

BURISA

No. 168

Editorial

In this issue we lead with two main research reports, both relating to the local delivery of services. Peter Batey and Peter Brown from Liverpool University examine the accuracy of spatial targeting mechanisms with particular reference to the Sure Start programme. Not bad, but could do better seems to be the message in this instance. The methodology holds for any area based local policy initiative.

Alan Marshall, a research student at the Cathie Marsh Centre for Census and Survey Research (CCSR) at Manchester University describes a project to estimate and forecast disability in local authority populations using age distributions linked to national prevalence rates. Local authorities are offered the opportunity to collaborate in this PhD project which is supervised by Ludi Simpson, well known to most readers.

Completely ignoring the BURISA publication timetable, the Chancellor of the Exchequer used his budget speech in March to announce the publication of "Independence for statistics: A consultation document", with a consultation period ending in the middle of June. However, the Statistics User Forum (SUF), of which BURISA is a member, was invited to submit evidence to the House of Commons Treasury Sub-Committee: it is summarised here. There seems to be a number of significant aspects overlooked in the Treasury's initial proposals.

The other main items are, to quote Keith Dugmore, "match reports" of recent events which should have some significance for most readers. We report

on an extremely successful BURISA Conference (see also below) and a lively event organised by SUF to discuss the somewhat vexatious subject - for many users, anyway - of statistical disclosure control (SDC) of tabular data for small areas.

BURISA Conference 2006: Initial Feedback

Just over half of those attending our Conference in May completed an evaluation form, with nearly three-quarters of those rating the event as 4 or 5 (on a scale from 1=poor to 5=excellent). Just 3 respondents gave a rating below 3. Well over half of respondents - at least a quarter of all attendees - were at their first BURISA Conference. This was a very welcome development, and the challenge for BURISA now is to keep them coming! Most complaints related to the audio-visual facilities, which we will refer back to the Royal Statistical Society (RSS) for future reference. Thank you to all who responded.

September Newsletter: revised copy deadline

A small alteration to the editorial holiday arrangements necessitates an earlier deadline than previously advertised for September newsletter copy. It is now 11th August as shown on page 19 of this issue. As usual, all submissions are welcome, including letters, comments, complaints and short notes as well as longer reports and articles. See the notes for contributors on page 19 for further details.

Contents

Main Items

- 2 How Successful is Spatial Targeting?
- 6 Projecting Disability Prevalence at Sub National Levels
- 10 Independence for Statistics
- 11 BURISA Conference 2006: Mind the Gap - Summary Report
- 17 Disclosure Control: Statistics for Small Areas - Summary Report

News & Announcements

- 18 Statistics User Forum Conference, November 2006
- 18 CCSR Short Course Programme
- 18 Regional Studies Association Conference, November 2006

Other Items

- 19 BURISA Board Members
- 19 Notes for Contributors
- 19 Subscriptions

How Successful is Spatial Targeting?

Peter Batey and Peter Brown, University of Liverpool

Abstract

A method is outlined for assessing the spatial targeting of urban policy initiatives. The method uses a geodemographic classification system to produce a generalised socio-economic profile for a particular initiative. This profile is used to measure the degree to which targeting in a given locality is inefficient or incomplete. An illustrative example is given in which the P² People and Places geodemographic system is used to evaluate the targeting of the Sure Start initiative in eight cities.

Introduction

For at least forty years, area-based initiatives (ABIs) have been a feature of urban policy in the UK and have been seen as an effective means of targeting the poor. Successive governments have pursued a spatial targeting approach and introduced a range of geographically-defined policies and programmes identified through the use of area deprivation indices (for example, the Index of Deprivation (1980s); the Index of Local Conditions (1990s); and the Index of Multiple Deprivation (2000s). This prompts the question: how successful is spatial targeting in reaching the people for whom an urban policy initiative is intended?

Following a study of government urban policy initiatives, Tunstall and Lupton (2003)¹ put forward two simple concepts that help in considering the effectiveness of targeting: the notions of *efficiency* and *completeness*. Because the population of any given area is never perfectly differentiated by income, every area is, to some extent, mixed. This means that a degree of inefficiency is built into targeting by area, because people who are not the intended beneficiaries will be included. At the same time, the targeting will be incomplete, because deserving cases living outside the targeted area will be excluded.

This paper puts the Tunstall and Lupton concepts into practice, developing a method to measure the degree to which spatial targeting is successful. The method draws upon a geodemographic classification system - a national typology of residential neighbourhoods based on their social, economic and demographic characteristics. The utility of the method is demonstrated by employing the

P² People and Places geodemographic system to assess the targeting of the Sure Start initiative in eight large provincial cities in England.

Characterising Area-Based Initiatives

Geodemographic classification systems may be used to establish the main types of residential neighbourhood associated with particular ABIs. Moreover, they provide a means of judging how well the boundaries of regeneration initiatives reflect the spatial distribution of socio-economic need.

Any targeted area may be described in terms of a series of census Output Areas. Local examples of the areas defined for ABIs are generally larger than a single Output Area and, although the match will not be perfect, it should be relatively easy to list the relevant Output Areas that constitute a targeted area. Describing targeted areas in this way enables them to be linked to the geodemographic classification which itself is based on Output Area level data. In the geodemographic system, each Output Area is assigned to a specific residential neighbourhood type (cluster), along with other Output Areas sharing similar characteristics.

The neighbourhood types conveniently summarise the main features of the population that is being targeted by an initiative. In practice several different neighbourhood types will be needed, rather than a single dominant type. Two closely-related technical issues are important here: the mechanism by which these neighbourhood types are identified; and the task of measuring the closeness of fit between these neighbourhood types and the population targeted by the initiative. The objective here is to obtain the best possible approximation.

Complementary Approaches

Two complementary approaches have been adopted in identifying the list of relevant neighbourhood types. The first of these is referred to as a "penetration ranking" or "concentration" approach and identifies the neighbourhood types that have the greatest over-representation of the ABI population. The second approach employs a method of ranking based on the overall similarity between particular neighbourhood types and the general socio-economic profile of the ABI. This is described as a "programme profile distance" approach. In drawing up a final list of neighbourhood types, elements of the two approaches are combined. A full description of both methods is provided in Batey and Brown (2006, forthcoming)².

By studying the composition of neighbourhood types that make up local instances of targeted areas across the complete set of local authorities, it is possible to establish whether there are particular types that occur more

frequently than others. Taken together, such neighbourhood types are likely to account for the bulk of the total population resident in the targeted areas. These may be regarded as *Category 1 Neighbourhoods*. These neighbourhoods are likely to play an important part in characterising the areas targeted by a particular initiative.

However, it is also important to recognise that certain types of neighbourhood are concentrated in particular parts of the country, and may not emerge near the top of a national ranking of prevalent neighbourhoods. The method used here must be sufficiently flexible to reflect local and regional distinctiveness of this kind. To do this, it is necessary to define a second group of neighbourhood types, namely *Category 2 Neighbourhoods*. Such neighbourhoods have to satisfy the criterion that they are locally important (local here could mean a particular local authority area) in that they are over-represented in that area.

Inevitably, some neighbourhood types will lie outside Categories 1 and 2. These are defined as Category 3. Successful spatial targeting implies that most of the targeted areas are either Category 1 or 2 Neighbourhoods (reflecting the *efficient* targeting of the initiative), and that the incidence of Category 1 and 2 neighbourhoods outside the targeted areas is kept to a minimum (reflecting more *complete* targeting of those whose needs are greatest).

Measures of Targeting Performance

A number of simple measures can be calculated to describe how successful targeting has been, based on the cell values contained in a 2 x 2 table. To illustrate these, an example has been selected for the city of Nottingham. Here the characterisation of an unspecified ABI has been done using the P² People and Places

geodemographic system developed jointly by the authors and Beacon Dodsworth, a commercial company specialising in the analysis of geographical information (Beacon Dodsworth, 2005)³. The different categories of residential neighbourhood were identified using the Branch (40 cluster) level in P² People and Places by adopting the procedure outlined earlier (see Batey and Brown (2006) for a more detailed account). The generalised socio-economic profile of the initiative is based on the combined evidence of targeting across the entire set of eight cities.

In Table 1 the two rows represent the combination of Category 1 and Category 2 neighbourhoods (i.e. those whose needs are greatest) and Category 3 neighbourhoods (i.e. those whose needs are least), and the two columns represent, respectively, Output Areas within, and outside, the areas on which the ABI programme is targeted.

In this table, the two main diagonal entries represent *correct targeting* – comprising, respectively, the *deserving* Categories (1 and 2) that fall within the defined initiative area boundaries and the *undeserving* Category (3) that fall outside the defined area. This “correctness” can be translated into a rate by adding the two figures together and dividing by the total population of the city and expressing the result as a percentage.

The two off-diagonal entries each represent different types of error, as follows:

- *Type 1 Error* refers to *inefficiency*, or the capturing, within the initiative area, of people who are in the less deserving Category 3;
- *Type 2 Error* refers to *incompleteness*, or the omission, from the defined area, of people who are in the more deserving Categories 1 and 2.

Table 1: The Match between Targeted Areas and Neighbourhood Categories: a Population Analysis for Nottingham

	Targeted Areas	Non-Targeted Areas	Total
Category 1 or 2	42,648	40,294	82,942
Category 3	31,090	141,956	173,046
Total	73,738	182,250	255,988

Table 1 shows the relevant counts relating to Nottingham for the selected area-based initiative. These counts are then used to derive the corresponding measures of inefficiency and incompleteness, as follows:

- *Correct Targeting*: $(42648 + 141956) \times 100 / 255988 = 72.1\%$
- *Targeting Error*: $100 - \text{Correct Targeting} = 27.9\%$
- *Type 1 Error (Inefficiency)*: $31090 \times 100 / 255988 = 12.1\%$, or 43.6% of total error
- *Type 2 Error (Incompleteness)*: $74719 \times 100 / 255988 = 15.7\%$, or 56.4% of total error.

In this example, approximately three-quarters of Nottingham's population is found to be correctly targeted, implying that the remaining quarter is not. For this quarter, it is possible to apportion the error between Types 1 and 2. Here, Type 2 (incompleteness) turns out to be appreciably more important than Type 1 (inefficiency). The implication is that in Nottingham, the boundary of the area-based initiative needs to be drawn more extensively, to include a greater number of people living in Category 1 and 2 neighbourhood types.

Application to a Specific Area-Based Initiative

The Sure Start programme is used here to demonstrate the practical application of the geodemographic assessment tool. By concentrating on a comparison between eight large provincial cities, the application also provides an opportunity to demonstrate how the assessment tool can be used to identify variations in targeting performance between areas with markedly different social and economic conditions.

Sure Start is a £3bn 10-year national programme, launched in 1998, in which the intention is to work with parents, parents-to-be and children to promote the physical, intellectual and social development of babies and young children, particularly those that are disadvantaged. The programme is focussed on combating child poverty in neighbourhoods with concentrations of children aged 0-4 by reshaping existing support services (see Sure Start, 2005)⁴.

Table 2: Comparison of Inefficiency and Incompleteness in the Definition of Sure Start Areas by City

City	Sure Start Rate	Correct Targeting (%)	Targeting Error (%)	Type 1 Error (Inefficiency) (%)	Type 2 Error (Incompleteness) (%)
Bristol	138	86.6	13.4	61.7	38.3
Sheffield	194	82.2	17.8	58.7	41.3
Birmingham	119	79.5	20.5	43.3	56.7
Leeds	146	77.7	22.3	50.1	49.9
Newcastle	335	73.8	26.2	70.3	29.7
Liverpool	285	73.4	26.6	35.2	64.8
Nottingham	288	72.1	27.9	43.6	56.4
Manchester	312	67.1	32.9	41.8	58.2
All 8 Cities	199	77.2	22.8	51.5	48.5

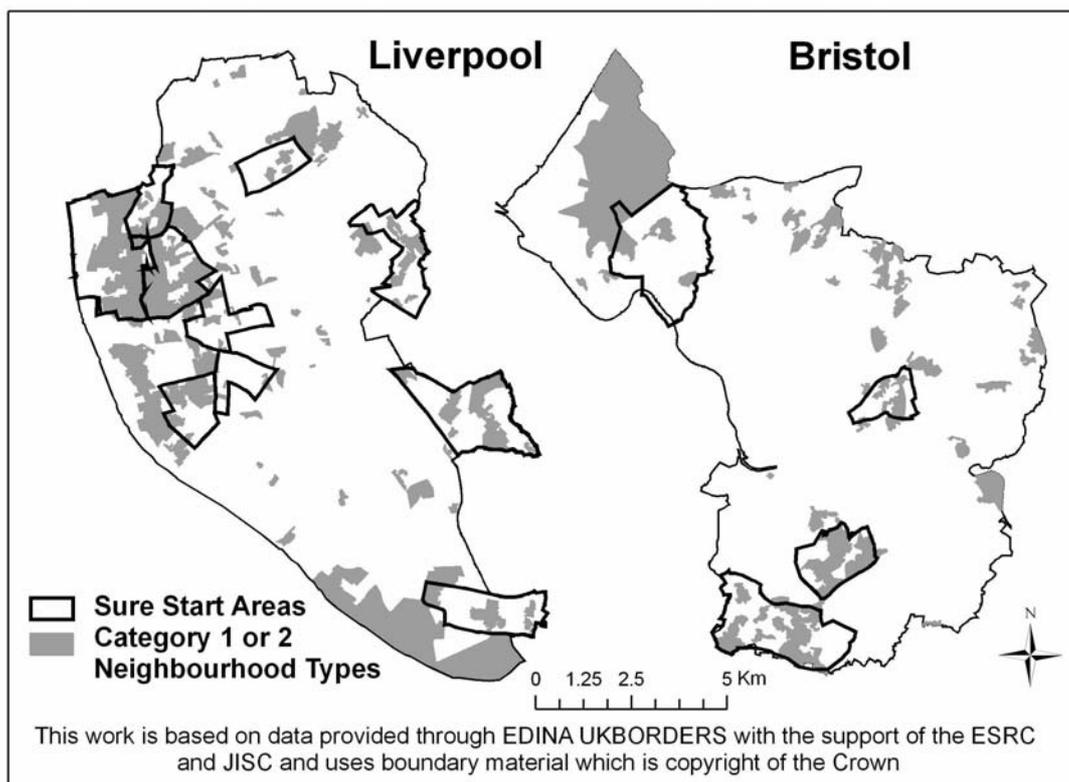
Districts in receipt of Sure Start funding were selected according to levels of deprivation, but detailed decisions about the definition of individual Sure Start programme area boundaries were made locally. The starting point in each case was the national list of the 20% most deprived wards, as measured by the IMD 2000 (Noble et al, 2000)⁵. Draft Sure Start area boundaries were then modified using local knowledge (Frost, 2005)⁶.

Table 2 presents the results for the eight cities. The first column shows the Sure Start rate: the number of local residents targeted by Sure Start per 1000 total population in each city. It indicates that there is substantial variation among the cities in the penetration of the Sure Start initiative. The next four columns show the measures of correct targeting and targeting error introduced in the Nottingham example. The resulting values provide a basis for ranking the eight cities. This ranking places Bristol at the top, with a correct targeting measure of 86.6% or 12% above the average for the eight cities as a group. The complement, targeting error, ranges from 13.4% for Bristol to 32.9% for Manchester, the latter 44% higher than the eight-city average of 22.8%.

The same table also records the two components of targeting error: Type 1 (Inefficiency) and Type 2 (Incompleteness). The table reveals that, in those cities with a higher rate of correct targeting, there is a tendency for Inefficiency to exceed Incompleteness, i.e. for a larger number of less deserving people to be included in Sure Start areas than should be. Similarly, towards the bottom of the table, notably in Liverpool (with the highest value of 64.8%), Nottingham and Manchester, Incompleteness is more marked, implying that, in these cities, the Sure Start area boundary has been drawn too tightly, causing a greater proportion of potentially deserving recipients to be excluded.

A clear indication of the success of spatial targeting can be obtained by mapping the Category 1 and 2 neighbourhoods and the boundaries of the ABI. Figure 1 presents maps of Bristol (where the targeting is relatively successful) and Liverpool (where it is less successful). The maps reveal that in both cities there are substantial areas that could equally well have been targeted and that there are some neighbourhoods where the targeting is hard to justify.

Figure 1: The Relationship Between Sure Start Areas and Category 1 and 2 Neighbourhood Types in Bristol and Liverpool



Conclusion

This article has shown how a geodemographic approach can be employed to measure the success of spatial targeting of area-based urban policy initiatives. Even though the original basis for targeting may be obscure, and reflect political as much as technical factors, the approach presented here allows targeted areas to be analysed consistently and systematically. The assessment method has many potential benefits, notably in providing clear guidance about where targeting can and should be improved.

References

- ¹ Tunstall R, Lupton R, 2003, "Is Targeting Deprived Areas an Effective Means to Reach Poor People? An assessment of the rationale for area-based funding programmes", CASE Paper 70, Centre for Analysis of Social Exclusion, London School of Economics
- ² Batey P W J and Brown P J B, 2006, forthcoming "The spatial targeting of urban policy initiatives: a geodemographic assessment tool", Environment and Planning A 38
- ³ Beacon Dodsworth, 2005, People and Places
<http://www.p2peopleandplaces.co.uk>
- ⁴ Sure Start, 2005
<http://www.surestart.gov.uk/>
- ⁵ Noble M, Smith G, Penhale B, Dibben C, Owen T, Lloyd M, 2000, "Measuring Multiple Deprivation at the Local Level: Indices of Deprivation 2000", Department of Environment, Transport and the Regions, London
- ⁶ Frost M, 2005, "Principles of GIS: A Review of Applications"
<http://www.bbk.ac.uk/geog/study/courses/pgis.pdf>

Contact Details

Peter Batey: pwjbatey@liv.ac.uk

Peter Brown: pjbbrown@liv.ac.uk

For queries regarding the P² People and Places geodemographic classification system, please contact Simon Whalley:

simonw@beacon-dodsworth.co.uk

Projecting Disability Prevalence at Sub National Levels

Alan Marshall, CCSR, Manchester University

Abstract

Information on current and future levels of disability prevalence is important for the planning of service provision. However, relatively little work has been done on the projection of disability prevalence and data on disability by type is limited at sub national levels. This article outlines preliminary ideas on data, methods and techniques to be used in a doctoral study to forecast disability prevalence at local authority level. Local authorities who wish to receive projections for their areas are invited to join a collaborative project that will run in parallel with the PhD study.

Introduction

The main objective of this research is to develop a procedure that can be used to forecast disability prevalence rates at local authority level. This is of great practical importance, people with disabilities require access to specialised services, equipment and support and so projections of disability prevalence are needed in order that governments can direct their resources effectively. However, relatively little work has been done on the projection of disability. In my study I aim to project disability prevalence using the strong relationship between disability prevalence rates and age. Whilst the focus of the study is on disability prevalence the methods are intended to be generalisable to other characteristics that are strongly age related.

Population Projections

A population projection is the numerical outcome of a set of assumptions regarding future population change. A forecast refers to the projection that is considered the most likely, sometimes known as the principal projection. Forecasts become less accurate the further into the future and the smaller the area. This uncertainty shall be recognised by presenting other projections based on alternative assumptions and in particular those that identify the highest and lowest levels of disability prevalence.

What is

BURISA ?

BURISA is the British Urban and Regional Information Systems Association

BURISA is an informal, non profit-making unincorporated association of practitioners whose common interest is the use and management of information and the development of information systems for services to the public. Each member is co-opted in a personal capacity and gives his or her time voluntarily (but generally with the sponsorship of employers) to serve the aims of the Association.

BURISA aims to promote better communication between people concerned with information and information systems in local and central government, the health services, utilities and the academic world through its regular newsletter and periodic conferences and workshops.

BURISA interests span information systems for planning, policy making and service provision in:

- Physical planning and development
- Housing
- Social services
- Economic development
- Education
- Transportation
- Health services
- Utilities
- Library services

New Subscriptions

Contact Name (for mailing):

Organisation Name (for invoicing):

Address to which BURISA is to be sent:

Email: _____

Number of copies: _____

From 1st January 2006 the Subscription for the Calendar year (including back issues) is £30.00 for the 4 publications per annum and on-line access to BURISA. Extra copies are obtainable for £5.00 per set per year. Subscriptions should be made payable to BURISA and sent to the Subscription Manager:

Jean Donaldson
52 Linton Road
Hastings
TN34 1TN

Tel: 01424 431635
Fax: 01424 781255
Email:
burisa@jigsawresearch.co.uk
Web: www.burisa.org

Please complete the details overleaf