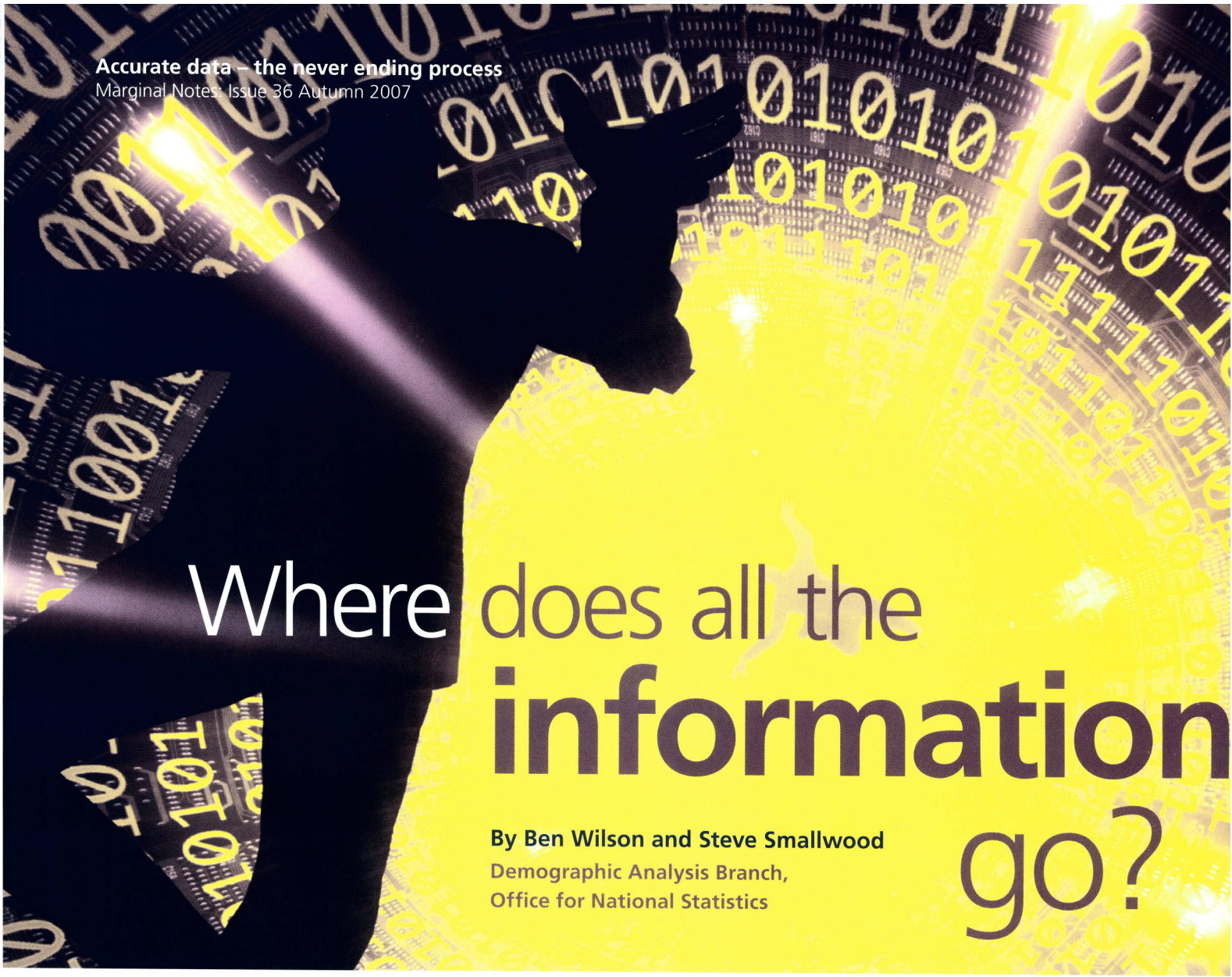

Where does all the information go?

By Ben Wilson and Steve Smallwood
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In 2006 there were approximately 669,601 live births in England and Wales – one every 47 seconds. Depending on your reading speed (and the changes that have taken place in fertility since 2006), there may be a couple of births while you are reading this article. Unfortunately for all of us, the numbers never sit still. There is always more data to process, and end-users of the data should always bear this in mind. We want 'the moon on a stick', accurate data with as much information as possible – and we want it yesterday!

Statistics have always been important

We are all aware how important civil registration is as a foundation of a civilised society, providing the individual with:

- a name and identity within society
- a facility for marriage
- evidence of parentage, and
- evidence of entitlement to inheritance

But since the inception of civil registration in 1837, when Thomas Lister, the first Registrar General, enlisted the help of William Farr, data from civil registration has been used for statistical purposes. Farr was at the forefront of securing recognition of uniform nomenclature and scientific classification in medical statistics.

In 1858 Florence Nightingale was elected the first female member of the Royal Statistical Society. She had made extensive use of statistical analysis to improve medical care and public health. Of course, in 1858 the study of statistics was in its infancy – a far cry from the world of online registration and database error reports.

We are sure you'll agree that we haven't reached perfection yet, but there have been quite a few improvements since

1858. Since 1938 additional information has been collected for statistical purposes on births and deaths, for example, the date of birth of the mother and father on a birth registration. This information is not part of the register and cannot be disclosed in individual form, only in aggregate.

A long journey

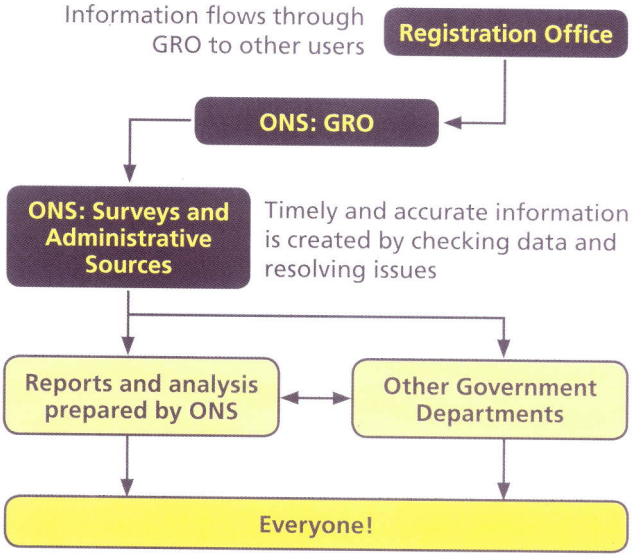
So, what happens to information once it leaves the registry office? A good question, and one to which we continue to find new answers every day. Nevertheless, almost every piece of information collected at registration is used in some way to understand how and why changes in society occur.

Figure 1 gives a very broad outline of the flow of information from registration onwards. If, with our limited knowledge, we were to try and draw a detailed version which represented all the communication and data flows, we would start with an A3 piece of paper and be sure to run out of room. But it does at least give a flavour of what is happening and shows the link between registration and the user.

Measuring the population

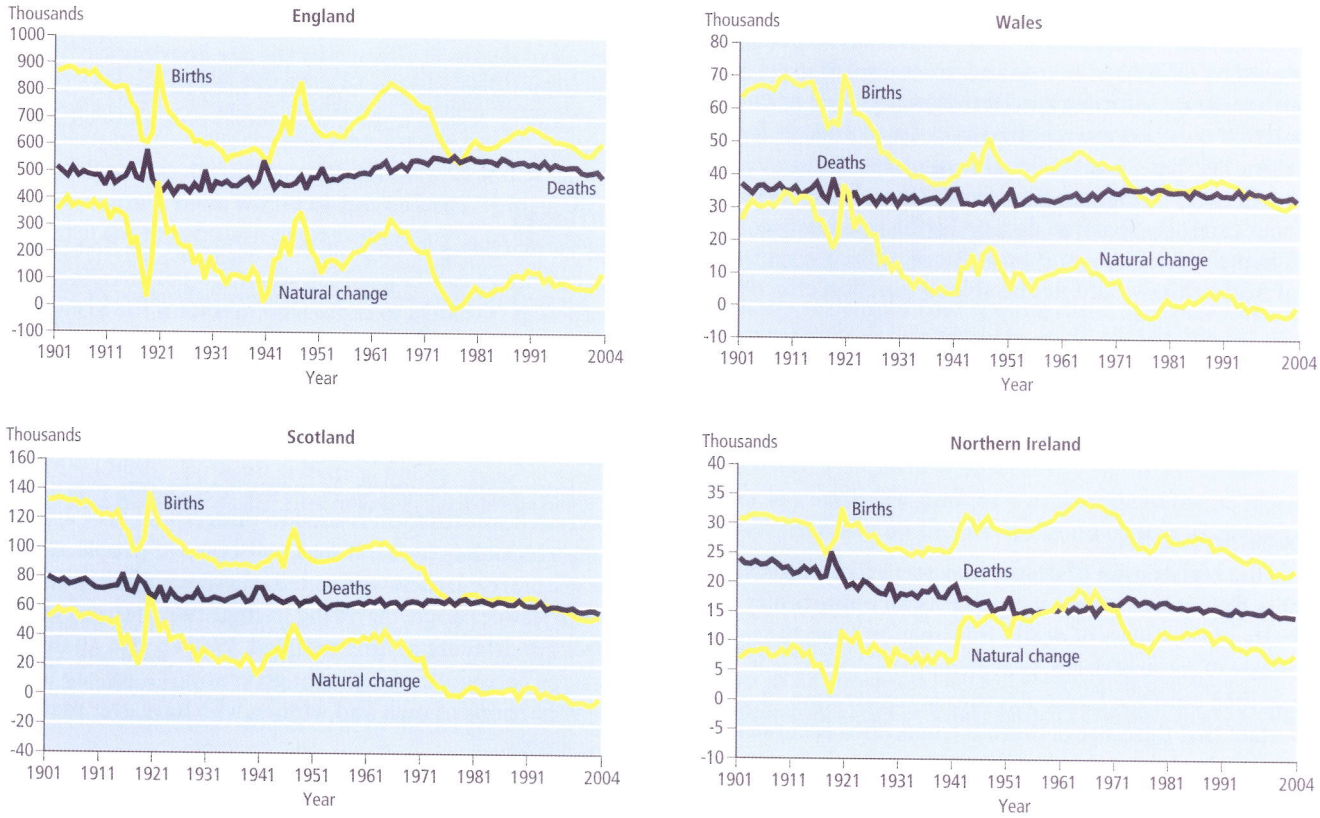
One way to measure the population is to carry out a census. Unfortunately, (or fortunately if you work in Census), it is not possible to carry out a census every time we want to

Figure 1: **How information gets to the users**



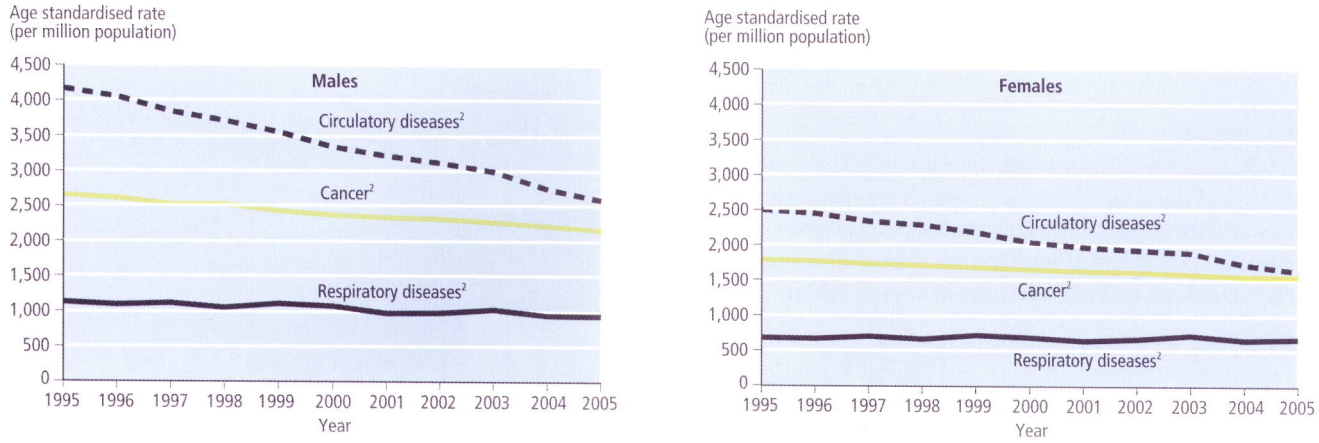
Standard reports are published on the ONS website and in the journals *Health Statistics Quarterly* and *Population Trends*. User queries include Parliamentary Questions and research requests.

Figure 2: **Births, deaths and natural change 1901 to 2004**



Source: Office for National Statistics; General Register Office for Scotland; Northern Ireland Statistics and Research Agency

Figure 3: **Age standardised death rates**[1]



1. *These rates are standardised to the European Standard Population, expressed per million population; they allow comparisons between populations with different age structures, including between males and females and over time.*
2. *These categories correspond to the three chapters of ICD-10 with the largest number of deaths in England and Wales.*

Note: The Tenth Revision of the International Classication of Diseases and Related Health Problems (ICD-10) came into operation in 2001. Comparability ratios have been applied to data for 1994 to 2000.

know the population. In between census years, we use the changes in flows of people for our calculation. Births and deaths are two of the four elements crucial in making regular estimates of the population by age and sex (the other two are a population base, provided by the census, and information on migration).

Measuring the population provides a good example of how registration data is put to use. The population statistics produced by ONS have a large and diverse set of users, who require accurate information for their needs. For example, population numbers are required in order to allocate funds to Local Authorities. In turn, Local Authorities require robust figures in order to manage their funds (for schools and so on). Without carefully prepared data on births and deaths allowing ONS to make estimates and projections of their populations, Local Authorities would not be able to function effectively.

Figure 2 shows the numbers of births and deaths between 1901 and 2004 (it is reproduced from *Focus on People and Migration*, Figure 5.1). Thanks to our predecessors, we have a great deal of historical information, which allows us to see how trends have changed over time.

Improving health

While the registration of deaths may seem like a morbid activity to some, to others it represents an opportunity to understand the causes of death. Information from the medical certificate of cause of death, provided by the doctor, is transcribed onto the Death Register at registration. It is very important that the cause of death is transcribed accurately otherwise the death could be allocated to the wrong cause. For example, an infection is quite different from an infarction, (which is apparently another name for a blocked artery).

Figure 3 shows the age standardised rates for cause of death, (reproduced from *Health Statistics Quarterly 30*, p.47, Figure 2). These rates are the number of people (per million) who have died, and they have been standardised for age. This means that the figures have been adjusted to consider the number of people in each age group. Adjustments like this provide a way of understanding the data. For example, standardising by age makes the results comparable across time as the number of deaths is affected by the age distribution of the population. Information like this is used by health practitioners, health researchers, social policy makers, and many others.

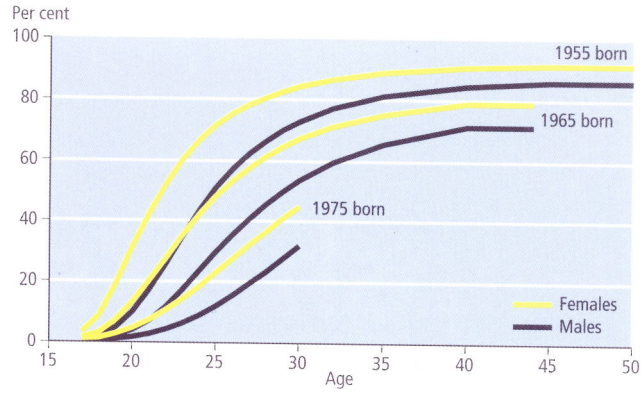
Marriages

Data for marriages go back to 1837, although the first year we have calendar year data is 1838 when 118,067 marriages were recorded. It is thanks to those who maintain the historical records that we are able to further analyse historical data of this kind, and even now historical data is being added to our electronic records.

Some of this information, such as age or occupation, may not seem important. However, as mentioned before, every piece of recorded information is used to understand how and why changes in society occur. If we know how old people are when they get married, then we can tell whether a fall in marriages is due to fewer people marrying in their twenties and whether people are delaying getting married. We can also analyse the marriage behaviour of different generations – we can look at the proportions of men and women who have ever married, for example.

Figure 4 shows the proportion of adults who have ever married for three generations. These represent people born in 1955,

Figure 4: **Proportion of men and women born in 1955, 1965 and 1975 who have ever married**



Source: Chart uses data from Table 3.36 in the Annual Reference Volume For Marriage, Divorce and Adoption Statistics (FM2)

1965 and 1975. It is common to look at changes in the number of marriages for all ages, but here we can see the changes in marriage behaviour for people born in different years. In this case, the number of people ever marrying appears to decrease for people born in more recent generations. Interestingly, the 1955 curve reaches its peak at younger ages than the 1965 curve suggesting that there is also a tendency for younger generations to delay marriage compared with those born in 1955.

The future

Over the years, each person involved in the registration of vital events has acted as a custodian of history. From this we can understand the present and plan for the future. Quite clearly, if there was nobody to collect, interpret and process the information then there would be no statistics. Information collected at the registration of an event helps us to understand more about society, which in turn allows all the users of ONS data to make decisions based on the analysis that we carry out.

As society changes new statistics are needed. In 2005 civil partnerships were introduced, presenting a new vital event for registration. The first National Statistics were released last December (2006). Without statistics, policy-makers would have no idea how successful this new legislation has been.

There are continuing challenges to change and improve the quality and timeliness of the data we currently collect.

There are other obstacles, both now and in the future. For example, the Population Statistics Act only allows the collection of information on previous births from married women. Given that over 40 per cent of births are now outside marriage, we are no longer collecting information that represents all mothers. Unfortunately, changing this legislative framework is hard to achieve.

Users

There are countless 'users' of statistical information provided by the ONS. Some examples include:

Internal users Population Estimates (national by age, sex and marital status, sub national by age and sex), Population Projections, Fertility Analysis, Family Demography, Social & Health Analysis & Reporting Division – SHARD, Mortality Team, Child Health Team, Regional and Social Trends

Direct users International bodies, Parliament, Other Government Departments (including major policy departments like Health, Work and Pensions and HM Treasury), Local Authorities, Primary Care Organisations, private individuals, universities, charities, the private sector, and bespoke data requests from a wide range of organisations and individuals (including baby product manufacturers, wedding planners, bridal shops, and funeral directors!)

Indirect users Anyone who is informed by the two previous user categories. In particular the media (who may also be direct users), and the general public.

Looking to the future, independence will change the relationships between ONS, GRO and Registrars. Much work has been done to ensure the new legislation continues to allow for production of statistics from registration data, and hopefully the transition will be a smooth one. We hope we can continue to improve our information quality. More complete and accurate information will result in more reliable analysis, and consequently a more robust understanding of what is happening in England and Wales.

Personally, we would find it quite difficult to see how the world could function without registration statistics. The same could be said of the thousands of others (believe me, there are thousands!) who are users of civil registration information. Hopefully, we have provided a sample of why registration is important, not only for administration, but also for key statistics, and for a multitude of users. If you have any feedback on the article, good or bad, then please let me know.

Acknowledgements

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