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Christopher Allsopp
Allsopp Review Consultation
Room 3/19
HM Treasury
1 Horse Guards Road
London
SW1A 2HQ

17th February 2004

Dear Mr Allsopp

Comments on Recommendations of the Review of Statistics for Economic Policymaking

I should start by apologising for not submitting our comments prior to the 13th February deadline. This was due to an administrative error on our part. I trust that our comments will nevertheless be of use.

We are encouraged by the steps being taken by Government to address the quality of data that informs economic policymaking and have read your Review with interest. In response to your request for user views on sub-regional data in *Recommendation 13*, we would like to make some observations on the demand for micro-regional data and the different ways in which ONS might meet that demand.

The need for micro-regional information

The demand for micro-regional economic information is, in our experience, huge. Demand exists in both public and private sectors and is required across a variety of potential applications. They will be required, for example, to evaluate the impact of London's congestion charge on business within the zone and in the assessment of the ability of transport corridors (such as the London-Cambridge-Peterborough corridor) to cater for economic growth in the context of the Government's Sustainable Communities programme. In the private sector, micro-regional economic information can help the business to business marketing functions as well as supporting the planning and investment strategies in all sectors of the economy.

Geofutures has been involved in a number of projects where we have used the ABI to help form and assess public policy. For example:

- We have been helping the Office for the Deputy Prime Minister (ODPM) use Geographic Information (GI) technology to map and produce employment and turnover statistics on town centres and major off-centre retail concentrations. These statistics will not only help ODPM to assess its own policy instruments and ONS prepare the RPI, but are also vitally important to support investment planning in the retail and property industries.
- The Greater London Authority (GLA) has recently been developing policy with respect to the 24-hour economy by mapping employment data from the ABI. By combining employment data with crime data from the Metropolitan Police, we were able to identify hot-spots of late night activity enabling the GLA to target policies appropriately and sensitively.
- The Department of Health and Department of Trade and Industry has asked Geofutures to use the ABI to assess the distribution of pharmacies across the UK.

- We are also currently helping the Neighbourhood Renewal Unit (NRU) of ODPM to identify socially excluded areas that do not have ready access to retailing.

There are two key requirements of the economic data that run through all the policy applications of which we have direct experience:

- **The need to map data:** In all the examples we have listed, it has been necessary to map the data using a Geographic Information System (GIS) at a fine spatial scale¹. This helps policy makers to visualise the distribution of the economic phenomena they are considering, helping them to better target policy.
- **Flexible geographies:** Different policy applications and different users generally prefer their statistics to be aggregated within bespoke geographical boundaries, often according to their perception of the policy domain. Statistics based on the NUTS classification, even at when presented at the most disaggregated level, are never as useful.

Current ONS moves to satisfy the demand for small area economic statistics

The creation of a new small-area geography (*Recommendation 24*), comparable to that created for the 2001 Census, is an excellent step forward and can, to some degree, fulfil the requirements outlined above. It also addresses the concerns about the potential disclosure of information of individual businesses that mapping data at fine spatial scales within flexible geographies introduces.

We question whether it is actually possible for ONS to create a meaningful *stable* small area geography for economic activity. We recognise that the need to integrate these small areas into the top-down geography of NUTS means that the definitions of these areas have to be static. A further benefit is that the spatial component of data can be coded, stored and processed within the spreadsheets and databases of the ONS.

These largely operational benefits are, however, outweighed by some key problems:

- The spatial distribution of economic activity changes very rapidly, particularly in areas of urban regeneration. These changes are arguably more rapid than changes in economic structure defined by the Standard Industrial Classification. (The Review makes the point that SIC92 no longer reflects the current structure of the economy and detail needs to be transferred from the manufacturing to the service sector.) The creation of a stable geography for economic activity would be a similar straightjacket and may date even more quickly.
- A solution to this problem would be to allow the small area boundaries to be modified in light of changes in those areas where new development has changed the underlying economic geography. In order then to facilitate temporal analysis of a particular area, some means of apportioning changes between different zonal systems would need to be performed. This introduces some of the key statistical flaws associated with zonal based analysis into the mix – ecological fallacy and the Modifiable Areal Unit Problem (MAUP) - both of which are well documented within the GI Science literature².
- The impact of ecological fallacy can already be recognised in the ABI data. The quality of both ABI/1 and ABI/2 are dependent on the modelling of employment and turnover at NUTS1 and the extrapolation of the model to finer spatial scales. It is largely for this reason that local estimates of both employment and turnover data can be out by as much as 50% (this is an issue we are currently addressing with ODPM on the town centres project). Even if as discussed in Chapter 5 of the Review, the sample size is increased, the same flaw in the modelling process will undermine the results.

A bottom up approach to geography

The current ONS method of handling the geography of its statistics can be best summarised as a top down approach. This is not surprising since the traditional function of ONS has been the delivery of national accounts, and that the scope of Information Technology has, until fairly recently, precluded the maintenance of large, fine-scale data sets. Today, the storage and manipulation of the 2.25 million records of the ABI is much simpler and much faster than was possible even 10 years ago.

We therefore urge ONS to take advantage of the improvement of databases and GIS and to revise its basic approach to the handling of the geography of its economic data and to take a bottom up approach. This would involve the identification of the geographical location of every business address (at the Local Unit level) and using these as the ultimate building block for more aggregate geographies.

The benefits to this approach are significant:

- The existing NUTS spatial hierarchy can be readily populated by the more granular data and the current data aggregations maintained.
- Notwithstanding potential disclosure issues, data can be readily aggregated within bespoke policy geographies for different policy clients.
- Errors can be more readily identified if data are shown within a detailed mapping context.³
- A more effective sampling strategy could be developed to extrapolate ABI/1 and ABI/2 if the data were handled as discrete point locations rather than aggregated into zones. It would also facilitate the use of new spatial analytical techniques, such as Geographically Weighted Regression, which could be used to derive better employment and turnover estimates⁴.

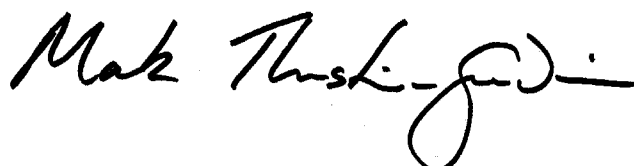
Arguably, ONS is already part way there. As mentioned above, we routinely map data from the ABI using the unit postcode geo-reference of each Local Unit and are able to analyse the data in a much more policy-orientated fashion. The unit postcode is still not as precise a geographical reference as we would like but once the National Land and Property Gazetteer is completed, it will be possible to map the precise geographical location of all addresses in the UK.

In summary, we argue strongly that the success of current and future policy initiatives will depend on the provision of timely and accurate information at levels of disaggregation finer than NUTS1 and that this is best delivered by ONS adopting an atomised, bottom-up approach to the way in which it handles the geography of its data.

I recognise that you do not intend to make detailed recommendations on sub-regional data at this stage, but should you wish to discuss any of the issues I have raised please do not hesitate to contact me.

Kind regards

Yours sincerely



MARK THURSTAIN-GOODWIN
Director

NOTES

1 We have mapped data in the ABI/1 and ABI/2 using the postcode reference that is part of the address information held on the IDBR. Each postcode contains 10-15 addresses; its co-ordinates are the spatial average of those locations, which means we can map data to the precision of the street. In the next couple of years, the National Land and Property Gazetteer will enable us to map data to an specific address.

2 Ecological fallacy and MAUP are well documented in the GI Science literature. For example, in the excellent 'Geographic Information Analysis', Unwin and O'Sullivan argue that zonal systems are "...a type of sampling of the underlying social reality that are misleading in several ways" (p 169).

3 As part of the ODPM's Town Centre project, we developed an on-line Data Verification Tool that mapped data from the ABI at the unit postcode level. Local Authority officers were readily able to identify errors in the raw data because of the detail of the contextual mapping and commented that this was a much more efficient means of checking ONS data that currently employed.

4 Geographically Weighted Regression (GWR) is a technique developed at the University of Newcastle for exploratory spatial data analysis which modifies multiple regression modelling to be suited to geographical enquiry. We feel that this technique could be successfully applied to the extrapolation of ABI data.

ADDITIONAL INFORMATION

Geofutures Ltd

Geofutures is a strategic consultancy using data analysis and geographic information (GI) science to help clients make reliable management and planning decisions based on complex data. Geofutures enables expert and non-expert users to understand patterns, boundaries, trends over time and possible future impacts, to input their own data and to interact with user-friendly tools to add depth to their findings.

The consultancy brings a wealth of experience to data sourcing and statistical analysis, helping to ensure that data are handled appropriately and outputs are accurately represented, errors minimised and limitations acknowledged.

Close associations with the international academic community offer clients the benefits of leading-edge technologies, insights and datasets. This makes each solution a rigorous, collaborative response to individual commercial or policy needs.

Mark Thurstain-Goodwin, director, Geofutures

Mark combines a geographical education with extensive first-hand experience of commercial data analysis. After graduating from Girton College, Cambridge, Mark worked as a commercial property analyst for four years, before undertaking a Master's degree in Geographical Information Science (GIS) at the Centre for Advanced Spatial Analysis (CASA) at University College London.

He is currently conducting research for the UK's Office of the Deputy Prime Minister (ODPM, previously the DTLR) modelling town centres and generating a new nation-wide statistical series, as well as participating in research project for Transport for London evaluating the impact of public transport infrastructure on property values.

As well as running Geofutures, Mark also retains a close working association with UCL, where he is a senior research fellow funded by the David Thorpe Research Fund. He is continuing his PhD research and regularly publishing in related academic journals.