



## Consultation on proposed changes to the National Statistics on household projections

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# Summary of consultation

## Scope of the consultation

<b>Topic of this consultation:</b>	Proposed methodological changes to the Household Projections Model and the National Statistics output to be produced for the 2008-based household projections.
<b>Scope of this consultation:</b>	Responses to this consultation will inform whether the 2008-based household projections are based on the existing methodology or the new proposed methodology.
<b>Geographical scope:</b>	England.
<b>Impact Assessment:</b>	An impact assessment is not required as this is a technical consultation relating to National Statistics outputs.

## Basic information

<b>To:</b>	Any organisation or individual that uses the CLG household projections. For example, central and local government, planning bodies, academics and private organisations.
<b>Body/bodies responsible for the consultation:</b>	Housing Markets and Planning Analysis Division within Communities and Local Government.
<b>Duration:</b>	6 weeks from Monday 1 March 2010 to 5pm on Friday 9 April 2010.
<b>Enquiries:</b>	Jane Hinton Housing Markets & Planning Analysis (HMPA) Division Communities and Local Government 2/J4, Eland House Bressenden Place London SW1E 5DU  030 3444 2276  Jane.hinton@communities.gsi.gov.uk
<b>How to respond:</b>	Please send responses, preferably via email, to

	<p>Catherine Bernard  Housing Markets &amp; Planning Analysis (HMPA) Division  Communities and Local Government  2/J4, Eland House  Bressenden Place  London  SW1E 5DU</p> <p>Catherine.bernard@communities.gsi.gov.uk</p>
<b>Additional ways to become involved:</b>	<p>As this is a largely technical issue with specialist interests this will mainly be a written exercise. Additionally, key user groups will be engaged directly, for example through the Central and Local Information Partnership (CLiP) Planning and Population sub-groups, the RSS Housing Statistics User Forum and by direct email contact to invite them to participate.</p> <p>We also intend to host an analytical seminar on 12 March to explain the consultation and seek views. If you wish to attend this, please use the email contact above to register your interest and details of the event will be emailed to you</p>
<b>After the consultation:</b>	<p>The responses will be used to inform what method is adopted for the 2008-based household projections which are due to be produced following the release of the ONS Sub-National Population projections in May 2010. It is anticipated that the 2008-based household projections will be published by CLG in August–September 2010.</p> <p>A summary of the consultation responses will be published on the CLG website before the release of the 2008-based household projections.</p>
<b>Compliance with the Code of Practice on Consultation:</b>	<p>As this is a technical consultation on statistical outputs it is not a formal 12-week public consultation.</p>

## Background

<b>Getting to this stage:</b>	<p>CLG has commissioned two recent projects on the household projections methodology which have been used to inform this consultation. These are referenced in the main document below.</p>
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<b>Previous engagement:</b>	<p>The previous methodology projects have been guided by key experts in central and local government, academia and private organisations.</p> <p>CLG also under took an informal review of household types in summer 2009 and directly contacted a range of users to seek their views.</p>
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# 1. Introduction

## Aim

This document invites comments on proposed changes to the publication of statistics by Communities and Local Government (CLG) on household projections for England.

The household projections are a National Statistic and CLG has a duty to comply with the Statistics and Registration Act 2007. As part of this Act, National Statistics producers must comply with a code of practice<sup>1</sup>. Two of the main principles are:

- Ensuring the statistics meet user needs
- Engaging users on changes to statistics

This consultation is engaging the users on proposed changes and is trying to ensure that with those changes the statistics continue to meet users' needs. The consultation will run for six weeks from Monday 1 March 2010.

## Background to the household projections

The household projections are a demographic-based projection and provide an important long term view of the likely number of households given a projected population and previous demographic trends. They provide consistent national, regional and local projections. However, they are not a forecast and do not attempt to predict the impact that future government policies, changing economic circumstances or other factors might have on demographic behaviour.

The household projections have been published for many years by CLG (and its predecessor departments). They are produced each time the Office for National Statistics publishes a new set of sub-national population projections, as this is a key data input into the model.

The latest set of household projections are from a 2006-base and were published on 11 March 2009<sup>2</sup>. A new set of projections to a 2008-base will be produced following the release of the sub-national population projections later this year. The outcome of this consultation exercise will inform the method to be used to produce the 2008-based and subsequent sets of household projections.

<sup>1</sup> <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/code-of-practice-for-official-statistics.pdf>

<sup>2</sup> <http://www.communities.gov.uk/publications/corporate/statistics/2031households0309>

## Users of the household projections

The household projections provide an important part of the evidence base for the assessment of future housing requirements. They are used by the Secretary of State for Communities and Local Government, other government departments, the National Housing and Planning Advice Unit, regional planning bodies, and local authorities.

Planning Policy Statement 3 requires that assessment of future housing requirements in regional spatial strategies should have regard to current and future demographic trends and profiles and take into account evidence including the Government's latest published household projections.

Other users will include anyone with an interest in how the demographic make-up of the population and households could change into the future and the resulting implications of this for housing and services.

## Current methodology

The current methodology for producing the household projections has remained largely unchanged since the 1996 based household projections released in October 1999.

In the current method, projected household representative rates are applied to a projection of the private household population disaggregated by age, sex and marital/cohabitational status and summing the resulting projections of household representatives. The key data sources and methodological stages are:

- Population projections are taken from the latest release by the Office for National Statistics (ONS) at the national and subnational level.
- Marital status projections (de jure and de facto) at the national level are taken from the latest ONS release. Projections at subnational levels are assumed to follow the national pattern.
- The institutional population is deducted from the total population to give the private household population. The institutional population is assumed to stay at a constant level for younger age groups and at a constant share of the population for older age groups (as given in the 2001 Census).
- Household representative rates are extrapolated from Census data (1971, 1981, 1991, 2001), disaggregated by age, sex and marital status. Labour Force Survey (LFS) data are used to inform inter-Censal interpolations, post-Census estimates and future trends of household representative rates. The LFS and Census data are weighted together with the LFS data being given a lower weight than the Census.
- The resultant household representative rates are applied to the projected private household population and summed across the age/sex/marital status groups to give total household numbers.
- Projections are initially undertaken independently at the national, regional and sub-regional levels with regional projections then being constrained to

the national projections and sub-regional projections being constrained to regional projections.

A detailed description of the current methodology and data sources used is available at <http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/householdestimates>

## Methodology review work

In 2008, CLG commissioned a review of the methodology and process associated with the production of household projections. The work included a thorough review of alternative methodologies, given CLG's requirements, a set of interviews with key experts and users and a number of statistical pilots to test the implications of varying the methodology on the results. The final report was published on 19 December 2008 and can be found at <http://www.communities.gov.uk/publications/housing/optionsfuturemodel>

Following this project, CLG commissioned further work to provide a quantitative assessment of the impact that the proposed methodological changes would have on the 2006-based projections, and to recommend what specific changes to make to the current methodology to improve the projections.

The project has now completed.. While the core principles of using population projections and census data as the key inputs to the model have not changed, some of the proposed methodology changes have consequences for the resulting statistics that are produced, primarily the categorisation of households into different types. The purpose of this consultation is to seek user views on these proposed changes to statistical outputs.

## Rationale for changing the methodology

The existing household projections system (HOPS) contains a detailed breakdown which identified households represented by people who were married, single, divorced and widowed split by whether they were cohabiting or non-cohabiting (where the latter included married couple households) by 5-year age band with a further breakdown into married couples, cohabiting couples, lone parents, single person and other multi-person households. This gives a total of 36 groups for which headship rates need to be projected (plus two concealed couple types).

While this breakdown provides a considerable level of detail there are drawbacks. In particular, the complexity means that it can be difficult for users to focus on the key trends and despite the level of detail some key household types, such as couple households with children are not identified. The complexity of the model also means that it can be time consuming to produce a new set of projections. For example, the 2006-based projections were produced nine months after the release of the associated sub-national population projections.

Furthermore, tests on predictive accuracy<sup>3</sup> had shown that a model with a very basic breakdown would have actually produced results closer to the observed Census data than the existing model over the 1991-2001 period.

CLG also undertook some further investigation into the needs of key users of the household projections during summer 2009. Users across central and local government and other stakeholder groups were asked to provide their views on the household types currently output by the HOPS method. 41 responses were received and whilst just over half of respondents indicated that the current household types mainly or fully met their needs, nearly three quarters wanted to see a change. There was not a strong consensus demand for any of the typologies used by the other UK countries, although the groups used in Wales proved the most popular. Marital status was the least popular dimension, whilst size information was the most popular.

Collectively, this work led to the recommended two stage approach to household projections where Stage 1 would use time series (Census and Labour Force Survey) data at a high level of disaggregation to project basic trends, and where Stage 2 would use data from the 1991 and 2001 Censuses to provide a more detailed breakdown of household types. It was also recommended that a greater weight should be given to data on how household representative rates have changed since the last Census.

Therefore, the proposed changes to the methodology aim to produce outputs which are more closely aligned with users needs and can be produced in a timelier manner, while maintaining robust and reliable projections which are fit for purpose.

## 2. Proposed changes

A report produced for Communities and Local Government (CLG) has been published at the same time as this consultation document. This report sets out in more detail the technical changes proposed to the methodology and tests their impact on the projections. This consultation document sets out the changes this will mean for the statistics that will be available to users and seeks their views on these.

### Household types

#### Summary

It is proposed to change the classification of the projected households into different types so that better information on household size can be provided. In particular, household types which differentiate according to the number of dependent children. This will mean some loss of information on marital status and concealed households.

A more detailed description of these proposals is given below.

#### Questions:

1. Will the proposed new household types meet your needs for household projections?
2. Will the proposed new household types meet your needs **better** than the existing household types?
3. Will the removal of concealed household types present any problems for your use of these statistics and if so, how?

#### Detailed proposal

The current method enables statistics to be produced which categorise households into the following types:

*Married couple household:* a household which contains one or more married couple families.

*Cohabiting couple household:* a household which contains one or more cohabiting couple families, but no married couple families.

*Lone parent household:* a household which contains one or more lone parent families, but no married couple or cohabiting couple families.

*Other multi-person household:* a multi-person household that is neither a married couple household nor a cohabiting couple household nor a lone parent household. Examples include, lone parents with only non-dependent children, brothers and sisters and unrelated (and non-cohabiting) adults sharing a house or flat.

*One person household:* a person living alone who shares neither housekeeping nor a living room with anyone else (not necessarily in a one bedroom dwelling).

It is also possible to identify concealed households. These are married couple, cohabiting couples or lone parents who are not part of a separate household. Note that any cohabiting couples who are not in unconcealed households must be in concealed households. Married couples, by contrast, can be separated and form a variety of household types as well as unconcealed and concealed married couple households.

It is proposed that a new method is adopted which uses the 1991 and 2001 Census data to provide headship and non-headship rates by age band which are projected forward using a two-point exponential method, replicating the method used by GRO Scotland.

The household types produced by the new method are:

One person households	Male
	Female
One family and no others	Couple: No dependent children
	Couple: 1 dependent child
	Couple: 2 dependent children
	Couple: 3+ dependent children
	Lone parent: 1 dependent child
	Lone parent: 2 dependent children
A couple and one or more other adults	Lone parent: 3+ dependent children
	No dependent children
	1 dependent child
	2 dependent children
Lone parent and one or more other adults	3+ dependent children
	1 dependent child
	2 dependent children
Other households	3+ dependent children

These groups can also be combined, for example, to give households by zero, 1, 2, 3+ dependent children. A consistent time series of household estimates back to 2001 would also be produced if this change is adopted.

However, this method does mean that concealed households can no longer be separately identified. Concealed households accounted for less than one per cent of households in the 2006-based projections.

## Methodology changes

### Summary

This section sets out some of the technical details of the methodology that we are proposing to adopt. The methodology work has been guided at all stages by an expert steering group with membership drawn from central and local government, academia and private organisations. You may or may not feel

qualified to comment on the questions raised in this section. Please choose whether to respond to the consultation questions or not accordingly.

It is proposed that the methodology for producing household projections is changed to a simpler timeseries model with fewer disaggregations (and no cohort modelling) than the existing (HOPS) approach. Data from the Labour Force Survey will be given a greater weight in the trend-fitting calculation.

A more detailed description of these proposals is given below.

### **Questions:**

4. Are you content with the proposed new method for trend fitting for projecting the household representative rates?
5. Do you agree with the proposed increased weight given to the Labour Force Survey data?
6. Do you have any other comments on the proposed methodology changes?

### **Detailed proposal**

The new methodology adopts a two stage approach where Stage 1 uses time series (i.e. Census and Labour Force Survey) data at a high level of disaggregation to project basic trends, and Stage 2 uses data from the 1991 and 2001 Censuses to provide a more detailed breakdown of household types.

The first stage of the proposed method for the household projections differs from the existing model in three main ways;

- a. Household representative rates are projected for a smaller number of groups. The age breakdown is retained.
- b. The projection method is a logistics trend and does not use cohort modelling for any age groups.
- c. Increased weight is given to Labour Force Survey to inform trends in household formation since the last Census point.

Each of these points is considered in turn.

#### *a. Groupings:*

The main difference from the existing model is that married and cohabiting couples are combined into a single group. Household representative rates are projected for a smaller and hence simpler set of groupings to aid user understanding and to minimise the potential impacts of errors in the projection data sets whilst still capturing the key features of household formation behaviour:

- Couples households (here the household representative rates are defined conventionally with the male as the principle representative). This includes both married couples (where they live together) and cohabiting couples. This does not include same-sex couples.
- Female separated divorced or widowed (once married) households.

- Female singles (never married) households (single as in not in a couple or separated, divorced or widowed not necessarily a one-person household<sup>4</sup>).
- Male separated, divorced or widowed (once married) households.
- Male singles (never married) households (single as in not in a couple or separated, divorced or widowed not necessarily a one-person household).

Note that this stage does not produce the final household types output by the modelling; that is determined by Stage 2 as described above. Rather, these groups have been chosen to differentiate the data according to likely household formation behaviour.

*b. Trend fitting:*

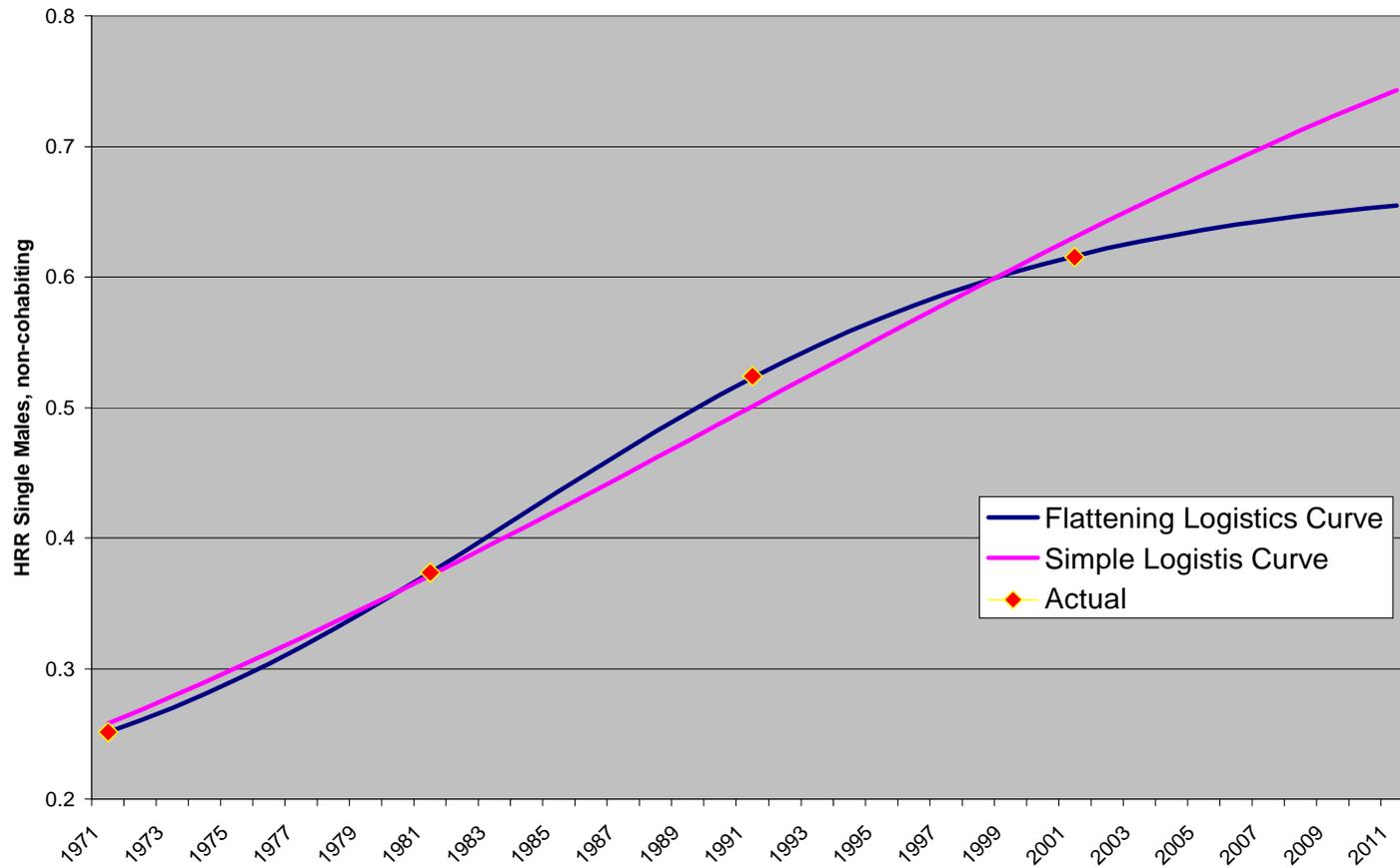
The method for projecting the Stage 1 household representative rates uses four main observations (the 1971, 1981, 1991 and 2001 censuses). Two main ways of fitting trends to the available data were tested:

1. A simple logistics trend - a trend fitted to  $\ln (X_t / (1-X_t))$
2. A dampened logistics trends where an S-shaped curve is fitted

The graph below illustrates these two trends for a representative group of single males aged 35 to 39 years:

<sup>4</sup> This group, for example, will include single (not married) lone parents and people living in other multi-person households.

### Single (never married) males 35 to 39 year olds



It is not clear which of these is the most appropriate given the small number of data points available to assess this. This is an intractable problem which was discussed at length in the Steering Group. Given the uncertainty it is recommended that the alternative projections are combined together using the following weights:

*15 to 29 year olds:* 80:20 weights for dampened / simple trend

*30 year olds and over:* 60:40 for dampened / simple trend

The reason for the differential weights is that the Labour Force Survey data indicate declining aggregate household representative rates for the younger age groups and, consequently, there is evidence that it is more appropriate to give a bigger weight to the dampened trend in these cases. This approach was endorsed by the Steering Group

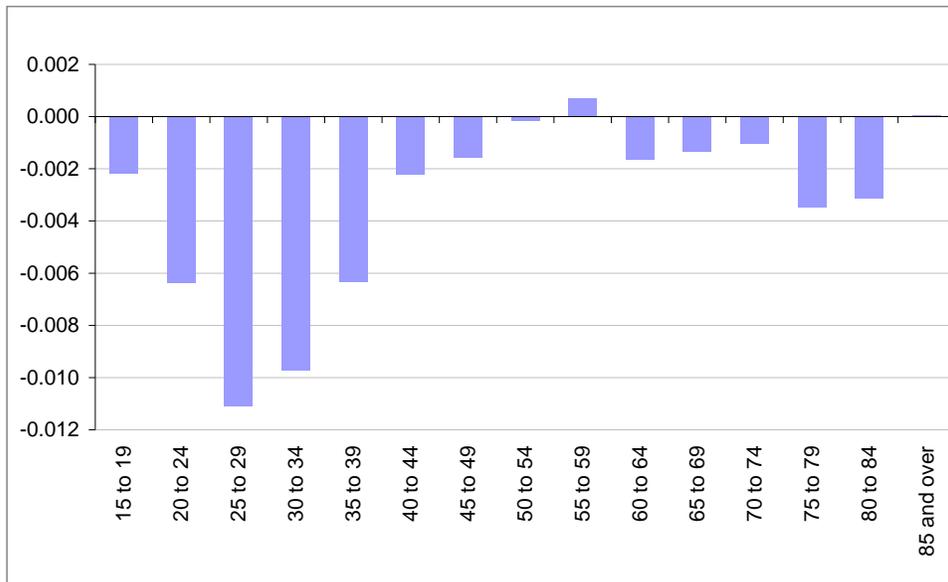
### *c. Use of Labour Force Survey data*

Recent Labour Force Survey (LFS) data suggests that there have been some steep falls in household representative rates (HRRs) for some age groups since the 2001 census (see accompanying report for further detail). The current methodology does use the LFS data in projecting the household representative rates, but this is given a low weighting relative to the Census data (based on the LFS sample size relative to the Census). This means that the recent and more significant falls in HRRs do not have a substantive impact on the resulting projected HRRs. If these shifts in household formation behaviour are sustained in the longer term, and this can only be truly assessed once the 2011 census results are available, the household projections would turn out to be too high using the current method. Conversely, if there had been increases in HRRs then the household projections would turn out to be too low.

The LFS is a sample survey and as such subject to a margin of error. However, on balance, the Steering Group felt that increased weight to the LFS data would be warranted. The LFS data has been smoothed and incorporated into the Stage 1 projections at the England level. It is proposed that the weight given to the LFS data is capped at 50% and linked to the length of time since the last Census. For example, 2007 LFS data would be given a weight of 30%, i.e.  $50\% \times 6/10$  (time since 2001 census) = 30%.

The increased weight given to LFS data would reduce the household representative rates by a small amount and this would mainly be observed at the younger age groups:

### Impact of the LFS adjustment on household representative rates, 2007



If the 2006-based projections were re-run with the proposed new trend fitting method and the increased weight to LFS data this would produce slightly lower projections of the increase in household numbers. Illustrative figures are that this method would show an average annual increase in household numbers of 249,000 per annum between 2007 and 2031 compared to 255,000 in the current published projections.

### 3. Consultation questions

The full list of questions asked in this consultation:

1. Will the proposed new household types meet your needs for household projections?
2. Will the proposed new household types meet your needs **better** than the existing household types?
3. Will the removal of concealed household types present any significant problems for your use of these statistics and if so, how?
4. Are you content with the proposed new method for trend fitting for projecting the household representative rates?
5. Do you agree with the proposed increased weight given to the Labour Force Survey data?
6. Do you have any other comments on the proposed methodology changes?

## 4. Confidentiality and data protection

Information provided in response to this consultation, including personal information, may be disclosed in accordance with the access to information requirements (mainly the Freedom of Information Act 2000, Data Protection Act 1998 and the Environmental Information Regulations 2004). If you wish the information you provide to be treated as confidential, please be aware that, under the Freedom of Information Act, there is a statutory Code of Practice with which public authorities must comply and which deals with, among other things, obligations of confidence. In view of this it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation. However, we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality notice generated by your IT system will not, of itself, be regarded as binding on the Department.

A summary of the responses to this consultation will be published on the Department's website [www.communities.gov.uk](http://www.communities.gov.uk) within three months of the close of consultation. Any confidential responses will be included in the statistical summary of numbers of comments and views expressed, although the respondent will not be identified.

## 5. How to respond

This statistical consultation will run for 6 weeks from 1 March, closing at 5pm on Friday 9 April.

When responding, please state whether you are responding as an individual or representing the views of an organisation. If responding on behalf of an organisation, please make it clear who the organisation represents, and where applicable, how the views of the members were assembled. Comments are invited from all interested parties who wish to be involved in this consultation process.

A consultation questionnaire has been included alongside this consultation to facilitate your response.

We plan to hold an analytical seminar on 12 March in Eland House to explain the proposed changes and provide an opportunity to ask questions. If you wish to attend please use the email below to register your interest and further details of the event will be emailed to you.

Please send your consultation response (by email or post) to:

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