Evidence-based policing research brief

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Mapping crime harm and priority locations in New Zealand

Purpose

This brief provides a summary of a study comparing the New Zealand Crime Harm Index (CHI) with the New Zealand Priority Locations Index (PLI) to help identify and prioritise vulnerable communities in New Zealand suffering the highest crime harm.

What is the Crime Harm Index?

The most simple and common method of measuring crime is to count the number of crimes; however, this means that one minor crime is counted the same as a very serious crime.

By comparison, the Crime Harm Index is a measurement of crime in which crimes are weighted based on how much "harm" they cause, relative to other crimes. This allows crimes to be categorised according to the relative amount of harm they cause, rather than by volume. The Crime Harm Index harm weight for each offence is an estimate of the likely minimum sentence a first time offender would receive for the offence, calculated from court sentencing data.

What is the Priority Locations Index?

The New Zealand Priority Locations Index is an existing census unit based crime analysis tool that uses crime and demographic information to identify communities vulnerable to crime and disorder issues.

Why is it important?

While progress has been made with spatial approaches to crime and crime control that focus on places with high volumes of crime, there has been little research on the geography of crime harm.

Understanding where the greatest level of crime harm occurs, rather than focusing on the greatest volume of crime, enables Police to make appropriate resourcing decisions and better protect our communities.

What was the approach?

The Crime Harm Index and Priority Locations Index are based on different metrics but both have the potential to identify communities that require more resources from Police and partner agencies to better understand and address crime problems.
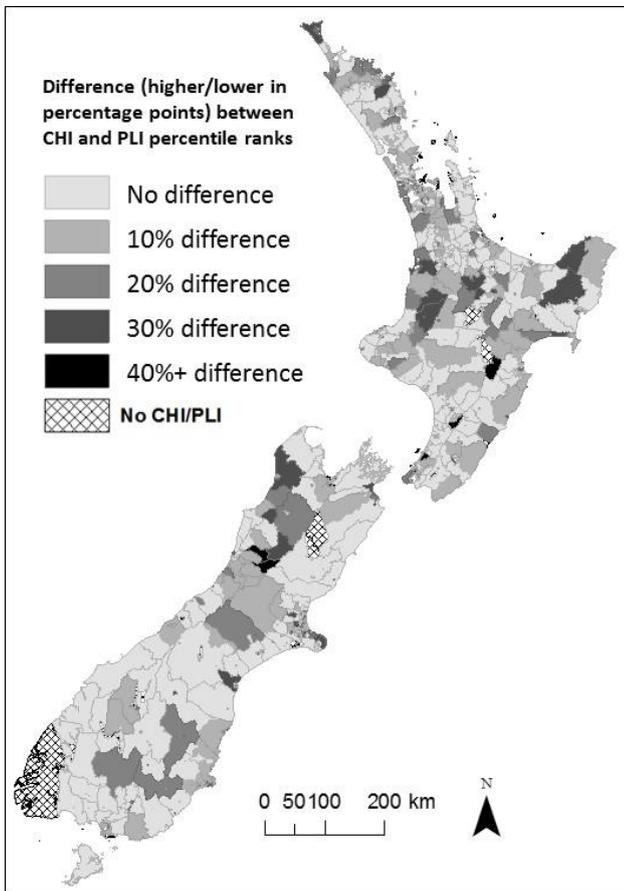
The study analysed the relationship between the Crime Harm Index and Priority Locations Index to determine whether they identify the same vulnerable communities, based on Census Area Units. Mapping techniques were also used to illustrate outlier locations where the indices differed widely and to identify location features that may assist in explaining differences between the Crime Harm Index and Priority Locations Index.

What were the findings?

Findings highlight the advantages of applying crime harm indices geographically to further understand crime harm concentration and inform harm-focused deployment.

Discussion

The study showed that areas in the top range of the Crime Harm Index were not necessarily in the top range of the Priority Locations Index. In other words, and counter to established theory, crime harm does not necessarily concentrate in the most deprived or otherwise demographically disadvantaged communities. This may be because the Priority Locations Index focuses on residential neighbourhoods and excludes many types of offences that make up the overall crime harm suffered by those residing, working or visiting in a given locality.

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Difference (higher/lower in percentage points) between CHI and PLI percentile ranks

No difference
10% difference
20% difference
30% difference
40%+ difference
No CHI/PLI

0 50 100   200 km

N

It is also thought that the relationship between socio-demographic vulnerability (as measured by the Priority Locations Index) may be mediated by factors such as informal social control, collective efficacy and features of the built environment. Consistent with this hypothesis, and with other recent research, further analysis revealed that resilient neighbourhoods, with high Priority Locations Index vulnerability but low crime harm rates, were more likely to be rural than urban and have smaller populations. These results highlight the potential for further research into how social and environmental factors impact on the relationship between deprivation and crime harm.

Limitations

A limitation of using Police data is that it doesn't capture crimes that go unreported, and that some offences are more likely to be reported than others. Therefore, the results may under-represent the harm from under-reported offences such as sexual and violent offences.

Another limitation is that the Crime Harm Index is an indicator of relative harm, not a precise direct measure of crime harm. That said, the Crime Harm Index has been shown to produce comparable results to other similar indices overseas.

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What does this mean?

This study shows that the Crime Harm Index can be used to map harm at census unit level to identify communities suffering the most crime harm and inform the prioritisation of limited Police and partner agency resource to optimise efforts to reduce harm.

The difference between the Crime Harm Index and Priority Locations Index results suggest that focusing on deprivation and other indicators of socio-economic disadvantage, even combined with crime volume, without consideration of crime harm, is unlikely to achieve the goals of harm-focused policing.

This difference has significant implications in practice as Police and partner agencies often use these indices in isolation to identify and prioritise high ranking locations for deployment and resource allocation. Therefore, relying on the Priority Locations Index alone may exclude some communities suffering the most crime harm.

To help reduce harm, Police could use the Crime Harm Index to inform allocation of resources in general, while the Priority Locations Index could be used in more localised circumstances, such as prioritising specific residential community-focused resources. To further enhance the Priority Locations Index, a hybrid-focused measure could be created by applying harm weights to the included offences in the Index.

In the context of the development of crime harm indices internationally, other jurisdictions may also benefit from exploring this approach to harm mapping.

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Further reading

Curtis-Ham, S., and Walton, D., (2017). Mapping crime harm and priority locations in New Zealand: a comparison of spatial analysis methods. *Applied Geography, 86*, 245- 254.

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