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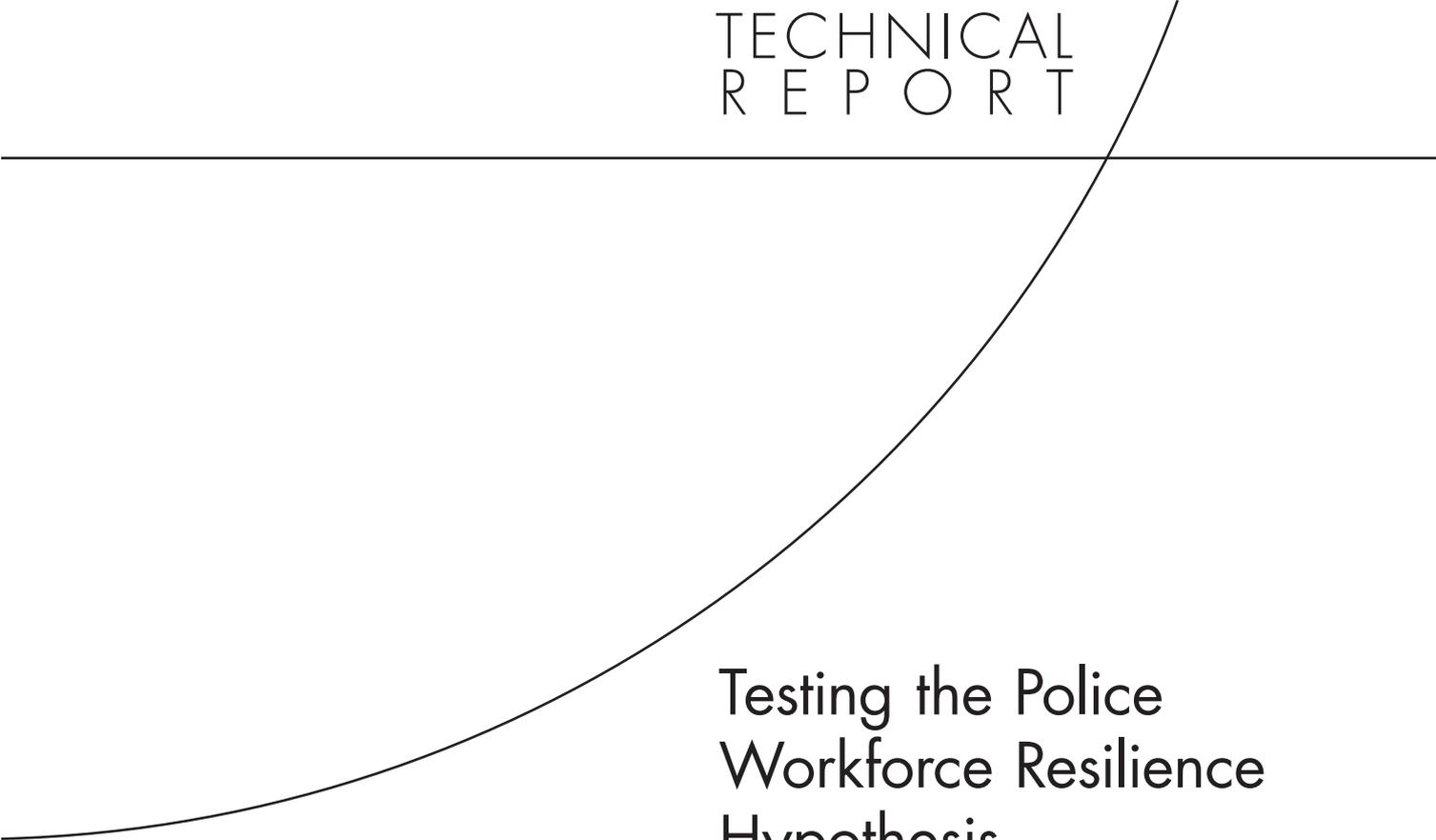
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TECHNICAL
REPORT



Testing the Police Workforce Resilience Hypothesis

An application of labour
economics to policing
management

Priscillia Hunt, Barrie Irving, Luca Farnia

Prepared for the Workforce Programmes Unit of the National Policing
Improvement Agency

The research described in this report was prepared for the Workforce Programmes Unit of the National Policing Improvement Agency.

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Executive summary

Introduction

An issue high on the national policy agenda is how to reduce the ever-expanding expense of the police service while maintaining its ability to respond in an appropriate and timely manner to both routine and extraordinary situations. In other words, there is a priority quest for cost-effective policing resilience.

Police forces are expected to be prepared for and cope with exceptional events, such as violence across the Olympic parks or terrorist threats; routinely to reassure the public that their community is safe and secure, and to investigate and prevent local volume crime, as well as organised crime both nationally and internationally. There can be severe consequences if police forces fail to respond effectively, whatever the demand.

Spending on police has grown in real terms from £9.8bn in 1999 to £14.5bn in 2009 with over 75 per cent attributable to workforce costs (Mills et al., 2010). Police, in common with all public services, now face severe budget cuts that are bound to involve reducing workforce costs. This immediately raises practical issues about resilience: can a tipping point, either in overall numbers or in the exact composition of the workforce, be discerned after which resilience will be in jeopardy?

In order to help police forces cope with the coming constraints on their budgets while planning for the future, tools need to be developed that will help the service address the resilience question. More generally the service needs a model of the way in which demand for policing and police workforce size and composition interact. Such a model should allow police managers to determine what the effect of different levels and kinds of cuts will be on their ability to meet projected demand in an effective manner. It is our understanding that such a tool does not exist.

The objectives of this study are to examine what constitutes resilience and its component parts and to provide qualitative and quantitative tools to assist policy makers, chief constables, police authorities and local government officials in police workforce management.

Approach

Through qualitative and quantitative methods, this report reviews the primary elements of police work – police workforce resources, the demand for policing and the risk of failure to deliver services – and the ways in which these elements interact to produce resilience. We take an innovative approach in our review of the issues by building two tools that will assist the police service in its workforce management.

We produce a conceptual framework to be known as the Factors of Resilience Mapping (FORM) framework, which is a qualitative tool to support a more systematic discussion of policing demands and workforce levels. The FORM framework allows us to identify the appropriate theoretical model, which can be estimated to quantify states of resilience. The theoretical model we identify is one from biology – the predator–prey model – and we use the model to find: the level to which police officer numbers would have to rise to eliminate crime; the level to which crime would be likely to rise with no police officers; and the long-run level of crime and police officers, as an accommodation is gradually reached between the two previous extremes (of no crime and no officers).

Main findings and future research directions

This report examines issues surrounding resilience in policing and advances the following findings:

- A model borrowed from biology, the predator–prey model, best describes the way crime and police workforce size have been working towards accommodation. England and Wales are currently in the phase of the police-crime cycle in which a past abundance of crime (the prey of the model) encouraged significant growth of police numbers (predator population level). It takes up to three years for police workforce size to adjust to the level of crime. While simple descriptive statistics seem to support the much quoted apparent lack of relationship between police labour force size and demand for policing, more sophisticated econometric analyses indicate this is because there are lagged effects. Findings, therefore, suggest police workforce planners have tended to chase rising crime trends without suitable adjustments for lagged effects and trend reversal. They may want to consider other more nuanced strategies for addressing demand in policing, especially under current fiscal conditions.
- As to specific numbers, we find that by using the predator–prey model as a basis for estimation, the demand and supply for policing in England and Wales will reach a balanced accommodation when there are approximately 130,000 police officers and approximately 5 million crimes a year. This represents a 9 per cent rise in crime and a 7 per cent fall in police workforce numbers based on 2009 levels.
- The optimal ratio of police officers to police staff cannot currently be determined. There are insufficient long-run data on the composition of forces and their outputs to be able to come to any useful conclusions on this issue. In particular it is not known how many additional full time equivalent police workforce members can be created by using Special Constables, overtime provisions, mutual aid and temporary changes in contracts to boost workforce levels for short periods to cope with exceptional demand.

As with any research endeavour, there are limitations to the findings. The main constraints in this research are related to data. We use 15 years of data on police officers and staff numbers and the number of recorded crimes. Results therefore may need to be treated with some caution. Results would be improved with more years of data on police workforce numbers and data across police force areas over time. Moreover, we use the number of crimes recorded to represent the supply and demand for policing. Recorded crime does not necessarily capture all crimes that occur, nor does it represent the demand to prevent

crime. As noted above, there are also no usable data on the various ways in which extraordinary demand can be met by extraordinary coping mechanisms.

Estimates of the numbers of police officers and staff and the number of crimes for the extreme states of resilience are achieved by mathematical extrapolation from existing data using the predator–prey model to guide calculations; the steady state point on the resilience curve is also estimated by using the predator–prey model, which appears to be the most appropriate available. All estimates have been checked and tested as far as existing available data allow. However, the testing process needs to continue and will inevitably lead to refinement of the estimates.

Future research directions

In a democracy that polices with consent, a key element of policing performance is to deliver the type and level of policing that the public want. Local assessment of delivery is currently problematic: the required attitude surveys are very expensive and difficult to manage effectively. Much of the available information on public satisfaction with policing data is of dubious quality. There is an obvious need to tackle this deficit. Little is known about how local police commanders and the populations they police assess the risk of police failure to cope. It could be that both police managers and public fear the same kind and level of breakdown; however, that may not be so. Even if police and public share the same concept of threat, they may disagree about the gravity of given threats and groups of threats. This gap in our knowledge also needs to be filled in order to cope properly with concerns about resilience.

The effect of workforce composition on resilience remains a significant unanswered question. To answer it, much more needs to be known about workforce composition under routine and extraordinary operational conditions. We need to progress from using relatively crude estimates such as total workforce numbers to accounting for all the ways in which local commanders and managers of the Association of Chief Police Officers of England, Wales and Northern Ireland (ACPO) can bolster resources in any department suffering overload. Only then can we isolate the particular effect on operational efficiency of the ratio of police officers to police staff.

This report suggests that across England and Wales the number of police officers and staff could be reduced by 7 per cent without disturbing the accommodation process between crime and police workforce size represented within the model. However, a one-size-fits-all strategy of reducing every police force by 7 per cent is not implied. More research is needed into how our estimation process works out in each of the 43 police force areas before local recommendations can be made. That detailed level of analysis was beyond the scope of this research, but it is a natural follow-on from this project. At force level it will be possible to take into account much more detailed information about fluctuations in workforce level, composition and outputs.