

**Population Bases and Definitions for Scotland's  
2011 Census**

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**June 2007**

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## 1. Background

The UK Census is a ten-yearly count of the population. In Scotland it is conducted by the General Register Office for Scotland (GROS). The equivalent departments in the rest of the UK are the Office for National Statistics (ONS) in England and Wales and the Northern Ireland Statistics and Research Agency (NISRA) in Northern Ireland. Although each of the three offices is independent of the others, the three Registrars General have signed a Statement of Agreement<sup>1</sup> to harmonise certain aspects of the Census wherever possible. One of these aspects is the population base.

The commentary to the most recent version of the agreement (March 2007) includes the following paragraph:

*A common population base (usual residents plus visitors) has been agreed in principle, though before a final decision further research is needed to assess respondent burden and to assess the nature and usefulness of the output. The implications for downstream processing and the output timetable will also need to be considered.*

Two groups have been meeting regularly to take forward work on population bases and definitions. The Census Population Bases and Definitions Topic Group (CPBDTG), chaired by Peter Stokes of ONS Census Division, is a working-level group with representation from all the UK Census offices, including GROS. It usually meets monthly. One of its tasks is to make recommendations for the population bases and definitions to be used in the 2011 Census. These recommendations are due to be finalised by the end of November 2007.

The second group is the Population Definitions Working Group (PDWG), chaired by Chris Smith of the ONS Centre for Demography. This has met less frequently and had a broader remit than just the Census, although the Census provided the focus for most of its work. It included representatives from external users (including other Government departments, local authorities and academics) as well as various interested parties from within ONS. Its remit only extends to England and Wales, and for this reason GROS has not been formally represented. However, the views of this group carry some weight in CPBDTG. This group no longer meets and will formally wind up at the end of June 2007 with the production of a final statement of recommended definitions; an interim version has already been produced.

All decisions on questionnaire content, including the population bases used for enumeration, will be informed by the consultation and testing being carried out by the three Census offices. GROS carried out a Census Test in three parts of Scotland in April 2006, and ONS and NISRA conducted a similar Test in the rest of the UK in May 2007. In addition, various small-scale tests are

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<sup>1</sup> <http://www.gro-scotland.gov.uk/files1/stats/rgsagreementupdate0307.pdf>

being carried out, including cognitive testing of alternative questions and form designs by ONS's Data Collection Methodology branch (DCM). The CPBDTG has provided a topic specification for each of the concepts for which data is required (e.g. household, usually resident population) to enable DCM to explore the best way of collecting the data.

All three offices have consulted extensively with internal and external users - GROS has just completed a formal consultation, the results of which will be published in due course. This paper is another means of soliciting users' views.

## 2. Purpose of this paper

This paper is intended to inform the members of the PAMS group of the issues and current thinking (both in Scotland and the rest of the UK) surrounding population bases and definitions for the 2011 Census. It attempts to take into account the practicalities of what can be delivered by a Census as well as what outputs are desirable from a user point of view. A summary of the issues, including questions on which we would value members' views, is included in section 8. The views of PAMS members, together with those of colleagues in GROS Demography Division and the views expressed in the recent public consultation exercise, will feed into a GROS position on population bases and definitions for the Census. This will be GROS's equivalent to the PDWG statement of recommended definitions.

## 3. Households

The current working definition of a household is:

*one person living alone or a group of people (not necessarily related) living at the same address who share cooking facilities **and** share a living room, sitting room or dining room*

This has been changed from the 2001 definition which referred to "common housekeeping", a concept which is now considered to be out of date. Although in most cases it will be clear what constitutes a household, a definition is needed to cover less traditional living arrangements (e.g. a group of friends sharing a house). In some cases a single address or dwelling may contain more than one household.

There is a possible problem with addresses where the residents share a kitchen but there are no other common areas. If the kitchen also functions as a social area, the address should be counted as a single household. However if the residents merely share cooking facilities, they should not be considered as one household. It is difficult to formulate a simple definition that distinguishes between these situations.

The Census will collect data on the relationships between household members to aid the understanding of household and family structures in Scotland.

#### 4. Communal Establishments

Not all of Scotland's population are resident in households - some of them are found in communal establishments (CEs). The current working definition of a CE is:

*an establishment providing managed accommodation. 'Managed' in this context means full-time or part-time supervision of the accommodation.*

This includes residential care homes, hospitals, hotels, university halls of residence, prisons and many other types of establishment. In the past, most of the data collected from household residents has also been collected from CE residents, with the exception of relationship information. Members of staff and their families who live on-site are enumerated along with other residents, although there is a question on the form to enable, for instance, resident care workers to be distinguished in the outputs from those they care for.

It is not currently clear whether Scottish users require any specific analyses on the CE population, e.g. by type of establishment, or whether a separate count of CE residents is necessary merely to remove them from the household population. The CPBDTG topic specification states that some users require the CE population to be broken down by establishment type. This may affect the type of data collected from CEs.

ONS are currently reviewing the policy of collecting details of visitors in CEs in England and Wales. More details of this are given in section 6.3.

##### 4.1 Student Houses

The current version of the CPBDTG topic specification states

*Accommodation available only to students (and not to anybody else) should be defined as communal. This would include university-owned cluster flats, university-owned houses and similar accommodation owned by a private company and provided solely for students (during term-time). It would exclude houses rented to students by private landlords, as these are part of the general housing stock*

While this reasoning is sound, we believe that there are practical difficulties with applying this definition in the field. In particular, if an otherwise ordinary house owned by a private landlord is only available for rental to students, it should under this definition be counted as a CE. But the residents may not realise that the house is only available to students; the enumerator may not ask the right question; or if the residents are given a CE form they may think a mistake has been made and request a household form from the helpline. There is also an inconsistency in this policy, as not all sheltered

accommodation is considered a CE under the CPBDTG proposals even though it is likewise not part of the general housing stock.

## 5. Usual Resident

Key to the success of Census enumeration is the concept of a "usual resident". Prior to 1981 the Census was run on a "population present" basis - in other words, people were counted wherever they happened to be on Census night, regardless of whether or not this was their home. This had the advantage that it was clear to respondents where they should be counted, but made it difficult to produce outputs on a basis that would be meaningful to data users. Therefore, in 1981 the population base was changed to "usual residents", so that the population would be enumerated at their home address, regardless of where they were on Census night.

A key principle is that everybody has one, and only one, usual residence, and most people will have no trouble specifying it. However, there are an increasing number of people who may, for one reason or another, struggle to decide which of their residences is "usual". These may include:

- students who have separate term-time and vacation addresses
- people who have a weekday and a weekend address
- people who spend part of the year abroad
- children of separated parents who spend time with both

A simple definition of usual residence would be the address where a person spends the majority of the time. This would mean that people who live with their family at weekends but have an address near their workplace to use during the week would be enumerated at their weekday address. In this case their relationships to other family members would not be recorded and, for instance, the Census may record more single-parent families than actually exist.

Another option would be to require people to fill out a form at all of their "residences", but this could be considered to put too great a burden on respondents. In practice, in 2001 respondents were left to largely decide for themselves where they usually resided, but the expectation was that people would be enumerated at the family home if they had one. The CPBDTG topic specification states that most people should be enumerated where they spend the majority of their time, but makes a specific exception for people who work away from home during the week - these should be counted at their family home.

### 5.1 Length of stay and short-term migrants

If a person is at their current address for a limited period - for instance, if they have come from another country to work on a fixed-term contract, or if they are in hospital but will return home once their treatment is complete - a cut-off is required to decide whether they should be considered a usual residence. The rule used in the past by the Census is that a usual resident should stay,

or intend to stay, for 6 months before returning to their previous address. This definition is out of line with the annual population estimates produced by GROS and other UK statistical offices, which use a 12-month residency rule, which means that adjustments are needed when re-basing the estimates after each Census.

However, a demand is emerging amongst data users in England for more data on short-term migrants, defined as those present in the UK for between 3 and 6 months. This would, for instance, mean that seasonal workers from abroad are fully enumerated rather than being included as visitors with only basic information captured (see section 6). This can be achieved by reducing the minimum intended stay to 3 months. There would be an additional processing cost as more people would be enumerated.

It is possible that a question could be included asking migrants for their intended length of stay in the country. A potential problem with this is that these people were not separately identified in 2001, so if they are removed from the population estimates in 2011 it could create an inconsistency. In addition a question of this nature, which asks for intentions rather than concrete facts, is unlikely to yield high-quality data.

## 5.2 Students

Local authorities require students to be counted at their term-time address, as this is where they spend the majority of their time and use local services. Most students, though, still live with their family during vacations, and there is a requirement to capture their relationships to other family members. For this reason, students were enumerated twice in 2001 - once at their term-time address and again at their vacation address, although they were only required to give basic details at the latter - name, sex, date of birth and marital status. Obviously this increased the burden on respondents, as well as taking up additional space on the questionnaire to ensure that students filled in the correct questions. There are no plans to change this policy in 2011.

## 5.3 Armed Forces

Some members of the armed forces stationed in the UK have a home address (e.g. with their family) where they are resident when on duty, and another (e.g. at their base) which they use when on duty. Although this is a similar situation to students, armed forces were only enumerated once in 2001, at their home address. This meant that relationship information was captured, but put the Census definition at variance with the population estimates definition which counts armed forces at their duty address. The PDWG has recommended that armed forces personnel should be enumerated at both addresses, but the current version of the CPBDTG topic specification treats armed forces the same as anyone else who works away from home: they should be fully enumerated at their home address and counted as a visitor at their duty address (although this may not happen if they are stationed at an address that is classed as a communal establishment - see section 6.3).

## 6. Visitors

Although the “usual residents” base used in the last few Censuses is the one required for most output purposes, the previous population present base is considerably simpler from an enumeration point of view. This is because there can be no argument or ambiguity about where, or whether, a person should be enumerated - everyone present in the country on Census night should be included on the form wherever they happen to be present at the time. It is believed that a number of people were missed in 2001 due to the usual residence base, for instance:

- people who considered themselves to have no usual residence
- foreigners who did not consider themselves usually resident in the UK
- people who were away from home on Census night and did not fill in a form on their return

The composite “usual residents plus visitors” base proposed for 2011 is intended to help resolve this problem. Under the proposals, all visitors - i.e. people present on Census night who are not usual residents - will be required to give (at least) name, sex, date of birth and address of usual residence. The precise use to which this data will be put has not yet been decided, but it may include matching visitors back to their usual residence and adding them at that address if they have not been enumerated there. However it is unlikely that sufficient resources will be available to match every visitor back to their usual residence, and work done within ONS's Methodology Directorate suggests that matching only a sample will provide little benefit, especially as any matching error could introduce bias including possible overcount. This obviously partly depends on the quality of the response - in the 2006 Test in Scotland, approximately two-thirds of those visitors recorded gave a valid postcode of usual residence. Another issue is that, as each Scottish resident could be present anywhere on Census night, it would not be possible to finish processing Scottish data until matching has been completed for the whole of the UK, which could considerably delay the outputs.

If it is not considered feasible to adjust the Census counts directly based on visitor information, it may still be possible to use this data. In 2001 a number of administrative sources were used to quality assure the Census figures and make adjustments at a high level (e.g. an entire Local Authority District), and it is possible that visitor data could be one such source in 2011.

It should be noted that, if visitors are enumerated in 2011, it will only be with the aim of improving the count of usual residents, rather than providing a separate count of visitors. This would only provide a snapshot of where people are on one particular Sunday night, which is not likely to be a useful output base - for instance, it will not provide a count of the weekday population (but see section 7 for a way in which this might be captured).

Besides the space on the questionnaire that could be used for other things, one potential drawback of collecting visitor information is that people who are absent from their usual residence on Census night may believe that they have been enumerated at the address where they were present, and therefore not

fill in a Census form when they return home. There is therefore a risk that collecting visitor information will reduce the accuracy of the usual resident count, the opposite effect to that intended.

## 6.1 Resident Visitors

It has been suggested that the accuracy of the count in 2001 was impaired by the population base employed. It is possible that some individuals were not enumerated because they did not consider themselves to be usually resident anywhere, despite living permanently in the UK. These are the so-called "couch surfers", who at any one time can be found sleeping in a friend's spare room or on their couch (hence the name), but do not stay anywhere for long enough to be considered a resident. Young men are believed to make up the largest part of this group, which has been offered as a partial explanation of the unexpectedly low count of young men in 2001.

Since all UK residents should be enumerated somewhere, the convention in the past has been that people without a usual address should be enumerated wherever they are on Census night. Since these people are treated as if they were usual residents at that address, the term "resident visitors" has been coined to describe them. In 2001 an instruction appeared on the questionnaire to cover this group, but as it was part of a long list of instructions it may well have been missed by many respondents.

The 2006 and 2007 Tests also included this instruction, although the England and Wales Test in 2007 had an additional instruction in the visitors' section, advising anyone with no usual address to fill out the full questionnaire. However, the questionnaire currently being used by DCM for cognitive testing includes a question specifically designed to capture people who have no usual residence. It is too early to say whether this will improve the coverage of resident visitors.

The original intention behind this additional question was simply to ensure that such people are enumerated, and seen to be enumerated. However, the PDWG has identified a user requirement for separate data on resident visitors. It is not clear which users have this requirement or why, and no such requirement has so far been identified in Scotland.

## 6.2 International Visitors

Visitors whose usual residence is outside of the UK are a special category, since they should not be included anywhere in the count of usual residents and cannot in practice be matched back to their usual address. However, ONS's Labour Market Division require data on foreign residents who are temporarily working in the UK (e.g. seasonal work), as they contribute to the economy. This would involve an additional question for such people, which has so far not been tested. GROS is not keen to increase the burden on visitors beyond what is already planned.

### 6.3 Visitors in Communal Establishments

ONS's original intention was that communal establishments should be treated in the same way as private residences, in that basic information should be collected from everyone present on Census night regardless of their length of stay, or where they are usually resident. This is in line with the PDWG statement, which recommends that all overnight visitors in CEs should be enumerated, for consistency and to maximise the chance of capturing those with no usual residence.

GROS's experience of attempting to enumerate CEs in the 2006 Test led us to express concern about this plan which would mean, for instance, that hospital staff would need, in addition to their regular duties, to gather date of birth and usual residence data on all patients on Census night. This would appear to place unreasonable demands on busy NHS staff. On the other hand, excluding visitors in CEs could negate any benefits that are obtained from enumerating visitors to households, and put the whole "usual residents plus visitors" enumeration base into question. It is also worth bearing in mind that only enumerating usual residents in CEs might mean that some short-term migrant workers are missed by the Census, and may also mean that some armed forces personnel are not enumerated at their duty address (see section 5.3).

Although they have not yet carried out any testing of CEs, there have recently been indications that ONS are reconsidering this policy. There have been suggestions that CEs will only be asked to provide a count of overnight visitors, not any details of individuals. However this is not yet final as ONS are still considering the implications of this decision.

## 7. Second Residence

The 2006 and 2007 Census Tests both trialled questions asking residents whether they had a second address at which they spend part of the time. The primary purpose is to provide other output bases besides "usual residents": for instance, there are some local authorities in England, particularly in inner London, where a large proportion of the accommodation is occupied by weekly commuters whose usual residence is elsewhere; clearly these people use local services, but they would not be included in the main Census count. Similarly, some areas have a large number of holiday homes that are only occupied seasonally. Another increasingly common situation is that of a child whose parents are separated, who may split his or her time between the two parents' addresses.

Other possible uses of this data are to help explain differences between the Census count and the population estimates (which was considered to be a problem in England in 2011), and to help measure overcount by matching a sample of respondents back to their second address to see if they were also counted there. The CPBDTG topic specification also states that people who incorrectly classify their usual residence as a second residence can be

transferred back to the correct address, but it is not clear to us how such people can be identified.

This topic covered four questions in the 2006 Scottish Census Test, which took up a considerable part of the questionnaire. Respondents were asked whether they had a second address and if so the reason that they stayed there; what the address was; and what proportion of the week or year they spent there. The questions were not well answered: there is some evidence that many respondents misunderstood the question and answered for their usual residence, and others gave the address where they regularly spend their annual holiday, even though it was not a "holiday home" as such. In addition, the address information was of a low quality - less than half of respondents who said they had a second address gave a valid postcode for that address, making it difficult to determine whereabouts in the UK their second residence was located.

A slightly different version of the questions was used in ONS's 2007 Test. It remains to be seen whether or not this will bring about an improvement. In addition, a minimum cut-off of 30 days' residence per year has been agreed before an address qualifies as a "second residence". In theory this should ensure that only genuine second residences are included, although it is unlikely this information will be included on the questionnaire so respondents will only know about the cut-off if they make a specific query to an enumerator or the helpline. It has also now been agreed that, to save space, the questions on the length of time that the respondent spends at his/her second residence should be dropped, with the "purpose" question being used to provide an estimate (e.g. people with a work address might be assumed to live there 5 days a week). Inevitably this will reduce the accuracy of this information.

We understand that ONS's senior management have indicated that second residence information is a priority. Even if there is no requirement for this data from Scottish users, ONS are likely to bring pressure to bear on GROS to collect it. This is because Scottish residents may have a second address elsewhere in the UK, so not including the questions in the Scottish Census would mean that the data is incomplete.

## **8. Summary of issues**

### **8.1 Household definition**

A new definition of a household has been proposed for 2011 (section 3). GROS do not see any problem with this definition, apart from the ambiguity over shared kitchens, but would welcome any input on this subject.

### **8.2 Communal Establishments**

We would welcome comments on whether data on CE residents should be broken down by type of establishment (section 4) and whether houses

available only to students should be classed as households or CEs - bearing in mind the practical difficulties in enumerating them as CEs (section 4.1).

Collecting basic details of visitors in CEs (i.e. people who are present on Census night but are not long-term residents) may help improve the accuracy of the population figures, as well as ensuring that certain migrant workers are counted and that armed forces are enumerated at their duty address. However there are severe practical difficulties with this approach (section 6.3). How strong is the requirement for this data?

### 8.3 Usual Resident

People who work away from home during the week are counted at their family home so that relationship information can be captured (section 5). GROS have no plans to change this, but would welcome any comments.

Traditionally the Census has counted someone as a usual resident where they have lived, or intend to live, for at least six months. Decreasing this to three months (section 5.1) would provide more data on short-term migrants but there would be an increased processing cost and respondent burden. Is there a demand for this data in Scotland?

Students and armed forces often have two addresses (sections 5.2 and 5.3). In 2001 a student's main residence was considered to be his or her term-time address, but basic data was also captured at the family home. Armed forces, however, were only counted at the family home. Is this satisfactory?

### 8.4 Visitors

Collecting basic data from people wherever they happen to be on Census night (section 6) could potentially improve the accuracy of the population count. Drawbacks include the cost of processing this information in time and resources, the risk of introducing bias due to inaccurate data and the possibility that people will only fill out one form and hence be missed at their usual residence. In addition, if visitor information is not collected in CEs it could severely reduce the value of this data elsewhere. How important is it to collect visitor information in Scotland?

People with no usual residence should be counted as a usual resident wherever they happen to be on Census night, but it is possible that such people could be identified separately (section 6.1). Is there a requirement for a separate count of such "couch surfers"?

Is there a requirement to collect economic activity data from international visitors (section 6.2)?

## 8.5 Second Residence

Collecting data on a respondent's second address (section 7) may allow the production of outputs on alternative bases (e.g. weekday population), give a measure of overcount (double counting) and help explain any differences between the Census count and the population estimates, which use a slightly different base. However these questions, which are not relevant to the majority of the population, take up a substantial amount of space which could be used for other topics, and experience from the 2006 Test suggests that the data quality is poor. Is there a need for this information at the expense of other data?