



2011 Census Evaluation

Geography – Address Register, Enumeration Geography and Map Atlases

Executive Summary April 2015

Project Objectives

To develop an authoritative address register to support the delivery of Census questionnaires and facilitate the tracking of their return.

To implement a robust field methodology that:

- (i) identified and rectified deficiencies in the address register through a full address check;
- (ii) followed-up any undelivered questionnaires or non-responding households; and
- (iii) identified those non-responding households from which a completed questionnaire would have been expected.

To support the postal delivery of Census questionnaires by experienced Royal Mail personnel in those areas where the addressing information was of sufficient quality, which enabled Census field staff to concentrate on address checking and follow-up activities;

To support the deployment of a barcode based questionnaire tracking system, which provided near 'real-time' intelligence on which questionnaires had been returned or were outstanding;

To support the provision of public interface services, including an in-house 'fulfilment' team to respond to requests from the general public and deliver a questionnaire to any newly identified addresses; and

To support the implementation of a comprehensive publicity campaign to ensure that everyone realised the importance of the Census and their obligation to take part.

Background

Few census practitioners would disagree with the view that the success of the Census is crucially dependent on the methodological approach adopted for the enumeration. In 2011 a Post Out/Post Back approach, coupled with an online response channel, was deployed.

The address register that was specifically constructed for the Census was pivotal to the entire operation – right from the enumeration through to the delivery of outputs, where it formed the ‘spine’ of the precursor to the outputs production database. It was constructed using information from the Land and Property Service’s (LPS) POINTER address database – involving a variety of key stakeholders and utilising a variety of administrative data sources in order to ensure, in so far as it was possible, that all of the addresses included on the Census address register were both domestic and potentially occupied.

The decision to Post Out the Census questionnaires in Northern Ireland gave rise to considerable efficiency savings and enabled Census Office to change the emphasis of the field staff roles and responsibilities. Each of the some 2,000 temporary field staff were assigned responsibility for a fixed list of addresses and a fixed geographical area (i.e. Enumeration District) and tasked with undertaking a complete check of the address register for their particular area. Through this, they were able to identify any addresses that had been included in error (for example, addresses of derelict/demolished properties) and any addresses that had been inadvertently missed (for example, new builds). In addition,

the field staff were also assigned the responsibility of investigating and resolving any undelivered questionnaires and identifying any non-responding households. All of these aspects, which were undertaken under much tighter levels of managerial control (i.e. a Census Team Co-ordinator in 2011 had responsibility for 6-7 enumerators, as opposed to 10-14 enumerators in 2001), were critical in terms of establishing an authoritative ‘truth deck’ on the ground at the outset of, and during, the field operation phase.

The 2011 Census Enumeration Districts (EDs) were developed ‘in-house’ by NISRA personnel who had local knowledge of the geographical areas. Importantly, the areas were generated on the basis of a road centreline geography, which resulted in:

- (i) more distinguishable boundaries; and
- (ii) areas that were considerably easier to identify and navigate during both the address check and follow-up phases of the field work. Tailored Map Atlases were provided to the field staff, which pinpointed the location of the addresses that they had responsibility for on their maps.

Overall, this methodological approach worked extremely well in Northern Ireland and played a significant role in ensuring that the 2011 Census was a success. A household response rate of 94 per cent was achieved, mirroring that in the 2001 Census, which was encouraging given the increased difficulties associated with securing a response.

Both the address register and the associated address strings were comprehensive and

delivered as per the contractual requirements, enabling the addresses to be over-printed on the questionnaires prior to delivery. Although no major issues arose, some important lessons have been noted for consideration in any future operation.

Importantly, a number of the lessons that emerged arose as a result of the scale/volumes of the live operation, which small scale tests/rehearsals can never emulate, and the reactive stance that has to be adopted in order to manage events happening on the ground in real time. Conducting a full (in costume) end to end rehearsal – using finalised systems, services and processes – is essential in order to understand all of the business critical interdependencies and potential knock on implications of particular events.

Lessons learned

Address Register

From an evaluation perspective, the importance of the address register – and the formatting of the address strings derived from it – was well understood by all those involved in the development process. Strong and productive working relationships were established with key stakeholders, all of whom afforded the work priority that it rightly merited.

In respect of households, one of the key aspects of the work was to identify those addresses that were domestic and potentially occupied. The blend of the work involved is considered to have been both appropriate and cost effective. It was heavily focused on desk research and utilising intelligence gathered through both automated and

manual matching of POINTER with other administrative information sources. This drew on one of NISRA's core areas of expertise and, in many instances, gave solid evidence of 'signs-of-life' at an address.

The piloting work that was undertaken during the 2007 Census Test and 2009 Census Rehearsal provided the added value of:

- Validating the specific addresses that were included in the Test and Rehearsal areas.
- Shaping key decisions regarding which addresses to include/exclude. For example, the research revealed that field staff found it easier and less time consuming to find addresses that had been omitted rather than eliminating addresses that had been included in error. The view to emerge from the 2011 field work was, only include those addresses on the address register that we are absolutely sure about.
- Informing how the planned 2011 address check should be conducted.

With hindsight however, there were other potential opportunities of validating addresses on the ground that could perhaps have been more fully exploited (for example, during Omnibus testing of the questionnaire).

One of the most important aspects to emerge was the need for NISRA personnel to continue to work collaboratively with LPS on addressing matters beyond the Census operation – perhaps through the provision of a funded dedicated resource - and, for example, sharing of address intelligence wherever possible (for example, from social survey work).

Some specifics that emerged include:

- It was Northern Ireland policy that all address strings should include details of the Townland in which the address was located. While Census Office conformed to this and recognised the sensitivities to the inclusion of the Townland in certain areas of Northern Ireland (for example, Fermanagh), it added little value from a delivery perspective. In addition, it arguably used an address line which, in many instances, could have been better utilised to provide additional clarity on the location of the address. Finally, the inclusion of the Townland caused confusion among some members of the general public who were not familiar with their Townland name.
- The address strings included on the paper questionnaires, the internet questionnaires and those utilised by the contact centre were not always harmonised due to limitations of the separate systems. While this was particularly unfortunate as the same address register underpinned all of the above, it was manageable and was considered too risky to fix, given that it was discovered during the final phases of Operational Readiness Testing.
- The Contact Centre went live before the questionnaire delivery phase had been completed. This is believed to have considerably inflated the number of fulfilment requests for a questionnaire and had a detrimental impact on both the apparent accuracy of the address register that underpinned the Census operational phase and the actual accuracy of the finalised address register used for the production of the outputs.
- Those addresses for which a grid reference could not be captured were assigned the grid reference of the postcode centroid, which could impact on the Census Small Area it was assigned to, as postcodes can span Small Area boundaries.
- In order to improve the quality of the address details captured by the contact centre and/or the field staff (in instances when they made contact with the householder or found a new address in the field), the personnel concerned should have access to an automated address finding system similar to that in retail stores. For example, this would prompt for postcode and house number details and then retrieve an appropriate list of addresses to select from. It is believed that this would both save resources during processing and further improve the overall quality of the outputs.
- Given the critical nature of address information from an outputs perspective, consideration should be given to emphasising and explaining the important role it plays and why it is essential for the general public to provide such details as comprehensively as possible. This could be achieved, for example, through the inclusion of information on the Census questionnaire, an information leaflet and through tailored activity as part of the publicity campaign.

- The Communal Establishment component of the address list was considered to be comprehensive. However, usual resident estimates were based on bed counts, which resulted in notable wastage in terms of the number of Census questionnaires printed, as the actual count was very often considerably less. In addition, difficulties were experienced in terms of allocating questionnaire types to special types of Communal Establishments, such as Embassies – in any future operation, consideration should be given to enumerating these directly by HQ personnel.

Enumeration Geography and Map Atlases

From an evaluation perspective the development of the EDs went reasonably smoothly, which was impressive given its scale and relative complexity. In large part, this can be attributed to advancements in Geographic Information System (GIS) capabilities/software and the considerable expertise of those who led the work. While it was extremely beneficial to be able to utilise the local knowledge of NISRA volunteers during the development of the EDs, staff availability and competing priority issues did occasionally arise, thus delaying the completion of the work to a degree – however, throughout, this remained manageable and the benefits far outweighed the disadvantages.

The road centreline based geography worked extremely well, particularly in urban areas. While no major reservations were raised by the field staff, issues did, however, arise in rural areas when two enumerators were working simultaneously on opposite sides of

a long road. For example, queries were raised in terms of why one enumerator couldn't have enumerated both sides of the road, particularly given the distance and travel time to reach the location. This area merits further consideration in any future operation.

There was very positive feedback from the field staff regarding the maps they had been issued with, which they considered to be of good quality and of assistance when navigating their area. In particular, they found it beneficial to have the individual addresses from the Enumeration Record Book (ERB) identified on the map. As part of their address checking responsibilities, field staff were required to identify the location (that is, x-y co-ordinates) of any new addresses that they detected on their maps. This process (and its importance) was not fully understood by all of the field staff, resulting in information of varying quality.

In terms of the production of the Map Atlas packs, while relatively costly, the policy of providing them to the field staff was entirely correct as they were integral to the enumeration process. Producing them in-house represented the optimum solution given the tailoring that was required for each ED, Census Team Co-ordinator (CTC) and Census Area Manager (CAM) area. However, the full scope of the work was not entirely understood at the outset and a number of technical issues emerged that had not been anticipated. These issues, which were demanding and time consuming to resolve, added to the pressures that the production team were facing in terms of completing all of the packs ahead of the planned field staff training events.