Population density (0.85)	Ethnic minority share of population (0.83)	Log of overcrowded households (0.80)
Sexual offences	Child Wellbeing Index average score (0.58)	Daytime net inflows per resident population (0.57)	Gross commuting flows per resident (0.55)
Violence against the person	Daytime net inflows per resident population (0.64)	Gross commuting flows per resident (0.63)	Log of overcrowded households (0.61)
Road accidents	Length of A roads per hectare (0.59)	Length of principal urban A roads per hectare (0.56)	Traffic volume per hectare (0.51)

Source: calculations by Oxford Economics using Home Office crime statistics 2012/13, socio-economic data from ONS, 2011 Census data, NOMIS, road data from DfT, and ACORN data from CACI Ltd