

Eurostat Quality Report

This document contains the information requested by Eurostat, the statistical office of the European Union (EU), to accompany the data on UK 2011 census estimates for the EU project to create comparable census statistics from all EU member states.

Data are freely available from an EU developed tool, the <u>Census Hub</u>.

Additional information is available on the UK Census Eurostat webpage.

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3 Statistical presentation	
3 . 1 Data description	All households in England and Wales received a census questionnaire through the post. This was also largely the case in both Scotland and Northern Ireland, where a small proportion of household questionnaires were hand delivered. Across the UK, the questionnaire was accompanied by an information leaflet and a pre-paid envelope for return by post.
	Householders could complete their questionnaire and return it by post or they could complete the census questionnaire online. Each paper questionnaire had an internet access code which was unique to that household which enabled the householder to

complete their questionnaire online.

Communal establishments, for example, managed accommodation (such as care homes) and special groups (such as travellers) had their census questionnaires hand delivered.

The 2011 Census questionnaires were designed to be electronically scanned to capture all the ticked responses and hold written answers in digital form. Once information from the questionnaires had been electronically captured in a database, the paper documents were securely destroyed and recycled. The digital images will be held electronically to be made available as public records after 100 years (in Northern Ireland Census records are permanently closed).

For the first time, questionnaires could be completed online. Data processing systems were used to monitor the quality of the data and apply appropriate adjustments in the case of error or omission. They were also used, in conjunction with information collected through the independent Census Coverage surveys conducted across the UK, to make adjustments for those believed to have been missed in the Census.

The data from 2011 Census was processed more quickly than it was for the 2001 Census, allowing more time for the extensive quality assurance procedures.

3 . 4 Statistical concepts and definitions

3 . 4 . 1 Statistical concepts and definitions - Usual residence

For the 2011 Census a person's place of usual residence is generally the address in the UK at which they spend the majority of their time. For most people this means their permanent or family home.

The census counted someone as usually resident at their permanent or family home if, on 27 March 2011:

- they were temporarily away from home, for example on holiday, visiting friends or relatives or travelling (unless outside of the UK for 12 months or more),
- they were in a communal establishment such as a care home, hospital or similar establishment for less than six months,
- they were a baby born on or before 27 March 2011, even if still in hospital, or

- they had more than one UK address and were staying at the second address on census night.

In addition to people present at their permanent or family home, the 2011 Census counted someone as usually resident at an address if on 27 March:

- they were a usual resident of the UK and present at an address on census night, even if only for one night, and had no other usual address in the UK.

Someone was not counted as usually resident at an address if, on 27 March 2011:

- the address at which they were staying was not their usual address and they usually lived elsewhere in the UK (these people were counted as visitors to the address), or
- they were away from their home address and had been staying or were expecting to stay in a communal establishment such as a care home or hospital for six months or more (these people were enumerated as usually resident at the communal establishment). Further clarification is applicable to the definition of place of usual residence for certain population subgroups:
- Students and schoolchildren in full-time education studying away from the family home were counted as usually resident at their term-time address. Basic demographic information only (name, sex, age, marital status and relationship) was collected at their non-term time ('home' or vacation) address.
- Armed forces personnel were counted as usually resident at their permanent or family home even if the majority of their time was spent at their 'working' address.

Additionally, the following clarification applies to armed forces personnel with specific circumstances:

- A member of the armed forces on deployment on operations was included at their permanent or family address regardless of length of deployment.
- A member of the armed forces with no permanent or family address at which they were usually resident was recorded as usually resident at their base address.
- If the permanent (stationed) base was abroad, e.g. Germany or Cyprus, then the armed forces member was not included in the census count.
- A member of the armed forces serving on a ship inside UK waters on 27 March 2011 was counted as usually resident at their family/permanent home or resident on the ship if they did not have a family/permanent home.

- A member of the armed forces serving on a ship outside UK waters on 27 March 2011 was counted as usually resident at their family/permanent home or home port/naval base address if they did not have a family/permanent home.
- Additionally, for those enumerated in England, Wales or Northern Ireland, armed forces personnel from overseas forces based in the UK for three months or longer were counted as usually resident in the UK at their UK permanent or family home/base address.
- Additionally, for those enumerated in Scotland, armed forces personnel from overseas forces based in the UK for six months or longer were counted as usually resident in the UK at their UK permanent or family home/base address.

For those enumerated in England, Wales or Northern Ireland with a second address, for example those working away from home and other people with two or more addresses, were counted as usually resident at their permanent or family home even if the majority of their time is spent at another address. This includes people who spent time at a second address outside of the UK, but only if they intended to remain outside the UK for less than 12 months in total (except armed forces deployed on operations).

Children with parents who live apart and spend part of their time living with each parent were advised to be counted as usually resident at the address at which the child spent the majority of their time. If the child spent time equally living with each parent then they were advised to be counted as usually resident at the address where they were staying overnight on 27 March 2011. For people living in communal establishments who had already spent or expected to spend six months or more in a communal establishment, for example, a care home, hospital or hostel, their place of usual residence was that communal establishment. Otherwise their place of usual residence was at their UK home address and the person was classified as a visitor to the communal establishment. (See Communal establishment resident for further clarification).

Place of usual residence for people in prison applies to sentenced prisoners in a similar way as others in communal establishments, based upon the length of their sentence. This means that:

- if they were convicted with a sentence of six months or more they were counted as usually resident in the prison

- if they were convicted with a sentence of less than six months then they were counted as usually resident at their permanent or family home and as a visitor to the prison
- if they were on remand they were counted as usually resident at their permanent or family home, and as a visitor to the prison, irrespective of how long they were in prison on remand.

Short term residents

A census short-term UK resident is anyone born outside of the UK who, on 27 March 2011, had stayed or intended to stay in the UK for a period of three months or more but less than 12 months.

3 . 4 . 2 Statistical concepts and definitions - Sex

Sex is the classification of a person as either male or female.

3 . 4 . 3 Statistical concepts and definitions - Age

The age reached at the reference date (in completed years).

3 . 4 . 4 Statistical concepts and definitions - Marital status

Marital and civil partnership status classifies an individual according to their legal marital or registered same-sex civil partnership status as at census day, 27 March 2011.

This topic is the equivalent of the 2001 Census topic 'Marital status', but has undergone significant revision to take account of the Civil Partnership Act which came into force on 5 December 2005. Marital and civil partnership states include:

- married/in a registered same-sex civil partnership,
- separated (but still legally married/in a registered same-sex civil partnership),
- divorced/formerly in a registered same-sex civil partnership, or
- widowed/surviving same-sex civil partner.

Although the term 'single' is widely used to cover people in a number of states such as divorced or separated it is not a legally recognised status and was not an option on the census questionnaire. In census results the term 'single' is used to refer only to someone who has never been married or in a registered same-sex civil partnership, which were options on the census questionnaire.

For this topic, the UK will not be returning the optional breakdowns of opposite-sex and same-sex marriage, instead returning both into one of the applicable 'Married', 'Divorced' or 'Widowed' categories.

For consistency with published outputs, people with a marital status of married or a same-sex civil partnership (including those currently separated) are included in the 'Married' category. Those who were either divorced or in a dissolved same-sex civil partnership are included in the 'Divorced' category. Those who were either widowed or surviving partner from a same-sex civil partnership are included in the 'Widowed' category.

3 . 4 . 5 Statistical concepts and definitions - Family status

A family

A family is defined as a group of people who are either:

- a married, same-sex civil partnership, or cohabiting couple, with or without child(ren),
- a lone parent with child(ren),

Children in couple families need not belong to both members of the couple

For Eurostat, grandparent families, where there is a grandparent and grandchild relationship without any family member within the intervening generation have been excluded from the family definition, as specified within the legislation.

Family type

Family type is the classification of families into different types distinguished by the presence, absence and type of couple relationship, whether

- a married couple family,
- a same-sex civil partnership family,
- a cohabiting couple family, or a
- a lone parent family.

Partners (CPL and its subcategories)

At the time of the census, same-sex marriages and opposite registered-partnerships were not applicable within the UK.

Not applicable (NAP)

The 'not applicable' category includes all persons residing in collective living quarters, as well as those in private households

not living in a family nucleus.

3 . 4 . 6 Statistical concepts and definitions - Household status

Primary Homeless Persons (HMLS1)

Persons sleeping rough are those that are identified as 'absolutely homeless', that is: people sleeping, or bedded down, in the open air (such as on the streets, or in doorways, parks or bus shelters), and people in buildings or other places not designed for habitation.

A small number of census results identify communal establishments with persons sleeping rough present. Such data are flagged as unreliable due to the transient and hard to count nature of this population.

Persons in a family nucleus (FAM and its subcategories) At the time of the census, same-sex marriages and opposite registered-partnerships were not applicable within the UK.

3 . 4 . 7 Statistical concepts and definitions -Current activity status

Economic activity

Economic activity relates to whether or not a person who was aged 16 and over was working or looking for work in the week before census. Rather than a simple indicator of whether or not someone was currently in employment, it provides a measure of whether or not a person was an active participant in the labour market.

A person's economic activity is derived from their 'Activity last week'. This is an indicator of their status or availability for employment - whether employed, actively looking for work, waiting to start a new job, available to start a new job, or their status if not employed or not seeking employment. Additional information included in the economic activity classification is also derived from information about the number of hours a person works and their type of employment - whether employed or self-employed.

The census concept of economic activity is compatible with the standard for economic status defined by the International Labour Organisation (ILO). It is one of a number of definitions used internationally to produce accurate and comparable statistics on employment, unemployment and economic status.

Economically active

A person aged 16 and over is described as economically active if, in the week before the census, they were:

- in employment, as an employee or self-employed,
- not in employment, but were seeking work and ready to start work within two weeks, or
- not in employment, but waiting to start a job already obtained and available.

Full-time students who fulfil any of these criteria are classified as economically active and are counted separately in the 'Full-time student' category of economically active - they are not included in any of the other categories such as employees or unemployed.

Economically inactive

A person aged 16 and over is described as economically inactive if, in the week before the census, they were not in employment but did not meet the criteria to be classified as 'Unemployed'. This includes a person looking for work but not available to start work within two weeks, as well as anyone not looking for work, or unable to work - for example retired, looking after home/family, permanently sick or disabled.

Students who fulfil any of these criteria are also classified as economically inactive. This does not necessarily mean they were in full-time education and excludes students who were working or in some other way economically active.

Economically inactive: 'Other'

Economically inactive 'Other' includes people aged 16 and over who were not in employment and did not meet the criteria to be classified as unemployed for reasons other than being retired, a student, looking after home or family or being permanently sick or disabled.

Persons below national minimum age for economic activity (LT_MWA)

All persons under 16 years of age are included in the category 'Persons below the national minimum age for economic activity'.

3 . 4 . 8 Statistical concepts and definitions -

Not applicable (NAP)

A 'not applicable' (NAP) code for the Occupation variable is

Occupation

returned when the individual is (a) aged under 16, (b) unemployed and never previously worked or (c) not economically active

3 . 4 . 9 Statistical concepts and definitions - Industry

Not applicable (NAP)

A 'not applicable' (NAP) code for the Industry variable is returned when the individual is (a) aged under 16, (b) unemployed and never previously worked or (c) not economically active.

3 . 4 . 10 Statistical concepts and definitions - Status in employment

Main job

The 'Main job' of a person aged 16 or over is the job in which they usually work the most hours. For people not working at the time of the census the main job relates to the person's last job. Topics based on employment all relate to a person's main job.

Employed

A person aged 16 and over is defined as employed (or in employment) if in the week before the census they carried out at least one hour's paid work, either as an employee or self-employed.

This includes casual or temporary work, on a government-sponsored training scheme, doing paid or unpaid work for their own or family business, being away from work ill, on maternity leave, or on holiday or temporarily laid off.

Employee

An employee is a person aged 16 and over in employment doing paid work for an individual or organisation.

This relates to a person's main job or, if not working at the time of the census, their last main job.

Not applicable (NAP)

A 'not applicable' (NAP) code for the Status in Employment variable is returned when the individual is (a) under 16, (b) unemployed and never previously worked or (c) not economically active.

Others (CFAM & COOP)

The census did not collect information on contributing family workers or members of producers' cooperatives, hence no persons are assigned to the 'Others' category or its subcategories

3 . 4 . 11 Statistical concepts and definitions - Place of work

Location of place of work reports on the place of work for England and Wales and on the place of work or study for Northern Ireland and Scotland.

3 . 4 . 12 Statistical concepts and definitions - Educational attainment

This topic requests data on what level of education has been attained. The census collects data on what qualification are held, the Educational attainment topic was derived from this information.

All categories

A number of the Education categories were not applicable to the educational system within the UK or were not collected on the census questionnaire.

This includes, no values being returned for categories ED1 (Primary Education), as all respondents were considered to have a minimum of Lower secondary education, and very few qualifications corresponded with the ED4 category (Post-secondary, non-tertiary education).

For the category ED6 (second stage of tertiary education) survey data were used to attribute the appropriate proportion of individuals from category ED5 (first stage of tertiary education) to ED6.

Not applicable (NAP)

A 'not applicable' (NAP) code for the Educational Attainment variable is returned when the individual is aged under 16.

3 . 4 . 13 Statistical concepts and definitions - Size of the locality

A locality is defined as a distinct population cluster, that is an area defined by population living in neighbouring or contiguous buildings. Such buildings may either:

- (a) form a continuous built-up area with a clearly recognisable street formation; or
- (b) though not part of such a built-up area, comprise a group of buildings to which a locally recognised place name is uniquely attached; or
- (c) though not meeting either of the above two criteria, constitute a group of buildings, none of which is separated from its nearest neighbour by more than 200 metres.

3 . 4 . 14 Statistical concepts and definitions - Place of birth

Country of birth

Country of birth is the country in which a person was born. The country of birth question included six tick box responses - one for each of the four parts of the UK, one for the Republic of Ireland, and one for 'Elsewhere'. Where a person ticked 'Elsewhere', they were asked to write in the current name of the country in which they were born. Responses are assigned codes based on the National Statistics Country Classification.

The grouping of countries within the classification is broadly regional, but takes into account the grouping of European Union (EU) countries. Countries in the EU are grouped into those that were EU members in March 2001, and those that became members (Accession countries) between April 2001 and March 2011 as part of the EU enlargement process.

3 . 4 . 15 Statistical concepts and definitions -Country of citizenship

For persons enumerated in England, Wales and Northern Ireland, citizenship is assigned primarily using passports held, using country of birth in addition when necessary. In Northern Ireland, stated national identity is also used to distinguish between UK and Irish citizenship for those holding both a UK and an Ireland passport.

The census in Scotland did not collect information on passports held, so citizenship values are derived primarily using country of birth.

3 . 4 . 16 Statistical concepts and definitions - Year of arrival in the country

Year of arrival since 1980

All categories

In England, Wales and Scotland, the census collected the year of arrival into the UK for persons not born in the UK. People enumerated in England, Wales and Scotland, and who were born in the UK but who have resided outside the UK for twelve months or more have been classified within the 'never resided abroad' category.

The census in Northern Ireland collected the year of arrival in Northern Ireland for anyone who had lived outside Northern Ireland for a continuous period of one year or more.

Year of arrival since 2000 All categories

In England, Wales and Scotland, the census collected the year of arrival into the UK for persons not born in the UK. People

enumerated in England, Wales and Scotland, and who were born in the UK but who have resided outside the UK for twelve months or more have been classified within the 'never resided abroad' category.

The census in Northern Ireland collected the year of arrival in Northern Ireland for anyone who had lived outside Northern Ireland for a continuous period of one year or more.

3 . 4 . 17 Statistical concepts and definitions - Residence one year before

This indicates the relationship between the current place of usual residence and the place of usual residence one year prior to the census. Children under one year of age are classified under 'Not applicable'.

For all persons that have changed their usual residence more than once within the year prior to the reference date, the previous place of usual residence is the last usual residence from which they moved to their current place of usual residence.

3 . 4 . 18 Statistical concepts and definitions - Housing arrangements

Homeless (HMLS)

Persons sleeping rough are those that are identified as 'absolutely homeless', that is: people sleeping, or bedded down, in the open air (such as on the streets, or in doorways, parks or bus shelters), and people in buildings or other places not designed for habitation.

A small number of census results identify communal establishments with persons sleeping rough present.
Such data are flagged as unreliable due to the transient and hard to count nature of this population.

3 . 4 . 19 Statistical concepts and definitions - Type of family nucleus

A family

A family is defined as a group of people who are either:

- a married, same-sex civil partnership, or cohabiting couple, with or without child(ren),
- a lone parent with child(ren),

Children in couple families need not belong to both members of the couple.

For Eurostat, grandparent families, where there is a grandparent

and grandchild relationship without any family member within the intervening generation have been excluded from the family definition, as specified within the legislation.

Family type

Family type is the classification of families into different types distinguished by the presence, absence and type of couple relationship, whether

- a married couple family,
- a same-sex civil partnership family,
- a cohabiting couple family, or a
- a lone parent family.

Married couple families and registered partnership couple families (MAR, REP and their subcategories)

At the time of the census, same-sex marriages and opposite registered-partnerships were not applicable within the UK.

All categories

No families are defined for those in collective living quarters.

Married-couple family

A married-couple family consists of a husband and wife with or without child(ren). The child(ren) may belong to both members of the couple or only one. Children are included in the family only if they are not themselves living with a spouse, same-sex civil partner or partner and do not have any children of their own in the household.

Same-sex civil partnership couple family

A same-sex civil partnership couple family consists of two same-sex civil partners with or without child(ren). The child(ren) may belong to either member of the couple. Children are included in the family only if they are not themselves living with a spouse, same-sex civil partner or partner and do not have any children of their own in the household.

Cohabiting couple family

A cohabiting couple family consists of two people of any sex who are living together as a couple, with or without their child(ren), but who are not married or in a same-sex civil partnership. Child(ren) included in the cohabiting couple family may belong to both members of the couple or only one. Children are included in the family only if they are not themselves living with a spouse, same-sex civil partner or partner and do not have any children of

their own in the household.

Lone-parent family

A lone-parent family consists of a father or mother with his or her child(ren) where the parent does not have a spouse, samesex civil partner or partner in the household, and the child(ren) do not have a spouse, same-sex civil partner or child in the household.

Household

The 'housekeeping concept' has been adopted for the UK to identify private households.

A household is defined as:

- 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 or sitting room or dining area.

This includes:

- sheltered accommodation units in an establishment where 50 per cent or more have their own kitchens (irrespective of whether there are other communal facilities), and
- all people living in caravans on any type of site that is their usual residence. This will include anyone who has no other usual residence elsewhere in the UK.

A household must contain at least one person whose place of usual residence is at the address. A group of short-term residents living together is not classified as a household, and neither is a group of people at an address where only visitors are staying.

3 . 4 . 20 Statistical concepts and definitions - Size of family nucleus

The family nucleus is defined in the narrow sense, that is as two or more persons who belong to the same household and who are related as husband and wife, as partners in a registered partnership, as partners in a consensual union, or as parent and child. Thus a family comprises a couple without children, or a couple with one or more children, or a lone parent with one or more children. This family concept limits relationships between children and adults to direct (first-degree) relationships, that is between parents and children.

Child (son/daughter) refers to a blood, step- or adopted son or daughter (regardless of age or marital status) who has usual residence in the household of at least one of the parents, and who has no partner or own children in the same household. Foster children are not included. A son or daughter who lives with a spouse, with a registered partner, with a partner in a consensual union, or with one or more own children, is not considered to be a child. A child who alternates between two households (for instance if his or her parents are divorced) shall consider the one where he or she spends the majority of the time as his or her household. Where an equal amount of time is spent with both parents the household shall be the one where the child is found at the time on census night.

The term couple shall include married couples, couples in registered partnerships, and couples who live in a consensual union.

Registered partnerships are reported only by countries that have a legal framework regulating partnerships that:

- (a) lead to legal conjugal obligations between two persons;
- (b) are not marriages;
- (c) prevent persons to commit themselves into multiple partnerships with different partners.

Two persons are considered to be partners in a 'consensual union' when they

- belong to the same household, and
- have a marriage-like relationship with each other, and
- are not married to or in a registered partnership with each other.

'Skip-generation households' (households consisting of a grandparent or grandparents and one or more grandchildren, but no parent of those grandchildren) are not included in the

definition of a family.

3 . 4 . 21 Statistical concepts and definitions -Type of private household

Married couple households and registered partnership households (MAR and REP and their subcategories)
At the time of the census, same-sex marriages and opposite registered-partnerships were not applicable within the UK.

Household composition

Household composition classifies households according to the relationships between the household members. Households consisting of one family and no other usual residents are classified according to the type of family (married, same-sex civil partnership or cohabiting couple family, or lone parent family) and the number of dependent children. Other households are classified by the number of people, the number of dependent children, or whether the household consists only of students or only of people aged 65 and over.

Persons sleeping rough

Persons sleeping rough are those that are identified as 'absolutely homeless', that is: people sleeping, or bedded down, in the open air (such as on the streets, or in doorways, parks or bus shelters), and people in buildings or other places not designed for habitation.

3 . 4 . 22 Statistical concepts and definitions - Size of private household

Private households may be defined according to the 'housekeeping concept', or, if this is not possible, Member States may apply the 'household-dwelling' concept.

1. Housekeeping concept

According to the housekeeping concept, a private household is either:

- (a) A one-person household, that is a person who lives alone in a separate housing unit or who occupies, as a lodger, a separate room (or rooms) of a housing unit but does not join with any of the other occupants of the housing unit to form part of a multiperson household as defined below; or
- (b) A multiperson household, that is a group of two or more persons who combine to occupy the whole or part of a housing

unit and to provide themselves with food and possibly other essentials for living. Members of the group may pool their incomes to a greater or lesser extent.

2. Household-dwelling concept

The household-dwelling concept considers all persons living in a housing unit to be members of the same household, such that there is one household per occupied housing unit. In the household dwelling concept, then, the number of occupied housing units and the number of households occupying them is equal, and the locations of the housing units and house holds are identical.

The category 'Persons living in a private household' comprises 'Persons in a family nucleus' and 'Persons not in a family nucleus'. The category 'Persons in a family nucleus' comprises all persons who belong to a private household that contains a family nucleus of which they are a member. 'Persons not in a family nucleus' comprises all persons who either belong to a non-family household or to a family household without being member of any family nucleus in that household.

A non-family household can be a one-person household ('Living alone') or a multiperson household without any family nucleus.

The category 'Not living alone' comprises persons that live either in a multiperson household without any family nucleus or in a family household without being member of any family nucleus in that household. Persons who belong to a skip-generation household and who are not member of any family nucleus in that household shall be classified in the optional category 'Persons living in a household with relative(s)'.

The term 'son/daughter' is defined as the term 'child' in the technical specifications for the topic 'Family status'.

'Husband/wife couple' means a married opposite-sex couple.

'Registered partnership' is defined as in the technical specifications for the topic 'Legal marital status'.

'Consensual union' is defined as in the technical specifications for the topic 'Family status'.

The category 'Partners' comprises 'Persons in a married couple', 'Partners in a registered partnership' and 'Partners in a consensual union'.

'Primary homeless persons' are persons living in the streets without a shelter that would fall within the scope of living quarters as defined in the technical specifications for the topic 'Type of living quarters'.

3 . 4 . 23 Statistical concepts and definitions - Tenure status of households

The topic 'Tenure status of households' refers to the arrangements under which a private household occupies all or part of a housing unit.

Households that are in the process of paying off a mortgage on the housing unit in which they live or purchasing their housing unit over time under other financial arrangements are classified under 'Households of which at least one member is the owner of the housing unit'.

Households of which at least one member is the owner of the housing unit and at least one member tenant of all or part of the housing unit are classified under category 'Households of which at least one member is the owner of the housing unit'.

3 . 4 . 24 Statistical concepts and definitions - Type of living quarter

'Conventional dwellings' are structurally separate and independent premises at fixed locations which are designed for permanent human habitation and are, at the reference date, either used as a residence, or vacant, or reserved for seasonal or secondary use.

'Separate' means surrounded by walls and covered by a roof or ceiling so that one or more persons can isolate themselves.
'Independent' means having direct access from a street or a staircase, passage, gallery or grounds.

'Other housing units' are huts, cabins, shacks, shanties, caravans, houseboats, barns, mills, caves or any other shelter used for human habitation at the time of the census, irrespective if it was designed for human habitation.

'Collective living quarters' are premises which are designed for habitation by large groups of individuals or several households and which are used as the usual residence of at least one person at the time of the census.

'Occupied conventional dwellings', 'other housing units' and 'collective living quarters' together represent 'living quarters'. Any 'living quarter' must be the usual residence of at least one person.

3 . 4 . 25 Statistical concepts and definitions -Occupancy status

The UK does not break down conventional dwellings not occupied by at least one usual resident into the optional categories for 'Dwellings reserved for seasonal or secondary use' and 'Vacant dwellings'.

3 . 4 . 26 Statistical concepts and definitions -Type of ownership

The concept of 'housing cooperatives' forms a negligible part of the type of ownership for UK dwellings, this was not captured on any of the UK censuses and no value returned for the corresponding category 'Dwellings in cooperative ownership'. The category 'Dwellings in other types of ownership' captures dwellings which were being occupied rent free.

3 . 4 . 27 Statistical concepts and definitions -

The number of occupants of a housing unit is the number of people for whom the housing unit is the usual residence.

Number of occupants	
3 . 4 . 28 Statistical concepts and definitions - Useful floor space	This concept is not applicable to the UK. The measurement 'Number of rooms' is used instead (see 3.4.29)
3 . 4 . 29 Statistical concepts and definitions - Number of rooms	The concept of 'number of rooms' has been adopted for the UK to measure density standard. This is the number of rooms in a household's accommodation.
	The definition of a room does not include bathrooms, toilets, halls or landings, or rooms that can only be used for storage. All other rooms, for example, kitchens, living rooms, bedrooms, utility rooms, studies and conservatories are counted.
	If two rooms have been converted into one they are counted as one room. Rooms shared between a number of households, for example a shared kitchen, are not counted.
	The number of rooms is not available for household spaces with no usual residents.
3 . 4 . 30 Statistical concepts and definitions - Density standard (floor space)	This concept is not applicable to the UK. The measurement 'Density standard (number of rooms)' is used instead (see 3.4.31)
3 . 4 . 31 Statistical concepts and definitions - Density standard (number of rooms)	The topic 'Density standard' relates the number of rooms to the number of occupants, as specified under the topic 'Number of occupants'.
3 . 4 . 32 Statistical concepts and definitions - Water supply system	Piped water in the housing unit (WTR) Information on the water supply system was not collected in the census therefore all conventional dwellings have been reported as containing piped water.

3 . 4 . 33 Statistical concepts and definitions - Toilet facilities	Flushing toilet in the housing unit Information on the presence of toilet facilities was not collected in the 2011 Census. As this was almost universal in 2001, all conventional dwellings have been reported as containing a flushing toilet in the 2011 data.
3 . 4 . 34 Statistical concepts and definitions - Bathing facilities	Fixed bath or shower in the housing unit (BATH) Information on the presence of bathing facilities was not collected in the 2011 Census. As this was almost universal in 2001, all conventional dwellings have been reported as containing a fixed bath or shower in the 2011 data.
3 . 4 . 35 Statistical concepts and definitions - Type of heating	A housing unit is considered as centrally heated if heating is provided either from a community heating centre or from an installation built in the building or in the housing unit, established for heating purposes, without regard to the source of energy.
3 . 4 . 36 Statistical concepts and definitions - Type of building	Conventional dwellings in two dwelling buildings; Conventional dwellings in three or more dwelling buildings (RES2, RES_GE3) Conventional dwellings which are 'detached' are counted as being in a one dwelling building. Conventional dwellings which are 'semi-detached' are counted as being in a two dwelling building.
	Conventional dwellings that are 'terraced' or in a residential flat, maisonette or apartment are counted as being in a three or more dwelling building.
3 . 4 . 37 Statistical concepts and definitions - Period of construction	All Categories Information on the Period of Construction was not collected in the census. As a result, these data were derived from survey data in England, Wales and Scotland. In Northern Ireland these data were derived from Administrative data managed by Land and Property Services.
3 . 5 Statistical unit	The EU programme for the 2011 population and housing censuses include data on persons, private households, family

	nuclei, conventional dwellings and living quarters.
	Persons enumerated in the 2011 census are those who were usually resident in the territory of the reporting country at the census reference date. Usual residence means the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment or religious pilgrimage.
3 . 7 Reference area	This data covers the United Kingdom, which comprises data for the constitutent countries of England, Northern Ireland, Scotland and Wales. Data for England and Wales have been collected by the Office for National Statistics (ONS), data for Northern Ireland have been collected by Northern Ireland Statistics and Research Agency (NISRA), data for Scotland have been collected by National Records of Scotland (NRS). Data for Northern Ireland and Scotland have been provided to ONS and combined with those for England and Wales for delivery to Eurostat.
4 Unit of measure	Counts of statistical units
5 Reference Period	27/03/2011
6 Institutional Mandate	
6 . 1 Institutional Mandate - legal acts and other agreements	There is no overarching legislation that governs the conduct of the censuses in the UK. Each country has its own legislative process and these are summarised below. The legislative process necessary to undertake a census in England and Wales is governed by the 1920 Census Act, as

amended by the Statistics and Registration Service Act 2007. This makes it possible for the UK Statistics Authority to take a census once Parliament has approved the necessary 'secondary' legislation. The 1920 Act also applies in Scotland, where there is a similar but separate legislative process. The census in Northern Ireland is a devolved matter and is governed by separate primary legislation The Census (Northern Ireland) Act 1969.

England & Wales

There are three stages to the parliamentary process of this secondary legislation:

1. White Paper

The 2011 Census of Population and Housing White Paper 'Helping to shape tomorrow '(Cm 7513) announced the UK Statistics Authority's proposals for the 2011 Census in England and Wales. It was presented to Parliament on 11 December 2008 and in bilingual (English and Welsh) format to the National Assembly for Wales.

2. Census Order

The Census Order set out the details of the information to be collected from the 2011 Census questions. It was laid before Parliament on 21 October 2009 and the order made on 9 December 2009.

3. Census Regulations

The Regulations described the delivery and collection methodology, prescribed the measures to ensure the security of the completed forms and confidentiality of the data in the field, and included a facsimile of the questionnaires to be used. The Census Regulations came into force on 31 March 2010. The responsibility for making Census Regulations with respect to the census in Wales now rests with Welsh ministers. Responsibility was transferred from the Chancellor of the Exchequer to the National Assembly for Wales in December 2006 by virtue of a Transfer of Functions Order (TFO), made under the provisions of the Government in Wales Act 1998. The TFO also made provision for Welsh ministers to be consulted on the content of the Census Order. Separate Regulations for Wales were laid before the National Assembly for Wales in April 2010.

Scotland

There are also three stages in the Parliamentary process in Scotland:

1. <u>Scotland's Census 2011 - Government Statement and</u> Supporting Documents

In December 2008 Scottish Government ministers published proposals for the 2011 Census setting out how questionnaires would be securely collected, processed and analysed to produce high-quality statistics. After that a number of changes were made to the assumptions made in the Government Statement, following experience gained from the 2009 Census Rehearsal as well as the parliamentary approval process for the census questions. The key changes are summarised in the Report on changes to Government Statement published in December 2008.

2. Census (Scotland) Order 2010.

The Order outlined who the census covered, its date and what the questionnaire asked, and was approved by the Scottish Parliament in May 2010.

3. Census (Scotland) Regulations 2010

The Scottish Parliament approved the Regulation to set out the detailed arrangements for how Scotland's Census was to be conducted, in May 2010.

Northern Ireland

A detailed <u>Proposals Paper</u>, which detailed the plans for the 2011 Census of Population in Northern Ireland, was made publicly available in March 2010. Similar to the other territories of the UK, secondary legislation in the form of a <u>Census Order</u> and <u>Census Regulations</u> was required in order for the 2011 Census in Northern Ireland to be conducted. These were passed by the NI Assembly and came into operation on 2 June 2010 and 26 July 2010 respectively.

Statement of Agreement of the National Statistician and the Registrars General for Scotland and Northern Ireland.

Published in 2008, this agreement outlined the commitment of the three countries to work in unison to ensure the success of the 2011 Censuses in providing high quality statistics that met the needs of data users and reflected UN-ECE and Eurostat requirements.

The statement can be found here:

http://www.ons.gov.uk/ons/guide-method/census/2011/uk-census/index.html

6.1.1 Bodies responsible

The Census in England and Wales is run by the Office for National Statistics (ONS). ONS is the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to the Parliament of the United Kingdom. Responsibility for the planning, conduct and reporting of the Census in Northern Ireland rests with the Northern Ireland Statistics and Research Agency (NISRA). NISRA is an executive agency within the Department of Finance and Personnel, which is one of the twelve departments within the Northern Ireland Civil Service

The census in Scotland is run by National Records of Scotland (NRS). The National Records of Scotland (NRS) was created on 1 April 2011 by the merger of two national institutions, the General Register Office for Scotland (GROS) and the National Archives of Scotland (NAS). It is a non-Ministerial Department of the Scottish Administration.

Simultaneous but separate censuses took place in England and Wales, Scotland and Northern Ireland on 27 March 2011. Each agency publishes statistics derived from the census in their territory. ONS is responsible for the publication of UK statistics by compiling comparable statistics from each of the UK statistical agencies.

7 Confidentiality

7 . 1 Confidentiality - policy

UK

The National Statistician and the Registrars General for Scotland and Northern Ireland published a joint agreement to adopt a common statistical disclosure control policy as part of the move towards seeking harmonised statistical outputs from the 2011 Census across the UK. The policy position is based on the principle for protecting confidentiality set out in the National Statistics Code of Practice.

The statutory requirement to provide personal census

information is prescribed by the provisions of the Census Act 1920 and the Census (Northern Ireland) Act 1969 and in the associated Orders and Regulations made under these Acts. In return, the Acts – strengthened by the confidentiality provisions of the Statistics and Registration Service Act 2007 – also impose strict requirements on ONS, NRS and NISRA to protect the confidentiality of any such information collected.

The information collected in the 2011 Census is used solely for the production of statistics and statistical research. Usage complies fully with the Census Acts, the Statistics and Registration Service Act and the requirements of data protection and freedom of information legislation. There are legal penalties for the unlawful disclosure of personal information collected in the census.

In the longer term, census records have an archival value and completed census questionnaires become open for public inspection after 100 years when they are used for genealogical and historical research. In Northern Ireland, Census returns are closed indefinitely.

Privacy Impact Assessment

Privacy Impact Assessments (PIA) help to identify privacy risks, foresee problems and bring forward solutions. It is a process for evaluating a proposal to:

- identify its potential effects upon individual privacy and data protection compliance
- examine how any detrimental effects might be overcome, and
- ensure that new projects comply with the data protection principles.

The PIA assessment for England and Wales was published in November 2009.

The assessment for Scotland was published in January 2011. The Assessment for Northern Ireland was published in May 2010.

7 . 2 Confidentiality - data treatment

England & Wales

Only those people under the management and/or control of the UK Statistics Authority including those agents acting, or providing services, on its behalf for the purpose of the census, and researchers approved under the provisions of the Statistics and Registration Service Act 2007, have access to personal census information.

All members of the census organisations and outside agents providing services to the UK Statistics Authority were required to sign undertakings to ensure their awareness of their statutory confidentiality obligations. Any breaches of the law rendered them liable to prosecution.

In producing the standard statistical outputs a number of procedures were implemented to prevent the release of information that identified characteristics about an individual person or household:

- modifying some of the data before the statistics were released by using a record swapping methodology
- restricting the number of output categories into which a variable may be classified, such as aggregated age groups
- where the number of people or households in an area fell below a minimum threshold, the statistical output – except for basic headcounts – were amalgamated with that for a sufficiently large enough neighbouring area.

In Northern Ireland and Scotland, similar access control and protection measures to those described for England & Wales were taken by NISRA and NRS within the framework of the relevant census legislation applying in each country: the Census (Northern Ireland) Act 1969 and the Census Act 1920 respectively.

Day-to-day and operational aspects were considered by all three statistical agencies (ONS, NISRA and NRS) as part of the Independent Information Assurance Review.

Information on data security measures employed in England and Wales can be found here:

http://www.ons.gov.uk/ons/guidemethod/census/2011/confidentiality/data-securitymeasures/index.html.

Copies of the PIA can be downloaded from this page http://www.ons.gov.uk/ons/guide-method/census/2011/confidentiality/assessing-our-measures-to-protect-your-confidentiality/index.html

Information on data security measures employed in Scotland can be found here:

http://www.scotlandscensus.gov.uk/confidentiality/ Independent Information Assurance Review

The Independent Information Assurance Review was conducted to provide an independent review of the protection to be applied to personal information gathered as part of the 2011 Census.

The final report was published in June 2012. Copies of the IIAR can be downloaded from this page http://www.ons.gov.uk/ons/guide-

method/census/2011/confidentiality/assessing-our-measuresto-protect-your-confidentiality/index.html

8 Release policy	
8 . 1 Release calendar	Data are made available 27 months after the end of the reference period (March 2014)
8 . 3 Release policy - user access	All three statistical agencies (ONS, NISRA and NRS) conducted independent user consultation exercises to establish the information requirements from the 2011 Census. These requirements formed the basis of the standard outputs that would be produced by each of the UK Census Offices, who worked collaboratively to harmonise the outputs wherever possible. ONS, NISRA and NRS worked to the principle that all standard outputs should be free to users at the point of delivery. Census data is available via the websites of each of the agencies. Access to published data and metadata is free under the Open Government Licence. Access to some microdata products is restricted to accredited researchers. Non-standard tables can be commissioned from the respective

statistical agencies for a fee that covers the cost of the additional processing necessary to generate the data. Once a commissioned table has been produced it is published on the relevant agency's website.

9 Frequency of dissemination

Data on population and housing censuses are disseminated every decade

10 Dissemination format

10.1 Dissemination format

- News release

News releases were issued by each statistical agency at key points in the process of publishing statistics from the 2011 Census. The list below details the main press releases issued.

Census shows population of England and Wales is over 56 million (ONS) - 16/07/12

Population and Household Estimates for Northern Ireland (NISRA) - 16/07/12

Census shows population of Wales is more than three million (ONS) - 16/07/12

9 x English region population press releases (ONS) - 16/07/12

Population and Household Estimates by Local Government District for Northern Ireland (NISRA) - 19/09/12

Second address Figures Published for First Time (ONS) - 22/10/12

Census Gives Insights into Characteristics of the Population of England and Wales - 11/12/12

Census Gives Insights into Characteristics of the Population of Wales (ONS) - 11/12/12

9 x English region Characteristics of Population press releases (ONS) - 11/12/13

Key Statistics for Northern Ireland (NISRA) - 11/12/12

UK Population Estimate Revealed (ONS) - 17/12/12

Population Estimates for Scotland (NRS) - 17/12/12

Census results reveal more about the way we live and work in England & Wales (ONS) - 30/01/13

Key Statistics for Wards and Small Areas for Northern Ireland (NISRA) - 30/01/13

Census reveals details of how we travel to work in England and Wales (ONS) - 13/02/13

Quick Statistics for Northern Ireland (NISRA) - 28/02/13

Population and Household Estimates for Wards and Small Areas for Northern Ireland (NISRA) - 28/02/13

Population Estimates for Scotland – Release 1B (NRS) - 21/03/13

2011 Census latest findings (ONS) - 16/05/13

Detailed Characteristics for Northern Ireland on Identity,

Religion and Health (NISRA) - 16/05/13

2011 Census housing snapshot revealed (ONS) - 28/06/13

Detailed Characteristics for Northern Ireland on Ethnicity, Country of Birth and Language (NISRA) - 28/06/13

Population and Household Estimates for Scotland Release 1C (NRS) - 23/07/13

Population and Household Estimates for Scotland Release 1C part 2 (NRS) - 15/08/13

Detailed Characteristics for Northern Ireland on Housing and Labour Market (NISRA) - 11/09/13

Census 2011: Release 2A (NRS) - 26/09/13

Census 2011: Release 2B (NRS) - 14/11/13

Detailed Characteristics for Local Government Districts and Super Output Areas in Northern Ireland (NISRA) - 28/11/13

Census 2011: Release 2C (NRS) - 18/12/13

Key Statistics for New 11 Districts in Northern Ireland (NISRA) - 30/01/14

Local Characteristics for Northern Ireland (NISRA) - 20/03/14

10 . 2 Dissemination format

- Publications

England & Wales

ONS produces a range of publications to support census data releases.

Statistical Bulletins accompany large data releases outlining the content of the release and summarising some of the key findings. Information on census statistical releases can be found here: http://www.ons.gov.uk/ons/release-calendar/index.html

Analysis Reports examine different statistical topics drawn from the census and help users to understand and interpret census data. These make geographical comparisons, comparisons with data from previous censuses, and comparisons with other data sources. Up to November 2013 a total of 29 analysis reports had been published. A number of these are also available as videos on the ONS YouTube channel.

Analysis reports can be accessed from here: http://www.ons.gov.uk/ons/guide-method/census/analysis/index.html

Online Interactive Comparison Tools and Interactive Maps allow users to explore aspects of the data in graphical and map form. Links to interactive content are available here: http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-interactive-content/index.html

Quality and Methodology Reports, explaining particular aspects of census methodology and providing support information on

the quality of the statistical outputs, can be accessed here: http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-user-guide/quality-and-methods/index.html

Scotland

NRS produces statistical bulletins, online interactive maps and charts, quality and methodology reports and a range of other supporting information to help users understand and interpret census data for Scotland. The production of analytical reports to examine different statistical topics from the census in Scotland is under consideration.

Links to publications and to the interactive tool can be found on the following page: <u>Census Results</u>

Quality assurance information can be found on the Methodology and Quality Assurance pages: <u>Census Quality Assurance</u>

Links to Census methodology papers can be found at: <u>Census Methodology</u>

Northern Ireland

Where appropriate, the main releases of information from the 2011 Census were accompanied by a detailed Statistics Bulletin which, from a user perspective, sought to summarise the information and highlight the main points that might be of interest. These bulletins can be accessed on the NISRA website using the following links:

Population and Household Estimates for Northern Ireland
Population and Household Estimates for Local Government
Districts

Key Statistics for Northern Ireland

Detailed Characteristics for Northern Ireland (Bulletin 1)
Detailed Characteristics for Northern Ireland (Bulletin 2)
Detailed Characteristics for Northern Ireland (Bulletin 3)

A number of other policy orientated papers were also published on the NISRA website over the course of the Census operation. These can be accessed via the following link Policy Documents.

Supporting Quality Assurance reports can be accessed on the

NISRA website using the following links: <u>Quality Assurance</u>
<u>Report 1</u>, <u>Quality Assurance Report 2</u> and <u>Quality Assurance</u>
<u>Report 3Census Quality Survey</u> (CQS).

10 . 3 Dissemination format - online database

All 2011 Census statistics for the UK and England and Wales are published through a range of channels, principally the ONS website (www.ons.gov.uk), the Neighbourhood Statistics Service (NeSS), (http://www.neighbourhoodstatistics.gov.uk) and Nomis (www.nomisweb.co.uk).

ONS has developed a new (currently Beta) Data Explorer (held on www.ons.gov.uk) allowing users to view and download data. There is also an open Application Programming Interface (API) allowing individuals and organisations to request and receive ONS data machine-to-machine enabling them to manipulate the data within their own systems.

In Northern Ireland NISRA's Northern Ireland Neighbourhood Information Service (NINIS) was used as the primary dissemination vehicle for all 2011 Census statistics. In addition to including all the tabular information and supporting metadata that was released, NINIS also included a variety of Area Profiles, Interactive Maps and Population Pyramids.

Supporting information was also released through the 2011 Census section of the NISRA website 2011 Census .

2011 Census statistics for Scotland are published on (www.scotlandscensus.gov.uk) as they are released.

10 . 4 Dissemination format - microdata access

UK

A number of census microdata products will be published. The planned 2011 Census microdata are:

Teaching file – Non-disclosive, individual-level files available for download from the ONS and NISRA websites. A similar file of data for Scotland will be made available via the NRS website.

Safeguarded file – This file will be at the individual level, and can be accessed through a special user agreement.

Virtual Microdata Laboratory (VML) files – Individual and

household files available under Approved Researcher Licence only, through the VML secure environment.

10 . 5 Dissemination format - other

Origin-destination products: England & Wales and Northern Ireland

Origin-destination tables provide counts of the flows of people migrating (in the year before the census) or travelling to work (in the week before the census) by area to area. In addition to overall counts, the tables provide results broken down by various topics, such as age and ethnicity.

Each of the two main types of Origin-Destination Statistics - Migration Statistics and Workplace Statistics - contain different tables for local authorities, wards/MSOAs and Output Areas/workplace zones. Origin-Destination Statistics are also available for students (for anyone who lived at a student term-time or boarding school address one year ago) and second residence statistics (for anyone who has a second residence). In Northern Ireland the question regarding travel to work covered both travel to work and place of study.

Origin-destination products: Scotland

Origin-destination products will, in due course, also be produced for Scotland. However, MSOA is not a geography that applies in Scotland and a workplace zone geography has not yet been created for Scotland. Origin-destination statistics in relation to second residences will not be available for Scotland.

Bulk data

Bulk data products enable users of large datasets to load large volumes of tables into their own systems. The main statistics from the 2011 Census are published in sets of tables which are available from the time of the data release. Bulk data is supplied on DVD although other media are available on request.

In Northern Ireland, bulk data is disseminated along with all other 2011 Census outputs through NISRA's NINIS website. Such information can be accessed via the following link <u>Bulk data</u> by selecting the Bulk Download option in the Subset Filter. In Scotland, bulk data is disseminated along with all other 2011 Census outputs through the website www.scotlandscensus.gov.uk. Such information can be

accessed via the Data Warehouse component of the Census

Data Explorer.

Commissioned tables

If someone needs data in a form that is different to the standard published information, they can commission a specific table from the appropriate statistical agency. Once a commissioned table has been produced it is published on the agency's website.

11 Accessibility of documentation

11 . 1 Documentation on methodology

All countries have published papers explaining the 2011 Census methodology:

England and Wales

A series of methodology papers were published on the 'Quality and Methods' pages of the ONS 2011 Census web-pages. (http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-user-guide/quality-and-methods/index.html)
These include papers on Coverage Assessment and Adjustment and Statistical Disclosure Control methodologies.

Northern Ireland

<u>Supporting Methodology Information</u> relating to the 2011 Census in Northern Ireland is available on the 2011 Census section of the NISRA website.

Scotland

Methodology papers for Scotland are published on the Census Methodology pages of the Scotland's Census website.

(http://www.scotlandscensus.gov.uk/en/planning/methodology/)

11 . 2 Quality management - documentation

Reports on the quality of the 2011 Census data have been published as follows:

England and Wales

Quality and Methodology Information 2011 Census Statistics for England and Wales: March 2011 (http://www.ons.gov.uk/ons/guide-method/methodquality/quality-information/population-andhousehold-estimates.doc)

Northern Ireland

NISRA released three reports aimed at outlining the quality assurance work that was undertaken in order to ensure that the information released from the 2011 Census in Northern Ireland was of a high quality, fit for purpose and meeting the needs of users. These can be accessed on the NISRA website using the following links: Quality Assurance Report 1, Quality Assurance Report 3.

NISRA also published a report on its independent, small sized Census Quality Survey (CQS). This voluntary survey involved a random sample of households that had previously responded to the Census held on 27 March 2011. The main purpose of the CQS was to provide some insight into the overall quality of the information being reported through the Census. Participants were re-asked the full set of Census questions in a pre-arranged face-to-face interview and their responses were then matched to, and compared with, those provided in the Census. The results are presented in the form of Agreement Rate tables, illustrating the extent to which the information provided in the Census aligned with that collected through the CQS.

Scotland

Links to Scotland's Quality information are available from: http://www.scotlandscensus.gov.uk/en/censusresults/methodologyandquality.html

12 Quality management	
12 . 1 Quality assurance	All UK 2011 Census population estimates were subject to rigorous quality assurance using demographic analysis, survey data, qualitative information and administrative data. This ensures that the figures are plausible and that users of census data can have confidence in the quality and accuracy of the information. Please see section 12.2 for more information

12 . 2 Quality management assessment

UK

All UK 2011 Census population estimates were subject to rigorous quality assurance using demographic analysis, survey data, qualitative information and administrative data. This ensures that the figures are plausible and that users of census data can have confidence in the quality and accuracy of the information.

Throughout the census operation, quality was managed through a quality model that included design, operational quality management, quality assurance, quality measurement and the reporting and production of high quality population statistics set out in the 2011 Census Quality Strategy (2006) http://www.ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-we-planned-the-2011-census/index.html

Although this document refers specifically to the census for England and Wales, both the National Records of Scotland (NRS) and the Northern Ireland Statistics and Research Agency (NISRA) were involved in the production of the report and were committed to applying the principles outlined in the report in Scotland and Northern Ireland respectively. The three census offices worked closely to ensure that a common approach to quality was actively pursued throughout the UK.

In 2009 ONS published the 2011 Census - Data Quality Assurance Strategy, which set out the management systems and processes which were being put in place in the run-up to the 2011 Census. The strategy took account of international best practice and also built on the lessons learned from the 2001 Census quality assurance. Collaboration with the General Register Office for Scotland (GROS) and Northern Ireland Statistics and Research Agency (NISRA) aimed to ensure a consistent approach. The Welsh Assembly Government (WAG) was consulted to ensure its views were represented and reflected in the strategy. A link to the strategy can be found here: http://www.ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-we-took-the-2011-census/how-we-processed-the-information/data-quality-assurance/index.html

England and Wales

ONS worked closely with users to finalise the quality assurance approach and providing a transparent methodology. This included carrying out a series of quality assurance studies with 40 local authority users. These were aimed at improving understanding of the sources to be used in the quality assurance process and identifying locally held sources which might also be of value in the

process. A report from these studies was published in December 2010 and can be accessed from here:

http://www.ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-we-took-the-2011-census/how-we-processed-the-information/data-quality-assurance/index.html

To help users understand and build confidence in the quality assurance process, a series of events were held in late 2010, and again just before the release of the first statistical outputs in July 2012, explaining the coverage adjustment and quality assurance processes.

Refinement of the quality assurance proposals culminated in the publication of 2011 Census – methodology for quality assuring the Census population estimates which provided an overview of the plans for quality assurance of the census population estimates, including how the estimates would be agreed and signed off prior to the first release of outputs.

To give users further confidence that the quality assurance methods proposed were robust, the National Statistician commissioned an independent review (at the end of 2010/early 2011) of methods for coverage assessment, coverage adjustment and quality assurance of the 2011 Census population estimates. The review team stated that "... the methods give confidence that the resulting final census population estimates will be better than any other method and will be suitable for use in resource allocation and planning."

Quality assurance processes began around Census Day in 2011, when management information and early census returns provided the first evidence of response patterns and continued throughout the census process through to the publication of the first outputs. Information on the approach to quality assurance can be viewed here: http://www.ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-we-took-the-2011-census/how-we-processed-the-information/data-quality-assurance/index.html

Northern Ireland

In May 2012, NISRA published a <u>Quality Assurance Strategy</u> outlining the quality assurance work that would be undertaken in order to ensure that the information released from the 2011 Census in Northern Ireland was of a high quality, fit for purpose and would meet the need of users.

NISRA subsequently released three reports which detailed the

quality assurance work that was undertaken and issued these alongside the relevant outputs in order to aid understanding of the results. These can be accessed on the NISRA website using the following links: Quality Assurance Report 1, Quality Assurance Report 3.

Scotland

In May 2012, GROS/NRS published a Quality Assurance Strategy describing plans for data quality assurance of Scotland's 2011 Census. The aims were to monitor changes as the data passes though downstream processing; ensure that census statistics for 2011 were of a high quality and that differences when compared to other sources were explained and justified where possible; and outline processes for quality assurance, adjustments and sign-off of the quality assured data.

GROS subsequently released further documents describing the process of quality assurance in more detail, and providing users with quality information relating to specific releases. These can be accessed on the NRS website using the following links:

Information on the governance and process of quality assuring the population estimates: Process of quality assuring the data

A <u>Quality Assurance Pack</u> accompanied publication of population and household estimates and provided comparisons with noncensus data sources. Details of the comparator sources used were also published <u>here</u>.

A Census Data Quality Advisory Group, comprising external users formed a central part of the quality assurance and finalisation of the results from Scotland's 2011 Census. Details of the remit and membership of the group along with minutes of the meetings, including presentations and papers can be found in the following link Census Data Quality Advisory Working Group

Information on the variables and associated classifications for the releases on characteristics are provided in metadata. This includes the definition of the variable, the component part of derived variables, known quality issues and output tables which are produced from the variable.

http://www.scotlandscensus.gov.uk/en/censusresults/variables.html

12 . 2 . 1 Coverage

UK

assessment

The level of coverage achieved by the 2011 Census was measured by separate Census Coverage Surveys (CCS) carried out by each statistical agency (ONS, NISRA and NRS). Based on a sample of households after the census, information gathered from these face-to-face doorstep interviews enabled each agency to estimate how many people had not returned a questionnaire. Households and people counted in the CCS were matched with those actually recorded in the census so that estimates could be made about the number and characteristics of people who were not included on a census questionnaire. This information was then used to adjust all of the census results for undercoverage and overcoverage.

England & Wales

Information on the CCS and coverage assessment methodology can be found here:

http://www.ons.gov.uk/ons/guide-method/census/2011/how-our-census-works/how-did-we-do-in-2011-/index.html

Northern Ireland

Information on the Northern Ireland coverage survey can be accessed via this link <u>Census Coverage Survey</u>. As part of the coverage assessment and adjustment process, the 2011 Census estimates were benchmarked against a variety of alternative data sources (e.g. School Census, Child Benefit, Pensions and related data, mid-year population estimates and Activity based data from the health card system) in order to ensure that they were plausible and that any differences could be explained. Further information on this process is included in the quality reports referenced above.

Scotland

The Census Coverage Survey in Scotland included about 40,000 households which were visited by trained interviewers. More details on the estimation and adjustment process can be found in the Estimation and Adjustment Strategy for Scotland's Census.

12 . 2 . 2 Postenumeration survey(s)

England & Wales

In addition to the Census Coverage Survey (see 12.2.1) the Census Quality Survey (CQS) was carried out between May and August 2011, with a sample drawn from households in England and Wales who had returned a census questionnaire within two weeks of Census Day (27March 2011).

The main objective of the CQS was to provide users with

information about the quality of the answers to the census questions to aid them in making decisions on appropriate use of the data. This is a requirement of the Code of Practice for Official Statistics. The information also contributed to the evaluation of criteria used by ONS for processing and data quality assessment.

The sample comprised 7,500 addresses, of which 5,262 participated in the survey: this represented a response rate of 75%. The CQS was carried out as a face-to-face survey using computer assisted interviewing. The CQS results were published in January 2014.

Scotland

To ensure that Scotland's Census Quality Survey covered a crosssection of the population, three Census Districts (CDs) were chosen from a city, a town and a rural area.

Interviewers carried out face-to-face interviews with a sample of households that responded to the census within each of these CDs. Householders were asked the same set of questions (except the visitor questions) as asked in the main census. The answers were compared to those that the household provided in the main census to produce a quality measure for the census outputs. A report on the CQS will be published in due course.

Northern Ireland

NISRA also conducted an independent, small sized <u>Census Quality Survey</u> (CQS). The results, which are based on 1,741 households and 3,083 individuals, are presented in the form of Agreement Rate tables, illustrating the extent to which the information provided in the census aligned with that collected through the CQS. The field work for the CQS commenced in early June 2011 and the results were published in July 2013.

14 Accuracy	
14 . 1 Accuracy - overall	
14 . 1 . 1 Overall accuracy - Usual	There are no particular reasons for data unreliability for this topic

residence	
14 . 1 . 2 Overall accuracy - Sex	There are no particular reasons for data unreliability for this topic
14 . 1 . 3 Overall accuracy - Age	There are no particular reasons for data unreliability for this topic
14 . 1 . 4 Overall accuracy - Marital status	There are no particular reasons for data unreliability for this topic
14 . 1 . 5 Overall accuracy - Family status	There are no particular reasons for data unreliability for this topic
14 . 1 . 6 Overall accuracy - Household status	Primary homeless persons Primary homeless persons are those that are identified as 'absolutely homeless', that is: people sleeping, or bedded down, in the open air (such as on the streets, or in doorways, parks or bus shelters), and people in buildings or other places not designed for habitation. These data have been flagged as unreliable due to the transient and hard to count nature of this population.
14 . 1 . 7 Overall accuracy - Current activity status	There are no particular reasons for data unreliability for this topic
14 . 1 . 8 Overall accuracy - Occupation	There are no particular reasons for data unreliability for this topic
14 . 1 . 9 Overall accuracy - Industry	There are no particular reasons for data unreliability for this topic
14 . 1 . 10 Overall	There are no particular reasons for data unreliability for this topic

accuracy - Status in employment	
14 . 1 . 11 Overall accuracy - Place of work	There are no particular reasons for data unreliability for this topic
14 . 1 . 12 Overall accuracy - Educational attainment	There are no particular reasons for data unreliability for this topic
14 . 1 . 13 Overall accuracy - Size of the locality	There are no particular reasons for data unreliability for this topic
14 . 1 . 14 Overall accuracy - Place of birth	There are no particular reasons for data unreliability for this topic
14 . 1 . 15 Overall accuracy - Country of citizenship	There are no particular reasons for data unreliability for this topic
14 . 1 . 16 Overall accuracy - Year of arrival in the country	There are no particular reasons for data unreliability for this topic
14 . 1 . 17 Overall accuracy - Residence one year before	There are no particular reasons for data unreliability for this topic
14 . 1 . 18 Overall accuracy - Housing arrangements	Primary homeless persons Primary homeless persons are those that are identified as 'absolutely homeless', that is: people sleeping, or bedded down, in the open air (such as on the streets, or in doorways, parks or bus shelters), and people in buildings or other places not designed for habitation.

	These data have been flagged as unreliable due to the transient and hard to count nature of this population.
14 . 1 . 19 Overall accuracy - Type of family nucleus	There are no particular reasons for data unreliability for this topic
14 . 1 . 20 Overall accuracy - Size of family nucleus	There are no particular reasons for data unreliability for this topic
14 . 1 . 21 Overall accuracy - Type of private household	There are no particular reasons for data unreliability for this topic
14 . 1 . 22 Overall accuracy - Size of private household	There are no particular reasons for data unreliability for this topic
14 . 1 . 23 Overall accuracy - Tenure status of households	There are no particular reasons for data unreliability for this topic
14 . 1 . 24 Overall accuracy - Type of living quarter	There are no particular reasons for data unreliability for this topic
14 . 1 . 25 Overall accuracy - Occupancy status	There are no particular reasons for data unreliability for this topic
14 . 1 . 26 Overall accuracy - Type of ownership	There are no particular reasons for data unreliability for this topic
14 . 1 . 27 Overall	There are no particular reasons for data unreliability for this topic

accuracy - Number of occupants	
14 . 1 . 28 Overall accuracy - Useful floor space	There are no particular reasons for data unreliability for this topic
14 . 1 . 29 Overall accuracy - Number of rooms	There are no particular reasons for data unreliability for this topic
14 . 1 . 30 Overall accuracy - Density standard (floor space)	There are no particular reasons for data unreliability for this topic
14 . 1 . 31 Overall accuracy - Density standard (number of rooms)	There are no particular reasons for data unreliability for this topic
14 . 1 . 32 Overall accuracy - Water supply system	There are no particular reasons for data unreliability for this topic
14 . 1 . 33 Overall accuracy - Toilet facilities	There are no particular reasons for data unreliability for this topic
14 . 1 . 34 Overall accuracy - Bathing facilities	There are no particular reasons for data unreliability for this topic
14 . 1 . 35 Overall accuracy - Type of heating	There are no particular reasons for data unreliability for this topic

14 . 1 . 36 Overall accuracy - Type of building	There are no particular reasons for data unreliability for this topic
14 . 1 . 37 Overall accuracy - Period of construction	These data were not collected on any of the UK censuses, therefore separate data from England, Northern Ireland, Scotland and Wales have been used to proportionally allocate dwellings to a particular period of construction category.
14 . 2 Sampling error	
14 . 3 Non-sampling error	

16 Comparability	
16 . 1 Comparability - geographical	Ever resided abroad and year of arrival in the country Data collected for England, Scotland and Wales report on the year of arrival into the UK for persons who were born abroad, not captured is the year of arrival for persons born in the UK but who have ever been resident of a country outside the UK for 12 months or more.
	Data collected for Northern Ireland allowed the reporting of the year most recently arrived to live in Northern Ireland for those who had lived outside the UK for a continuous period of one year or more.
	Country of citizenship For data collected in England, Northern Ireland and Wales, the primary method of allocating citizenship was to use passports held. In Scotland, no equivalent question was asked. Therefore, the primary method for allocating citizenship in Scotland was using country of birth.

18 Cost and Burden

UK

The organisation of each census (England & Wales, Northern Ireland and Scotland) is devolved to each of the statistical agencies for those countries (the Office for National Statistics, Northern Ireland Statistics and Research Agency and National Records Scotland). Each agency is responsible for its own census budget. The total cost of running the three censuses in 2011 was approximately £568m spread over the lifecycle of the project.

England & Wales

Cost

The 2011 Census in England and Wales cost approximately £482 million. This equates to less than £1 per person per year over the 10-year planning and operational cycle of the census. While the 2011 Census cost around twice that of the 2001, around one third of the increase was due to inflation and the larger number of people to count. In real terms, this equates to around 35 per cent more than the last census.

A number of automated processes were introduced for the 2011 Census to reduce overall costs and increase effectiveness. These included providing the option to complete the questionnaire online and the use of a comprehensive address list allowing questionnaires to be delivered and returned by post. As a result, the number of enumerators required in 2011 (approximately 35,000) was around half of the number in 2001.

Census results underpin the planning of services and the allocation of resources to local communities. A project to assess the benefits of the census in England and Wales has been under way since 2012 and a number of case studies are published on the ONS website http://www.ons.gov.uk/ons/guide-method/census/2011/2011-census-benefits/index.html

Burden

Minimising the burden on respondents was a key consideration in the planning and design of the 2011 Census questionnaire. In dealing with requests for the inclusion of new questions, consideration was given to their number, complexity and acceptability and assessments made about the potential quality of response.

A Privacy Impact assessment (PIA), published in 2009, examined a wide range of such issues and concluded that 'The burden on each

household in completing the census questionnaire is considered reasonable. For a typical household of four people the once-a-decade Census should take around 30-40 minutes.'

More information on the PIA can be found here: http://www.ons.gov.uk/ons/guide-method/census/2011/confidentiality/assessing-our-measures-to-protect-your-confidentiality/index.html.

To support people who did not speak English as a first language, a translation booklet was produced by combining the census questionnaire and information leaflet. This was translated into 56 languages for guidance although respondents still had to complete the English version. Printed copies were available on request from the census helpline (each language had its own dedicated phone number), the online help facility and from census collectors. In addition they could be viewed and downloaded from the census website.

For people with sensory impairments, a number of materials were available

- Audio cassette tape, CD and video and audio clips on the website.
- Large Print questionnaire and information leaflet.
- Easy Read information leaflet.
- Braille guidance booklet.
- British Sign Language DVD and clips on the website.
- Audio version of the information leaflet in the top ten most widely spoken languages.

Scotland

Cost

Scotland's census was run on a largely independent basis from the censuses in England & Wales and Northern Ireland, with a different operational design to reflect specific Scottish requirements, but with a commitment to harmonising outputs so that consistent and coherent outputs for the UK and each component country can be produced.

Delivered over a 10 year cycle from 2004-05, Scotland's census cost approximately £61.5million, equating to less than £1.20 per person per year. As with ONS, the 2011 Census cost just under twice that of the 2001 Census with inflation, increased use of technology and a rise in population (4.6 per cent) being important factors to this increase.

The Scottish census design provided a mixture of 'traditional' and 'modern' enumeration techniques to deliver an efficient and secure census. The primary model focused on hand delivery of preaddressed paper questionnaires by a 6,500 strong field force - a 15 per cent reduction from 2001 - with post-out in rural areas for operational efficiency.

For the first time households could complete the census electronically and 20 per cent chose to use the secure online service to do so. Paper returns were posted back to local field offices where field staff reconciled and checked questionnaires for completeness before follow-up on incomplete or missing returns. All paper returns were then sorted and passed to the data processing centre where they were amalgamated with the online returns.

Census data has six main uses, these are:
Resource allocation
Targeting investment
Service Planning
Policy making and monitoring
Academic and market research
Statistical benchmarking

The quality of data is a key priority for users of census data, underpinning key decision making for service planning and delivery to the benefit of everyone in Scotland. Benefits realisation will form an important part of the evaluation of the 2011 Census programme and to inform and help shape the future provision of sociodemographic information in Scotland.

Burden and Privacy

As with ONS, minimising public burden was a key consideration in shaping the census questionnaire in Scotland. As part of the Privacy Impact Assessment, NRS investigated both the possible impact on public privacy and the relative importance of census questions.

Questions were limited to those that were expected to produce reliable and accurate data in the census and where no comparable and accessible source of information is available in combination with other information.

NRS's Privacy Impact Assessment can be found online at <a href="http://www.gro-scotland.gov.uk/files2/the-census/policy/census-p

pia.1.pdf.

A range of support and guidance was provided as part of NRS Community Liaison project to ensure that households across Scotland were given the best opportunity to complete their census return.

Examples include translation of the census questionnaire, linking-up with national and local support organisations to prepare and help those who may need assistance, text phone service, British Sign Language, large print questionnaires and a census helpline (with real-time translation services) which worked in tandem with the field force to deliver direct support on request.

The burden on Scottish households, in terms of time required to complete the census questionnaire, was similar to that for England & Wales and Northern Ireland.

Northern Ireland Cost

The 2011 Census in Northern Ireland cost approximately £25 million. This equates to less than £1.40 per person per year over the 10-year planning and operational cycle of the census. As with the other UK Census Offices, efficiency savings were secured during the enumeration phase of the census by reducing the number of field staff by some 35 per cent. This was achieved primarily by using a postal service provider to deliver the questionnaires and concentrating the efforts of the field staff on address checking and non-response follow-up activities. Other initiatives such as an automated questionnaire tracking system and the option to complete census questionnaires online also played a pivotal role in streamlining the operational phase.

Burden and Privacy

NISRA worked collaboratively with the other UK census offices to optimise the design and content of the census questionnaire and minimise the burden on the general public. The Privacy Impact Assessment for Northern Ireland can be accessed here.

The public interface initiatives that were implemented in Northern Ireland largely mirrored those in England and Wales, with NISRA and the ONS jointly contracting for services such as a dedicated telephone helpline, online help system, language support and

	translation materials.
19 Data revision	
19 . 1 Data revision - policy	The Statement of Agreement between the National Statistician and the Registrars General for Scotland and Northern Ireland includes an aim to make no revisions to the 2011 Census outputs.
19 . 2 Data revision - practice	The policy is underpinned by a commitment to assure the quality of the results before publication, and to incorporate any subsequent revisions into mid-year population estimates, if required.
	Any errors identified in a published census table are subject to the same corrections process that applies to all ONS statistics. Where an error is corrected a Corrections Notice is published giving details of the changes. All corrections are listed in separate summary pages.
	Details can be found here: ONS http://www.ons.gov.uk/ons/guide-method/census/2011/census- data/2011-census-prospectus/new-developments-for-2011- census-results/revisions-and-updates/index.html
	Scotland http://www.scotlandscensus.gov.uk/en/censusresults/supportingi nfo/revisions.html Northern Ireland http://www.nisra.gov.uk/archive/census/2011/Revisions and Corr ection policy.pdf
20 Statistical processing	
20 . 1 Source data	
20 . 1 . 1 List of data	

sources	
20 . 1 . 1 . 1 List of data sources - data on persons	2011 Census for England and Wales 2011 Census for Northern Ireland 2011 Census for Scotland
20 . 1 . 1 . 2 List of data sources - data on households	2011 Census for England and Wales 2011 Census for Northern Ireland 2011 Census for Scotland
20 . 1 . 1 . 3 List of data sources - data on family nuclei	2011 Census for England and Wales 2011 Census for Northern Ireland 2011 Census for Scotland
20 . 1 . 1 . 4 List of data sources - data on conventional dwellings	2011 Census for England and Wales 2011 Census for Northern Ireland 2011 Census for Scotland England Housing Survey Living in Wales Survey Distributional data provided by Land and Property Services (Northern Ireland) Scottish House Conditions Survey
20 . 1 . 1 . 5 List of data sources - data on living quarters	2011 Census for England and Wales 2011 Census for Northern Ireland 2011 Census for Scotland
20 . 1 . 2 Classification of data sources	
20 . 1 . 2 . 1 Classification of data sources - data on persons	Conventional censuses
20 . 1 . 2 . 2 Classification of data	Conventional censuses

sources - data on households	
20 . 1 . 2 . 3 Classification of data sources - data on family nuclei	Conventional censuses
20 . 1 . 2 . 4 Classification of data sources - data on conventional dwellings	Combination of conventional censuses and sample surveys
20 . 1 . 2 . 5 Classification of data sources - data on living quarters	Conventional censuses
20 . 2 Frequency of data collection	Data on population and housing censuses are collected every decade, in a reference year that falls during the beginning of every decade
20 . 3 Data collection	Each of the statistical agencies undertook a programme of consultation, question development and testing to finalise the content of the 2011 Census questionnaire. New questions were developed for topics where there was a new demand for information, and some existing questions were redeveloped to take account of changing user requirements. Under the terms of the legislation there was a legal requirement to complete the 2011 Census questionnaire. As at 27 March 2011 everyone who had lived or intended to live in the country for three months or more was required to complete a questionnaire. Failure to return a completed questionnaire could lead to a fine and criminal record. Households received a census questionnaire from an enumerator or

through the post. The questionnaire was accompanied by an information leaflet and a pre-paid envelope for return by post. Paper questionnaires had an internet access code unique to that household which gave access to the online questionnaire. Householders could choose to complete the paper questionnaire and return it by post or complete and submit the online version. Guidance was provided online and through the census telephone helpline.

Communal establishments, for example, managed accommodation (such as care homes) and special groups (such as travellers) had their census questionnaires hand delivered and collected.

Questionnaire returns were monitored so that households that had not returned a questionnaire, either on paper or online, could be followed up by field staff.

England and Wales

In England and Wales, the 2007 Census Test, piloted some newly developed questions on a large scale for the first time. This was followed by comprehensive testing across three local authorities during the 2009 Census Rehearsal. After some further research and testing, the final recommendations for the 2011 Census questions were published in October 2009.

A comprehensive Address Register was created and all households received a census questionnaire through the post. Each paper questionnaire carried a unique barcode enabling questionnaire returns to be monitored so that field staff could follow up missing questionnaires.

Questionnaires also had an internet access code unique to that household which gave access to the online questionnaire. Households in Wales received both English language and Welsh language questionnaires, and information leaflets. With a field force of around 35,000 (about half the size of the 2001 Census), more staff were allocated to areas where a lower response was expected. A flexible field management approach also meant that field staff could be quickly redeployed to low response areas to boost questionnaire returns.

In those instances where it proved impossible to obtain a questionnaire return using these methods, the details were passed to a dedicated enforcement team to follow up persistent non-response.

Scotland

In Scotland, the 2006 Census Test, piloted different enumeration methods, new questions, new systems and procedures in a large scale operation. This was followed by a full rehearsal of processes, procedures and systems in 2009 in two areas of Scotland. The recommendations for the 2011 Census were published in December 2008 and updated after the rehearsal.

The enumeration approach was similar to the 2001 Census with most questionnaires delivered by census enumerators. However, there were important innovations including delivery of questionnaires in remote rural areas by the postal service; address personalisation of most questionnaires; and a network of temporary field offices to improve local management of the field operation. Each household that appeared on the address register before the start of enumeration received a paper questionnaire with an internet access code unique to that household which gave access to the online questionnaire. These householders could choose to complete the paper questionnaire and return it by post or complete and submit the online version. The small number of households identified during enumeration also received a paper questionnaire but were not given the option to complete online.

Households that were offered the online questionnaire could view the questionnaire in English or Gaelic.

Northern Ireland

NISRA worked collaboratively with the other UK Census Offices in order to harmonise the content of the 2011 Census questionnaires wherever possible. NI specific questions were piloted alongside the harmonised questions in both the 2007 Census Test and 2009 Census Rehearsal in Northern Ireland. Further question testing was conducted through the use of Northern Ireland Omnibus Survey, which is undertaken by NISRA's Central Survey Unit and specially organised focus groups.

In Northern Ireland the enumeration process was undertaken by a specially recruited field force of almost 2,000 people.

NISRA developed an authoritative Census Address Register to support the delivery of questionnaires by post. Each Census Enumerator had responsibility for a fixed list of addresses and a fixed geographical area. With the questionnaires being delivered by Royal Mail, this meant that the efforts of the field staff were largely focused on following up any households that had not returned a

questionnaire.

20 . 4 Data validation

Data validation began during the data capture process which consisted of four components:

- 1. Scanning to obtain images of the questionnaires.
- 2. Image checking to check the quality of the images produced from scanning and to prepare them for capture.
- 3. Recognition to automatically capture the data from the questionnaires using optical mark and character recognition.
- 4. Keying to manually capture the fields that could not be recognised automatically with sufficiently high accuracy.

A coding process was then used to convert text responses provided by people into coded data.

Checks of samples of data were carried out to ensure that the captured and coded data met previously defined quality targets. The minimum required level of accuracy for capture and coding varied by field type depending on the complexity of the data in the field. The captured and coded data then underwent a series of data validation processes to clean the data and ensure that it was in the correct format for the statistical processes that needed to be carried out before the outputs were produced. These processes are described below.

Range checks

Range checks were undertaken to establish whether the value of each variable was within the valid range for that variable.. If an invalid value was found it was set to 'missing' or 'not required' so that all values were valid for the statistical processes that would be applied to the data later. Missing values were then imputed as part of the edit and imputation process.

Removing false persons

Person records could be created in error for a number of reasons. For example, dust on the scanners or strike-throughs on pages of the questionnaire may have been treated as responses, falsely creating person records. For a person record to be counted as a genuine response and kept in the data the following information must have been present on the record:

- name (from individual questions or household members table) or date of birth, and
- at least one other of: name (from individual questions), date of

birth, sex, marital status, or name (from household members table).

If a person record did not meet these requirements then it was considered to be a false person and was deleted.

Resolving multiple responses

Multiple responses at the same address could be created in a number of ways, for example, both a paper and internet response being returned for the same address created a multiple household response, or a person being entered on the same questionnaire twice created a multiple individual response.

Multiple household responses were identified by looking for more than one response for an individual address, and matching the people on the different responses to determine if they related to the same or different households. All individuals on one questionnaire were matched to all individuals on all other household questionnaires returned for the same address.

Multiple individual responses were identified by matching each person in a household or communal establishment to all other people in the household/communal establishment to determine if they were the same person.

Name, date of birth, and sex were the variables used for matching. When multiple responses relating to the same household or individual were identified, the records were merged to leave just one record for the household or individual. The most complete response was kept, with any missing variables filled in from the other response(s) if possible.

Edit and imputation Individual question responses were examined and any anomalies resolved. This involved filtering out any answers to questions that were not applicable to respondents, for example, the labour market questions for those aged under 16.

Responses were also examined to check their validity, with any invalid responses being edited, for example where a response indicated that an individual was aged 3 years and was a parent. Multiple responses to single tick questions were resolved to leave one valid response and missing values were imputed using the CANCEIS system.

20 . 5 Data compilation

UK

Paper questionnaires were scanned and the data captured using optical mark recognition and optical character recognition technologies. This data was merged with that submitted via the online questionnaires.

Automatic and manual coding was used to assign numerical values to written text and tick box responses, using coding rules and standardised national coding frames.

ONS used a coverage assessment and adjustment methodology to measure the level of undercount and overcount in the census to adjust for the number and characteristics of individuals and households missed.

The coverage assessment and adjustment process involved seven stages.

- 1. A Census Coverage Survey (CCS), independent of the census, designed to establish the coverage of the census..
- 2. The CCS records were matched with those from the 2011 Census.
- 3. The census database was searched for duplicates, and, together with the CCS, the results were used to estimate levels of overcount in the census.
- 4. Populations of the sample areas were estimated from the results of the matching using dual system estimation techniques which enabled an estimate of those persons missed by both the census and the CCS to be made.
- 5. Populations for each local authority by age and sex were then estimated using a combination of standard regression and small area estimation techniques.
- 6. Households and individuals estimated to have been missed by the census were then imputed onto the 2011 Census database, with allowance for overcount. These adjustments were constrained to the local authority level estimates.
- 7. All the census population estimates were quality assured using demographic analysis, survey data, qualitative information and administrative data to ensure the estimates were plausible.

An edit and imputation process was used to correct inconsistencies and estimate missing data items whilst preserving the relationships between census characteristics. After item editing and imputation, all of the returned questionnaire records were complete and consistent. This stage of processing did not impute missing people;

that was the purpose of the Coverage Assessment and Adjustment process described above.

More information about the coverage assessment and adjustment process and the item edit and imputation process can be found here: http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/2011-census-user-guide/quality-and-methods/methods/coverage-assessment-and-adjustment-methods/index.html

In Northern Ireland, an additional step was included prior to step 2 above. For addresses from which no Census response was received, and at which there was evidence of active residents based on health records, the age and sex of the residents were imputed from health records. For steps 2-7 above, these were treated as Census returns. This new approach for 2011 was developed and piloted through both the 2007 Census Test and 2009 Census Rehearsal. In addition, the distribution of key demographic details from a random sample of some 30,000 actual Census returns was compared to that derived on the basis of the details recorded on the Medical Card Register for the same addresses and it was found that the distribution from the Census returns could be replicated with a high degree of precision. It is considered that this component of the under-enumeration methodology enhanced the coverage assessment and adjustment process in Northern Ireland and has improved the overall reliability and quality of the population estimates.