



The Scottish
Government

A Scottish Longitudinal Study of
Ageing: Scoping Study



A SCOTTISH LONGITUDINAL STUDY OF AGEING: SCOPING STUDY

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EXECUTIVE SUMMARY

Introduction

1. This report is based on the findings from a scoping study for a Scottish Longitudinal Study of Ageing. The study was jointly commissioned by the Scottish Government and NHS Health Scotland and conducted by the Scottish Centre for Social Research, in collaboration with Professor Paul Boyle of the Longitudinal Studies Centre – Scotland (LSCS) at the University of St Andrews.
2. The main aim of the study was to consider the case for establishing a Scottish Longitudinal Study of Ageing and to propose the most appropriate means of meeting any such need. A variety of methods were used in this scoping study, including desk research, interviews with potential stakeholders and consultative seminars.

Does Scotland need a longitudinal study of ageing?

3. Consultation with a range of stakeholders found widespread recognition that data on ageing is an issue of growing importance and a clear interest from both the policy and academic communities in the richer source of data that could be provided by a longitudinal study in this area.
4. It was acknowledged that a number of issues relating to the changing experiences, characteristics and circumstances of the older population in Scotland are not adequately addressed by existing data sources. It was also agreed that the unique nature of Scotland's demographic and policy situation lent itself to the development of a Scotland-specific study, rather than relying solely on findings from ageing studies conducted in other countries.
5. The following paragraphs summarise the key areas where it was felt that longitudinal data on ageing would add value, both in terms of furthering academic study and knowledge about ageing, and also in helping to ensure that policy-making can adapt to the various challenges and opportunities presented by an ageing population.

Employment issues for older people

6. Longitudinal data on ageing could provide more detailed information about labour market transitions and outcomes for older people in Scotland, how these link with data from other domains such as health, disability and pensions, and a better understanding of what is driving key decisions among this age group. The potential value of data on changing attitudes and expectations in relation to working longer in Scotland, and in relation to whether people will want to stay in Scotland as they grow older, was also highlighted.

Care services for older people

7. There was agreement on the increasing need for data on older people to inform the planning and management of care services. The limitations of administrative data were acknowledged, especially in providing information on individual experiences. Data on individual experiences of care, perceptions of the future, and how these change over time would be useful in helping to inform new models of care. Data on changing care needs and experiences of those not in the care system could also be addressed through a longitudinal study of ageing. Related to this, data on changing household structure and arrangements would help in understanding caring roles and how these are changing for the older population.

Health data

8. It was acknowledged that good quality health data already exist and that the added value of a longitudinal study of ageing would need to be demonstrated. Health inequalities among older age groups and the health and health behaviours of people in care homes were areas where data was felt to be limited (although it was queried whether a longitudinal study would be the most effective way of meeting the latter data need). Some existing national level longitudinal data sources were cited as providing a rich source of data on health and other domains, although relatively small sample sizes will limit the extent of future longitudinal analysis of older respondents. The key issue appears to be not the availability of health data *per se*, but the possibility of combining this with data on other life domains such as economics and social participation.

Social inclusion and equalities

9. It was felt that longitudinal data on ageing would allow further exploration of a number of key areas including the drivers of poverty and inequality in old age; the impact of the changing economic climate; social participation; the movement of older people between more and less deprived settings; experiences of ageism and discrimination; travel and transport use; and formal and informal learning.

Possible models of data collection

10. The potential of existing longitudinal studies of ageing in providing a model for a Scottish study was examined. The design and topic coverage of three existing studies are discussed: the English Longitudinal Study of Ageing (ELSA); the Survey of Health and Retirement in Europe (SHARE); and the Irish Longitudinal Study of Ageing (TILDA).
11. The relative strengths and weaknesses of these existing studies are discussed. In summary, studies like ELSA and TILDA benefit from being country-specific, including detailed questions relevant to processes and policies in these

countries. However, the additional time needed to develop these studies, not to mention their relatively larger sample sizes, makes them more expensive. Whilst participation in SHARE costs less for each country and offers a vehicle for cross-country comparison, it collects less detail, and for a much smaller sample size. The depth of analysis available will therefore be limited. Given these limitations, a 'hybrid' approach is recommended, to allow for use of elements from both types of model.

Design recommendations

12. The possible options for the design of a Scottish longitudinal survey of ageing are discussed. We have concluded that it should have the following broad parameters:

- It should be relatively ambitious in terms of initial sample size, to allow detailed sub-group analyses and to take account of the effects of attrition over time. We have proposed a minimum sample of 8,000 achieved interviews at wave one, but would support a larger initial sample if funding allows.
- Commitment should be sought for funding for at least ten years, or four waves of data collection, to ensure that the long-term value of the resource is realised and to encourage longer-term conceptual development.
- A requirement for physical and biological measures beyond those capable of collection by a survey interviewer – i.e. for a nurse visit in addition to the main interview. Consents would be sought for relatively wide-ranging data linkage of the kind that currently forms part of ELSA.
- The target population should at least match that of most of the other longitudinal studies of ageing (in beginning at 50) and should, if possible, be extended further downwards (to 45).
- Because of the difficulties associated with identifying sample by following-up an existing survey (in particular, the problem of inherited non-response), we would favour a sampling frame based either on an individual level database such as the Community Health Index (a listing of everyone who has been or is registered with a Scottish General Practice) or on use of screening to identify households containing eligible individuals.
- Consideration is given to the feasibility of improving the representation of older people from specific sub-groups of the population: minority ethnic population; care homes or institutional settings; those living in areas of greater deprivation; and those living in remote and rural areas.
- Boosting the numbers of older people from minority ethnic backgrounds has not been explored in detail for this study, given the complexity and considerable cost.

- Including older people from care homes also brings considerable methodological challenges, not least the difficulties of following up this population over time. However, respondents could be followed as they move into the care home setting, so that transitions into care can be captured. Despite these problems, a sample of care home residents would give the study a unique feature which would likely be of interest to audiences both within Scotland and beyond, and the feasibility of including a sample of care home residents from the outset merits further investigation.
- The numbers of people living in areas of greater deprivation could be increased by boosting the sample from the most deprived 15% of Data Zones throughout Scotland.
- To significantly increase the number of interviews in the most 'remote rural' category of the Scottish Government Sixfold Urban-Rural Classification is likely to prove prohibitively expensive. However, it might be worth pursuing this in relation to specific case study areas.
- Face-to-face, in-home, Computer Assisted Personal Interviewing is recommended as this mode of data collection is associated with higher response rates, facilitates interviewing on sensitive topics and allows a longer interview. An in-home, nurse follow-up interview to collect physical/biological measures is also favoured. There may be possibilities for using other data collection approaches (such as telephone, postal or web-based questionnaires) as part of additional sub-group studies or between-wave data collection.

Possible models of funding and delivery

13. A study in Scotland might require the following levels of resourcing (depending on its scale and complexity of design):
 - Less complex design, involving an achieved sample of 10,000 at Wave 1, interviewer-only data collection, basic analysis and reporting – estimated cost £1-2m per wave or £5.5-7.5m for four waves over ten years (at current prices).
 - More complex design, involving achieved sample of 10,000 at Wave 1, interviewer plus nurse data collection, more sophisticated analyses (including bloods, etc.) and reporting – estimated cost £2-3m per wave or £8-12m for four waves over ten years.
14. Given the likely scale of a study in Scotland – and the range of interests it is likely to serve – a form of collaborative funding is recommended, with one approach being to seek matched funding from the Scottish Government for resources secured elsewhere. Other potential sources of funding include: Economic and Social Research Council; Medical Research Council; Wellcome Trust; US National Institute on Aging; European Commission; other

government departments (such as the DWP) which have a UK-wide remit; private/corporate sector (e.g. the large Scottish banks or insurance companies); and philanthropic or educational trusts (e.g. Carnegie, Atlantic Philanthropies).

15. The issues around collaborative funding are discussed, including how best to manage the interests of the various contributors, alongside the interests and priorities of the research team itself. Also, the need for long-term planning and development in order to secure resources, identify and co-ordinate expertise across different domains, and develop appropriate institutional links and governance arrangements. A three to five-year timescale is suggested for developing initial proposals, securing funding, developing methods and instruments, piloting and carrying out and analysing the first wave of data collection. Thereafter, a commitment to at least three further rounds of data collection over a period of roughly ten years is favoured.

Conclusion

16. The report concludes that there is wide support for the idea of a longitudinal study of ageing in Scotland among researchers and academics. While there was enthusiasm within the policy community, there was recognition that the issue of ageing is a cross-cutting theme which is unlikely to be identified as a top priority in any single policy area. Demographic change was nevertheless regarded as a key emerging issue, and information gaps in several key areas were highlighted – notably around labour market and pensions issues, care services for older people and social inclusion and equalities. While some gaps identified were often short-term and cross-sectional in nature, there was also recognition of the need to better understand the processes which shape individuals' pathways through their later years.
17. In the coming years, Scotland will face increasing demands for information relating to older people and the process and experience of ageing. Such demands for evidence will not be easily met from existing longitudinal or cross-sectional sources.
18. If such a study is to be successfully launched in Scotland, it will have to provide detailed information both about Scottish issues and the Scottish population as well as providing comparative data that extends beyond that offered by a simple extension to ELSA. A hybrid approach is therefore suggested, balancing the demands for comparability with the need for Scotland-specific data and analysis. A study should both be tailored to the needs of the local academic and policy communities, but also look to implement innovative ideas that may contribute to wider debates about the process and experience of ageing in the UK and beyond.
19. The level of funding required would be significant and is likely to benefit from a collaborative arrangement in which neither academic nor policy interests dominate. A meeting of potential funders is recommended to present detailed proposals and gauge interest.

1 INTRODUCTION

Background

- 1.1 In Scotland, as in other Western societies, there is an increasing awareness of the implications of demographic change; but Scotland is increasingly unusual in not having a longitudinal survey focused on the circumstances, characteristics and experiences of its older population. Building on a variety of informal discussions over the past few years instigated by Prof. Boyle (University of St Andrews) and Prof. Bell (University of Stirling) in October 2007, the Scottish Centre for Social Research (ScotCen) convened a small seminar – attended by academic researchers, research managers and policy makers from a range of organisations – to discuss the case for a Scottish Longitudinal Study of Ageing (SaLSA) and consider ways of moving the idea forward.
- 1.2 While there was some enthusiasm at the seminar for the idea of moving straight to a fully worked-up bid for funding, the consensus was that a preliminary scoping study would help to demonstrate whether there actually is a data gap in this area, whether it has specifically Scottish dimensions and how it might be addressed. It was also felt that a scoping study could serve to raise awareness about the possibility of such a longitudinal study among academics and potential funders and users of the data. This report summarises the findings of this scoping study, which was jointly funded by the Scottish Government and NHS Health Scotland and conducted by the Scottish Centre for Social Research in collaboration with Professor Paul Boyle of the Longitudinal Studies Centre – Scotland (LSCS) at the University of St Andrews.

The scoping study

- 1.3 The scoping study employed a variety of approaches to review existing work, canvass the views of experts and potential users and arrive at recommendations about a potential design.
- 1.4 **Desk research** was used to gather information about demographic trends in Scotland, and key research questions identified in policy debates, the academic literature and longitudinal studies of ageing in other countries. It was also used to identify existing data sources that might be used to address current gaps in knowledge – e.g. cross-sectional Scottish data and longitudinal data from elsewhere. Various models of data collection that have been used in other studies were explored and consideration given to the options that might be available in Scotland, both to replicate existing studies conducted in different countries and to explore innovative uses/extensions of ongoing or planned studies.
- 1.5 Interviews were conducted with a range of **potential stakeholders** within policy, practice and academia. The final list of interviewees was confirmed in discussion with the funders of the scoping study, and covered representatives from the following areas:

- Academia
- NHS Health Scotland
- ISD Scotland
- Scottish Government Analytical Services
- Scottish Government policy stakeholders across a range of areas
- The voluntary sector

1.6 Informal **interviews** were also conducted with **academic researchers** associated with the main existing longitudinal studies of ageing in the UK (ELSA and SHARE) and, for a broader international perspective, with representatives of the National Institute on Aging in the United States. These were aimed at ensuring a comprehensive view of current developments on other studies and assessing the potential advantages and disadvantages of the various models of data collection.

1.7 Two half-day **consultative seminars** were convened. The first was held in April 2008 at the University of St Andrews, and was aimed primarily at academics. The aim of this first meeting was to canvass ideas about the scientific case, suitable hypotheses and the potential scope and coverage of such a survey.

1.8 The second was held in June at the Scottish Government in Edinburgh. This seminar was held towards the end of the scoping study so that responses to specific recommendations for the design and implementation of the study could be generated. Both academics and Scottish Government analysts were invited to attend this seminar.

1.9 In summary, the main aim of the study was to consider the case for establishing a Scottish Longitudinal Study of Ageing and to propose the most appropriate means of meeting any such need. The specific aims of the study were to:

- Engage with potential stakeholders to identify pressing data needs and questions relating to Scotland's older population
- Consider the extent to which those needs could be addressed from existing cross-sectional Scottish data sources or from longitudinal studies of older people elsewhere
- Review the possible models for a longitudinal study of ageing in Scotland, with particular reference to the implications for comparative analyses
- Make recommendations for detailed survey design
- Provide indicative costs and timescales associated with the various possible models for such a study

Format of the report

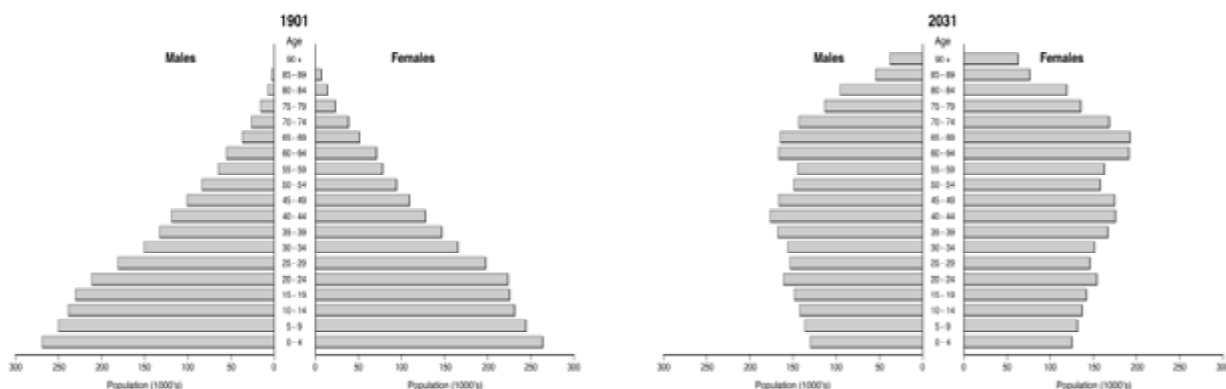
1.10 The report has the following broad outline. In the remainder of this introductory section, we review some of the key issues around ageing in Scotland and highlight distinctive features of the local policy context.

1.11 Section 2 summarises the views of key stakeholders about the potential need for a Scottish Longitudinal study of Ageing. In Section 3, we review the form that similar studies have taken elsewhere in the UK and Europe and consider the extent to which these might provide a useful blueprint for any such study in Scotland. Section 4 looks in detail at issues relating to the potential design and implementation of such a study in Scotland. Section 5 covers possible models of funding and delivery and Section 6 concludes by summarising the main points emerging from the study and outlining possible next steps.

Context: ageing in Scotland

1.12 Population ageing is of growing concern in all developed countries, as the challenges of coping with a population which lives between 10 and 30 years beyond retirement are becoming more common for families, communities and the government. In the UK, people aged 60 and above now outnumber those aged less than 16 and this change has been more extreme in Scotland than in the rest of the UK. The population projections estimated for Scotland paint a stark picture of a population where by 2031 the proportion of people aged 75 and over is projected to increase by 81% and the over-65s will constitute 24% of the Scottish population. Figure 1 demonstrates how the Scottish population distribution will have changed between 1901 and 2031.

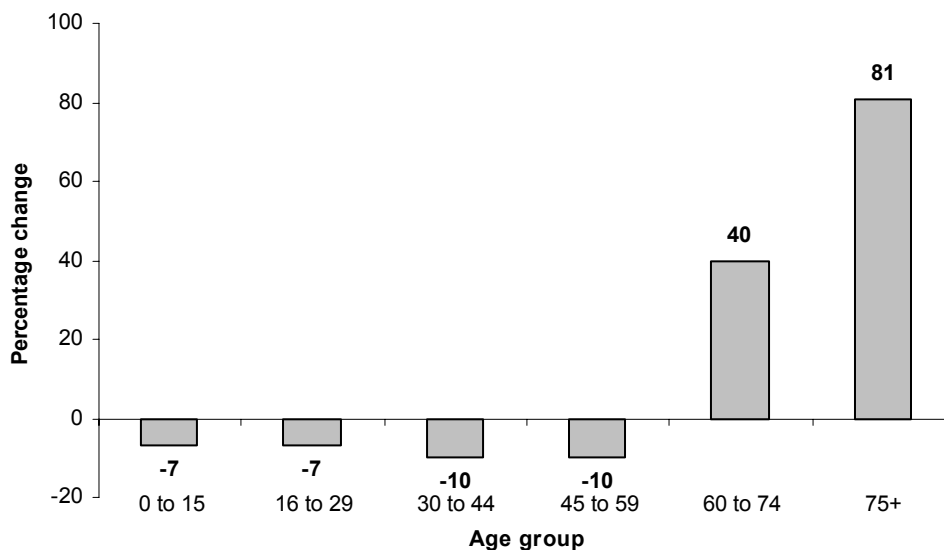
Figure 1 Population age pyramids Scotland, 1901 and 2031



Source: GROS 1901 Census and 2006-based projections

1.13 Figure 2 shows the predicted percentage change in population age groups between 2006 and 2031. This demonstrates that the only groups where there will be a percentage increase are those aged 60 and above, with the most dramatic increase being recorded for those aged 75 and above (81%).

Figure 2 Percentage change in age structure of the Scottish population, 2006-2031



Source: GROS 2006-based population projections

1.14 The implications of this changing population distribution are significant, with much attention focusing on elderly dependency ratios (the ratio of the economically dependent population aged 65+ to the economically productive population aged 15-64) which are expected to rise dramatically over the next 40 years. As a result population ageing has been described as the most serious demographic issue currently facing Scotland, particularly as a sizeable minority of this older population will require special care as life expectancies increase and the group of frail older people grows.

1.15 Demographic ageing is a particular concern in Scotland compared to the rest of the UK because the demographic processes which underpin such ageing are different in the Scottish context. Population ageing can be exacerbated by immigration rates (which are lower in Scotland compared with England) and fertility rates (which are lower in Scotland compared with elsewhere in the UK - 1.73 children per woman in 2007 compared with 1.92 in England, 1.9 in Wales and 2.0 in N.Ireland¹). Although the latest figures for Scotland show that there has been an increase in the population as a result of an increased number of births and a higher number of migrants coming into the country, it is too early to say whether this trend will continue. Whilst this population increase will have the effect of delaying the impact of the ageing population on the labour market to a certain extent, it will not change the anticipated disproportionate growth in the proportion of the very oldest age groups. England gains slightly more births and considerably more young adult immigrants than Scotland which reduces the concerns about demographic ageing somewhat, and there is little evidence

¹ Source: National Statistics Online: www.statistics.gov.uk

that Scotland is likely to attract considerably more young adult immigrants in the next few decades. It is therefore no surprise that the Scottish Government launched a public consultation on the ageing population in 2006 (*Age and Experience: Consultation on the Strategy for a Scotland with an Ageing Population*).

- 1.16 It is also important to realise that population ageing is not happening consistently across Scotland. In particular, there is expected to be a substantial proportionate growth of older people in rural (and especially remote rural) areas where the out-migration of young adults exacerbates the ageing distribution; by 2031, at least half of the populations of Eilean Siar (Western Isles), Orkney, Shetland, Dumfries and Galloway and the Highlands will be aged 50 or over.(GROS 2006 based population projections)
- 1.17 Scotland's demographic situation is therefore noticeably different from the rest of the UK, particularly in relation to the ageing of its society, and this has various implications for policy makers. However, Scotland is also different to the rest of the UK across a range of other socio-economic measures. Briefly, more elderly people in Scotland live in deprived areas and more live in remote rural areas where access to services may be limited; fewer Scots have significant savings set aside to cope with costs in old age; a higher proportion of households in Scotland are renting from the social housing sector (this is 27% of households in Scotland compared with 19% in England; 18% in Wales and 21% in Northern Ireland, based on the 2001 Census) so fewer individuals will be able cash in a house to support care in older age; for those that do own, house prices are lower than elsewhere so they will gain less profit when the house is sold; the health of the Scottish population compares poorly with people living elsewhere in the UK; and there is an impression that care will be free in older age, so many may not see the need to save for later life.²
- 1.18 These combined differences point to the unique ageing setting in Scotland which deserves further academic and policy attention. In the next section we elaborate on some of the most important ageing issues that arose out of this consultation.

² See report commissioned by Joseph Rowntree Foundation on Free Personal Care in Scotland at: <http://www.jrf.org.uk/knowledge/findings/socialcare/2101.asp>

2 DOES SCOTLAND NEED A LONGITUDINAL STUDY OF AGEING?

- 2.1 An important aim of this scoping work was to identify the key issues in relation to ageing in Scotland, discuss the ability of existing data sources to meet information needs and identify where there are gaps in knowledge - in short, to consider whether Scotland actually needs a longitudinal study of ageing. The views of a range of policy makers and academics were sought and this section draws together feedback from the interviews conducted with potential stakeholders as well as the discussions generated during the two seminars. The issues highlighted here are those identified by participants as especially important and are presented in terms of the following general themes: the economy and labour market, health and health care, community care and social justice. However, many of the issues raised in the discussion overlap across these broad themes. Also, some of the issues are of general interest and have yet to attract enough attention in any study, in other cases they are specific to the Scottish context.

Economic issues

- 2.2 One of the goals of the Scottish Government Economic Strategy is to work towards achieving sustainable economic growth for Scotland. The performance of the labour market is a key aspect of this and it is within this context that issues surrounding demographic change and an ageing population were generally discussed. Policy in this area is focused on increasing the size of the workforce, increasing productivity and increasing Scotland's population and therefore its supply of workers.
- 2.3 It was highlighted that discussion around labour market participation to date has tended to focus on people of working age (rather than on encouraging older people to extend their working lives), as it is this group on which the official employment rates are based. Moreover, it was pointed out that policies to improve employment rates among these groups are likely to have a greater long-term impact. Priority has also tended to be given to the role of in-migration in increasing the workforce, as the policy effects of this are more immediate and include a positive impact on targets for population growth.
- 2.4 However, in the context of a shifting demographic profile and recent changes in employment legislation on retirement, there is increasing interest in encouraging more active involvement of older people in the labour market. In terms of data on ageing, the key interest was felt to be in the experiences and outcomes for older workers in the labour market. These might include health and more general quality of life measures.
- 2.5 The key source of data on the labour market is the **Labour Force Survey (LFS)**, which provides the official government figures for employment and unemployment. Experiences and outcomes for older people are covered in the LFS to some extent in that a full set of questions is asked of all those in

employment, regardless of age. For those not in work, there are plans to raise the upper age limit for questions to 69. Additionally, the LFS includes a longitudinal component covering experiences of individuals over a 12 month period. However, this limited time frame does not allow longer term experiences to be explored and, in particular, would fail to capture experiences for a long enough period before and after retirement.

- 2.6 The **Work and Pensions Longitudinal Survey (WPLS)** was highlighted as a potentially rich source of data on how people move through the labour market. This administrative database links Department of Work and Pensions (DWP) benefit and programme information with records from HMRC. However, there are issues around access to this data source, and discussions between Scottish Government and DWP on access are currently ongoing. Furthermore, while administrative data can certainly provide detailed information about employment spells and income, it cannot provide the kind of explanatory or behavioural information necessary to interpret patterns.
- 2.7 In relation to whether there are gaps in the evidence base, it was generally felt that that existing data sources adequately cover many data needs. However, it is in understanding 'causality' issues where the real gaps were felt to be. Key questions of interest include: what drives people to take key decisions; what are the reasons people leave work; and how do outcomes for older workers change as the average age of the working population increases? Such outcomes include: what happens after retirement, what kind of jobs people move into, whether there is any change in the quality of employment or in the number of hours worked, and how all these relate back to previous experiences and forwards to future outcomes.
- 2.8 Two recent publications based on longitudinal data for England have looked at outcomes for older workers. Firstly the DWP report on 'Lifecycle Events and Later Life Employment'³, based on data from the British Household Panel Study (BHPS), Workplace Employment Relation Survey and the Longitudinal Study, explores employment outcomes for 50 to 70 year olds and the reasons for a decline in employment in this group. A range of early life-course events and later mediating factors (different for men and women) were found to be related to employment outcomes for those aged 50 and over. Whilst the BHPS collected a wide range of data it was acknowledged that limited information had been collected on pensions saving and entitlement.
- 2.9 The second report is based on data collected by the English Longitudinal Study of Ageing (ELSA), which does include detailed information about pensions, some of which has been used by the Pensions Commission to inform policy. Three waves of longitudinal data on people aged 50 and over have now been collected by the study, and reported on in its Wave 3 report, which included a chapter on 'Extending working lives'⁴. The longitudinal nature of the data has meant that trajectories over time and movements in and out of employment can be explored. Because the study also collects detailed information on health and disability, these factors can be looked at in relation to work, and can help to

³ See report at: <http://www.dwp.gov.uk/asd/asd5/rports2007-2008/rrep502.pdf>

⁴ See report at: http://www.ifs.org.uk/elsa/report_wave3.php

inform policies on extending working lives. The results showed that work disability is often not a permanent condition, and that the consequences are not always the same in terms of whether individuals do any paid work. For example, just over a quarter of those reporting a work disability in 2004 reported no work disability two years later. In addition, certain groups were more likely than others to 'recover' from work disability – those who are working, those with no major health conditions, and those at the top of the wealth distribution. A better understanding of the dynamics of employment and outcomes for older people is expected as future waves of data become available, and future analyses may include following younger cohorts, split by their prior expectations of future work and knowledge of state pension plans, and comparing them with older cohorts.

- 2.10 It might be expected that some of the longitudinal findings from these studies based on English data could be generalised to Scotland. However, as highlighted during the June seminar, the unique nature of Scotland's ageing population would not be taken into account. For example, given the relatively poorer health record in Scotland, we might expect that employment trajectories and outcomes for older people in Scotland will be different to those in England.
- 2.11 It was also pointed out during the consultations that there is limited Scottish data available on attitudes and expectations in relation to working longer, to retirement and pensions, to downsizing jobs, and to re-training and how skills and experiences are being used. Knowing whether expectations for the future are changing and whether they are any different in Scotland compared to elsewhere in the UK were also mentioned as areas of interest. On the migration side, key questions would be about whether or not both Scots and other potential immigrant groups will want to stay in Scotland as they grow older or move elsewhere in the UK, and the reasoning behind this, and how migration impacts on other groups of workers, for example older workers.
- 2.12 Public sector reform was also discussed under the general theme of economic impact. The key questions here relate to how the changing demography will impact on services and design of services. It was felt that more information is needed on the specific problems experienced by older people, for example, around development and utilisation of skills and disadvantages in terms of access to IT and other technologies. There is interest in knowing about changing perceptions, expectations and demands of and for services in the future.

Health and health care

- 2.13 The changing demographic situation poses key challenges in relation to both health and health care in Scotland. The country's relatively poor health record has been well documented, especially with regard to chronic diseases such as cardiovascular disease. Within Scotland, there are distinct regional differences in terms of poor health, with different rates depending on deprivation, remoteness and the urban/rural setting. The impact of these in combination with the projected increase in the proportion of older people is of obvious

concern in relation to provision of health and care services, particularly in relation to the growing costs of such care.

- 2.14 It was acknowledged that work in relation to health improvement has generally focused on improving the health of the younger and 'middle' age groups. An example which was mentioned is the Keep Well⁵ programme, which is managed by Health Scotland. The programme aims to assist in reducing health inequalities, by focusing on strengthening primary care services in the most deprived areas in Scotland. The target population is 45-64 year olds at risk of serious ill-health, and it is this group which will be offered health checks, screening and advice. These health checks act as a starting point for people of this age group to work towards ensuring their health does not deteriorate further as they move into old age. However, it was acknowledged during interviews for this project that the focus on this age limit may change, as evidence emerges on how the health of older people can be improved.
- 2.15 Living longer, healthier lives is one of the fifteen performance outcomes which form part of the Scottish Government's Strategic Plan. Whilst there is evidence to suggest people are living longer, there are questions around whether people are also living healthier. It was pointed out that healthy life expectancy calculations can be made using cross-sectional data, but that robust longitudinal data could help refine these, as well as adding to understanding of what led up to a longer healthier life. Cross-sectional data fail to take account of prior circumstances, which may explain a considerable amount of the variation in older people's health.
- 2.16 It was highlighted that good quality research and administrative health data already exists in Scotland, and opportunities for data linkage have been well used, for example, to link interview data to medical records going back a number of years. Some key longitudinal and cross sectional data sources are discussed in the following paragraphs.
- 2.17 The **Birth Cohort Studies** (the **1946 National Survey of Health and Development**, the **1958 National Child Development Study** and the **1970 Birth Cohort Study**) have provided valuable data on health and health behaviours over the life-course, and have informed the development of policies not only in health but also employment, education and housing. The initial samples for the two later studies in Scotland were around 1,000. For the 1958 study, it is worth mentioning that the panel are now reaching their 50th year, which is the usual starting age for inclusion in existing studies of ageing. Both cohort studies will continue, with plans for further follow ups at four-year intervals. Whilst both offer rich longitudinal data on what led up to age 50, the ability to explore later life experiences from age 50 onwards in a sample of this size (approximately now at 800 for the 1958 study) will be rather more limited as time goes on. The 1946 birth cohort study (NSHD), which is directed from University College London, has particular strengths in terms of tracking health changes over time, since this is its particular focus. Furthermore, the study participants have now reached beyond 60 making them a very interesting

⁵ More information can be found on the Health Scotland website at: <http://www.healthscotland.com/Prevention-2010.aspx>

group to observe as they age. However the NSHD is based on a much smaller sample size (approximately 3000 of the UK sample now remain in the study) and it collects much less detail about other dimensions of life such as economic and social participation. Furthermore, the relatively infrequent observations mean that it cannot track more rapid changes.

- 2.18 Other longitudinal studies with a focus on health have been carried out in specific areas of Scotland. For example the **MIDSPAN Renfrew/Paisley Study**, conducted in the mid 1970s, was useful in highlighting the impact of smoking on early mortality. A sample of around 15,000 people aged 45 to 64 living in the Renfrew/Paisley area of the West of Scotland was initially interviewed, with a follow up visit being conducted in the late 1970s. In addition, data collected during the interviews was linked with health record data. Another area based survey is the **West of Scotland Twenty-07 Study** which consisted of three age cohorts when it started in 1987 (age 15, 35 and 55). The study has now accumulated 20 years worth of data from its sample members. However, as with MIDSPAN, it will be difficult to generalise the findings to the whole of the country.
- 2.19 The Scottish Longitudinal Study (SLS) is a large-scale linkage study, which is created by linking data from the Census with data provided by various administrative and statistical sources including health records. The 1991 Census was used to identify approximately 274,000 SLS members and information for these individuals has been linked from other datasets, including the 2001 Census, vital events and health information. The SLS has been widely used to study variations in health over time, and has the benefits of a large sample size, low attrition (since the data collected is either required by law or is part of standard administrative data), and high linkage rates for events. However, its reliance on entirely routine data linkage, rather than user-specified surveys, limits the depth of data available – it contains no data at all, for example, on attitudes or expectations.
- 2.20 Scotland-wide data on the health and health behaviours of the older population are also available from cross sectional surveys such as the **Scottish Health Survey (SHeS)** and the **Scottish Household Survey (SHS)**. Whilst these are useful for measuring change at a population level (and do also contain some attitudinal measures), they cannot say anything about individual change and any possible explanations for this.
- 2.21 There were felt to be gaps in the evidence base in relation to health inequalities among the older age groups, and also the health and health behaviours of people living in institutional care settings. Mental health in older people was another area where there was felt to be limited data available. For example, the available data on dementia tends to be based mostly on hospital admissions, although some limited data is available from the community care side in the form of routine administrative data. This is collected through the '**Scottish Care Homes Census**' and the '**Home Care Statistical Return Form**' where care homes and local authorities are asked to indicate whether long-stay residents (in the case of care homes) and people receiving care at home have been diagnosed with dementia, and whether they have any other mental health problems. It was argued that one way of looking at health in care home

residents would be to access the administrative data from care homes in order to link this with records of health at the end of life, which could be achieved using the Community Health Index number. The specific data protection issues around this would need to be explored.

- 2.22 The advantage of having longitudinal data on individual-level change and experiences was acknowledged in helping to understand healthy ageing, morbidity and mortality, and in identifying the key factors that lead to a longer healthier life. In research terms, it was felt that the value of a longitudinal study would hinge upon a number of factors: whether it was able to collect a large amount of good quality data, both on health behaviour and biological processes of ageing; the need to include some data on people's experiences before they were fifty, given the importance of earlier life experiences in understanding later health outcomes; the need to focus on the more common health outcomes such as CVD, obesity, and diabetes (as these groups would allow larger sample sizes for analysis); and the need to exploit any potential for data linkage, not just to health sources but others including Revenue and Customs and social security data.
- 2.23 Given the 'Scottish Effect', where the health of the Scots appears worse even once socio-economic circumstances are accounted for, it would be valuable to be able to compare health outcomes and influencing factors with other countries, such as England and Ireland. From such comparisons, it may be possible to unpick some of the underlying causes of the Scottish Effect.
- 2.24 From a health perspective, it was felt that the key question would be whether, given the potential for analysis of existing data resources on health, a specific study of ageing would offer significant added value. Consideration would also need to be given to the scope for drawing conclusions for Scotland from the health findings from established ageing studies in other countries, such as the English Longitudinal Study of Ageing (ELSA). Along with pensions and material circumstances, care was felt to be the key issue around ageing, given the high cost of care services, and it was suggested that perhaps it will be these policy areas which will drive forward the need for a longitudinal study of ageing. However it should be remembered that one of the key benefits of a study such as ELSA is not that it collects more health data than any other, but that it collects this data alongside economic and social data that allows far greater explanation and understanding of health trends.

Community care

- 2.25 The issue of community care for older people was felt to be particularly relevant in the context of an 'ageing' population. As the proportion of older people increases, there is a need to consider both the impact on costs of care and to plan how care services should be organised to meet future needs.
- 2.26 There has been much debate within both Scottish and UK Governments on care for older people. Policy since the 1980s has been for 'care *at* home' as opposed to 'care home', and currently there is an increasing focus on

personalising care services to tailor them better to meet individual needs. However, care provision is also a policy area where Scotland and England have adopted certain different approaches, free personal and nursing care being the prime example where Scottish policy is different to the rest of the UK. Having equivalent data in both Scotland and England would allow us to explore these different approaches to care provision.

- 2.27 Reference was made during the consultation to the recently published Sutherland report Independent Review of Free Personal and Nursing Care in Scotland (April 2008) on costs of free personal care, and in particular the issues the report raised in relation to demographic change - the implications of the higher than originally projected growth in the proportion of the 'oldest old'; the need for a 'radical examination' of the impact of demographic growth on society; and the need to employ a more 'holistic' approach to planning in the future, taking account of a whole range of different services in addition to care. The report also emphasised that individuals will be expected to contribute to their accommodation and other care costs (on a means tested basis), alongside free personal and nursing care. This has important implications for planning services and raises the issue of public expectations – for example, are people expecting and planning to contribute towards the costs of their care?
- 2.28 The changing profile of care services and expectations of care were highlighted during the interviews, with the number of people who are able to self-fund their care expected to increase as a result of increased levels of home ownership and wealth. However, it was suggested that fewer people in Scotland, compared with England, may be planning to save for older life because of a perception that care will be free. Also, whilst increasing home ownership and house price inflation in recent decades may enable more people to contribute to the cost of their care, both are relatively lower for those living in Scotland.
- 2.29 A number of issues were raised in the consultation concerning the delivery of care. It was suggested that the level of care provided to individuals living in different local authorities was not consistent. In addition there is concern about the quality of care received in care homes, with some evidence to suggest that GP and dental registrations are especially poor for those living in care homes.
- 2.30 Data on the provision of care is currently obtained through administrative data on the number of care homes, number of residents within them and the number of people receiving a 'care at home' service. This is provided by the **Scottish Care Home Census** and **Home Care Statistical Return**. Whilst these data are crucial for planning purposes, it was acknowledged that they are unable to provide information on individual experiences of care or about perceptions of the future. There was felt to be little current data on individual needs and changing experiences of care as well as the quality of care received. Having data at the individual level was felt to be particularly important in informing new models of care, especially if there is a move towards 'personalisation' of services. It was noted that current data will only provide information on those who are receiving care, and that little is known about people not in the care system. For example, there is interest in knowing about the level of unmet need for care services among older people, and also in knowing how people who receive benefits such as Attendance Allowance and Disability Living Allowance

actually spend these, and whether they are used to buy any community care services.

- 2.31 During the seminar discussion it was also pointed out that collecting longitudinal data on changing household structure and arrangements will be key in understanding care issues and the dynamic nature of caring roles, as more older people may themselves be expected to take on roles as carers. Related to this, the need for more information about older people's social networks, including friends and family, and their proximity, was also highlighted.

Social justice

- 2.32 Social inclusion and equalities are the broad policy areas covered within social justice. The work of the Social Justice Analysis Unit within the Scottish Government spans poverty, equality, social inclusion and deprived areas and it has a cross-government role to support the mainstreaming of equalities. A key role is to ensure that indicators, outcomes and targets have an equalities awareness in relation to the six equality strands (age, gender, ethnicity, disability, religion, and sexual orientation).
- 2.33 The increasing need for public bodies to consider age issues was highlighted, especially in the light of new legislation at both UK and European level. Also mentioned was the current ONS-led review of data on equalities, which will have implications for Scotland. The review recommends improvements in data coordination, comparability and quality and, in relation to filling data gaps, emphasises the importance of cross-domain equalities analysis and the collection of longitudinal equality data. In addition, although mainstreaming equalities is co-ordinated at a UK level, it was highlighted during one of the interviews for this scoping study that the process of implementation and action will be carried out by organisations working within a devolved government setting, so it will be important to understand the experiences of individuals living within Scotland.
- 2.34 The need to consider the complex and inter-related needs of older people was highlighted, including issues relating to poverty and inequality, disability and age, uptake of benefits, housing (a higher proportion of the Scottish population lives in social housing), transport, caring responsibilities, and income and ability to access well paid employment. A number of existing data sources are available to inform policy around these areas, including **Scottish Neighbourhood Statistics** and data from cross-sectional surveys like the **Scottish Household Survey** and **Scottish House Conditions Survey**, both of which include reasonably large sub-samples of those in older age groups.
- 2.35 However, it was felt that the gap in knowledge is in relation to the process of 'ageing' rather than older age *per se*, and that life-course data would allow a better understanding of individual experiences and outcomes by looking at changing circumstances. This type of analysis has been conducted on data collected by ELSA, for example, in exploring the dynamics of social detachment

among older people⁶. Being closely linked in with the concept of social exclusion, measurement of social detachment in ELSA is based on six indicators of participation according to societal involvement: social/recreational activities; social contact; social support; cultural activities and leisure. It is through exploring dynamics that information on the intensity of social detachment can be obtained, by examining how long people remain detached, whether these spells persist or recur, and what factors put people at risk of persistent social detachment. It is argued that the true extent of the problem can only be ascertained by looking at the evidence over time.

- 2.36 Key areas of interest highlighted through this consultation, in which longitudinal data would be useful, include the drivers of poverty in old age, understanding benefit uptake rates (although it was noted that DWP data would be a key source for this), looking at the impact of home ownership on wealth in old age, the longer term impacts of the changing economic climate (for example, the impact of the credit crunch, pensions policy, fuel poverty, and children remaining at home for longer), social participation and the (im)mobility of older people between more and less deprived settings.
- 2.37 There was also particular interest in longitudinal data on experiences of ageism and age discrimination throughout the life course, for example, in relation to employment. With respect to this, it was noted that it would be useful to incorporate an employer perspective and the views of the business sector. Concerns were raised about age and ageism generally not being afforded the same level of priority as other forms of discrimination.
- 2.38 Another area in which longitudinal data would be useful was felt to be transport use among older people, especially given the role that transport has to play in helping many older people to participate in society and gain access to the services they need. The **Scottish Household Survey** currently provides some detailed information on the transport and travel patterns of all age groups, including older ages. However, it was acknowledged that there is no Scottish data on how travel and transport use changes throughout the life course. In particular, there is interest in knowing more about the how and why modes of transport change as people get older, and what impact it has on their lives. ELSA has explored access to transport in relation to social detachment.⁴ Older people with no access to private or public transport were found to be six times more likely to have experienced persistent social detachment compared with those older people who had access to private or public transport. Persistent social detachment was also found to be more common in those who don't have access to basic services such as post offices or shops, and also in those living in the most deprived areas. Whilst this data can add to knowledge about social detachment in general, we cannot assume that the extent of the problem will be the same in Scotland, given the higher percentage of older people in Scotland living in rural and remote areas, and living in areas of deprivation.
- 2.39 Finally, the potential for collecting data on formal and informal learning over the life course was raised during the seminar discussion, and how this relates to employability, mental health and social participation of older people. Indeed

⁶ http://www.ifs.org.uk/elsa/report_wave3.php

'learning opportunities throughout life' has been highlighted as one of the six priority areas for strategic action listed in the Government's All Our Futures strategy document.

Cross-cutting issues and concerns

2.40 Other more general issues and concerns which cut across the various policy domains were raised, some with implications for sample design. These will be given more consideration later on in this report, but are discussed here briefly.

Local Authority level data

2.41 One key issue relates to the increasing need for Local Authority level data to be available to support the new arrangements that have been put in place under the Concordat between Scottish Local Authorities and central government in terms of delivering on national outcomes.

Data for rural areas

2.42 In addition, the need for data covering people living in the more remote and rural areas, and the most deprived areas, was apparent, given the distinctive experiences of these sub-groups, especially in terms of health outcomes.

Data for people in residential care settings

2.43 There was wide support for attempting to include people living in care homes and to discuss methodologies and possible sampling frames (such as the Community Health Index) which would facilitate the participation of this group. However, the problems associated with following up people in care homes were also acknowledged, especially as the average stay in care homes is only around two years. Related to this, there were also some concerns that a longitudinal survey may not necessarily be the most effective way of exploring the issues for this age group.

Comparative data

2.44 Whilst some country-specific detail was felt to be needed, the ability to compare data with other UK countries was considered important for assessing the impact of differing policies. There is also a particular interest within government in comparisons with the smaller European countries especially those in the 'arc of prosperity' group (Ireland, Norway, Denmark, Finland, Iceland, and Sweden). This raises the issue of ensuring some cross national comparisons and compatibility with the European study of ageing (SHARE).

Costs and funding of longitudinal studies

2.45 There were concerns about the costs of longitudinal studies and how these could be justified within the context of competing priorities. There was a view that these might be off-set to some extent if such a study were able to inform policy or interventions which reduce costs, for example long term care costs.

2.46 In terms of funding, a number of potential sources were discussed, including Scottish Government, the ESRC (it was noted that ESRC have a vested interest in funding increased capacity in longitudinal analysis), private sector, philanthropic organisations and the US National Institute on Aging.

Long-term perspective on evidence use in policy making

2.47 The view was that for many the focus will be on cross-sectional data in providing key and immediate statistics, and the value in waiting for answers to long-term questions may be difficult to convey within a policy context. It was noted that one of the recommendations in the Sutherland report was to adopt a long-term outlook in relation to a range of issues such as pensions, housing, and transport. The promotion of the long-term benefits would therefore be key to the success of a longitudinal study of ageing. Handling concerns around the length of time people would need to wait for longitudinal data to be fully exploited will be important, as well as emphasising the long term nature of the commitment required.

Research capacity

2.48 It was noted that if such panel data is collected in Scotland there will be a need to ensure that there is the research capacity to process it. The importance of capacity building to equip researchers with the appropriate analytical skills was emphasised. There were also concerns that the data might not be fully utilised and that systems would need to be put in place to support the management of the data and ensure a programme of research and dissemination is maintained. It was felt that lessons could be learned from the successes in other longitudinal studies such as the Growing Up in Scotland study.

Summary

2.49 One of the key aims of the study was to ascertain whether Scotland needs a longitudinal study of ageing.

2.50 Consultation with a range of stakeholders found widespread recognition that data on ageing is an area of growing importance. There is interest from both the policy and academic communities in the richer source of data that could be provided by a longitudinal study of ageing.

2.51 It was acknowledged that data on a number of issues relating to the changing experiences, characteristics and circumstances of the older population in Scotland are not covered sufficiently by existing data sources. It was also agreed that the unique nature of Scotland's demographic and policy situation lent itself to the development of a Scotland-specific study, rather than relying solely on findings from ageing studies conducted in other countries. Important differences noted between Scotland and the rest of the UK included: the faster rate of ageing in Scotland; the very different morbidity and mortality context; the higher proportions of older people living in remote and rural areas (and associated issues such as access to transport and other services in these

areas); the higher proportions of people living in social housing; the different arrangements for community care funding; and differences between government at central (in terms of devolution) and local level (in terms of the way local authorities are set up).

2.52 The following paragraphs summarise the key areas where longitudinal data on ageing would add value, both in terms of furthering academic study and knowledge about ageing, and also in helping to ensure that policy-making can adapt to the various challenges and opportunities presented by an ageing population.

Employment issues for older people

2.53 Longitudinal data on ageing would provide more detailed information about labour market transitions and outcomes for older people in Scotland, how these link in with data from other domains such as health, disability and pensions, as well as a better understanding of what is driving key decisions among this age group. Having data on changing attitudes and expectations in relation to working longer in Scotland, and in relation to whether people will want to stay in Scotland as they grow older, was also highlighted.

Care services for older people

2.54 There was general agreement that there will be an increasing need for data on older people in order to inform the planning and management of care services for older people. The limitations of data provided through administrative sources were acknowledged, in particular the lack of data on individual experiences. It was noted that having data on individual experiences of care, perceptions of the future, and how these change over time would be useful in helping to inform new models of care. Data on the changing care needs and experiences of those not in the care system could also be addressed through a longitudinal study of ageing. Related to this, data on changing household structure and arrangements would help in understanding caring roles and how these are changing for the older population.

Health data

2.55 Whilst there was interest in longitudinal data on health, it was acknowledged that a large amount of good quality health data already exists and that the added value of such a study would need to be clearly demonstrated. Some areas where data was felt to be limited included health inequalities among older age groups and the health and health behaviours of people in care homes (although it was queried whether a longitudinal study would be the most effective way of meeting the latter data need). Existing national level data sources such as the Birth Cohort Studies are noted as providing a rich existing source of longitudinal data on health and other domains. However, future longitudinal analysis of older respondents will be limited due to the smaller sample sizes in these studies. Furthermore studies similar to the US Health and Retirement Study and ELSA do have the benefit of collecting a wide range of measures of well being and of health (including mental, cognitive, psychosocial and physical health). Many of these measures are selected to be

appropriate to ageing populations (e.g. memory and concentration tasks). The key thing here appears to be not the health data *per se*, but the availability of health data in combination with data on other life domains such as economics and social participation.

Social inclusion and equalities

- 2.56 The need for life-course data across a number of domains was highlighted, given the complex and inter-related needs of older people. It was felt that longitudinal data on ageing would allow further exploration of a number of key areas including the drivers of poverty and inequality in old age; the impact of the changing economic climate; social participation; movement of older people between more and less deprived settings; experiences of ageism and discrimination; travel and transport use; and formal and informal learning.
- 2.57 Finally, whilst there was general support across both the research and academic community as well as the policy community, there were also a number of concerns. Funding issues are a key concern, and it was pointed out ageing may not be the top priority for some policy areas.

3 POSSIBLE MODELS OF DATA COLLECTION

- 3.1 In this section we examine the potential of a range of existing longitudinal surveys to provide a model for a Scottish longitudinal study of ageing. Although a large number of countries are now running such studies, this report will focus on three in particular:
- The English Longitudinal Study of Ageing (ELSA)
 - The Survey of Health and Retirement in Europe (SHARE)
 - The Irish Longitudinal Study of Ageing (TILDA)

The English Longitudinal Study of Ageing (ELSA)

- 3.2 ELSA has been running since 2002 and was set up to study how the health, economic and social circumstances of people aged 50 and over change over time. One of the study's key aims is to help the government plan for an ageing population and longer periods of retirement, and ensure that the UK's healthcare and pension systems will be able to meet everyone's needs. ELSA is modelled on a similar study in the US (the Health and Retirement Study or HRS) and is conducted jointly by the National Centre for Social Research, University College London and the Institute for Fiscal Studies.
- 3.3 The ELSA sample includes people living in private households, although individuals who move into care homes as they age are followed up. The Health Survey for England (HSE) was used for the original sample. Households which had participated in HSE and had someone aged 50 or over were eligible and were included if at least one person consented to be recontacted for a follow up study.
- 3.4 Interview data is collected from respondents every two years using mainly face-to-face Computer Assisted Personal Interviewing (CAPI) with self-completion questionnaires for more sensitive questions such as quality of relationships with family members. The third wave of the survey incorporated an additional retrospective interview to collect data going back to birth, and to explore how earlier life experiences influence retirement choices and health in later life. The data collected in ELSA is also enhanced by linking to a range of health and other data sources including: the National Health Service Central Register, the Hospital Episodes database, DWP information on benefits, HMRC information on NI contributions, and geographical data.
- 3.5 In terms of topics covered, ELSA has combined expertise from a number of disciplines, and ensures areas such as health and economics are both covered in sufficient detail. The survey is very strong on assessment of wealth and includes current assets and assessment of pension wealth. In addition, every interview includes a basic physical performance measure, where respondents are timed as they walk eight feet. The broad topic areas included in the interview are:
- Individual & household characteristics
 - Physical cognitive, mental & psychological health

- Quality of healthcare
- Housing, work, pensions, income and assets
- Expectations for the future
- Different forms of expenditure (e.g. fuel, leisure, clothing, transfers)
- Social participation and social support
- Relative deprivation
- Life satisfaction
- Perceptions of ageing and their own age

- 3.6 A particular strength of ELSA is in the presence of biological markers of illness. In addition to the timed walk mentioned earlier, a range of measures are collected through a nurse visit, which takes place at alternate waves (that is, every four years), and includes measures of risk factors for CVD (through blood pressure and tests on blood samples) and measures of physical functioning (including lung function, grip strength and lower body strength and balance). These objective measures will provide more reliable health data than self-reported illness.
- 3.7 Data from ELSA has been used to inform key policy areas such as pension reform, as well as contributing to a large number of research and scientific questions relating to ageing.

The Survey of Health and Retirement in Europe (SHARE)

- 3.8 SHARE is a cross-national study of ageing, where the key aim is to study how differences in policies, cultures and living conditions affect quality of life in older people living in different countries. Eleven countries took part in the first Wave in 2004 (Denmark, Sweden, Austria, France, Germany, Switzerland, Belgium, Netherlands, Spain, Italy, and Greece) and for Wave 2 in 2006 they were joined by the Czech Republic, Poland, Ireland, and Israel.
- 3.9 The development of SHARE has been advanced with input from the HRS and ELSA teams and consequently many design aspects are similar. As in ELSA, the starting age is 50 and over, the initial sample is based on private households (with follow up interviews for those who have moved into a care setting), CAPI interviews are conducted every two years (though a retrospective interview has been incorporated at Wave 3 as a replacement for the standard interview). Although no data linkage has occurred to date, there are plans for this in the future. A key difference is that SHARE does not include a nurse visit. It does, however, collect data on specific biomarkers within the main interview which includes grip strength, walking speed, lung function and chair stands.
- 3.10 ELSA and the US Health & Retirement Study were both used to develop the SHARE questionnaire, so there is some overlap in the topics covered. The key aspect of SHARE questions is that they need to be applicable to all participating countries. Broad questionnaire coverage includes:

- Health (self-reported, physical & cognitive functioning, health behaviour, use of healthcare)
- Psychological (psychological health, well-being, life satisfaction)
- Economic (current work activity, job details, working past retirement age, income, wealth and consumption, housing, education)
- Social support (assistance within families, transfers of income and assets, social networks, volunteering)

The Irish Longitudinal Study of Ageing (TILDA)

3.11 The unique features of the Irish population are the key drivers of the development of TILDA. The demographic situation in Ireland is different to other countries, with recent growth in the overall population, recent immigration and a relatively slower growth in the older population. Home ownership is high and the divorce rate low. Pension provision is relatively poor and there are high levels of poverty among those aged over 65. Another important driver of this study is the interest in cutting edge technologies, for example, in the field of neuroscience.

3.12 TILDA is a new study, with pilot work started in July 2008 and main stage fieldwork likely to start at the beginning of 2009, though this is dependent on funding. Of particular interest is the fact that it has drawn on design features of both ELSA and SHARE, making it comparable to both these studies. There are plans to conduct between 8,000 and 10,000 interviews with people aged 50 and over living in private households. Interviews are planned for every two years using CAPI, and will include the following broad topics:

- Economic (pensions, employments, living standards)
- Health (physical, mental, service use and needs)
- Social (social participation, formal and informal care)

3.13 There are plans to collect clinical data every four years at specially designated health centres. New technologies and innovative methods to collect biomedical data have been incorporated into TILDA, including measures of gait and balance, cognitive and psychological factors, and macular degeneration. Other measures include urine, blood sample, risk factors for CVD (including height, weight, waist, blood pressure), and peak flow measurement.

Comparisons between ELSA, SHARE and TILDA

3.14 In terms of the relative strengths of the different models, studies like ELSA and TILDA benefit from being country-specific, allowing detailed questions relevant to processes and policies in these countries to be incorporated. Although a comparison with data from other countries is possible, this is not straightforward and may involve a certain amount of work. The additional time required for development of these country-specific studies and their larger sample sizes makes them more expensive. Whilst the SHARE model is less expensive for each participating country and offers a vehicle for comparison

with other countries, the level of detail collected and the smaller sample size may not allow in-depth exploration of policy questions specific to one country or indeed, analysis of sub-groups of interest. The initial sample size may also prove to limit the possibilities for longitudinal analyses as the effects of sample attrition start to make themselves felt.

- 3.15 With regard to content coverage, ELSA has a stronger emphasis on the causes of health outcomes and includes repeat biomarkers and performance measures and symptomatic questionnaires. By contrast SHARE and TILDA have more detailed coverage of health care services provision and health insurance and out of pocket health expenses. There are also many minor sampling and fieldwork differences.

Conclusion: towards a hybrid approach?

- 3.16 At the consultative seminars, there seemed to be an emerging consensus that there would be little to be gained from aligning a Scottish longitudinal study of ageing exclusively with either ELSA (given the high costs of developing a survey of this scale entirely from scratch and the likely loss of useful comparability if we were to do so) or SHARE (given the limitations posed by the much smaller sample size and restricted questionnaire instrument) and that a hybrid approach would be a more fruitful way forward. This would allow an element of 'piggybacking' in terms of using existing instruments and approaches, which would be beneficial in resource terms, but will also allow different points of comparison for different measures and the development of new measures if and when necessary. It might be, for example, that for comparator data on benefits and pensions, the study would look to England (via ELSA), since these issues tend to differ internationally, but are largely common across the UK. For data on other issues, such as health or social networks, it might be felt that a wider set of comparator data would be appropriate and this might be sought via alignment with sets of questions from SHARE.

4 DESIGN RECOMMENDATIONS

- 4.1 If there were to be a Scottish longitudinal survey of ageing, what might or should it look like in methodological terms? In this section, we discuss the possible options and attempt to sketch out the key design features of a Scottish study. It should be emphasised that there is no ‘correct’ design here; we have simply adopted a ‘best fit’ approach, taking account of the types of information gaps identified and the possible models that might be drawn on from elsewhere.
- 4.2 Specifically, this section looks at:
- Sampling frame and design
 - Mode of data collection
 - Frequency of follow-up/panel duration and maintenance
 - Survey content
 - Possibilities for data linkage
- 4.3 We begin, however, by outlining some basic assumptions that have shaped our overall approach.

Broad methodological parameters

Sample size

- 4.4 Even if it is agreed that there is a need for longitudinal data on ageing in Scotland, there is much to decide about the scale and ambition of any proposed study. There is great variation in the size and scientific ambitions of existing studies elsewhere. One of the largest and most ambitious studies is in Canada which, although geographically vast, has a population only around half that of the UK. The Canadian Longitudinal Study on Aging has been in development since 2002, involves some 200 co-investigators/collaborators from 26 universities, and aims to follow some 50,000 Canadians aged 40-84 (at entry) for at least 20 years.
- 4.5 By contrast, those European countries that have opted to meet their needs for longitudinal data through SHARE have done so with initial sample sizes ranging from roughly 1,000 to 3,000. While such sample sizes will be adequate for broad comparative analyses, they clearly will not allow the development of detailed country-specific analyses or the examination of the experience of particular sub-groups. As such, their role in informing local policy-making will be necessarily more limited.
- 4.6 For the purposes of the scoping exercise, we have therefore assumed that any Scottish study should be capable of stand-alone analysis and should have **an achieved sample size at Wave 1 of at least 8,000**. (The question of whether it should, in fact, be larger than this is addressed in Section 4.2.) While this figure is, to some extent, arbitrary, it would mark out the Scottish study as being comparable in scale to those in England and Ireland; allow for the maintenance of a sizeable sample over several waves; and be large enough to support

analyses of key sub-groups. It would also establish the study as being capable of supporting detailed Scotland-specific analyses while also, potentially, contributing to 'big science' questions relating to ageing more generally.

Project lifespan and intensity

- 4.7 Of course, the ambition of a study is not simply a question of sample size. There is also considerable variation in the projected (and secured) lifespan of studies in other jurisdictions and in the range and volume of data collected.
- 4.8 In terms of the first of these issues, it seems to us that there is little point in embarking on a study of this kind without **a commitment to a project lifespan of at least 10 years**, since the full value of the dataset will be realised only once the cohort has aged significantly. The number of sweeps within that period would clearly depend on the range of issues to be addressed and the resources available; however, it seems reasonable to project **a minimum of four waves of data collection** over that time. These might, then, take place in Years 1, 3, 6 and 9. The argument for having a slightly narrower gap between the first two sweeps than subsequent ones is that attrition in longitudinal surveys tends to be greatest in the period following initial contact and that this strategy might help to maximise longer-term participation rates.
- 4.9 There is also an argument for choosing a two-year period between all waves, which is the time period adopted by studies such as the HRS, ELSA and SHARE. In addition to adopting an interval chosen elsewhere, there are several arguments in favour of two years – the first is that observations need to be repeated sufficiently often to capture periods of significant change, such as pre- and post-retirement or during periods of physical decline or major life events such as bereavement. Although there is no absolute evidence, it is argued that two years is a reasonable approximation of this period. In addition, two years would appear to be a reasonable time period for recalling 'between wave' events (where annual interviews are considered better for recall but too burdensome and costly).
- 4.10 Additional sub-group studies (perhaps using qualitative, self-completion or extended clinical methods) might of course take place in the period between the main sweeps.

Type of data to be collected

- 4.11 Some studies, such as SHARE, are based solely on interview data; others also employ in-home nurse visits (e.g. ELSA) or clinic-based data collection (e.g. CLSA, TILDA) and supplement primary data collection with data linkage of various kinds.
- 4.12 For the time being, we have assumed a requirement for physical and biological measures beyond those capable of collection by a survey interviewer – i.e. a need for a **nurse visit** in addition to the main interview. We have not assumed a need for clinic-based data collection as part of the core design, though this would not be precluded as part of add-on studies.

4.13 Given the extensive and high quality administrative data that are potentially available for research purposes in Scotland we have also assumed that consents would be sought for relatively wide-ranging **data linkage** of the kind that currently forms part of ELSA.

Target population

4.14 Increasingly, studies of ageing are defining their population downwards to include those in their middle years and beyond. ELSA, SHARE and TILDA, for example, all sample from the population aged 50 and over. Although even this might be argued to be too narrow to capture adequately the dynamics of ageing – indeed, at the second seminar, the case was put for a starting age of 45 to allow the survey to address adequately the issue of saving for retirement – it also needs to be remembered that much of the policy interest is in the experiences of those post-retirement and a survey cannot afford to put too much of its resource into tracking those who will not reach that point for 15 or 20 years.

4.15 Although it would be desirable to extend the lower age cut-off downwards, in the context of an expensive study with limited resources, we have for the time being assumed that a Scottish study would adopt the same starting point as most other comparable studies – i.e. 50 years of age. Resources permitting, consideration should be given to extending this downwards to 45 in any final design.

4.16 More generally, it needs to be remembered that the wider the age span of the sample, the less detail there will be about the experiences of specific cohorts (e.g. those aged 60 to 70 at Wave 1), since the sample will be spread more thinly across the life course. While most studies have sampled across a continuous age range, it would in principle be possible to construct a sample which consisted of discrete age-based sub-groups (e.g. those aged 50-55, 60-65, 70-75, etc.) in order to increase the specificity of age-based analyses. There would, of course, be significant disadvantages to such an approach, including added complexity in sampling and the inability of the study to offer whole population estimates. On balance, we favour a sample which is **representative of the population aged 50+** and does not focus on specific age bands within that population.

4.17 It should also be noted that some studies (e.g. the CLSA) have an upper age cut-off for recruitment into their panel. This approach was considered and rejected, however, by ELSA for two main reasons. On the one hand, the small number of the oldest old in the sample limit separate analyses for them as a group. On the other hand, they are in the short-term a potentially very important group and even limited cross-sectional and longitudinal analyses might provide immediate lessons for policy, theoretical development and the design of future waves.

4.18 We now turn to a more detailed discussion of some of these issues.

Projected sample size, response rates and attrition

4.19 Countries with relatively small populations, like Scotland, often struggle to reconcile the need for robust and statistically-reliable data with practical and financial considerations. On a head of population basis, surveys like the Scottish Health Survey and the Scottish Crime and Victimization Survey are very much larger than their equivalents in England & Wales.⁷ And yet, they still tax the resources of their funders while often failing to deliver data at a level of geographic and demographic disaggregation that will satisfy all potential users. Over the lifespan of a longitudinal survey, such issues are even more acute, because of the effects of attrition. We have already proposed that any Scottish longitudinal survey of ageing should begin with an achieved sample of at least 8,000. What level of precision would be offered by a study of this scale, and what might the cohort look like after a number of years and sweeps of data collection?

Whole sample and sub-sample sizes at Wave 1

Table 4.1 95% confidence limits (taking account only of sampling variance) for estimates of levels of attributes within sub-samples of given sizes

Sample size	% of sub-population having given attribute		
	10% or 90%	25% or 75%	50%
8000	± 0.7%	± 0.9%	± 1.1%
4000	± 0.9%	± 1.3%	± 1.5%
2000	± 1.3%	± 1.9%	± 2.2%
800	± 2.1%	± 3.0%	± 3.5%

4.20 Table 4.1 shows, for estimates of the prevalence of attributes at three levels (10%, 25%, 50%), the approximate 95% confidence intervals⁸ due to sampling variance that would be associated with the total sample (8,000) and three different sub-sample sizes (4,000, 2,000 and 800 – representing 50%, 25% and 10% of the total sample respectively).

4.21 The table shows that for a total sample size of 8,000 and a prevalence of 10% (or 90%), we would expect an approximate 95% confidence interval of 9.3%-10.7%. The equivalent 95% confidence interval for the smallest sub-group of 800 would be 7.9%-12.1%.

4.22 Table 4.2 shows, for estimates of the prevalence of attributes at three levels (10%, 25%, 50%), the approximate 95% confidence intervals due to sampling variance that would be associated with different age-groups at Year 1.

⁷ The new SCVS, for example, has an annual sample of 16,000, compared with 40,000 for the British Crime Survey in England & Wales.

⁸ A confidence interval gives an estimated range of values which is likely to include an unknown population parameter, the estimated range being calculated from a given set of sample data. Using a 95% confidence interval for example implies that there is a 95% chance that the true value of a survey estimate will lie between two specific values.

Table 4.2 95% confidence limits (taking account only of sampling variance) for estimates of levels of attributes within age groups at Sweep 1

Age-group	N	10% or 90%	25% or 75%	50%
50-59	3059	± 1.1 %	± 1.5%	± 1.8%
60-69	2320	± 1.2%	± 1.8%	± 2.0%
70-79	1800	± 1.4%	± 2.0%	± 2.3%
80+	821	± 2.1%	± 3.0%	± 3.4%

4.23 Not surprisingly, this shows that estimates would be more reliable for those in the youngest age groups than for those aged 80 and over. For an expected achieved sample of 3,059 respondents aged 50-59 at Wave 1 and a prevalence of 10% we would expect an approximate 95% confidence interval of 8.9%-11.1%. The equivalent 95% confidence interval for the smallest sub-group (821 respondents aged 80+) would be 7.9%-12.1%.

Response rates and attrition

4.24 One of the main reasons for thinking in terms of a relatively large initial sample is the likely level of attrition over time. Longitudinal surveys often make unrealistic assumptions about this, with the result that the sample available for analysis across several sweeps is often quite small and/or skewed in particular ways through differential attrition.

4.25 For longitudinal studies wave-on-wave response rates relate to participation between *consecutive* waves. Based on experience of ELSA, our Survey Methods Unit has projected (conditional) wave-on-wave response rates of between 75% and 80% at Waves 2 to 4 for a study of this kind in Scotland.⁹ Assuming 8,000 achieved interviews at Wave 1, this would yield achieved samples in the region of:

6,000 at Wave 2 (year 4)

4,500 at Wave 3 (year 7)

3,375 at Wave 4 (year 10)

4.26 But it needs to be remembered that *cumulative* non-response also needs to take account of non-response at Wave 1 – and *before* in the case of a sample being followed up from an existing survey. This means that the proportion of all those eligible to participate in the survey who actually take part in all four sweeps may be as low as 30%.

4.27 Clearly, this is likely to affect the overall representativeness of the sample over time and reduce its suitability for cross-sectional analysis of the Scottish population aged 50+ at later Waves. It is important to remember, however, that the unique contribution of a study of this kind is the longitudinal data it provides – and existing cross-sectional studies will remain more likely to provide population representative data for key statistics.

⁹ Conditional response rates at wave *t* focus on respondents who successfully participated at the previous wave.

4.28 In terms of variation in levels of attrition by age group, based on experience of ELSA, our Survey Methods Unit has projected (conditional) wave-on-wave response rates as follows:

50-59 (78%)

60-69 (78%)

70-79 (73%)

80+ (60%)

4.29 The conditional rates reflect both variations in the propensity to respond *and* ineligibility (mainly deaths). For example, at the second wave of ELSA the ineligibility rate for respondents aged 80+ was 21%, compared with 2% for those aged 50-59.

4.30 Assuming these wave-on-wave rates, we anticipate achieved samples at Sweep 3 (Year 10) to be in the region of¹⁰:

1,452 aged 50-59

1,101 aged 60-69

700 aged 70-79

177 aged 80+

4.31 Table 4.3 shows, for estimates of the prevalence of attributes at three levels (10%, 25%, 50%), the approximate 95% confidence intervals due to sampling variance that would be associated with the four age-groups at Sweep 3:

Table 4.3 95% confidence limits (taking account only of sampling variance) for estimates of levels of attributes within estimated sub-samples for age groups at Sweep 3

Age group (age at Year 1)	N	10% or 90%	25% or 75%	50%
50-59	1,452	± 1.5%	± 2.2%	± 2.6%
60-69	1,101	± 1.8%	± 2.6%	± 3.0%
70-79	700	± 2.2%	± 3.2%	± 3.7%
80+	177	± 4.4%	± 6.4%	± 7.4%

4.32 At **Year 1**, for a prevalence estimate of 10% and an anticipated achieved sample of 3,059, the 95% confidence interval for respondents aged 50-59 would be 8.9%-11.1%. The equivalent 95% confidence interval for the smallest sub-group (821 respondents aged 80+) would be 7.9%-12.1%.

¹⁰ By age we mean age at Year 1.

4.33 At **Year 10**, for a prevalence estimate of 10% and an anticipated achieved sample of 1,452, the 95% confidence interval for respondents aged 50-59 (age at Year 1) would be 8.5%-11.5%. The equivalent 95% confidence interval for the smallest sub-group (177 respondents aged 80+) would be 5.6%-14.4%.

4.34 While declining sub-sample sizes by age group will partly reflect death rates, evidence from a range of longitudinal studies indicates a number of survey procedures which are effective in boosting response and reducing attrition due to other factors. These include:

- Providing good information to participants about the purpose and nature of the interview (through paper documentation, interviewer feedback and survey website)
- Branding the survey appropriately
- Valuing and appreciating participants by sending thank you letters, providing evidence of how the findings have been used or offering flexibility in the timing of interviews
- Offering financial incentives, vouchers or gifts
- Providing reassurance about the confidential nature of the study and the bona fide character of the organisation
- Making reasonable demands which leave respondents feeling that taking part in the study is a manageable commitment and that questions are not too intrusive or seemingly irrelevant and the survey not too long.
- Maintaining up to date address records for the participant and stable contacts and using periodic contacts (such as birthday cards and newsletters) to maintain awareness of the study
- Using systematic methods of 'in-field' tracing

The case for a much larger sample

4.35 Following the second of the consultative seminars, one of the participants contacted the study team to argue the case for a very much larger initial sample than is being proposed – of the order of 25,000 interviews at the first wave, with less frequent contact (perhaps every five years) thereafter. This idea has some attractions – in particular, the analytical possibilities that it would open up as a result of the sample size – and the increased cost of data collection per wave would be largely offset by the reduction in the number of waves. It needs to be borne in mind, however, that the longer the gap between waves, the greater the likely attrition. It also needs to be appreciated that an initial sample on this scale would make the survey a huge undertaking. It would become the largest household survey of any kind in Scotland and involve interviews with approximately 1 in 70 of the eligible population. It would also raise questions about available fieldwork capacity – especially if the study were to involve nurse-based data collection, as the pool of nurse interviewers in Scotland is currently very small. That said, if each wave of data collection were to be spread across a relatively extended time period (say two years), it might become a feasible option, and the possibility of an initial sample size larger than 8,000 (if, perhaps, not as large as 25,000) should certainly not be discounted.

Sample frame

4.36 Regardless of sample size, how might one sample for a longitudinal survey of ageing in Scotland? For a study of this kind, which is interested in a particular section of the total adult population, there are three main sampling options:

1. Recontact respondents from an existing survey
2. Screen addresses to identify eligible households/individuals
3. Identify a sample from an individual-level sampling frame or database

4.37 Each of these has particular advantages and disadvantages.

Follow-up of an existing survey

4.38 This is the approach used on ELSA, which drew its original sample from participants in the Health Survey for England. Several surveys suggest themselves as potential sample 'donors' in a Scottish context, including, most obviously, the Scottish Health Survey (SHeS), but also the Scottish Household Survey (SHS) and the Labour Force Survey (LFS), both of which have large annual samples, and the new UK Household Longitudinal Study.

4.39 This approach also offers the possibility of building on 'baseline' data collected by the initial survey, and this might be particularly valuable in terms of SHeS or LFS. But there are serious potential problems of 'inherited' response bias and attrition associated with the time-lag between the original and follow-up surveys, and it can be difficult to negotiate access to existing surveys for this purpose – especially as there are often competing demands on its use for this purpose. Moreover, taking account of the limited age band of interest and non-consent to follow-up, it is clear that one would need a very large 'donor' sample in the first instance. Also, there may be issues concerning the original consent given by participants in these studies.

4.40 To take the Scottish Health Survey as an example, the individual-level response in 2003 was 60% (household-level response was 67%), and there are some concerns at present about matching this in 2008. Moreover, nurse data is no longer collected for all individuals but only for a random sub-sample of around 1,000. The possibilities for building on valuable baseline health measures is, therefore, limited. In each year of SHeS in its new continuous format, it is likely that:

- Approximately 3,180 interviews will be conducted with individuals aged 50+
- Of these, around 2,930 are likely to agree to follow-up contact
- And 400 will have nurse data to accompany the main interview

4.41 It is also worth noting that the SHeS is now split into two random sub-samples with rotating modules that vary across the years. For example, in 2008

questions about asthma and detailed questions about CVD conditions and eating habits will only be asked of a minority of the sample. In 2009, some of these topics will be rested for a year and questions on accidents and social capital will be asked instead. No participant will have data on more than one module, which also restricts the value of the potential baseline data to be gained through follow-up sampling.

- 4.42 There would also be significant weighting complications to overcome – adults in the Scottish Health Survey are selected with unequal probabilities (these vary by health board and area-based deprivation). These weights would need to be carried forward to the longitudinal study.
- 4.43 The SHS and LFS have significantly larger annual samples in Scotland (of around 16,000 and 50,000 individuals, respectively) but we would expect only around 40-50% of the individuals within these samples to be aged 50 plus. Moreover, there would be similar issues with inherited non-response and, arguably, a more limited set of useful baseline data than would be offered by SHeS (especially in relation to health data). That said, the clear interest in labour market issues in relation to ageing makes the LFS the potentially more interesting of the two. In both cases, however, there would be significant obstacles to overcome in negotiating access for the purpose of a follow-up survey of ageing.

The UK Household Longitudinal Survey

- 4.44 The new UKHLS (also known as ‘Understanding Society’), which is due to begin fieldwork in 2009, is a longitudinal study based on a household panel design and replaces the current British Household Panel Survey. It differs from the other surveys discussed here in that it is already a longitudinal study and, indeed, in some respects could be used as a longitudinal resource on ageing in its own right. While it is unlikely that it would be possible to conduct additional interviews with UKHLS respondents, it might be possible to extend the range of questions asked of those aged 50 and over. Such an approach would clearly offer potential cost savings from having a robust survey and data production infrastructure in place. It would also provide comparable contextual data about the rest of the population (by providing data on experiences at younger ages and also a better context for looking at intergenerational relationships).
- 4.45 However, despite the scale of the study and the fact that the Scottish Government is contributing to its funding, the UKHLS is unlikely to have a total sample of more than 4,000 households per wave in Scotland. This could, in principle, be boosted further to include additional households in the target age range, though such an approach would involve the same issues around screening so some of the cost advantages would be lost. It should also be remembered that the target interview length for individuals is just over half an hour – less than half the length of studies of ageing such as ELSA which include detailed measures, for example of income and assets, and assessments of cognitive function and physical performance.
- 4.46 In general, it seems unlikely that the requirements and objectives of a longitudinal study of ageing could be satisfactorily reconciled with those of the

UKHLS, which already has an already complex management structure and is heavily loaded with competing demands for questionnaire space.

Screening

- 4.47 The main advantage of a new sample based on screening of households from the Postcode Address File is that it has no 'inherited' response bias; moreover it offers greater flexibility in terms of geographic clustering since one is not dependent on where interviews have already been conducted for other surveys. Its main disadvantages are that it is typically more expensive to implement – and can be unpopular with interviewers, who prefer to spend their time interviewing rather than screening. This can sometimes have an adverse effect on response rates.
- 4.48 It needs to be borne in mind in this case that around half of all households in Scotland are likely to contain someone in the target (50+) age group and that this group is also relatively more likely to be found at home. Consequently, screening would be less resource intensive than it might be for a survey of, for example, parents of young children. It would, however, still be significantly more expensive than a follow-up sample.

A new sample from an individual-level database

- 4.49 The ideal would undoubtedly be to draw a fresh sample from an individual-level database containing age as a variable – and in some other countries which have population registers (such as Sweden), this would be eminently possible. In Scotland, however, there is no comprehensive individual-level frame of this kind. The closest equivalent would be the Community Health Index (CHI), which is a listing of everyone who has been or is registered with a Scottish General Practice. In principle, the CHI would offer an ideal sample frame for the project, and would also lend itself well to the data linkage aspects of such a study.
- 4.50 The point worth emphasising here is that if the sample was selected from an administrative database such as CHI (rather than linking to administrative data post hoc), then analysts would have a much better understanding of who had left the study and any differences in their characteristics from respondents. Essentially, the CHI would act like a longitudinal study based on administrative data – basic events and outcomes could be tracked over time for the total sample. This would provide data on all observations of specific phenomenon such as use of health care rather than relying on infrequent recall of these hard-to-remember events. It would also provide valuable information about the destination of movers. This data source would effectively be supplemented by survey data (through the longitudinal interviews) which would provide much greater depth and range of information from all those who responded (while keeping track of any biases among those who did not). By addressing one of the fundamental weaknesses of longitudinal survey research – attrition – this design could expect to be considered as very innovative and powerful. It would, of course, be necessary to carry out a further investigation of issues such as

coverage and an exploration of the value of different data items. Whether permission would be given to use the CHI would need to be explored with the CHI Advisory Committee. The next step would be to submit a proposal to the CHI Advisory Committee outlining plans for how the CHI would be used as a sampling frame.

Choice of sample frame: conclusion

- 4.51 At this point, in our view, the most promising sample frame option remains the CHI. Should that route prove to be blocked, we would favour the use of screening to generate a new sample. While this would be more expensive than following up an existing sample – and there would be no baseline data from the ‘donor’ survey – we feel that it offers the best chance of minimising response bias at Wave 1 of the survey and minimising subsequent attrition (since we believe respondents are more likely to feel they belong to a new study than form a commitment by joining one survey, then being selected into another). Moreover, even setting aside the problem of inherited non-response bias, most of the existing surveys would not be large enough on which to base an exercise of this kind once the restricted target population, non-consent to follow-up and attrition are taken into account.
- 4.52 A follow-up to an existing survey may prove possible though further work needs to be done to estimate inherited non-response and attrition in relation to each of the possible ‘donor’ surveys (SHeS, SHS, LFS, UKHLS, etc.). We also need to explore further total likely sample sizes per year and gauge the likelihood that we would be able to access the surveys for this purpose.
- 4.53 And although generating a fresh sample from population screening will cost more, this is still an option worth further consideration.

Sub-group coverage

- 4.54 A number of other issues were raised in our discussions with stakeholders in relation to key sub-groups and the possibility of improving the representation of these.

Older people from minority ethnic backgrounds

- 4.55 The first was the possibility of collecting robust data on older people from minority ethnic backgrounds. There is a dearth of reliable quantitative data about the composition, characteristics and experiences of the minority ethnic population in Scotland, primarily because these groups account for a relatively small proportion of the total population and hence are largely missing from existing survey coverage – certainly in sufficient numbers to allow accurate measurement and disaggregation into meaningful sub-groups relating to ethnic origin (e.g. Pakistani, Chinese, Bangladeshi, etc.).
- 4.56 To date, only one of the large Scottish household surveys has attempted to boost the number of minority ethnic respondents (the Scottish Crime Survey in

1996) and this used non-probability sampling methods. By contrast, such boosts have become almost standard on large government surveys in England and Wales. The reason for this contrast is that, in the absence of a reliable sampling frame, the relatively dispersed character of the minority ethnic population in Scotland renders it prohibitively expensive to identify households containing eligible individuals. The most commonly used method in England and Wales, developed by the National Centre for Social Research during the 1990s and known as 'focused enumeration', relies on sampling areas in which there is a reasonably high concentration of 'visible' minority ethnic households. Few such areas exist in Scotland. Moreover, it is clear that issues relating to ethnicity can no longer be confined to the Black and Asian communities in the wake of a large increase in immigration to Scotland from Eastern Europe and elsewhere.

4.57 If an individual-level sample frame containing information about ethnicity were to become available, the practicalities of such an exercise would be greatly simplified. In principle, the CHI might be used in this way, though the reliability of its data on ethnicity is open to question. For the time being, we consider that a minority ethnic boost relying on screening remains prohibitively complex and costly and we have not explored it in detail in the course of this study.

Older people resident in care homes and other institutions

4.58 Another key issue in a Scottish policy context is that of older people resident in care homes and other institutions. Most general population surveys are based on initial samples of private households. That section of the population resident in institutions is therefore missing. Since this group generally constitutes a small proportion of the total population, this form of sampling area is generally tolerated. It might be argued, however, that it constitutes a greater problem for a survey of ageing, since a higher proportion of the oldest age group is resident in such settings and because there is a particular interest in the Scottish policy context in the issue of free personal care.

4.59 At the time of the 2001 Census 4.9% of the older (65+) Scottish population was living in communal establishments (e.g. long-stay care in hospitals or care homes). For the 85+ group this figure was 21.9%.¹¹

4.60 In order to do justice to this population, however, it would be necessary to construct a separate sampling frame of residential settings. Should access be granted to the CHI for sampling purposes, for example, it might be possible to identify individuals with postcodes known to be associated with large institutions or care homes.

4.61 Given the still relatively small numbers of the total population of interest (aged 50+) not resident in private households, this might not be considered a priority.

¹¹ Older People in Scotland Results from the Scottish Household Survey 1999-2002 (<http://www.scotland.gov.uk/Publications/2004/05/19405/37644>).

Furthermore, there would be several methodological concerns. The first is that, on average, individuals do not have a long life expectancy after moving into a care home setting. This means that it is difficult to sample accurately, only a minority of those eligible would be interviewed (with a bias towards those who survive longer rather than those with short spells) and the probability of these individuals being alive at a second interview would be low and at a third almost negligible. In addition, there are practical and ethical problems around the issue of gaining consent for survey participation in care homes and it is likely that there would be a high level of proxy responses given.¹² A further methodological issue would be that there would be no available data about the respondent's circumstances before they entered that setting and no information that helped explain an individual's trajectory into the care home. This means that while some scientific questions could be explored, others could not and it is important that this is considered explicitly.

4.62 Of course, it would be possible to follow up respondents from the initial household sample who have since moved into a care home setting by the next or subsequent waves of the survey. This is done for ELSA and means that transitions into care settings can be explored. There is no doubt, however, that an allied sample of care home residents would give the study a unique feature which would likely be of interest to audiences within Scotland and beyond. This suggests that the feasibility of including a sample of care home residents from the outset merits further investigation.

Older people resident in areas of greater deprivation

4.63 It is well known that the West of Scotland – and Glasgow in particular – has an especially poor public health record and that life expectancy rates are among the lowest in Europe. For this reason, there would be particular interest in ensuring that the sample contains sufficient numbers of older people from this part of Scotland. The overall population distribution of Scotland is clearly favourable here, as a relatively large proportion of all Scottish adults live within the boundaries of the former Strathclyde or are residents of Glasgow itself. According to the 2006 mid-year population estimates approximately 5% of the adult (16+) Scottish population live in the Glasgow City council area.¹³

4.64 Because of the concentration of deprivation in the West of Scotland, any sample design which set out to boost the numbers recruited from the most deprived communities would also have an effect on the geographical distribution of the sample.

4.65 However, it would also be relatively straightforward to boost the number of respondents from the most deprived 15% of Data Zones throughout Scotland. Two points would, however, need to be borne in mind: first, any over-sampling of particular population sub-groups would have the effect of reducing the overall net effective sample size for analyses based on the sample as a whole;

¹² See report 'UK Study of Abuse and Neglect of Older People' at:
(<http://www.comicrelief.com/docs/elder-abuse/ComicRelief-ElderAbuse-Full.pdf>)

¹³ <http://www.gro-scotland.gov.uk/files1/stats/06mype-cahb-t2-revised.xls>.

secondly, as the experience of other studies (such as the Millennium Cohort Study) has shown, boosting the numbers sampled from deprived areas does not increase the representation of individuals living in poverty by the same margin, since even in the most deprived areas, the majority of individuals are not actually living in poverty).

Older people resident in rural and remote rural areas

4.66 Finally, it is clear that there is strong interest in Scotland in the experiences of those living in rural areas, and especially those living in the most remote rural areas, which are unlike any other parts of the UK. Several surveys of the Scottish household population have opted to over sample in the smallest local authorities (which tend to be predominantly rural) or have explicitly boosted the number of interviews in rural locations. However, to significantly increase the number of interviews in the most 'remote rural' category (which is the most rural category of the Scottish Government Sixfold Urban-Rural Classification) would likely prove to be prohibitively expensive. Using the 2003 Scottish Health Survey as a benchmark, 11% of respondents aged 50+ resided in the most 'remote rural' category. At Wave 1 this would translate to a total of 880 respondents, falling to an achieved sample of approximately 371 at Wave 4. One possibility that might be worth pursuing would be to boost the number of remote rural interviews in specific case study areas. This would help to limit the overall cost of the exercise (as travel time and distance between interviews would be reduced) and, in combination with other methods (e.g. qualitative interviews, area profiles), might more usefully illuminate understanding of the experience of ageing in such communities.

Older people in specific local authority areas

4.67 We noted earlier the growing need for Local Authority-level data as a result of the new arrangements that have been put in place between Scottish Local Authorities and central government in terms of delivering on national outcomes. It is doubtful, however, that a survey on this scale could deliver useful data at Local Authority level for any but the largest council areas. While some government surveys (notably the Scottish Household Survey) employ disproportionate sampling in order to deliver a minimum number of interviews per area (500 per LA over two years in the case of the SHS), this would be difficult to achieve without a very large sample and impacting adversely on the efficiency of the sample as a whole. For these reasons, local authority level analysis would be unlikely to be a feature of the study.

Older people's relatives and networks

4.68 Although not strictly an issue relating to the representation of sub-groups, it may also be worth saying something here about the possibility of extending sampling to cover other significant individuals in the lives of the older people in the study. Recently, there have been growing calls for longitudinal studies to branch out from the standard household-focused design. One example is the Netherlands Kinship Panel Study which is novel in the sense that it is multi-actor, collecting data from individual respondents as well as from their family

members (<http://www.nkps.nl/NKPSEN/nkps.htm>). Such an approach would be extremely valuable as a way of building up a picture of the differences between older people's perceptions of ageing compared to their relatives. It would also allow a range of issues to be explored such as children's views of their parents retirement plans; concerns that children have over health and financial planning; different perspectives on the care that the elderly provide from the recipients; or even parents views about their elderly children (assuming the relatives might sometimes be older than the anchor person). Such an exercise could, of course, be included as a bolt-on to the main study, rather than as part of the core data collection at each wave.

Mode of data collection

- 4.69 What mode of data collection would be most appropriate for the type of study outlined here? Despite falling response rates, face-to-face, in-home, Computer Assisted Personal Interviewing remains the gold standard for social surveys of this kind and we see little reason to diverge from that for the core data collection. The key considerations here are that it is associated with higher response rates, facilitates interviewing on sensitive topics and allows a much longer interview than any other method. It also allows the use of certain sampling techniques (such as screening) that would not be feasible using any other approach.
- 4.70 We favour the use of an in-home, nurse follow-up interview to collect physical/biological measures. This is a tried and tested approach that has been used on successive rounds of the Scottish and English Health Surveys, as well as on ELSA. The alternative would be to conduct clinic-based interviews as some other longitudinal studies have done. Although this might allow more sophisticated measures to be collected (as the nurses are, of course, limited in terms of the equipment they carry), it would in our view be associated with much higher levels of non-response and would be difficult and expensive to co-ordinate – especially in rural communities.
- 4.71 There may, however, be possibilities for the use of other data collection approaches (such as telephone, postal or web-based questionnaires) as part of additional sub-group studies or between-wave data collection and sample maintenance. The UKHLS is to employ a mixed mode approach for its second round of fieldwork (involving a first approach by telephone and followed by face-to-face contact if an interview cannot be achieved) and the results of this exercise may contain useful lessons for any longitudinal study of ageing in Scotland.

Broad topic coverage

- 4.72 Which broad topic areas should be considered in a potential Scottish longitudinal study of ageing? The key domains covered to varying extents by existing studies of ageing in other countries include health (physical, cognitive,

mental and psychological), health care use and experience and perceptions of quality, social participation and social support, economic issues (work, pensions, income, assets, living standards, expenditure, housing), expectations for the future, and life satisfaction.

- 4.73 The discussions generated through this scoping work have indicated that there would be interest in including topics spanning across all of these domains, and it would seem sensible to ensure the inclusion of a broad range of different topics to allow for some cross-country comparisons to be made and, crucially, for cross-domain analysis to take place. There was particular interest in labour market experiences and outcomes, as well as individual experiences and expectations of community care¹⁴.
- 4.74 A range of other specific topics were also highlighted which should be given consideration in a potential Scottish study. These include: migration, disability, experiences of ageism and age discrimination, transport, caring responsibilities, and formal and informal learning. Also, given the strong support for exploiting data linkage opportunities, consents for data linkage would need to be collected in the main interview.

¹⁴ In relation to social care it is worth pointing out that a proposal is being developed to carry out some work to improve survey questions on receipt of and payment for care. This is being proposed by a cross-university group involved in a study of Modelling Ageing populations to 2030 (MAP 2030 <http://www.lse.ac.uk/collections/MAP2030/>) and with the Questionnaire Design and Testing Hub and others at the National Centre for Social Research. The investigators hope that, if successful, this module of questions would be tested or taken up by surveys such as ELSA, the proposed survey of Health and Social Care or the UK Household Longitudinal Study.

5 POSSIBLE MODELS OF FUNDING AND DELIVERY

5.1 In this section, we look briefly at what a study of this kind might cost and how it might be funded, at possible governance and steering arrangements, and at the likely timescales involved.

Funding

Scale of funding

5.2 What level of resources might be necessary to fund a study of the kind outlined in the previous chapter? Even with some methodological parameters in place, this is still a very difficult question to answer, since much will depend on the type and frequency of data collection and on how the project is staffed. Based on the funding of similar studies elsewhere, however, it is clear that this would be an extremely expensive exercise. Some examples from existing studies are given below.

ELSA

- £6.95m Wave 1 and Wave 2 - three interviews
- £9.27m Wave 3 and Wave 4 - four interviews
- £16.2m in total: average of £4m per wave - £2.3m per interview

SHARE

- Substantial central funding at Mannheim
- Country costs for each wave - approximately €250k (£195k) for personnel, travel etc.
- Approximately €250k (£195k) per wave for 2,500 respondents
- Variation across countries

TILDA

- Approximately €29m (£22.6m) over 10 years
- Potential €4m (£3.1m) available, €1m (£779k) for pilot year

5.3 It is, of course, very difficult to arrive at reliable cost estimates for hypothetical studies, but our view is that depending on its scale and complexity of design a study in Scotland might require the following levels of resourcing:

5.4 Less complex design, involving an achieved sample of 10,000 at Wave 1, interviewer-only data collection, basic analysis and reporting – estimated cost £1.5-2m per wave or £6-8m for four waves over ten years (at current prices).

5.5 More complex design, involving an achieved sample of 10,000 at Wave 1, interviewer plus nurse data collection, more sophisticated analyses and reporting – estimated cost £2-3m per wave or £8-12m for four waves over ten years. The benefits of this more complex design would be in obtaining objective health data through the measurements and samples taken during the nurse interview, rather than relying solely on self-report health data provided to the

interviewer. This would allow more sophisticated analyses to be undertaken, including analysis of blood samples, and would enable objective health measures to be examined in relation to data relating to attitudes, behaviours, circumstances and characteristics.

Possible funding models

- 5.6 Where might such funding come from? Existing longitudinal studies of ageing have drawn on a range of sources, including government departments, the European Commission, academic funding councils, the National Institute on Ageing (part of the US National Institutes of Health), the private sector and philanthropic organisations. These have often been combined in relation to individual studies. Given the likely scale of any similar study in Scotland – and the range of interests it could potentially serve – a similar form of collaborative funding is likely to be required.
- 5.7 Although the Scottish Government does wholly fund a number of large household surveys (including the Scottish Household Survey, the Scottish Crime and Victimisation Survey and the Growing Up in Scotland study), discussions to date have suggested that it is unlikely that a cross-cutting project of this kind would be a high enough priority to obtain the level of funding required. It might also undercut some of the academic interest in the study if it were seen to be wholly geared to the needs of the policy community and raise concerns about intellectual property, since such a funding route would almost certainly involve procurement through competitive tendering.
- 5.8 A more promising approach might, therefore, be to seek supplementary or matched funding from the Scottish Government for resources secured elsewhere. Other potential sources of funding might include:
- Economic and Social Research Council
 - Medical Research Council
 - Wellcome Trust
 - The National Institute on Aging
 - European Commission
 - Other government departments (such as the DWP) which have a UK-wide remit
 - The private/corporate sector (e.g. the large Scottish banks or insurance companies)
 - Philanthropic or educational trusts (e.g. Carnegie, Atlantic Philanthropies, etc.)

Possible governance and delivery arrangements

- 5.9 Whatever the combination of funding sources, there will be difficult questions to answer about how best to manage the interests of the various contributing organisations and how to accommodate these alongside the interests and priorities of the research team itself. For studies that are wholly government-funded, the usual approach is to establish an advisory group (or a series of related groups to consider technical/methodological issues, policy interests,

dissemination, etc.), the aim of which is to monitor progress and ensure that the needs of the key policy interests are met. Studies with a clearer academic base and funding from the ESRC tend to have more broadly-based governance arrangements and draw on a range of academic and user interests and, typically, the intellectual direction of the project is more obviously located with the research team itself.

Likely timescales

5.10 We noted earlier that the Canadian Longitudinal Study on Aging, which enters the field this year, has been in development since 2001. While perhaps an extreme example, it does signal the need for long-term planning and development for a study of the kind discussed here. Of course, one reason that longitudinal projects often take some time to come to fruition is that it is often difficult to secure the very significant resources required. But there are also other, more important reasons. Most cohort studies tend to be cross-cutting in their focus: the identification and co-ordination of appropriate expertise across a range of life domains (e.g. health, family structure, pensions and retirement) is time-consuming, as is the task of developing instruments which can co-exist within a relatively short interview. Sampling strategies are generally complex, especially where participants are being identified from existing studies. And the development of appropriate institutional links and governance arrangements is also likely to be complicated, as these are likely to be specific to the study in question.

5.11 For all these reasons, we think that it would be sensible to think in terms of a three to five-year initiative to develop initial proposals, secure funding, develop methods and instruments, pilot and carry out and analyse the first wave of data collection. Thereafter, as indicated earlier, we would favour a commitment to at least three further rounds of data collection over a period of roughly ten years.

6 CONCLUSIONS

- 6.1 There is clearly wide support for the idea of a longitudinal study of ageing in Scotland among researchers and academics, flowing from an awareness of the distinctive features of the demographic and policy environment in Scotland and from a familiarity with similar studies elsewhere. While there was enthusiasm among those in the policy community, there was a recognition that the issue of ageing is a cross-cutting theme which is unlikely to be identified as a top priority in any single policy area. However there is a growing recognition that demographic change is emerging as a key issue and that there are information gaps in several key areas – notably around labour market and pensions issues, care services for older people and social inclusion and equalities. While the gaps identified were often short-term and cross-sectional in nature, there was also a recognition of the need to better understand the processes which shape individuals' pathways through their later years.
- 6.2 So does Scotland actually *need* a longitudinal study of ageing? In the coming years, Scotland will face increasing demands for information relating to older people and the process and experience of ageing. The recent consultation exercises on the ageing population and the review conducted by Sutherland are likely to further increase the demand for reliable statistics on the growth, behaviours, health, attitudes and conditions of the older population – a group which is going to increase in size, both relatively and absolutely and be increasingly significant in a range of capacities (for example within the workforce or as consumers of public services). The Strategy for a Scotland with an Ageing Population, referred to in Section 1.4, certainly appears to highlight the role of evidence of this kind. Among its stated objectives are the following:
- To address the challenges and opportunities of an ageing population in a sustainable way within an integrated and evidence-based framework.
 - To provide a context within which to review and develop existing policies to ensure that they adequately respond to the challenges and opportunities of an ageing population; in particular to set a direction of travel, identify gaps and ensure that priorities are right.
- 6.3 Such demands for evidence will not be easily met from existing longitudinal or cross-sectional sources. Investment in a longitudinal study of ageing at this stage would allow important questions to be answered over the next few years. If the decision to proceed with such a study is delayed then so, too, will be those answers.
- 6.4 Do any of the existing studies elsewhere, such as ELSA or SHARE, offer a blueprint upon which a Scottish study could be directly based? The answer here is probably not a precise one. If such a study is to be successfully launched in Scotland, it will have to serve a number of different functions. It will, for example, need to provide detailed information both about Scottish issues and the Scottish population. This effectively rules out the option of joining SHARE, with its relatively small sample size and tightly controlled questionnaire. But there is also clearly a strong demand for comparative data

that extends beyond that offered by a simple extension to ELSA. For that reason, as we concluded in Chapter 3, the most promising strategy – following that of TILDA – is likely to be to follow a hybrid approach, balancing the demands for comparability with the need for Scotland-specific data and analysis. The advantage will be that the study will be able to borrow much of that which exists in ongoing studies such as ELSA (this represents a considerable saving in relation to development work), but it will also be possible to include new questions of interest, some of which will be specific to Scotland.

- 6.5 On balance, it is likely that any Scottish study would draw more heavily on ELSA than on SHARE – not only because of the options for intra-UK comparisons, but because there might also be possibilities for pooling of data across the two studies, which would provide a larger and very powerful dataset for specific analyses.
- 6.6 In terms of the form that a Scottish Longitudinal Study of Ageing might take, we have concluded that it should have the following broad parameters:
- It should be relatively ambitious in terms of its initial sample size, both to allow detailed sub-group analyses and in order to take account of the effects of attrition over time. We have proposed a *minimum* sample of 8,000 achieved interviews at the first wave, but would support a larger initial sample if funding allows.
 - Commitment should be sought for funding for at least ten years, or four waves of data collection, in order to ensure that the long-term value of the resource is realised and to encourage longer-term conceptual development.
 - The target population should at least match that of most of the other longitudinal studies of ageing (in beginning at 50) and should, if possible, be extended further downwards (to 45).
 - Because of the difficulties associated with follow-up of an existing survey (in particular, the problem of inherited non-response), we would favour a sample design based either on the Community Health Index or on use of screening to identify households containing individuals eligible for interview.
- 6.7 We feel that it is important that such a study in Scotland should both be tailored to the needs of the local academic and policy communities, but also that it should look to implement innovative ideas that may contribute to wider debates about the process and experience of ageing in the UK and beyond. Among the methodologically innovative features that the study might have in Scotland are a booster sample of older people resident in care homes or other institutions; an additional sample of older people's relatives or carers; the possibility of incorporating experimental designs (e.g. based on a health or other type of intervention); and a particular focus on the experiences of older people in remote rural communities (perhaps sampled on an area case study basis).

- 6.8 Such a study would require a very significant level of funding. Ideally, much of this would be in place at the outset in order to guarantee a certain number of waves of data collection. Given the resources involved, we think it unlikely that a sole funder would be found and that, in any case, there would be benefits from a collaborative arrangement in which neither academic nor policy interests dominate. Putting together such an arrangement would, however, be difficult and at that stage we feel the most useful way forward might be to convene a meeting of potential funders (involving, for example, representatives of the ESRC, Scottish Government, and private sector and philanthropic organisations) at which detailed proposals could be presented and interest gauged. ESRC have already indicated their desire to be involved in any future funding discussions.
- 6.9 Overall, there is growing recognition world-wide that ageing is one of the most pressing demographic concerns facing society. Consequently, numerous countries have established, or are in the process of establishing longitudinal studies of older people. Given the unique ageing context, the support from both academics and government researchers for such a study, and the recognition that Scotland's older population have a range of health and other problems not faced to the same extent by older people elsewhere in the UK, there would appear to be a strong case for placing Scotland at the forefront of such developments.

7 APPENDIX 1: INTERVIEWEES

List of interviewees

Euan Carmichael, Office of the Chief Economic Advisor

Peter Craig, Chief Scientist Office

Shaun Eales, Older Peoples Unit

Gary Gillespie, Office of the Chief Economic Advisor

David Gordon, Health Scotland

Lorna Jackson, ISD

David McPhee, Labour Force Statistics

Neil Rennick, Older Peoples Unit

Helena Scott, Age Concern

Sue Warner, Social Justice Analysis Unit

8 APPENDIX 2: SEMINAR ATTENDEES

Attendees at academic seminar 8th April, St. Andrews University

Dr Simon Anderson (ScotGen)
Prof. Paul Boyle (St Andrews)
Prof. David Bell (Stirling)
Prof. Alison Bowes (Stirling)
Prof. Mike Danson (Paisley)
Prof. Lynn Jamieson (Edinburgh)
Dr Fiona Kelly (Stirling)
Prof. Mary Marshall (Stirling)
Prof. Marion McMurdo (Dundee)
Dr Paul McNamee (Aberdeen)
Dr Robert Raeside (Napier)
Clare Sharp (Edinburgh)
Graham Smith (Strathclyde)
Dr Falko Sniehotta (Aberdeen)
Professor John Starr (HOPE, Edinburgh)
Dr Maarten van Ham (St Andrews)
Prof. Phil White (Edinburgh)

Attendees at Scottish Government seminar 2nd June, Victoria Quay

Arlene Astell, University of St Andrews
Roisin Ash, Scottish Government – Justice Analytical Services
Professor Paul Boyle, University of St Andrews
David Bell, University of Stirling

Carol Brown, Scottish Government – Transport Analytical Services

Kirstie Corbett, Scottish Government – Education Analytical Services

Ian Deary, University of Edinburgh

Euan Dick, Scottish Government – Education Analytical Services

Vernon Gayle, University of Stirling

Jon Godwin, Glasgow Caledonian University

Maarten van Ham, University of St Andrews

Liz Hawkins, Scottish Government – Communities Analytical Services

Jackie Horne, Scottish Government – Education Analytical Services

Fiona Kelly, DSDC, University of Stirling

Linzie Liddell, Scottish government – Office of the Chief Researcher

Carli Lessof, National Centre for Social Research

Jibby Medina, National Centre for Social Research

Ganka Mueller, Scottish Government – GROS Demography

Adele McAnuff, Scottish Government – Futureskills Scotland

Fiona MacDonald, Scottish Government – Schools Directorate – Policy Officer

Brian McKechnie, University of Strathclyde

Kirsty Maclachlan, Scottish Government – GROS Demography

Paul McNamee, University of Aberdeen

David McPhee, Scottish Government – Education Analytical Services

Ron McQuaid, Employment Research Institute, Napier University

Alison Platts, Scottish Government - Health Analytical Services

Helena Scott, Head of Policy and Research, Age Concern Scotland

Clare Sharp, Scottish Centre for Social Research

John Starr, University of Edinburgh

Christine Sheehy, Scottish Government – Health Analytical Services – Health Improvement

John Storey, Scottish Government – Community Care - Older People and age Team

Dorothy Watson, Scottish Government – Health Analytical Services

Phil White, University of Edinburgh

Lorraine Wilson, Scottish Government - Futureskills Scotland

Professor Robert Wright, University of Strathclyde

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